

# Children's Perceptions of Fitness Self-Testing, the Purpose of Fitness Testing, and Personal Health

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## Abstract

*Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing as it contributes to effective, positive, and motivating physical education (PE) classes. The purpose of this qualitative study was to identify fifth and sixth graders' perceptions of fitness testing using FITNESSGRAM in a self-testing format. Specifically, this study evaluated (a) children's perceptions of FITNESSGRAM, administered in a self-testing format, (b) children's understanding of the purpose of fitness self-testing, and (c) the effects of participation in FITNESSGRAM self-testing on children's perceptions of personal health. This study used questionnaires (n = 78) and follow-up interviews (n = 45) to identify children's perceptions of their experience. Using inductive content analysis (Lincoln & Guba, 1985) of student perceptions, three main categories emerged: (a) self-testing procedures, (b) cognitive understanding, and (c) overall influence of fitness testing. Findings revealed that children enjoyed a self-testing format, understood the purpose of fitness self-testing, and connected their FITNESSGRAM results to their overall health lending support to the use of a fitness self-testing approach in PE.*

Schools, teachers, and students are in an era of outcomes-based education, physical educators included. For example, states such

as California, South Carolina, and Texas (National Association of Sport and Physical Education & American Heart Association, 2010) mandate annual fitness testing in physical education (PE) classes for the purpose of providing evidence that PE works—that kids are getting more fit. While fitness testing has a long history in PE, unfortunately, it tends to also have a bad reputation with teachers and students alike. Yet, because fitness indicators are closely related to health indicators, the goals of identifying fitness levels of children are still important. Thus Pate's (1991) queries about fitness testing have provided valuable guidance for researchers in their examination of all things in relation to fitness testing in the PE setting. Said Pate,

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).

Despite Pate's recommendations some 20 years ago, only limited research has attempted to answer some of these questions and generally shows that youth (a) do not

like fitness testing because it doesn't seem important to them, (b) don't enjoy the way it is administered, and (c) it is not fun (Flohr & Williams, 1997; Fox & Biddle, 1988; Keating, Silverman, & Kulinna, 2002).

Some of the dislike of fitness testing has come from using (a) norm-referenced standards to assess youth and (b) a format that makes a public display of student abilities or inabilities. Norm-referenced standards compare a student's scores to a percentile standard that ranks them among their nationwide peers. This type of standard has given students an idea of how they fare against their peers but tells them nothing of how their level of fitness affects their overall health. This type of fitness testing is essentially a nationwide competition and not a fitness assessment that informs children and youth about personal fitness and health status. Additionally, norm-referenced standards have produced a very high failure rate given that only the top 15% of students are considered fit. The rest often walk away from the experience feeling as though they have failed (Ernst, Corbin, Beighle, & Pangrazi, 2006). This type of fitness testing experience (norm-referenced standards and public display) contributes to youth disliking fitness testing.

Recognizing the need for an approach to fitness testing that would be informative and instructive to participants, FITNESSGRAM was developed by the Cooper Institutes (Meredith & Welk, 2004). Unlike norm-referenced fitness tests, FITNESSGRAM is a criterion-referenced test battery that relates performance outcomes to indicators associated with one's health. Health-referenced fitness standards allow youth to compare their performance to criteria that inform them of their personal health status instead of being compared to their peers. FITNESSGRAM enables students to see if they are within the Healthy Fitness Zone (HFZ; Meredith & Welk, 2004) in the five components of health-related fitness (aerobic capacity, muscular strength, muscular endurance, