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Children's Perceptions of the FITNESSGRAM Fitness Test

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CHILDREN'S PERCEPTIONS OF THE FITNESSGRAM FITNESS TEST

by

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GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

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This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Barbara Boone Sampson in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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ABSTRACT

CHILDREN'S PERCEPTIONS OF THE FITNESSGRAM FITNESS TEST

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Master of Science

FITNESSGRAM is a battery of fitness tests that assess if a child's fitness level is, according to a health standard, enough to be considered healthy. These tests include the five components of health-related fitness: aerobic endurance, muscular strength and muscular endurance, flexibility, and body composition. Students are not compared to each other, but to health fitness standards specific to their age and gender that indicate good health.

The purpose of this qualitative study was to identify children's perceptions of FITNESSGRAM and determine if self-administration of this fitness test provides a positive experience for the students. Specifically, this study evaluated (a) students' perceptions of FITNESSGRAM, administered in a self-testing format, (b) children's understanding of the purpose of fitness testing, and (c) what effect participation in FITNESSGRAM had on students' perceptions of their personal health. This study used questionnaires (n = 78), and follow-up individual interviews (n = 45) to identify students'

perceptions of FITNESSGRAM. Results using the constant comparative method identified four main categories: (a) administration of fitness testing, (b) the purpose of fitness testing, (c) components of fitness testing, and (d) overall influence of fitness testing.

Findings showed that children clearly understood the importance and role of fitness testing, felt successful and were pleased with their results, preferred doing the tests with a partner or by themselves, and thought the fitness test was fun.

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Abstract

FITNESSGRAM is a battery of fitness tests that assess if a child's fitness level is, according to a health standard, enough to be considered healthy. These tests include the five components of health-related fitness: aerobic endurance, muscular strength and muscular endurance, flexibility, and body composition. Students are not compared to each other, but to health fitness standards specific to their age and gender that indicate good health.

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Introduction

Children have participated in physical fitness testing for years. Much has been debated as to which fitness test most accurately describes a child's level of fitness. Some question if fitness testing is even needed (Keating, Silverman, & Kulinna, 2002). The benefits of fitness testing for children are controversial, and limited research has been done on students' attitudes toward and perceptions of fitness testing, specifically that of the FITNESSGRAM Fitness Test (FITNESSGRAM). Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing in order to teach more effective, positive, and motivating physical education classes.

Research (Flohr & Williams, 1997; Hopple & Graham, 1995; Keating et al., 2002) tells us that children generally do not like fitness testing because of its seeming unimportance and uselessness, administration format, personal meaning of performance results, and simply because it is not fun. In a study determining children's attitudes toward physical education class, Millslagle and Keyes (2000) and Luke and Sinclair (1991) found that participation in fitness testing was one of the biggest reasons why children's attitudes toward physical education were negative. Additionally, Flohr and Williams (1997) found that when students were asked to list what activities they thought were "not fun" in their physical education class, all except for two of the activities listed were related to physical fitness. Thus, according to this research, there is a need to enhance children's fitness testing experiences. When creating and planning fitness tests, children's perceptions and attitudes should be taken into account (Flohr & Williams,

1997; Fox & Biddle, 1988; Jackson, 2000) so as to identify ways in which physical educators can provide positive fitness testing experiences.

Fitness tests are generally based on one of two standards: (1) criterion-referenced standards or (2) norm-referenced standards. Norm-referenced fitness standards rank an individual’s performance on a fitness test relative to all other individuals in the group (Plowman, Sterling, Corbin, Meredith, Welk, & Morrow, 2006). Test developers determine norms and set arbitrary percentiles to use as standards for individuals to achieve (Welk, Morrow, & Falls, 2002); standards based on what a group of peers have achieved. Using norm-referenced standards allows children to be evaluated in relation to their peers, but does not tell us how fit is fit enough (Looney & Plowman, 1990).

Success in the Presidential Physical Fitness Test (which is norm-referenced), for example, is based on success on all test items. Failure of one item results in not achieving the coveted Presidential award. Also, original research of the Kraus-Weber Fitness Test, the catapult fitness test in 1954, showed that 57.9% of American children and youth failed one item on this test (Corbin & Pangrazi, 1992). Thus, many children felt like failures because of one test item. Norm-referenced standards are aptly described by Welk et al. (2002), "Consider whether it is 'good' for you to achieve 'average' fatness if the average person is fat" (p. 46).

Criterion-referenced standards measure health-related fitness by comparing the student's level of fitness to a health standard, with a minimum level of performance needing to be attained before the student is considered healthy (Welk et al., 2002). Criterion-referenced evaluations are concerned with the information the fitness test score

provides about an individual's health status and whether or not they have achieved the standard, not how well they do compared to their peers (Welk et al., 2002). FITNESSGRAM is a health-related fitness test that utilizes criterion-referenced standards on health-related components.

FITNESSGRAM was developed in 1982 by The Cooper Institute in response to the call in physical education for a comprehensive assessment protocol (Welk et. al., 2002), and with the vision of helping enhance the effectiveness of school-based physical education (Welk, 2006). It did not become a full-fledged educational program and fitness test battery until 1986 (Ernst, Corbin, Beighle, & Pangrazi, 2006). According to Ernst et al. (2006), FITNESSGRAM was created to promote enjoyment and intrinsic motivation for lifelong physical activity among youth. It is not only a fitness assessment battery, but also a tool to promote physical activity (Welk, 2006). FITNESSGRAM is the recommended assessment and promotion program for the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) and the required assessment for the state of California as well as other states and districts.

According to Welk et al. (2002), the primary purpose of FITNESSGRAM is to self-test personal fitness. Students first learn to test themselves and then interpret their own results. A self-testing fitness activity enables students to see if they are within the Healthy Fitness Zone (HFZ) (Keating, 2003) in the five components of health-related fitness. Also, self-testing allows students to evaluate their personal health by giving them the opportunity to feel competent in their ability to test themselves, and then help them to know how and where they can make any necessary improvements.

Children's perceptions of fitness testing may differ depending on the fitness test used and how it is administered (Fox & Biddle, 1988; Jackson, 2000). Fitness tests are traditionally administered by the teacher. Research (Keating, 2003) tells us that students, especially the least fit, do not like fitness testing that is administered to the class as a whole, but would rather be tested in private. Teachers may resolve this concern by giving the students the choice of self-testing or testing with a partner. The self-testing approach is favored by Pangrazi and Corbin (1993), Pangrazi (2001), and Corbin, Pangrazi, and Welk (1995), because it focuses on the process of the test, is student-centered, and focuses little attention on performance scores (i.e., as compared to peers).

Despite these proposed advantages, self-testing procedures have been criticized for being less than accurate because the students themselves are the ones that keep track of their scores. Inaccurate results are only a problem, however, when the objective of fitness testing is on performance. When the objective is on the process of fitness testing then the results are secondary. Fox and Biddle (1986) and Welk et al. (2002) argue that the process students go through and what they learn from their experience testing themselves is what is important.

While it is important to measure a child's competence in health-related fitness, it is also important, if not more so, for children to perceive themselves as competent in their ability to perform the fitness test and improve if and where necessary. Children will then more likely have a higher motivation to participate in physical education activities in general (Solmon & Lee, 1996). However, this is not to say that it is okay for children to be overweight and out of shape as long as they feel good about themselves. The emphasis

should be on giving children opportunities to feel competent in their testing abilities and then to help them make any necessary changes, so as to not discourage them from physical activity.

In order for students to become fitness independent, or choose for themselves to be physically active, they must have a knowledge and understanding of fitness and why it is important. This is the responsibility of physical educators, to educate their students on the importance of physical fitness, fitness testing, and overall good health. Some advocate physical fitness testing because they feel it acts as a vehicle through which students increase their knowledge of physical fitness (Fox & Biddle, 1986; Harris & Cale, 2006). Once children are educated on the purpose of fitness testing they can see for themselves firsthand how it may benefit them, self-testing being a means by which this may happen. The use of self-administered fitness tests enables students to develop a sense of personal control and fitness autonomy (Fox & Biddle, 1988).

Students tested in an environment that supports their autonomy will be more motivated to participate and strive for ultimate success (Prusak, 2005). The Achievement Goals Theory (AGT) states that it is both the teachers and students that contribute to a classroom's motivational achievement environment. A student's motivation is likely to increase if the teacher provides an appropriate achievement climate, task-involved or ego-involved. Students who are task-oriented enjoy the process of learning and persist when faced with challenges. Students who are ego-oriented seem to have bad attitudes and worry solely about outperforming their peers (Ames, 1992; Shakarian, 1995; Solmon, 1996; Treasure, 2001). Each student comes to a physical education class with one of

these two tendencies, but if the environment is motivational enough the ego-involved tendencies may be overridden (Ames & Archer, 1988; Prusak & Treasure, 1998).

The TARGET approach involves teaching strategies that help teachers create a task-involved motivational environment. For example, the 'A' (Authority) in TARGET was examined and found that students are more motivated when offered choices (Prusak, Treasure, Darst, & Pangrazi, 2004). The 'E' (Evaluation) component was also examined and found that the type of skill testing or skill assessment methods used can affect a student's motivation. According to Prusak (2005), skill assessment plays a key role in creating a task-oriented environment.

Physical educators have the responsibility to teach their students the how, what, and why of physical fitness and fitness testing. A teacher's perception of and approach toward this responsibility may greatly influence a child's perception of and approach to participating in physical fitness and fitness testing (Flohr & Williams, 1997). Fitness testing can and should be a matter of teaching children about their personal health and helping them to understand the importance of living and maintaining a healthy lifestyle. Physical educators' primary focus should be children's perceptions of and attitudes toward physical fitness to create a positive fitness testing experience (Keating, 2003). Adopting a self-testing approach can help to achieve this. Welch (2007) did a study using self-testing stations to identify Junior High students' perceptions of FITNESSGRAM. However, based on the literature available no study on the perceptions of the self-administration of FITNESSGRAM has been conducted at the elementary level.

The purpose of this study was to identify children's perceptions of FITNESSGRAM and determine if self-administration of this fitness test provides a positive experience for the students. This study answered the following specific research questions: (a) What are students' perceptions of FITNESSGRAM, administered in a self-testing format? (b) Do children understand the purpose of fitness testing? and (c) What effect does participation in FITNESSGRAM have on students' perceptions of their personal health?

Methods

Participants

One hundred and seventy-six fifth and sixth grade students at a public elementary school in a western state in the United States were invited to participate in this study. The population consisted of mid to low socioeconomic status. All of the students participated in the FITNESSGRAM Fitness Test, but only 78 students returned a signed informed consent form to enable them to participate in the study. All procedures and methods for the study were approved by the University Institutional Review Board, school district, and school principal.

Procedures

Participants had regular physical education activities for several weeks prior to their testing. During these weeks and on the days of administering FITNESSGRAM the teacher explained to the students the purpose of fitness testing, particularly FITNESSGRAM, and were encouraged to be honest in their results, which would be neither right or wrong. It was explained that FITNESSGRAM is a fitness test that helps

them know what their current health level is and if it is enough to be considered healthy. It was especially emphasized that the fitness test is not a competition, but an effort to identify their personal health status. The teacher told the students that there is no need to compare their results to their peers' results, because they are all different ages, come from different backgrounds, and have different genes. Students were told that doing this fitness test would allow them to be in charge of their own personal fitness by giving them the opportunity to assess and evaluate their health standing, and then make any necessary changes to improve their health. By testing themselves they would be able to see right away what their health is and if it is at a level that is considered to be healthy.

It was explained to the students that when we are healthy and continue to be physically active, we lessen the risk of having diseases in our lives now and in the future. It was also explained that as they completed each testing station they would be able to see, by looking at the Healthy Fitness Zone (HFZ), how their level of health compared to the health standards set for their age, and not how well they did compared to their peers. This taught them to first learn how to test themselves and then interpret their own results. It was specifically mentioned that the process they would go through and what they learned from their self-testing experience was what was most important. Students were told that the teacher was not conducting the fitness test because she was necessarily concerned about their health status (so students would not perform to please the teacher), but rather wanted *them* to know where *they* stood health-wise.

FITNESSGRAM was administered to all students during physical education class in the last month of the school year. The students self-tested the following assessments

from FITNESSGRAM: curl-ups, push-ups, shoulder stretch, back-saver sit-and-reach, trunk lift, and the Progressive Aerobic Cardiovascular Endurance Run (PACER). On each of the two test days the students entered the gym and sat on the steps for a brief review of the purpose of FITNESSGRAM, a five minute description of the testing procedures, and a five minute demonstration of how each test was to be done at their respective stations.

Five of the six fitness areas tested were presented in a station format. Each station had a sign with directions of how to complete the test. Each station also had a scoring chart informing the students of their desired HFZ range. Students chose in what order they performed the tests. The test was self-administered with the students working on their own or with a partner, carrying their personal fitness cards with them to each fitness testing station. The teacher did not interfere in the process, but was available to the students for any questions they had.

Once students finished all five tests they turned in their scorecards to the researcher. Students completed the five testing stations within the 30 minutes of their physical education time. The PACER was the sixth test. Because it is designed to do as a group it was done the second testing day (which was not until the next week) during students' physical education period. The PACER was done using partners, one counting and marking on a paper each lap completed while their partner ran, and then they switched roles. After completing all six tests the students turned in their fitness cards to the researcher and filled out a written questionnaire pertaining to their experience participating in FITNESSGRAM.

Data Sources

Questionnaires. Following the fitness test a questionnaire was filled out by those students who chose to participate in the study (N=78). The questionnaire contained five questions that related to their experience completing FITNESSGRAM (Table 1). The questions were derived from (a) pilot interviews with students who had participated in FITNESSGRAM previously and (b) Hopple and Graham's (1995) study of students' perceptions of the mile run. The questionnaire attempted to discover students' perceptions of FITNESSGRAM, administered in a self-testing format, the effect of FITNESSGRAM on students' perceptions of their personal health, and their understanding of the purpose of fitness testing. The students were informed their fitness scores and their responses to the questionnaire would be kept confidential, used for research purposes only, and they would not be graded on them.

Follow-up individual interviews. From the scores the students filled in on their personal fitness cards, the researcher identified students who scored in the HFZ on each of the six tests and those who did not. Students were classified into two groups: one group who scored in the HFZ in a majority of the test items (four out of the six tests), and the other group who did not score in the HFZ in a majority of the test items (three or fewer out of the six tests). Of the 78 students who participated in this study, only four did not score in the HFZ for the majority of the test items. This may not have been completely accurate because the students tested themselves. These four students, along with 41 other students who did score in the HFZ in a majority of the test items, were chosen to participate in a semi-structured individual interview using follow-up questions

to the written questionnaire (N = 45). These students were purposefully selected to be interviewed based on their well thought-out responses (determined by the researcher) on their questionnaire. It was also purposefully planned that the interviews be as equally divided as possible between girls and boys. Twenty-one boys and 24 girls were interviewed.

The week following the administration of FITNESSGRAM, the researcher called the students out of their homeroom classrooms and conducted one-on-one interviews (Table 1). The majority of the interviews took place in the library while a couple took place in the hallway. The students were able to elaborate during the interviews, and follow-up questions were asked as needed. Each interview was audio taped and took no more than 10 minutes. Questions were previously piloted with fifth and sixth graders, and then refined by several Physical Education Teacher Education (PETE) professionals to confirm their age appropriateness, validity, and objectivity.

Field notes. Field notes on verbal and nonverbal language of the students were taken during the assessment of FITNESSGRAM and during individual interviews. These notes helped in the formulation and categorization of emerging themes.

Data Analysis

Three different data sources were used: questionnaires, follow-up individual interviews, and the researcher's field notes. The researcher used the constant comparative method (Lincoln & Guba, 1985), which involves taking the data from the written questionnaires and verbal interviews and using it to identify themes. Each written and verbal response was located under the proper theme in the manner of categorizing.

Categories were compared with each other looking for any common themes. The outcome of this process was identified themes that were highly representative of the data collected.

Established Trustworthiness

While involved in qualitative research, a researcher may assume diverse membership roles. Adler and Adler (1994) imply three principal researcher membership roles: (a) the complete member, (b) the active member, and (c) the peripheral member researcher. The primary researcher in this study took on the role of active member researcher, interacting closely enough with the members being studied to establish an insider's identity without participating in those activities that may constitute group membership (Adler & Adler, 1994). The researcher in this study who administered FITNESSGRAM was the physical education teacher.

Researcher bias statement. The researcher has been a physical education teacher for six years and has conducted only one fitness test battery, the Presidential Physical Fitness Test. Every student in the school, second grade and higher, was required to complete this fitness test. After conducting the test for two years it was observed that the test did not provide a very positive experience for the majority of students, despite the teacher's efforts to be positive and enthusiastic about the test (the same way FITNESSGRAM was approached). Since learning about FITNESSGRAM and conducting a pilot study of FITNESSGRAM last year, the researcher has seen how this fitness test provides a positive experience for students and helps them to better understand the role and importance of fitness testing. She also has seen how it helps them

to know their personal health status, and not how their scores compare to their peers. The desire is that the children's perceptions and experiences of FITNESSGRAM be positive, and encourage them to want to be physically active now and in the future. For those who want to participate in the Presidential Physical Fitness Test, it is now made available outside physical education class hours.

Peer debriefer. The primary researcher worked with a university professor to review and analyze the data to avoid any research bias (Gerdes & Conn, 2001). The professor was present for some of the interviews to ensure that the researcher was not biasing students' responses by asking leading questions. He met with the researcher on a regular basis until the data analysis was completed.

Results

Drawing from the questionnaires, follow-up individual interviews, and the researcher's field notes, four main categories were identified: (a) administration of fitness testing, (b) the purpose of fitness testing, (c) components of fitness testing, and (d) overall influence of fitness testing. Each category has two to four respective themes that are highly representative of the data collected. Table 2 shows the number and type of comments that were identified for each category and theme. Each category and its supporting themes will be discussed in the following paragraphs.

Administration of Fitness Testing

Administration of fitness testing was the first category identified. This category is supported by two themes: (a) Partners, and (b) Score Sheets.

Partners. This theme is defined as students' reasons for choosing to do FITNESSGRAM with or without a partner, and their preference of whom to do FITNESSGRAM with, a partner of their own age or a teacher. Out of 127 comments directed to the question, "How did you feel doing FITNESSGRAM on your own or with a partner," 112 stated that they would rather perform the fitness test with a partner instead of by themselves or with a teacher. Thirteen students preferred doing the tests by themselves or having a teacher help them, and two students had no preference as to how the test was administered. Students clearly preferred doing the fitness test with someone of their own age; a peer. When asked why they preferred a partner their responses were varied. One student said he preferred doing it with a partner because then it would be more accurate; if he messed up his partner would be there to help him (Student 2, pg. 3). Another student's response was similar when he said, "So they could count how much I did and so I could focus on the fitness" (Student 13, pg. 36). Many students mentioned they preferred doing it with friends, someone of their own age, because of the encouragement they received from them. Two such comments were,

> Because they can give you encouragement, and if you're by yourself you can talk to yourself saying 'oh that was so bad I did so bad;' but if someone is there they tell you 'oh you're doing really good just keep on going' (Student 14, pg. 38).

And, "Because they could help you out, and they could tell you what you were doing wrong, and tell you what you can do better on, and what you were doing good on" (Student 35, pg. 96). Two of the thirteen students who would rather do a fitness test with a teacher administering the test said the following about why: "Just to keep track of how

many I do and so that I won't lie about it" (Student 4, pg. 11). And, "It might be better if a teacher did it so they can make sure like for push-ups and sit-ups we have an accurate count, or if we're doing it right, if we're counting it right…" (Student 22, pg. 63).

Score Sheets. This theme identified students' feelings about and preferences of keeping their scores to themselves, or the possibility of having them publicly available. Of the 31 students who made reference to this theme, only 10 said they would want to keep their scores to themselves. One student said, "I like to have it to myself…because I might be embarrassed if people made fun of me" (Student 17, pg. 48). Many of the students said that they would not mind if others knew their scores, but only on the condition that their scores were good. "If they saw my results I wouldn't have a problem with it, but if my results were really low I wouldn't want them to see" (Student 18, pg. 50). Twenty-one students had no problem with others seeing their scores and many actually preferred that their scores be publicly known. One student emphatically stated, "It'd probably be cool if people could see it, because they could see that I'm healthy" (Student 20, pg. 56), while another said, "I would like it for everyone to see my scores cuz I'm proud of it" (Student 43, pg. 116). Some students showed a very confident attitude saying that it did not matter what other people thought. One such student said the following, "I wouldn't care either way, cuz I can do anything. I'm not embarrassed however I do, cuz even if I did really horrible it wouldn't really matter to me, because I can improve those stats…" (Student 23, pg. 67).

The Purpose of Fitness Testing

This category had two themes: (a) students' opinions of the purpose of fitness testing, and (b) what their FITNESSGRAM results told them, and how that helped them prepare for the future.

Purpose of Fitness Testing. In answering the question, "In your opinion, why do we do fitness testing," it was clear that the students understood the reason for doing fitness testing is to see if they are healthy, and to learn what they can do to maintain or improve that good health. One student said the purpose of fitness testing is, "So we can know for ourselves if we are healthy" (Student 12, pg. 32). Students understood that FITNESSGRAM was to test their personal health status and to see how they compared to healthy fitness standards and not to their peers. One student stated, "Yah, I think it's important, because I want to know if I'm healthy or not, and if I'm not I need to work on it so I can get healthy" (Student 30, pg. 81). Another student shared his similar opinion of FITNESSGRAM when he said that, "FITNESSGRAM is good for kids. It helps kids get fit. Well it's good because it tests to see how fit they are, and like if they're not very fit they can know they have to exercise more and stuff" (Student 7, pg. 18). These next two comments demonstrated a general understanding of the HFZ and what it told them. "If you're in the healthy fitness zone it tells you that you're healthy in that specific area" (Student 30, pg. 81), and it tells you "where you are supposed to be at for your age and gender" (Student 22, pg. 61).

FITNESSGRAM Results. One hundred forty-six comments, nearly 97%, showed that FITNESSGRAM was a fun, educational, and motivating experience for the students.

Only five comments showed that the experience was "hard" or "tiring," and even then some of those students enjoyed doing it just the same. Students were pleased with their results of FITNESSGRAM as one student shared, "I think it's what fitness tells us; it tells if we're on a healthy level or not. I wasn't sure if I was or wasn't before I took the test. But now I think I'm really healthy" (Student 18, pg. 51). Many students were surprised with their results, thinking they were not that healthy, but then realizing that their health for their age was satisfactory. One student said, "I liked it, it was fun. Cuz it was interesting to find out…cuz I thought I could do things less than I could really do more, so that was cool to find out" (Student 40, pg. 107). Another student said,

> Yah it was fun. You got to see what you could do and what you couldn't do, and what you needed to practice on. I thought it was a test that challenged you to want to see how healthy you were and what you could do (Student 14, pg. 37).

Clarification was needed during the interviews to know if the students thought it was the participating in the fitness test that made them healthy, or if it was their results that told them they were healthy. One student's response showed he understood the difference. When asked what it was that "gives your body strength," he said, "Exercising" (Student 3, pg. 7). What does the fitness test do then, he was asked. He said, it "helps you get to see how much you can do" (Student 3, pg. 7). One girl's response summarizes the majority of the others' feelings when she said that the fitness test simply made her "aware of what my health is" (Student 17, pg. 48).

The results encouraged and motivated the students to want to improve their health by being more physically active in their daily lives. One student said, "I always wanted to

be active physically, but it helped me know what exactly I needed to do" (Student 11, pg. 32). Two other students shared their opinions by saying, "It made me think that I should probably start doing more fitness and stuff, because I don't really do them" (Student 20, pg. 57), and "if you take it and then you find out that you're not as healthy as you thought you were, then maybe you'll start eating more healthy foods or running more often" (Student 29, pg. 78).

Many students understood that it is important to be healthy not only now, but also in the future. One student said that it is important "to be healthy and keep being healthy, cuz Americans are known for obese people so if you stay healthy maybe like it will help you with your eating so maybe we won't be as obese" (Student 15, pg. 40). Two other students shared similar opinions when they said, "Well if you didn't know how healthy you are right now and you didn't really look at it, like when you got older and you didn't still look at it you could die maybe" (Student 7, pg. 19). And,

> To always keep on doing stuff like that cuz it makes you more muscley and stuff, and it makes you have a healthier life when you get older. Like maybe if you didn't do this you could get cancer or something from it. So if you keep on doing this you won't have cancer or a sickness when you get older (Student 35, pg. 95).

Some students were able to take a step outside of physical education class and understand that one's health is applicable and important to other aspects of life, such as participation in extracurricular activities. One girl said that fitness testing was important, "cuz for dance you need to be able to stretch and you need to be healthy to do it,

something that could help you in dance, so it's good to know that kind of stuff" (Student 14, pg. 38).

Components of Fitness Testing

This category has been defined as those fitness tests that students did or did not like and their reasons why. The themes mentioned are the three components of fitness testing that were measured: (a) PACER, (b) sit-ups, push-ups, and trunk lift, and (c) stretching/flexibility (shoulder and leg). Student responses varied slightly between the first two themes, and drastically between the third and first two themes.

PACER. This theme illustrated students' thoughts and opinions about the PACER. Of 61 comments about the PACER, 43 (70%) showed a positive reaction, while 18 (30%) showed a negative reaction. Not only did many of the students enjoy this component, they also referred to it as their favorite of the six tests measured. Others enjoyed it simply because of their love for running, as one student said, "I liked the PACER. I thought that was really fun…Just because I like to run" (Student 29, pg. 79). Of those students who enjoyed the PACER, many said they preferred this type of running test to other types such as the mile run. "I think the PACER, how you run back and forth. It was just funner than running a mile or something like that" (Student 12, pg. 32). Another student said he preferred the PACER to the mile, "Because you don't have to run as long as a distance. You have a certain amount of time to wait each time you run" (Student 8, pg. 22). Still another student said she preferred the PACER because, "It's less stressful…they're really timing you and it's like you have to do it in a specific time…And this one, the

FITNESSGRAM was a healthy fitness zone, instead of like the time" (Student 23, pg. 65).

The majority of those who did not like the PACER said it was "Because I'm not very good at running and I don't like running" (Student 17, pg. 48). However, even though some students shared that it was hard they realized that it was something they could work on, like this student, "The PACER was hard because it took endurance and I'm not very good at that, but that's something that I can work on it" (Student 27, pg. 74). A few other students shared that they have breathing problems and did not like the PACER simply because of that. "Well, I didn't like the PACER because I couldn't breathe" (Student 1, pg. 1).

Some students saw the PACER as a challenge, and said that it made them want to push even harder. One student said that the PACER test was her favorite,

> Because you didn't want to quit because you didn't want to give up; you didn't want to just stop and just say I can't do this anymore it's too hard, you wanted to keep going and see what you could do (Student 14, pg. 38).

Another shared, "Because you had to keep on beat and it was harder than all the others, but I made it through the entire thing" (Student 18, pg. 49). And another student said she enjoyed the PACER because, "Just like running back and forth, and trying to keep going even though you get tired after a while; just the fact that you keep trying and keep going" (Student 22, pg. 61).

Sit-ups, Push-ups, Trunk Lift. These components of the fitness test were pretty evenly divided as far as students liking them and not liking them. Fifty-one percent liked

these individual tests, and 49% said they did not like them. To many students these tests were difficult, but liked them just the same, like this student who said, "The curl-ups seemed like hard but fun at the same time" (Student 28, pg. 78). Other students said they enjoyed these tests because they were the easiest for them and they could do them. "I like the sit-ups, because I can do them easier than anything else" (Student 17, pg. 48). Many students saw them as a challenge and enjoyed the fact that they could do them when they thought they could not. "I just like doing them and stuff, and knowing I can do it and do a lot and do the same time that they tell you to do it" (Student 15, pg. 42). Another student said, "My favorite part was the push-ups because I didn't think I'd be able to do them. I don't have much strength in that area, but I could do everything else" (Student 31, pg. 84); so that was his favorite, "just because it was the hardest" (Student 31, pg. 84).

The push-ups and curl-ups were not a favorite for some of the students. A few gave the reason of "it makes me tired" (Student 19, pg. 54; Student 26, pg. 72), and "cuz it's hard for me" (Student 35, pg. 95; Student 43, pg. 115). One student said about the push-ups, "For some reason it didn't seem as fun to me. I just didn't think it was that fun" (Student 22, pg. 61). Another said, "Maybe my least favorite was maybe the push-ups because they make you go really slow and it really hurts" (Student 23, pg. 64). The trunk lift seemed to be pretty even when it came to liking it or not liking it. For one student the trunk lift was his least favorite because "it didn't give me a workout" (Student 21, pg. 60), while other students liked it because "it was just kind of fun" (Student 9, pg. 26).

Stretching/Flexibility. Thirty percent of the students who commented on the stretching said that they liked it. Seventy percent did not like this test at all. This was the

least liked component of the fitness test. It seemed that although most students were able to reach the HFZ for the stretching component, they did not like it because it hurt. This student's response reflects the majority of the other students' feelings who did not like the stretching tests. "The stretcher. Yah I didn't like it. It kind of hurt because I'm not very flexible, but I should be" (Student 12, pg. 33). A couple of those students who did enjoy it indicated that it was because it was easy for them, as one student said, "The stretch where you have to see if you could touch how many inches…Yah. Cuz I'm really good at that because I'm in dance" (Student 37, pg. 101). Others liked it because it was fun and they liked the challenge. "I liked the one where we had to stretch your hands behind your back and you had to like touch. Just cuz it was probably the hardest one to do" (Student 9, pg. 25). Although 30% of the comments about the PACER, 49% of the comments about the muscular strength and endurance, and 70% of the comments about flexibility were negative, the students still enjoyed FITNESSGRAM because they liked the challenge and felt good about their results.

Overall Influence of Fitness Testing

This category is defined as being the overall influence, positive and negative, that FITNESSGRAM had on the students. Four themes contribute to this category: (a) Encouragement, (b) Results made them feel good, (c) Challenge, and (d) If good-liked it, if not good-did not like it. Overall, 97% of the comments in these themes had a positive connotation while only 3% were negatively influenced. These four themes and their comments are in response to the questions, "After doing FITNESSGRAM how do you

feel about your own fitness and health," and "How did your results of FITNESSGRAM make you feel about yourself."

Encouragement. This theme was defined as students who were affected positively or negatively by FITNESSGRAM, and how it affected their desire to exercise, be physically active, and become or stay healthy. Ninety-eight percent of the students' comments were positive, and mentioned to some degree how the fitness test encouraged them to maintain their good health and be even more active and healthier. In answering the question, "Did FITNESSGRAM encourage you to be more physically active," two students mentioned that it did not because they were already active. The other 85 student comments were such that FITNESSGRAM did have a positive impact on them and that it made them want to try even harder and do even more.

These next two comments represent a vast majority of the 85 comments. "It made me happy, so it makes me feel like I should do it more and be active" (Student 19, pg. 55). He let something that could be discouraging be a motivation instead. Another said, "Yah. It made me want to stretch more, because I knew that that was a difficulty for me and wanted to get more flexible" (Student 5, pg. 15). Many students shared that FITNESSGRAM showed them what they could improve on, made them want to be better at the individual tests, and made them want to be healthier as the following students mentioned. "It made me think that I could get better than that, that I can do better if I practice more" (Student 7, pg. 20), and "It encouraged me to do better because I want to stay healthy" (Student 9, pg. 28).

> It kind of changed cuz I thought that I could do most things really good but then it showed me that I couldn't do a certain activity but I could do the other thing; just showed me what I could do better" (Student 14, pg. 39).

"It makes me want to exercise more and play more, play harder; just to be a healthy person" (Student 40, pg. 110). Many students admitted that they have not been very active in their daily lives and after doing FITNESSGRAM their attitude changed. These two students' comments represent this well. "It made me think that I should probably start doing more fitness and stuff, because I don't really do them" (Student 20, pg. 57), and "Well, it let me know that I am healthy for my age and gender which is a good thing, but it makes me want to do better than I did" (Student 22, pg.62). Some students really showed their enthusiasm for the test and their desire to improve physically like this girl, "Yah, like it got you moving and you like just want to keep on doing it and it just was really fun and stuff, you know? Like getting exercise and stuff" (Student 35, pg. 94). Another student simply said, "It got me pumped" (Student 37, pg. 98)!

Made them feel good. This theme was defined as students whose FITNESSGRAM results made them feel good about themselves. There was a noticeable difference in the responses of the students. Only two out of 155 comments said that FITNESSGRAM made them "feel bad." The other 153 comments said the complete opposite, and their reasons varied. Many of the students shared that their results made them feel good because they passed. "Because I was able to pass most of the tests, and when I did that it made me feel like I was pretty healthy" (Student 27, pg. 75). Others mentioned that simply participating in the fitness test made them feel good about

themselves as this student mentioned, "It made me feel really good inside, to get moving" (Student 17, pg. 46).

Some students' self-esteem was boosted once they saw their results. One student said, "Because sometimes I get made fun of at school and when I did it it made me feel better inside" (Student 17, pg. 46). One student said that FITNESSGRAM made her feel "impressed and proud" (Student 10, pg. 30), and another said he was impressed with his personal results because "I didn't know I was in such good health" (Student 37, pg. 100). "I actually tried my best and the results were good" (Student 5, pg. 15). "I felt tired but proud of myself that I could do it" (Student 19, pg. 54). Some students said that they were shocked at their results. They discovered that they could do the individual tests when they originally thought they could not. "I felt good about myself because I found out new things. Yah, that I could do…like I didn't think I'd get past 40 on the PACER but I did" (Student 40, pg. 110). Another student shared something similar when he said,

> I thought I was going to get lower scores, because normally it's really hard for me to do it and I was surprised that I did really well, and when I did the PACER it was the first time I did it and I thought I was going to get a really really low score and I thought I was going to drop out like in the 5th part, but I didn't (Student 18, pg. 51).

One boy shared that because of his results he can now show his mom how healthy he really is. He said the following,

> I feel a lot better than I did. Sometimes I felt insecure about if I'm being healthy enough cuz my mom always gives me grief on that…jog, working out and

> teaching dance. Yah. But now I feel a lot better so I can go home and tell my mom if she ever says you need to exercise I can give her something like I'm above average… (Student 44, pg. 118).

Challenge. This theme described students who wanted to see how far they could go or how much they could do, and/or compare their scores with their peers. Of the 33 students who mentioned the fitness test as being a challenge, all but one implied that the challenge was a good thing. This one student mentioned that it was a challenge because it was hard for him. Many students loved the challenge of getting the highest score possible, even scoring higher in the HFZ than was suggested for their age and gender. "I liked it because I got to see how far I went" (Student 13, pg.35), said one student. "…You have to run and you can't really stop because you want to reach your goal and pass and see what you can do" (Student 6, pg. 16), said another.

Two others shared similar thoughts when they said, "It was fun and it challenged me" (Student 44, pg. 116), and "It can be fun to challenge yourself" (Student 15, pg. 40). One student said he enjoyed it because, "I think it was a test that pushed you" (Student 14, pg. 37). Even though students understood that FITNESSGRAM was not about comparing themselves to their peers they still liked to compete a little and see how they measured up to their friends. "It's just fun to compare" (Student 30, pg. 82), said one student.

If good- liked it, if not good-did not like it. This theme described students who liked or disliked the individual FITNESSGRAM tests based on whether or not they were good at them. Only ten students made reference to this. For example, some liked the

PACER because they like to run and some did not like it because they do not like to run. Seven students said they liked FITNESSGRAM only because they passed, or reached the HFZ for their age. "I passed and so I feel good that I'm healthy" (Student 15, pg.40), said one girl. "I feel healthy because I did well" (Student 26, pg.72), said another. Some mentioned that if they did not do as well as they did they probably would not feel as good. One student mentioned that FITNESSGRAM was "kind of" (Student 38, pg. 102) boring because, "I didn't think I was good at any of them" (Student 38, pg. 102).

Discussion

Past research has shown that children generally do not like fitness testing because they do not understand why they are taking the test, do not like how it is administered, do not feel that they are successful after taking the test, and simply because they do not think it is fun (Flohr & Williams, 1997; Hopple & Graham, 1995; Keating et al., 2002). The results of this study, however, clearly show that after participating in FITNESSGRAM presented in a self-testing format, and with a focus on educating the students on the purpose of the fitness test, children can understand the importance of fitness testing, feel successful and be pleased with their results, and even think it is fun; a possible solution for all problems mentioned above (see also Table 3).

The purpose of this study was to identify children's perceptions of FITNESSGRAM and determine if self-administration of this fitness test provides a positive experience for the students. Specifically, this study evaluated (a) Students' perceptions of FITNESSGRAM, administered in a self-testing format, (b) Children's

understanding of the purpose of fitness testing, and (c) What effect participation in FITNESSGRAM had on students' perceptions of their personal health.

It should first be mentioned that in this study the physical education teacher, with her excitement and positive attitude towards FITNESSGRAM, most likely had an influence on the students' responses to the questionnaires and interviews and even their attitudes toward fitness testing. This supports the theory of Flohr & Williams (1997) that a teacher's perception of and approach toward fitness testing may greatly influence a child's perception of and approach to participating in physical fitness and fitness testing.

Welch (2007) conducted a study on Junior High students' perceptions of the FITNESSGRAM Fitness Test. She found that the girls in the study had a positive attitude about the fitness test because of their teacher's enthusiasm and positive attitude. A different teacher who taught with less enthusiasm taught the boys. These boys' attitudes also seemed to reflect their teacher's attitude about fitness testing, which was that it was tedious and not very useful. This clearly shows that a teacher's attitude and perception of fitness testing can definitely influence the attitudes and perceptions of their students. It is of interest that the boys, after being interviewed by the female physical educator seemed to change their perceptions of the fitness test and saw it as an opportunity to improve their health. Although Welch's (2007) study was conducted using self-testing stations as well, it is clear that fitness self-testing stations are necessary but insufficient in creating a positive fitness testing experience. Welch's (2007) study and this study provide evidence that the person delivering the fitness test may hold the key to the students' experience.

What are Students' Perceptions of FITNESSGRAM, Administered in a Self-testing Format?

Fox & Biddle (1988) and Jackson (2000) suggest that how a fitness test is administered can greatly influence students' performance on it, and also their attitudes towards the fitness test and physical education in general. The findings of this study showed that students preferred doing FITNESSGRAM in a self-testing format, with a partner or by themselves. They had a positive experience doing the fitness test with friends their own age, because of the encouragement and help they received from them. Keating (2003) found that children's attitudes toward physical education were negative because of the administration format of fitness testing, particularly that of administering the test to the class as a whole and not in private. Keating's findings support the results of this study, that a fitness test self-administered with a partner is more positive for the students.

Although doing the individual tests with a partner or by oneself might have produced less than accurate results, students learned from their experience and the process of testing themselves, which Fox & Biddle (1986) and Welk et al. (2002) say is the most important part of fitness testing. It is not the test itself that is important, but what the test can tell them (Hopple, 1992). After interviewing several students following FITNESSGRAM, it was revealed that the majority of them understood what their results meant and what they could do because of them. Fitness testing should be done so the *students* can see *their* improvement, which may mean doing the fitness test multiple times in a year. Self-testing teaches students how to evaluate their present level of fitness. As

children learn this process of evaluation they will most likely apply it to their future fitness endeavors once they leave the classroom setting (Jackson, 2000).

Keating (2003) identified three problems with typical administration of fitness testing: (1) the majority of tests are administered in public, (2) peer-scored tests are not confidential, and (3) the administration of fitness tests is time intensive. These problems can be resolved in the following ways (Table 3). First, by allowing the students to self-test instead of having a teacher administer the tests in front of the entire class or even in front of a small group of peers. In this manner privacy can be maintained.

Second, teachers should give students the choice of doing the fitness test alone or with a partner. If students choose to do the fitness test with a partner they are apparently showing they do not care if that particular partner sees their results. Keating's concern about confidentiality of scorecards seemed to only relate with one-third of the students who made reference to this problem. This one-third said they would prefer not to show their results for fear of someone making fun of them. The majority, however, showed a very confident attitude saying that it did not matter what other people thought and would not mind if others saw their scores. Many even actually preferred that their scores be publicly known. If students have control of their results by keeping their scorecards to themselves, they can share their results with whom they want or keep them to themselves.

Third, fitness testing does not have to be lengthy. Flohr and Williams (1997) and Harris (2000) share the opinion that too much time in physical education classes is being spent on fitness testing. Depending on the fitness test administered this could be the case. The researcher's experience with FITNESSGRAM and the President's Challenge shows

the following: If FITNESSGRAM took three days to complete and was conducted only once in the school year (approximately 34 weeks) with children participating in physical education class only once a week, 11% of physical education class time would be used for fitness testing. The President's Challenge on the other hand, if taken over a period of eight days (the average time it takes to complete the test with a 30 minute class period), would use up 23% of physical education class time-nearly a quarter of the students' physical education time per year. If the President's Challenge were given twice in one year, nearly half of physical education class time would be devoted to fitness testing alone!

Do Children Understand the Purpose of Fitness Testing?

Researchers (Keating, 2003; Keating et al., 2002) suggest the purpose of fitness tests should be to promote lifetime participation in physical activity. Physical fitness and fitness testing experiences should focus on helping students understand the relationship between activity and good health (Pangrazi & Corbin, 1993). Hopple and Graham's (1995) study of examining what children "thought, felt and knew about" the mile run test revealed that many of the students disliked taking it, did not understand why they were taking it, and viewed it as being a negative and painful experience. They viewed it as being little or no fun and wanted it to be more of a game (Hopple and Graham, 1995).

In contrast to Hopple and Graham's (1995) study, this study showed that children understood why they were participating in fitness testing and had a good experience doing it, most likely because the teacher explained to them the reasons for doing it. Students even loved participating in the PACER, and some indicated that they preferred

that type of running test to the mile run. Just to illustrate, in the mile run those who finish first are left to watch and wait for those who struggle. However, the PACER allows those students who may struggle with running to finish first thereby alleviating frustration or embarrassment (Stewart, Boyce, Elliot, & Block, 2005).

With FITNESSGRAM students were able to see first hand if they were healthy, and if not, what they could do to become healthier. It was clear that the students understood that the reason for doing fitness testing is "so we can know for ourselves if we are healthy" (Student 12, pg. 32), and "to know if I'm healthy or not and if I'm not I need to work on it so I can get healthy" (Student 30, pg.81). Students understood the HFZ and what it told them, and understood that FITNESSGRAM was to test their personal health status and to see how they compared to healthy fitness standards and not to their peers.

Physical educators' primary focus should be children's perceptions of and attitudes toward physical fitness to create a positive fitness testing experience (Keating, 2003). Although the benefits of fitness testing for children are controversial and limited research has been done on students' attitudes toward and perceptions of fitness testing, specifically that of FITNESSGRAM, Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing in order to better teach effective, positive, and motivating physical education classes. The overwhelmingly positive experience of these students supports the idea of using a task-involved environment to fitness test. Creating a task-involved environment has shown to increase student motivation in physical education (Prusak, 2005). Students want to be healthy and

feel good about themselves. When they understand that being healthy, even at their young age, is important they are motivated to do all they can to make that possible.

If students see fitness testing as competitive and feel expected to achieve high levels of performance (i.e., an ego-involved environment), they may see themselves as fitness failures. However, if fitness testing is seen as a process in which students can monitor the progress of their personal fitness for health, success and a sense of achievement can be felt by all who participate (Fox & Biddle, 1988). According to Ernst et al. (2006), FITNESSGRAM was created to promote enjoyment and intrinsic motivation for lifelong physical activity among youth. According to this study, this purpose can be fulfilled.

What Effect Does Participation in FITNESSGRAM Have on Students' Perceptions of Their Personal Health?

Results showed that participation in FITNESSGRAM had a positive impact on students' perceptions of their personal health. They felt their results told them they were healthy, which made them feel very good about themselves and their abilities. Many, including those who did not reach the HFZ in a majority of the test items, appreciated being made aware of areas in which they could improve. The purpose of FITNESSGRAM is to teach the process of fitness testing and inform students, as accurately as possible, of their personal fitness level. Although these students' results might not have been completely accurate, their results motivated and encouraged them to be more active and healthy overall.

As Solmon & Lee (1996) suggested, it is important to measure a child's competence in health-related fitness. Even more so is it important for children to perceive themselves as competent, not necessarily fit, in their ability to perform the fitness test and improve if and where necessary. Children in this study were able to be successful in the majority of the fitness tests. This stems from them being tested based on health-related criterion standards and being tested and evaluated on each item individually.

A child's self-esteem can be influenced by their experiences in physical education. If children feel good about their fitness test experiences, according to the above research it is more likely they will value their personal fitness and have desires to continue to be active (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). Children often discount activities in which they perceive themselves as being low in competence (Fox & Biddle, 1988; Harter, 1985). This can be generalized to all individuals, adults as well as children. People generally avoid such activities that bring them failure. Therefore, the way fitness testing is introduced or presented to children, an ego-involved or task-involved motivational environment (Prusak, 2005), can profoundly influence students' feelings of competence.

Limitations. This study was limited to fifth and sixth graders at an elementary school in a western state in the United States. Fitness tests were self-administered, so results may not have been completely accurate. Therefore, results cannot be exactly taken to mean what they portray. Also, the researcher in this study was the physical education teacher of the students so a natural bias toward fitness testing might have been present. The teacher may have influenced the students' responses to the questionnaires and

interviews and their attitudes toward FITNESSGRAM and fitness testing in general. The students volunteered to participate; so those that chose not to participate may have done so because they or their parents do not like fitness testing.

Conclusion

As has been mentioned before, limited research has been done on students' attitudes toward and perceptions of fitness testing, specifically that of FITNESSGRAM. More studies should be conducted on children's perceptions of fitness testing. Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing to better teach effective, positive, and motivating physical education classes. Physical educators are making it more of a priority to find out the attitudes of students (Flohr & Williams, 1997) and to implement activities and programs that enhance children's knowledge of the importance of being fit and healthy (Koebel, Swank, & Shelburne, 1992).

According to some researchers (Flohr & Williams, 1997; Keating et al., 2002), too often children see fitness testing as drudgery. Instead, fitness testing, as with all aspects of a physical education class, can be fun and motivating to children. Knowing what children's attitudes and perceptions of fitness testing are may help physical educators make their physical education classes a positive and enjoyable experience for their students (Flohr & Williams, 1997).

Fitness testing provides students with meaningful information to help them decide whether or not their health status needs improvement (Pangrazi & Corbin, 1993). They can also better motivate students to increase their fitness levels and physical activity

(Cale & Harris, 2002). Fitness tests that use criterion-referenced standards, such as FITNESSGRAM, encourage children to focus on their own health rather than compare themselves to others, thereby enhancing their motivation and self-confidence (Koebel et al., 1992). It is not the scores necessarily that are of importance, but rather the process a child goes through as they participate in fitness testing (Hopple, 1992). Fitness testing can and should be a matter of teaching and educating children about their personal health and helping them to understand the importance of living and maintaining a healthy lifestyle. Physical educators' primary focus should be children's perceptions of and attitudes toward physical fitness to create a positive fitness testing experience (Keating, 2003). Pate's (1991) following inquiries have been cited in many research studies, and can be answered by looking at the findings of this study:

> It would be desirable to know how children respond to participation in these [physical fitness] tests. Do fitness tests enhance or decrease youngsters' motivation to exercise? Are tests viewed as fun? Do tests have differential effects on different types of children? Though relevant from a strict measurement perspective, these issues may determine appropriateness of fitness testing in the school setting. (p. 233)

This study's purpose was to discover children's perceptions of FITNESSGRAM. The general response of the students, 86% of the comments made, was positive and showed that indeed participating in the fitness test enhanced their knowledge of the importance of being healthy, and motivated them to be more physically active. Only 14% of the comments made showed a dislike for the fitness test. In Hopple & Graham's

(1995) study, it was thought that children who passed most of the test items might have had different perceptions than children who did not pass most of the test items. This was not the case in this study. The responses of the four students who did not score in a majority of the test items were just as positive as the other 74 students' responses. The majority of the students, even those who did not do as well as they would have liked, viewed FITNESSGRAM as being fun. This study found that students can understand the purpose of fitness testing. Additionally, administered in a self-testing manner and in stations, FITNESSGRAM is in every way appropriate and beneficial for our students.

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Table 1

Written Questionnaire and Follow-up Interview Questions

Written Questionnaire
What did you think about FITNESSGRAM?
How did you feel doing FITNESSGRAM on your own or with a partner?
In your opinion, why do we do fitness testing?
After doing FITNESSGRAM how do you feel about your own fitness and health?
How did your results of FITNESSGRAM make you feel about yourself?

Interview Questions
What did/didn't you like about FITNESSGRAM?
What was your favorite/least favorite test, and why?
Would you rather have had a teacher or other adult record your scores? Why or why not?
Is fitness testing important? Why or why not?
Did FITNESSGRAM change your opinion about fitness testing or the importance of being fit?
Did taking FITNESSGRAM encourage you to be more physically active?
Do you think you are healthy? Why or why not?
Was it taking the test that *made* you healthy, or was it your results that *told* you that you were healthy and/or what you could improve on?
Why do you think we did FITNESSGRAM in PE?
Would you want to participate in this fitness test again?
How did you feel about yourself and your own level of fitness after doing FITNESSGRAM?

Table 2

Children's Perceptions of the FITNESSGRAM Fitness Test

CATEGORIES (AND THEMES)	# of comments	positive	negative	% of whole positive	% of whole negative
1. Administration of Fitness Test	156	122	34	78.21%	21.79%
Partners	125	112	13		
Score sheets	31	10	21		
2. Purpose of Fitness Testing	162	157	5	96.91%	3.00%
Opinions of purpose of fitness test	Opinions not classified				
What results told them/liked FITNESSGRAM	151	146	5		
Helped them to prepare	11	11	0		
3. Components of Fitness Testing	128	71	57	55.47%	44.53%
Pacer	61	43	18		
Sit-ups, push-ups, trunk lift	37	19	18		
Stretching (shoulder and leg)	30	9	21		
4. Overall Influence of Fitness Testing	283	275	8	97.17%	2.83%
Encouragement	87	85	2		
Made them feel good	155	153	2		
Challenge	33	32	1		
If good liked it, if not disliked	10	7	3		
TOTAL	730	626	104	85.75%	14.25%

Table 3

Problems and Solutions Associated with Fitness Testing

Problems associated with typical fitness testing (Keating, 2003)	Potential solutions
1) The majority of fitness tests are administered in public.	1) Allow students to self-test in a station format.
2) Teacher/Peer-scored tests are not kept confidential.	2) Give students the choice of doing the test by themselves or with a partner.
3) Administration of fitness tests is time intensive.	3) Self-testing station format allows for students to test themselves, freeing up the teacher to assist, and no one is waiting for a turn.

Appendix A

Prospectus

Chapter 1

Introduction

Children have been participants of physical fitness testing for years. Much has been debated as to which fitness test most accurately describes a child's level of fitness. Some researchers have even gone so far as to say that fitness testing is not even needed (Keating, Silverman, & Kulinna, 2002). The benefits of fitness testing for children are controversial, and limited research has been done on student's attitudes toward and perceptions of fitness testing, specifically that of the FITNESSGRAM Fitness Test (FITNESSGRAM). Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing in order to better teach effective, positive, and motivating physical education classes.

Research (Keating et al., 2002; Flohr & Williams, 1997; Hopple & Graham, 1995) tells us that children generally do not like fitness testing because of its seemingly unimportance and uselessness, administration format, personal meaning of performance results, and simply because it is not fun. According to Keating (2003), privacy of test administration is a common problem of fitness testing, as well as the confidentiality of peer-scored tests. He also sees the administration of tests as being time intensive (Keating, 2003). Some (Corbin, 2002; Corbin, Pangrazi, & Welk, 1995) suggest that students graded on their fitness test results may lose interest in physical education class and physical activity, and lose confidence when, even with effort, they fail to achieve the fitness goals needed to get a good grade. In a study determining children's attitudes toward physical education class, Millslagle and Keyes (2000) and Luke and Sinclair

(1991) found that participation in fitness testing was one of the biggest reasons why children's attitudes toward physical education were negative. Additionally, Flohr and Williams (1997) found that when students were asked to list what activities they thought were "not fun" in their physical education class, all except for two of the activities listed were related to physical fitness.

Flohr and Williams (1997) made the observation that the choice of physical fitness standards could influence a child's fitness level and behavior. If fitness test standards are too high, children might be discouraged from participating in any fitness activity. On the contrary, if standards are too low, physical fitness might be devalued and the children's interest or motivation to participate in any activities that promote fitness might be lessened (Flohr & Williams, 1997).

Fitness tests for youth originated with a focus on both skill-related and health-related fitness components (Keating, 2003). Skill-related fitness components are balance, agility, coordination, speed, and power. These may be important for excellent sport performance, but do nothing to promote health. If fitness testing is focused too much on skill-related fitness students might mistake high levels of athletic aptitude for fitness for health (Fox & Biddle, 1988). Skill-related fitness components are measured using norm-referenced standards. However, such fitness components like muscular strength and endurance, cardiovascular fitness, body composition, and flexibility are closely related to aspects of health because they reduce the risk of cardiovascular diseases (American Alliance for Health, Physical Education, Recreation and Dance, 1980; McKenzie & Sallis, 1996) and other health problems. Health-related fitness components are measured

using criterion-referenced standards. In 1980, the American Alliance for Health, Physical Education, Recreation and Dance published the first health-related physical fitness test battery including only items thought to be associated with good health (AAPHERD, 1980). Since then health-related fitness components have become central to youth fitness test programs (Safrit, 1995).

Fitness tests, skill or health-related, are generally based on one of two standards: (1) criterion-referenced standards or (2) norm-referenced standards. Norm-referenced fitness standards rank an individual's performance on a fitness test relative to all other individuals in the group (Plowman, Sterling, Corbin, Meredith, Welk, & Morrow, 2006). Norm-referenced standards are standards set using percentiles, a percentile representing a specific reference group (e.g., 11-year- old girls; 10-year-old boys) that performs at a certain level. From these groups test developers determine norms, and set arbitrary percentiles to use as standards for individuals to achieve (Welk, Morrow, & Falls, 2002); standards based on what a group of peers have achieved. Using norm-referenced standards allows children to be evaluated in relation to their peers, but does not tell us how fit is fit enough (Looney & Plowman, 1990).

One advantage of using norm-referenced standards is students learn how they match up with their classmates and other children of their same age and gender. Also, percentiles are easy to interpret, which is why most national standardized tests use them (Welk et al., 2002). The principle disadvantage of norm-referenced standards, however, is that the standards show the students' current level of performance rather than the level they ought to achieve (Welk et al., 2002). Percentiles, especially ones fixed at a high

level, discourage students whose levels of fitness might be moderate or low according to the measurements of that test, even though those students' levels of fitness might be considered adequate when looked at in a different context, such as specific sports performances or health (Fox & Biddle, 1988; Welk et al., 2002). The Presidential Physical Fitness Test uses norm-referenced standards to measure students’ performances on both skill-related and health-related fitness components.

Norm-referenced standards are aptly described by Welk et al. (2002), "Consider whether it is 'good' for you to achieve 'average' fatness if the average person is fat" (p. 46). Success of norm-referenced standardized tests is based on success on all test items. Failure of one item results in failure for the entire test. Original research of the Kraus-Weber fitness test, the catapult fitness test in 1954, showed that 57.9% of American children and youth failed one item. Thus, many children failed the entire test because of one test item. The emphasis of criterion-referenced standards, then, is to pass as many test items as possible (Corbin & Pangrazi, 1992).

Criterion-referenced standards measure health-related fitness by comparing the student's level of fitness to a health standard, with a minimum level of performance needing to be attained before the student is considered fit (Welk et al., 2002). Criterion-referenced evaluations are concerned with the information the fitness test score provides about an individual's health status and whether or not they have achieved the standard, not how well they do compared to their peers (Welk et al., 2002). FITNESSGRAM is a health-related fitness test that utilizes criterion-referenced standards on health-related

components. Limited research has been done on children's perceptions of FITNESSGRAM.

FITNESSGRAM was developed in 1982 by The Cooper Institute in response to the call in physical education for a comprehensive assessment protocol (Welk et. al., 2002), and with the vision of helping enhance the effectiveness of school-based physical education (Welk, 2006). It did not become a full-fledged educational program and fitness test battery until 1986 (Ernst, Corbin, Beighle, & Pangrazi, 2006). According to Ernst et al. (2006), FITNESSGRAM was created to promote enjoyment and intrinsic motivation for lifelong physical activity among youth. It is not only a fitness assessment battery, but also an assessment and promotion of physical activity (Welk, 2006). FITNESSGRAM is the recommended assessment and promotion program for the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) and the required assessment for the state of California and many other states and districts.

Instead of comparing students' scores to a percentage of a population distribution, FITNESSGRAM focuses on the actual fitness level of a child and if that fitness level is enough to be considered healthy. It is an assessment that allows children to be in charge of their personal fitness (Welk et al., 2002), and allows them to decide if they need to improve their current health status (Pangrazi & Corbin, 1993). It is designed to personalize students' physical activity and to meet individual or personal needs (Welk et al., 2002). FITNESSGRAM standards were established based on a level of fitness, a criterion that to some degree offers protection against diseases that result from inactive lifestyles (Welk et al., 2002).

FITNESSGRAM is designed to measure the five components of health-related fitness: aerobic endurance, muscular strength and muscular endurance, flexibility, and body composition (Welk et al., 2002). What makes FITNESSGRAM different from other fitness test batteries is that it emphasizes personal fitness for health instead of basing one's fitness solely on high level performance (Welk et al., 2002), percentiles, or skill-related components. If students see fitness testing as competitive and feel expected to achieve high levels of performance, they may see themselves as fitness failures. However, if fitness testing is seen as a process in which students can monitor the progress of their personal fitness for health, success and a sense of achievement can be felt by all (Fox & Biddle, 1988).

Another advantage to using FITNESSGRAM is its self-testing approach. According to Welk et al. (2002), the primary purpose of FITNESSGRAM is to self-test personal fitness. Students first learn to test themselves and then interpret their own results. Self-testing fitness activities enable students to see if they are within the Healthy Fitness Zone (HFZ), the minimum fitness level required for maintaining good health (Keating, 2003) in the five components of health-related fitness. The best way to increase children's intention and desire to be active is to help them understand the personal benefits obtained when being active (Welk et al., 2002). This can be done through self-testing. If children are taught knowledge and skills of how to be active, fitness and health will be natural byproducts (Corbin, 2004). Fitness testing can be an effective vehicle through which fitness concepts are taught (Fox & Biddle, 1988).

In order for students to become fitness independent, or choose for themselves to be physically active, they must have a knowledge and understanding of fitness and why it is important. Physical educators have the responsibility to educate their students on the importance of good health and fitness testing. According to Fox and Biddle (1988), physical educators should teach students how fitness testing can be used as a personal lifestyle management skill. The physical educators' responsibility is not to "make" children fit, however, but to turn them on to movement, teach them skills that when involved in physical activity can enhance fitness, and educate them about the importance of movement in their lives (Flohr & Williams, 1997). Once children are educated on the purpose of fitness testing, they can see for themselves firsthand through self-testing how it may benefit them. Self-testing enables students to develop a sense of personal control and fitness autonomy (Fox & Biddle, 1988).

Children's perceptions of fitness testing may differ depending on the fitness test used and how it is administered (Fox & Biddle, 1988; Jackson, 2000). Fitness tests are traditionally administered by the teacher. Research (Keating, 2003) tells us that students, especially the least fit, do not like fitness testing that is administered to the class as a whole, but would rather be tested in private. Teachers may resolve this concern by giving the students the choice of self-testing or testing with a partner. The self-testing approach is favored by Pangrazi and Corbin (1993), Pangrazi (2001), and Corbin, Pangrazi, and Welk (1995), because it focuses on the process of the test, is student-centered, and focuses little attention on performance scores (i.e., as compared to peers). Despite these proposed advantages, self-testing procedures have been criticized for being less than

accurate because the students themselves are the ones that keep track of their scores. However, Fox & Biddle (1986) and Welk et al. (2002) argue that the process students go through and what they learn from their experience testing themselves is what is important.

While it is important to measure a child's competence in health-related fitness, it is also important, if not more so, for children to perceive themselves as competent in their ability to perform the fitness test and improve if and where necessary. Children perceiving themselves as competent in their ability to perform the fitness test will more likely have a higher motivation to participate in physical education activities in general (Solmon & Lee, 1996). However, this is not to say that it is okay for children to be overweight and out of shape as long as they feel good about themselves. The emphasis should be on allowing children to evaluate their personal health by giving them the opportunity to feel competent in their ability to test themselves and then help them to know how and where they need to improve if necessary, so as not to discourage them from physical activity.

Lee (1997) believes that what children think and feel about their personal competence matters more than their actual competency level, thus focusing on their fitness behavior (the process) and not their fitness attainment (the product). How they perceive their personal fitness abilities is what matters (Lee, 1997; Pangrazi & Corbin, 1993). Some (Cale & Harris, 2002; Hopple, 1992; Jackson, 2000) suggest that when conducting physical fitness tests the focus should be on "the process of being active more than on the product of being fit" (p. 3). Product-related issues are those such as

performance (e.g., how far, how fast, how long) (Pangrazi & Corbin, 1993), and process-oriented issues would be those such as physical activity and health (Harris & Cale, 1997).

The purpose of physical education is to have a positive experience and to promote active lifestyles (Welk et al., 2002). FITNESSGRAM may help accomplish this. The *FITNESSGRAM Reference Guide* states: "While fitness is important in childhood, the more significant, long-term objective is to promote activity habits so that active children eventually become active adults. FITNESSGRAM is based on the premise that 'health is available to everyone for a lifetime'" (Welk et al., 2002, p. 14). FITNESSGRAM is a means to an end in encouraging and promoting active lifestyles.

Physical educators have the responsibility to teach their students the how, what, and why of physical fitness and fitness testing. Thus, fitness testing can and should be a matter of teaching children about their personal health and helping them to understand the importance of living and maintaining a healthy lifestyle. A teacher's perception of and approach toward this responsibility may greatly influence a child's perception of and approach to participating in physical fitness and fitness testing (Flohr & Williams, 1997). Physical educators' primary focus should be children's perceptions of and attitudes toward physical fitness to create a positive fitness testing experience (Keating, 2003). Based on the literature available, no study on the perceptions of self-testing FITNESSGRAM has been conducted at the elementary level.

Statement of the Problem

The purpose of this study is to identify children's perceptions of FITNESSGRAM and determine if self-administration of this fitness test provides a positive experience for

the students. This study will answer the following research questions: (a) What are students' perceptions of FITNESSGRAM, administered in a self-testing format? (b) Do children understand the purpose of fitness testing? (c) What effect does participation in FITNESSGRAM have on students' perceptions of their personal health?

Assumptions

It is assumed that children will accurately assess themselves when testing. It is assumed that the children will accurately self-reflect when filling out the questionnaire and being interviewed, and that their answers will not be influenced by their peers.

Delimitations

This study is delimited to fifth and sixth graders. Participants are not randomized as it is not an experimental study.

Limitations

This study will be limited to students at an elementary school in a western state in the United States. Test batteries will be self-administered. The researcher is the physical education teacher of the students so a bias might be present.

Significance

Research tells us that children generally do not like fitness testing (Flohr & Williams 1997; Keating et al., 2002). Keating's (2003) research tells us that students would rather participate in fitness tests in a private setting and not in front of their peers. Teachers may resolve this concern by giving the students the choice of self-testing or testing with a partner. According to Welk et al. (2002), the primary purpose of FITNESSGRAM is to self-test personal fitness. FITNESSGRAM has become one of the

most widely used fitness test programs in the United States (Ernst et al., 2006). FITNESSGRAM is an assessment which allows children to be in charge of their own personal fitness (Welk et al., 2002) through self-testing, and focuses on if the child's fitness level is enough to be considered healthy. This study will identify children's perceptions of FITNESSGRAM to determine if self-administration of this fitness test provides a positive experience for the students.

Chapter 2

Review of Literature

Fitness Testing

Children of all ages have participated in fitness testing for years. Many have wondered what it is about fitness tests that children like or dislike, and why fitness testing is even part of physical education curriculums. When creating and planning fitness tests, children's perceptions and attitudes should be taken into account (Flohr & Williams, 1997; Fox & Biddle, 1988; Jackson, 2000) so as to identify ways in which physical educators can provide positive fitness testing experiences.

Researchers (Keating, 2003; Keating et al., 2002) suggest the purpose of fitness tests should be to promote lifetime participation rather than teacher assessment of student fitness. How a test is administered can greatly influence students' performance on fitness tests and their attitudes towards them and physical education (Fox & Biddle, 1988; Jackson, 2000). The choice of what fitness test to use may greatly influence children's perceptions of fitness (Fox & Biddle, 1988). Other researchers share this same philosophy: fitness testing should have a self-testing approach focusing on participation in physical activity and self-improvement (McKenzie & Sallis, 1996; Pangrazi, 2001; Pangrazi & Corbin, 1993). Fitness and fitness testing experiences should be focused on helping students understand the relationship between activity and good health (Pangrazi & Corbin, 1993).

Keating (2003) found that participation in fitness testing was one of the biggest reasons why children's attitudes toward physical education were negative. Students,

especially the least fit, do not like fitness testing because of the administration of the tests, particularly that of administering the test to the class as a whole and not in private. Teachers may resolve this concern by giving the students the choice of self-testing or testing with a partner (Keating, 2003).

Keating (2003) pointed out three common problems of fitness testing administration: (a) the majority of tests are administered in public, (b) because students help score for each other the test results are usually not kept confidential, and (c) too much time is taken to administer tests when additional assistance from students' parents or other personnel is not available.

Fox and Biddle (1988) and Welk et al. (2002) suggest that students' fitness test results should not be used in physical education classes to grade student performance, but rather evaluate students' ability to self-administer fitness tests and interpret their personal results. Corbin (2002) and Corbin et al. (1995) give the following reasons why results should not be used for grading: students might lose interest in physical education class and physical activity, teachers might teach to the test, and students might lose confidence when, even with effort, they fail to achieve the fitness goals needed to get a good grade.

Teachers often ask students how fast they were, how many did they do, or how far did they go. Asking such questions teaches students that performance is what matters and not regular physical activity (Pangrazi & Corbin, 1993). By focusing more on the results of fitness testing, physical educators are saying that the physical component of fitness is the only thing that matters (Keating, 2003). Children's attitudes might change if they understood the reason why fitness tests are done. Understanding why we fitness test and

what the results mean may be more important than the actual result of the testing. The best way to increase children's intention and desire to be active is to help them understand the personal benefits obtained when being active (Welk et al., 2002). Many researchers believe that what children think and feel about their personal competence matters more than their actual competency level, thus focusing on the process and not the results (Harris & Cale, 2006; Hopple, 1992; Jackson, 2000; Lee, 1997). How they perceive their personal fitness abilities is what matters (Lee, 1997; Pangrazi & Corbin, 1993). Focusing on the process of fitness testing and not necessarily the results should be the goal when conducting physical fitness tests (Harris & Cale, 2006; Hopple, 1992; Jackson, 2000).

Welch (2007) questioned the reasons why physical educators continue to fitness test when students' attitudes are so negative about it. Should physical educators administer fitness tests based on students' perceptions and feelings of fitness testing (Welch, 2007)? Pate (1991) suggests:

> It would be desirable to know how children respond to participation in these [physical fitness] tests. Do fitness tests enhance or decrease youngsters' motivation to exercise? Are tests viewed as fun? Do tests have differential effects on different types of children? Though relevant from a strict measurement perspective, these issues may determine appropriateness of fitness testing in the school setting. (p. 233)

In 1988, Fox and Biddle (1988) felt that there had been a lot of time spent on identifying valid and reliable fitness tests to be used in schools. However, little attention then and now has been given to understanding children's responses to fitness testing (Cale

& Harris, 2005; Fox & Biddle, 1988; Jackson, 2000). Fox and Biddle (1988) felt identifying the appropriate fitness test that promoted exercise and fitness was still under examination. In response to this confusion, Ernst et al. (2006) says that any fitness test that promotes enjoyment and intrinsic motivation for physical activity is encouraged. Such fitness tests are FITNESSGRAM and Physical Best. Through the years research has shown that FITNESSGRAM has become one of the most widely used programs in the United States (Ernst et al., 2006).

Contrasting the benefits of fitness testing, Rowland (1995) feels that fitness tests do not promote physical activity in children, but rather provide experiences that can be uncomfortable, embarrassing, and demeaning for children, especially at-risk children. Rowland (1995) also feels that fitness tests only reinforce that exercise is unpleasant and competitive. However, to those children who do well fitness tests may be reinforcing (Rowland, 1995). Cale and Harris (2005) agree with this notion that fitness tests may be sending a false message to children that excellence and competition are necessary for fitness and health, which may further thwart the goal of encouraging physical activity. On the other hand, others advocate physical fitness testing because they feel it motivates students to maintain or improve their physical fitness and acts as a vehicle through which they increase their knowledge of physical fitness (Fox & Biddle, 1986; Harris & Cale, 2006). If fitness testing is not taught in the schools, students may leave thinking fitness is not important (Pangrazi & Corbin, 1993). In many schools, the only means by which students "develop their perceptions of what fitness is" is through fitness testing (Fox & Biddle, 1988, p.49).

Norm-referenced vs. Criterion-referenced Standards

Fitness tests are generally based on one of two standards: criterion-referenced standards or norm-referenced standards. Norm-referenced standards rank an individual's performance relative to that of all other individuals in the group used for reference (Plowman et al., 2006). Norm-referenced standards are standards set using percentiles, a percentile representing a specific reference group (e.g., 11-year-old girls; 10-year-old boys). From these groups test developers determine norms, or specific percentiles, to use as standards for individuals to achieve (Welk et al., 2002). The Presidential Physical Fitness Test utilizes norm-referenced standards.

One advantage to norm-referenced standards is that students learn how they match up with their classmates and other children of their same age and gender. Also, percentiles are easy to interpret, which is why most national standardized tests use them. The principle disadvantage of norm-referenced standards, however, is that the standards show the students' current level of performance rather than the level they ought to achieve (Welk et al., 2002). Experts have noticed that problems occur when using norm-referenced standards because genetics, maturity, and age, rather than the achievement of the student, may account for students' attainment of percentile standards (Corbin, 1987). Corbin (2004) believes, "The intention is to shift focus from the comparative testing process and attainment of high scores by the genetically gifted to fitness behavior and the attainment of acceptable levels of fitness by all students" (p. 1).

Percentiles, especially ones fixed at a high level, discourage students whose levels of fitness might be moderate or low. In norm-referenced standard fitness tests less than

five percent of students actually qualify for the highest award, or 85th percentile (Koebel, Swank, & Shelburne, 1992). This discourages students whose fitness levels are low or even moderate according to the measurements of that test. However, those students' levels of fitness might be considered adequate when looked at in a different context, such as health or specific sports performances (Fox & Biddle, 1988; Welk et al., 2002). Success in the Presidential Fitness Test (which is norm-referenced), for example, is based on success on all test items. Failure of one item results in not achieving the coveted Presidential award. Original research of the Kraus-Weber fitness test, the catapult fitness test in 1954, showed that 57.9% of American children and youth failed one item. Thus, many children failed the entire test because of one test item (Corbin & Pangrazi, 1992). Norm-referenced standards are aptly described by Welk et al. (2002), "Consider whether it is 'good' for you to achieve 'average' fatness if the average person is fat" (p. 46).

Criterion-referenced standards in fitness testing measure health-related fitness by comparing the student's level of fitness to a health standard, with a minimum level of performance needing to be attained before the student is considered healthy (Welk et al., 2002). Criterion-referenced evaluations are concerned with the information the fitness test score provides about an individual's health status and whether or not they have achieved the standard, not how well they do compared to their peers (Welk et al., 2002). FITNESSGRAM utilizes criterion-referenced standards.

To date, all health-related fitness tests use criterion-referenced standards (Franks, 1989; Welk et al., 2002). Pangrazi and Corbin (1993) recommend that criterion-referenced standards should be used rather than normative standards. Researchers

(Koebel et al., 1992; McKenzie & Sallis, 1996) believe, despite the lack of research evidence, that students can be better motivated to participate in regular physical activity when using criterion-referenced health-related standards. In fact, national health-related organizations such as the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) (1999), who cosponsors FITNESSGRAM (Cooper Institute for Aerobics Research, 2003), and the American College of Sports Medicine (1988) have recommended using criterion-referenced standards when fitness testing in public schools.

It is believed that criterion-referenced standards promote a more positive atmosphere for the students (Keating et al., 2002; McKenzie & Sallis, 1996). Some, however, believe it is not right to assume that fitness tests using criterion-referenced standards give students a more positive experience or more motivation than norm-referenced standards (Keating et al., 2002). The Keating et al. (2002) study of preservice teachers' attitudes showed that these teachers had only slightly positive attitudes of fitness tests after participating in either criterion-referenced or norm-referenced tests. Also, Whitehead and Corbin's (1991) study on deciphering differences between the President's Challenge and FITNESSGRAM showed that there were no differences between the tests in students' physical self-worth and intrinsic motivation to exercise. In response to Whitehead & Corbin's (1991) study, Keating et al. (2002) state that perhaps there is either more to the fitness test experience than just the scores or the number of participants in each study was not equal.

Fox and Biddle (1988) believe that if the focus for fitness testing is on effort and making goals to increase exercise levels, and not on comparing scores to other children

through percentiles and norms, students are more likely to be successful. Flohr and Williams (1997) support the idea of not comparing children to other children by saying that teachers should focus on recognizing, encouraging, and rewarding efforts that demonstrate improvements; nothing is gained by comparing children to one another (Flohr & Williams, 1997). The Presidential Physical Fitness Test measures students' performance on both skill-related and health-related fitness components, where FITNESSGRAM focuses on students' health-related fitness (Welch, 2007). If fitness testing is focused too much on skill-related fitness students might mistake high levels of athletic aptitude for fitness for health (Fox & Biddle, 1988).

Fitness tests for youth originated in a focus on both skill-related and health-related fitness components (Keating, 2003). In fact, according to Corbin and Pangrazi (1992), more research has been done on skill-related fitness than on health-related fitness. Skill-related fitness components are balance, agility, coordination, speed, and power, which may be important for excellent sport performance, but do nothing to promote health. However, such fitness components like muscular strength and endurance, cardiovascular fitness, body composition, and flexibility are closely related to aspects of health (AAHPERD, 1980; McKenzie & Sallis, 1996).

Many factors affect fitness test scores namely heredity, maturation, lifestyle, and environment (Pangrazi & Corbin, 1990; Pangrazi & Corbin, 1993). Despite these many factors, all children still benefit from regular participation in fitness activity. It might just take longer for some children to show fitness improvements, which will call for extra encouragement and positive feedback (Pangrazi & Corbin, 1993). Teachers who assume

that a student's low fitness score is a reflection of low physical activity, and makes that assumption known to the student will find that the respect between them and the student may be lost. Also, the student's self-esteem can be negatively affected. Such assumptions may result in a student's strong dislike of fitness and anything related to it (Pangrazi & Corbin, 1993). Children's fitness testing experiences should be positive.

> It is not essential, and in some cases may be detrimental, that students be frequently compared to others, as with norms and percentiles. It seems better practice to pursue personal exercise goals that are based upon the maintenance of adequate levels of fitness for the enhancement of health (Fox & Biddle, 1988, p. 51).

Norm-referenced standards tend to emphasize peer comparisons, whereas in criterion-referenced standards the emphasis is on meeting a health standard (Going & Williams, 1989). The question with regard to criterion-referenced tests is the student ability to meet the health-related fitness standard. The underlying premise with criterion-referenced standards is that there is an association between fitness and good health. Or in other words, meeting satisfactory levels of muscular strength and endurance and flexibility lessen the risk of a number of diseases that result from inactive lifestyles (AAHPERD, 1980; McKenzie & Sallis, 1996; Welk et al., 2002). FITNESSGRAM standards were established based on a level of fitness that to some degree offers protection against diseases resulting from sedentary lifestyles (Welk et al., 2002).

FITNESSGRAM

FITNESSGRAM has been widely used in many schools throughout the world (Ernst et al., 2006) since its development in 1982 by The Cooper Institute. FITNESSGRAM assesses the following four health-related fitness areas, each with multiple test options: (1)Aerobic-Pacer test, one mile walk/run, walk test, (2) Body Composition-percent body fat, Body Mass Index, (3) Muscle Strength and Endurance-abdominal strength and endurance (curl-up), trunk extensor strength and flexibility (trunk lift), upper body strength and endurance (flexed arm hang, modified pull-up, push-up), and (4) Flexibility-shoulder stretch and back-saver sit-and-reach. FITNESSGRAM is for all children and youth and can be taught to students as early as the first grade. However, more formal testing is not recommended until the fourth grade.

FITNESSGRAM is valid and reliable based on research done by The Cooper Institute. The FITNESSGRAM Reference Guide has an extensive review of validity and reliability research for each of FITNESSGRAM's test items (Welk et al., 2002). FITNESSGRAM is the recommended assessment and promotion program for the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) and the required assessment for the state of California and many other states and districts.

A student is considered healthy if their score places them in the Healthy Fitness Zone (HFZ), the health-related criteria for this test (Welk et al., 2002). The HFZ is the minimum fitness level required for maintaining good health (Keating, 2003). The results from the state of California's FITNESSGRAM assessments and results from an evaluation of children using FITNESSGRAM standards (O'Hara , Baranowski, Simons-

Morton, Wilson, & Parcel, 1989) reveal that the HFZ range of standards represents realistic levels of fitness that most children who participate in regular physical activity can attain (Welk et al., 2002). Because children sometimes excel in different areas it is not unusual for them to score in the HFZ for some fitness test items and not for others. If a student's level of fitness falls within the HFZ they are thought to be protected from possible health risks caused by a lack of fitness in whatever test item was being measured (Welk et al., 2002). Students' scores that fall below the HFZ are categorized as *Needs Improvement* to indicate that fitness in the area tested needs some attention. This category is not implying that the student's fitness is "bad" or "poor," but is meant to encourage and help children make goals to improve their fitness (Welk et al., 2002, p. 129).

FITNESSGRAM is designed to be self-administered with assistance from the teacher as needed. Students assess themselves and record their scores on an individualized report card. The student, teacher, and parents see the results. In fact, FITNESSGRAM was developed to help physical educators share fitness test results with parents and students. The name "FITNESSGRAM" comes from the concept of a telegram communicating important fitness information to children and parents (Plowman et al., 2006). Students keep personal results for program planning and goal setting. Students who do not reach the HFZ on any of the particular tests are assisted in developing a personal program of improvement. Students whose scores fall within the HFZ are taught how to maintain that level of fitness (Welk et al., 2002).

Although FITNESSGRAM is designed for self-testing, one possible disadvantage of this approach lies in the often less than accurate results obtained by youth, which can

be misleading for the students (Fox & Biddle, 1986; Welk et al., 2002). Inaccurate results can lead students to believe they are healthy when in reality they are not, or lead them to believe they are not healthy when in reality they are. Inaccurate results are only a problem when the objective of fitness testing is on performance. When the objective is on the process of fitness testing then the results are secondary. The purpose of FITNESSGRAM is to teach the process of fitness testing and inform students, as accurately as possible, of their personal fitness level.

Focusing on the process, or fitness behavior, of fitness testing and not necessarily the results, or fitness attainment, should be the goal when conducting FITNESSGRAM and other physical fitness tests (Hopple, 1992; Jackson, 2000). It is not the test itself that is important, but what the test can tell them (Hopple, 1992). Fitness testing should be done so the *students* can see *their* improvement. Self-testing teaches students how to evaluate their present level of fitness. As children learn this process of evaluation they will most likely apply it to their future fitness endeavors once they leave the classroom setting (Jackson, 2000).

Few efforts have been made to conduct research on FITNESSGRAM assessments. FITNESSGRAM is "dedicated to providing the best possible physical fitness assessment, activity promotion, and feedback system for students, teachers, and parents to encourage lifelong physical activity and lifetime health-related physical fitness" (Plowman et al., 2006, p. S18).

Perceived Competence

A child's self-esteem can be influenced by their experiences in physical education. Jacobs, Lanza, Osgood, Eccles, and Wigfield (2002) found the following to be true within the domain of sports: "Poor performance is related to lower self-esteem only for those who value the domain, suggesting that the relation between competence and values is important for self-esteem within a particular domain" (p. 2). Asci, Kosar, and Isler (2001) pointed out how sport and physical education programs provide many situations for individuals to have experiences where they can feel personally competent and gain a needed sense of achievement while developing their self-concept (Asci et al., 2001). However, if a child does not consider the activity to be of any importance then their self-esteem is most likely not affected. According to Jacobs et al. (2002), someone who performs poorly on a task and feels less of himself because of it means that they actually cared about the task.

In other words, there is a relationship between feelings of competence and what a person values. If children feel they do well at a certain task, it is more likely, over time, they will value that task (Jacobs et al., 2002) and continue to do it. If children feel good about their fitness testing experiences, according to the above research it is more likely they will value their personal fitness and continue to be active. Children often discount activities in which they perceive themselves as being low in competence (Fox & Biddle, 1988; Harter, 1985). This can be generalized to all individuals, adults as well as children. People generally avoid such activities that fail to help maintain their self-esteem. Such avoidance may result in a complete withdrawal from that activity; thus, when children hit

adulthood they have already decided that physical activity is not for them and avoid it at all costs (Fox & Biddle, 1988).

If students see fitness testing as competitive and feel expected to achieve high levels of performance, they may see themselves as fitness failures. However, if fitness testing is seen as a process in which students can monitor the progress of their personal fitness for health, success and a sense of achievement can be felt by all (Fox & Biddle, 1988). Fitness testing can thus be an opportunity for those who are less fit or are less athletic to "redeem their physical self-worth" (Fox & Biddle, 1988, p. 51).

If children feel good about themselves and receive positive feedback following the fitness test (Whitehead & Corbin, 1991) they will be more motivated to participate in physical activity settings. Not only will they participate, but their efforts, persistence, and achievement will enhance, thus improving their feelings about themselves—it is a cycle (Sabo, 1997). Those who receive negative feedback after the fitness test have less intrinsic motivation than those who receive positive feedback following the fitness test (Whitehead & Corbin, 1991). Children's fitness testing experiences should be positive and should enhance their perceived competence.

Hopple and Graham's (1995) study of examining what children ‘thought, felt and knew about’ the mile run test, revealed that many of the students disliked taking it, and viewed it as being a negative and painful experience. Children's fitness testing experiences should be positive. Most children prefer working in a nonthreatening environment (Fox & Biddle, 1988; Ikeda & Naworski, 1992). The way fitness testing is introduced or presented to children can profoundly influence students' feelings of

competence. Teachers who use the following strategies can create a positive, encouraging, nonthreatening, and rewarding experience for students: 1) students must be assured that their results will be kept confidential, and 2) possible embarrassing situations for the students must be avoided (e.g., avoid testing in big groups). It is necessary that teachers be highly sensitive to students' perceptions (Fox & Biddle, 1988).

Physical Educators' Attitudes toward Fitness Testing

Flohr and Williams (1997) strongly believe too much physical education class time is being wasted on fitness testing. Harris (2000) also believes time spent on participating in and scoring fitness tests might detract from or lessen the importance of the process of being active. If FITNESSGRAM, for example, took three days to complete and was conducted only once in the school year (approximately 34 weeks) with children participating in physical education class only once a week, 11% of physical education class time would be used for fitness testing. The President's Challenge on the other hand, if taken over a period of eight days (the average time it takes to complete the test if only ½ hour a day), would use up 23% of physical education class time-nearly a quarter of the students' physical education time per year. If the President's Challenge were given twice in one year, nearly half of physical education class time would be devoted to fitness testing alone!

Flohr and Williams (1997) suggest less time be taken in physical education class for fitness testing, and more time be spent on finding ways to promote skill development and positive attitudes that may insure children will have a desire to remain active and become active adults. The whole purpose of physical education is to teach students skills

that will enhance their fitness during physical activity and teach the students the importance of movement in their daily lives. Instead, much physical education time is spent taking fitness tests that measure only one component of the students' physical fitness abilities (Flohr & Williams, 1997).

> If we want to improve fitness in children, begin by improving programs and changing the emphasis and time spent on testing. Develop classes that have meaning and keep the students active and highlight the fitness components that happen to be incorporated into the lesson (Flohr & Williams, 1997, p. 7).

According to Flohr and Williams (1997), there is more to physical education than just fitness, and there is more to fitness than just physical tests. Instead of spending so much time on fitness tests in physical education, Flohr and Williams (1997) and Harris (2000) believe it would be more beneficial and efficient to use just one or two tests and spend the extra time that is not used for fitness testing on assessing other components of students' fitness like their attitudes towards and knowledge of fitness.

Harris (2000) believes that if administration of fitness tests is simply for acquiring information without any attention to the educational aspect of the fitness test, then administering fitness tests is not advised. The educational aspect involves a) increasing knowledge about health, fitness and activity (i.e., how much activity is suggested for health; health benefits of various types of activities; how to monitor physical fitness and physical activity; what activity opportunities are there in the community), b) increasing confidence and competence in physical activity, and c) promoting positive attitudes of physical activity (Harris & Cale, 2006).

Jackson (2000) interviewed seven physical education teachers who identified the following as key barriers to fitness testing: not enough time, large class size, students cheating, students not taking the tests seriously, and too much time required to complete the paper work. Keating et al. (2002) made the observation that physical education teachers' attitudes towards fitness testing might be reflective of their own personal experiences with fitness testing when they were younger, whether that is positive or negative.

Children's Perceptions of Fitness Testing

Limited research has been done on students' attitudes toward fitness testing. Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing to better teach effective, positive, and motivating physical education classes. Physical educators are making it more of a priority to find out the attitudes of students (Flohr & Williams, 1997) and to implement activities and programs that enhance children's knowledge of the importance of being fit and healthy (Koebel et al., 1992).

Hopple and Graham's (1995) study of examining what children "thought, felt and knew about" the mile run test revealed that many of the students disliked taking it, did not understand why they were taking it, and viewed it as being a negative and painful experience. They viewed it as being little or no fun and wanted it to be more of a game. Many students sought any opportunity to dodge upcoming fitness tests (Hopple & Graham, 1995). One student suggested to "change the mile to a half mile, because the half mile's a lot easier, and it would make the kids want to try harder" (Hopple & Graham, 1995, p. 414). Another student said:

> If I was the coach, I would make it into something fun, you know, like playing kickball, having to run back and forth two times or three times, however much they made you run for the mile run, and you could be timing it without them knowing it, so it could still be fun (Hopple & Graham, 1995, p. 414).

Adams (1996) conducted a study to determine students' attitudes towards physical education and exercise on selected health-related fitness test parameters. It was concluded that children's positive attitudes towards physical education were related to how they performed on the mile run, similar to Hopple and Graham's (1995) study. Children who liked physical education ran the one-mile faster than those who did not like physical education. Hopple and Graham's (1992) study of over 50 girls and boys in grades 4 and 5 from two different schools found that children's attitudes about fitness testing were negative because of how their teachers talked to them while performing fitness tests.

Flohr and Williams (1997) asked students to list what activities they thought were "not fun" in their physical education class. All except for two of the activities listed were related to physical fitness. After completing the fitness tests made by the President's Council on Physical Fitness, which included push-ups, curl-ups, the sit-and-reach and the mile run, students were asked what they believed the purpose of fitness testing was. Many said that it was to see "how hard they were trying" or to prepare them for middle school. Some students said it was to see if their test scores improved from test to test (Flohr & Willimas, 1997).

Are these the answers we want students to come away with after being tested on their fitness? One boy said:

> I like to try to improve my score on my fitness test and the mile. I try to get the best score I can and try as hard as I can. I didn't feel good about the fitness test because I didn't make the excellent category. I dropped off [the pull-up bar] because of the sweat on my hands. I had to do six and I got five. Also, I've grown about this much since last year (Flohr & Williams, 1997, p. 5).

While it is important to measure a child's competence in health-related fitness, it is also important if not more so for children to perceive themselves as competent, not necessarily fit, in their ability to perform the fitness test and improve if and where necessary. This will result in children having a higher motivation to participate in physical education activities in general (Solmon & Lee, 1996). Lee (1997) believes that what children think and feel about their personal competence matters more than their actual competency level. How they perceive their personal fitness abilities is what matters (Lee, 1997; Pangrazi & Corbin, 1993). Cale and Harris (2002) strongly recommend that the focus should be on "the process of being active more than on the product of being fit" (p.3)! Product-related issues are those such as performance and fitness (e.g., how far, how fast, how long) (Pangrazi & Corbin, 1993), and process-oriented issues would be those such as physical activity and health (Harris & Cale, 1997). Focusing on the process of fitness testing and not necessarily the results should be the goal when conducting physical fitness tests (Harris & Cale, 2006; Hopple, 1992; Jackson, 2000).

Summary

According to research, too often children see fitness testing as drudgery (Flohr & Williams, 1997; Keating et al., 2002). Instead, fitness testing as with all aspects of a class should be fun and motivate children to want to always participate in activities that promote a healthy and fit lifestyle. Knowing what children's attitudes and perceptions of fitness testing are may help physical educators make their physical education classes a positive and enjoyable experience for their students (Flohr & Williams, 1997). Fitness testing provides students with meaningful information to help them decide whether or not their health status needs improvement (Pangrazi & Corbin, 1993). Teaching children the importance of fitness testing can help students see if they are within the HFZ in the five components of health-related fitness. In turn this will help them in setting health-related fitness goals (Welk et al., 2002).

Fitness testing can be educational by developing problem-solving and self-evaluation skills necessary for a physically active lifestyle (Naugton, Carlson, & Greene, 2006). Fitness testing can also better motivate students to increase their fitness levels and physical activity (Cale & Harris, 2002). Fitness tests that use criterion-referenced health standards encourage children to focus on their own health rather than compare themselves to others, thereby enhancing the children's motivation and self-confidence (Koebel et al., 1992). It is not the scores necessarily that are of importance, but rather the process a child goes through as they participate in fitness testing (Hopple, 1992).

Physical educators have the responsibility to teach their students the how, what, and why of physical fitness and fitness testing. A teacher's perception of and approach

toward this responsibility may greatly influence a child’s perception of and approach to participating in physical fitness and fitness testing (Flohr & Williams, 1997). Fitness testing can and should be a matter of teaching children about their personal health and helping them to understand the importance of living and maintaining a healthy lifestyle. Physical educators' primary focus should be children’s perceptions of and attitudes toward physical fitness to create a positive fitness testing experience (Keating, 2003).

Chapter 3

Methods

Participants

One hundred and seventy-six fifth and sixth grade students at a public elementary school in a western state in the United States will be invited to participate in this study. Only those who have returned a signed informed consent form will be able to participate in the FITNESSGRAM study. All procedures and methods for the study will be approved by the University Institutional Review Board.

Setting

This study will be conducted at an elementary school with a population of approximately 800 students. The students will self-test the following assessments from the FITNESSGRAM Fitness Test: curl-ups, push-ups, shoulder stretch, back-saver sit-and-reach, trunk lift, and the Progressive Aerobic Cardiovascular Endurance Run (PACER). The FITNESSGRAM Reference Guide has an extensive review of the validity and reliability research for each of FITNESSGRAM's test items (Welk et al., 2002). FITNESSGRAM will be administered to all students during physical education class the last month of the school year. Participants will have regular physical education activities for several weeks prior to their testing. The test will be self-administered with the students working on their own or with a partner carrying their personal fitness cards with them to each fitness testing station. After completing all of the tests the students will turn in their fitness cards to the teacher and fill out a written questionnaire containing five

questions relating to their experience participating in FITNESSGRAM (see Appendix A-2).

Procedures

Two weeks prior to conducting the study, a five-minute explanation will be given to the students about the upcoming study. Those who wish to participate will take an informed consent form home to be signed by their parents and return it to the school prior to participating in FITNESSGRAM. Students will enter the gym and sit on the steps for a five-minute description of the testing procedures and a five-minute demonstration of how each test is to be done at their respective stations. The researcher will explain to the students the purpose of fitness testing and particularly FITNESSGRAM, the importance of being honest in their results, and that there is no right or wrong answer. It will be emphasized that the fitness test is not a competition, but an effort to identify their personal health status. Students will be told that the researcher is not concerned about their health status (so students will not perform to please the researcher), but rather wants *them* to know where *they* stand health-wise. Five of the six fitness areas that will be tested will be presented in a station format. The researcher will first demonstrate at each station how it is to be done. Students will choose in what order they perform the tests. Each station will have a sign with directions of how to administer the test. Each station will also have a scoring chart informing the students of their desired HFZ range. Students can choose to work with a partner or alone. The teacher will not interfere in the process, but will be available to the students for any questions they have. Once students finish all five tests, time permitting, they may return to any of the tests to do it again, or turn in

their scorecards to the researcher. Students will complete the five test stations within the thirty minutes of their physical education time. The PACER will be the sixth test. Because it is designed to do as a group it will be done the second testing day (which will not be until the next week) during students' physical education period. The PACER is still considered self-testing because the students will keep track of their scores.

Data Sources

Data will be gathered during the month of May. Three different data methods will be used: questionnaires, follow-up individual interviews, and the researcher's field notes.

Questionnaires. A questionnaire will be given to all participants following the fitness test containing five questions relating to their experience completing FITNESSGRAM (See Appendix A-2). The questionnaire questions were derived from (a) pilot interviews with students who have participated in FITNESSGRAM previously and (b) Hopple and Graham's (1995) study of student's perceptions of the mile run. The questionnaire will attempt to discover students' perceptions of FITNESSGRAM administered in a self-testing format, the effect of FITNESSGRAM on students' perceptions of their personal health, and their understanding of the purpose of fitness testing. The students will be informed that their fitness scores and their responses to the questionnaire will be kept confidential, used for research purposes only, and they will not be graded on them.

Follow-up individual interviews. From the scores the students fill in on their personal fitness cards, the researcher will identify students who scored in the HFZ on each of the six tests and those who did not. Students will be classified into two groups:

one group who scores in the HFZ in a majority of the test items (four out of the six tests), and the other group who did not score in the HFZ in a majority of the test items (three or fewer out of the six tests). Fifty students proportional to those who pass and did not pass will participate in a semi-structured individual interview using follow-up questions to the written questionnaire. Children who pass most of the test items may have different perceptions than children who did not pass most of the test items (Hopple & Graham, 1995). Therefore, we will interview children in both categories. Students from these two groups will be selected based on well thought-out responses (determined by the researcher) on their questionnaire. The students will be pulled out of their homeroom classes to be interviewed by the researcher the week following the administration of FITNESSGRAM. The interview will include such questions as

- How do you feel about fitness testing, specifically FITNESSGRAM? What did you like about it? What didn't you like about it?
- How did you feel doing the fitness test on your own or with a partner? Would you rather have the teacher record scores? Why or Why not?
- How did you feel about yourself and your own level of fitness after doing FITNESSGRAM?
- In your opinion, why do we do fitness testing? Is it important? Why or Why not?
- Did taking FITNESSGRAM change your opinion about fitness testing or the importance of being fit?

The students will be able to elaborate during the interviews, and follow-up questions will be asked as needed. Each interview will be audio taped and take no more than 10 minutes. Written and verbal questions will be modeled after Hopple and Graham's (1995) study of student's perceptions of the mile run. Questions were piloted

with fifth and sixth graders, and then refined by several Physical Education Teacher Education (PETE) professionals to confirm their age appropriateness, validity, and objectivity.

Field notes. Field notes on verbal and nonverbal language of the students will be taken during the assessment of FITNESSGRAM and during individual interviews. These notes will help in the formulation and categorization of emerging themes.

Data Analysis

The researcher will be using the constant comparative method (Lincoln & Guba, 1985), which involves taking the data from the written questionnaires and verbal interviews and using it to identify themes. Each written and verbal response will be located under the proper theme in the manner of categorizing. Categories will be compared with each other looking for any common themes. The outcome of this process will be identified themes that will be highly representative of the data collected.

Established Trustworthiness

While involved in qualitative research, a researcher may assume diverse membership roles. Adler and Adler (1994) imply three principal researcher membership roles: (a) the complete member, (b) the active member, and (c) the peripheral member researcher. The primary researcher will take on the role of active member researcher, interacting closely enough with the members being studied to establish an insider's identity without participating in those activities that may constitute group membership (Adler & Adler, 1994).

Researcher bias statement. The researcher has been a physical education teacher for six years and has conducted only one fitness test battery, the Presidential Physical Fitness Test. Every student in the school, second grade and higher, was required to complete this fitness test. After conducting the test for two years it was observed that the test did not provide a very positive experience for the majority of students, despite the teacher's efforts to be positive and enthusiastic about the test (the same way FITNESSGRAM will be approached). Since learning about FITNESSGRAM and conducting a pilot study of FITNESSGRAM last year, the researcher has seen how this fitness test provides a positive experience for students and helps them to better understand the role and importance of fitness testing. She also has seen how it helps them to know their personal health status, and not how their scores compare to their peers. The desire is that the children's perceptions and experiences of FITNESSGRAM be positive, and encourage them to want to be physically active now and in the future. For those who want to participate in the Presidential Physical Fitness Test, it is now made available outside physical education class hours.

Peer debriefer. The primary researcher will work with a university pedagogy professor to review and analyze the data to avoid any research bias (Gerdes & Conn, 2001). He will meet with the researcher on a regular basis until the data analysis is completed.

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Appendix A-1

Informed Consent Form

Consent to Be a Research Subject

Dear Parent/Guardian,

In physical education students regularly participate in physical fitness testing. These tests remain the most commonly used tool in public school to assess fitness. Designed by adults, the current fitness tests do not seem to mesh with children's perceptions of the world and what they see as important and meaningful. It is important that students make the connection between their health and how these tests can help them assess their fitness level. Mrs. Barbara Boone Sampson, the physical education teacher at Westridge Elementary, will be conducting a research study to identify student perceptions of the Fitnessgram fitness test.

Your child will participate in the Fitnessgram fitness test as part of the regular physical education curriculum. The class will be assigned to stations and rotated through until they have completed each test component. Students will be assessed in four general areas of health-related fitness as follows:

- Aerobic capacity
  - Measured using the PACER (a 20 meter progressive, multi-stage shuttle run set to music).

- Muscle strength and endurance
  - Abdominal strength--measured with a curl-up test. The students will perform curl-ups set to a cadence. When the student is not in sync with the cadence they are finished with their test and record how many curl-ups they have completed.
  - Upper body strength--measured using a push-up test. The students will perform push-ups set to a cadence. When the student is not in sync with the cadence they are finished with their test and record how many push-ups they have completed.
  - Trunk strength and flexibility--measured with a trunk lift. The student will lay flat on their stomach with their arms to their side. They will then lift their upper body and have a partner place a card next to their chin.

- Flexibility
  - Back-saver sit-and-reach--students will remove their shoes and sit having one foot against the box and the other foot in toward their body. They will put one hand over the other and then have three repetitions to reach as far as they can, on the fourth repetition they hold the stretch and their partner will record their score. Then the student will switch and follow the same procedure with the opposite foot.
  - Shoulder stretch--students will put one arm behind their back above their head, the other arm is brought behind their back next to their waist. If they can touch their fingers in between their shoulder blades the test is completed.

Students are not compared to each other, but to health fitness standards (Healthy Fitness Zone), specific to age and gender, that indicate good health. Results from the testing will be known only to the student, parent, and researchers. At the conclusion of the study, Fitnessgram fitness cards will be sent home to parents. Upon completion your child will be asked to complete a short questionnaire about their feelings towards the fitness testing. According to the results of Fitnessgram your child may be selected to be interviewed. The student interviews will be audio taped. Only the researchers will listen to the audiotape. After the data analysis is completed the audiotapes will be destroyed. Two class periods will be used to administer Fitnessgram and the questionnaires. Interviews will be conducted during students' regular homeroom class time.

Your child's participation in this study is voluntary. There are minimal risks, such as discomfort from answering the questionnaires and interview questions. Blank questionnaires will be available upon

request for parental preview. If you choose not to let your child participate, or if you or your child choose to withdraw at any time it will not affect your child's grade or standing in school in any way.

On the first day your child participates, he or she will be given a Fitnessgram fitness card. They will record their scores for each test on this card. According to the age and gender specific standards the student will be informed if they are in a Healthy Fitness Zone (HFZ) or if they need improvement. A questionnaire will be given immediately following the fitness test with questions that will attempt to ascertain what students think the purpose of fitness testing is, and their likes and dislikes. Students will be assured this questionnaire will have no effect on their physical education grade. Fifty students will be chosen for follow-up interviews to further explore their perceptions of Fitnessgram. They will be interviewed individually and the interview will last no longer than 10 minutes.

Benefits to the participants include: knowledge of their fitness level, and an understanding of how to fitness test themselves. The results of this project may be published in a journal and/or presented at a professional conference. Your child's name or identity will not be revealed. In order to keep this confidential, only a code number will identify your child in this project. Documents that link your child's name with this code number will be kept separate and secured from the completed data forms.

If you have any questions concerning the research study or your child's participation, you may contact Dr. Susan Graser at 422-6477 (address: 249-G SFH, Brigham Young University, Provo, UT 84602). If you have questions regarding your child's rights as a participant in this research project, you may contact Dr. Renea Beckstrand, Brigham Young University, 422 SWKT, Provo, UT 84602; phone (801) 422-3873; email renea_beckstrand@byu.edu.

Sincerely,

Barbara Boone Sampson
Physical Education Teacher

My parent/guardian has given permission for me to participate in a research study where I will fill out a questionnaire and may be interviewed about my opinions of fitness testing. I know that the interview will be audio taped. I know that my Fitnessgram scores and the questionnaire will only be shared with the teacher. I understand that I can choose not to answer questions I do not want to. I am participating in this study because I want to and I know that I can stop participating at any time.

_____
Student's signature

Parent Consent

I give consent for my child to participate in the research study described above.

_____ _____
Signature Date

Appendix A-2

Questionnaire

FITNESSGRAM Questionnaire

Name:

Please Circle: Male Female

Age:

Grade Level:

1. What did you think about FITNESSGRAM?

2. How did you feel doing FITNESSGRAM on your own or with a partner?

3. In your opinion, why do we do fitness testing?

4. After doing FITNESSGRAM how do you feel about your own fitness and health?

5. How did your results of FITNESSGRAM make you feel about yourself?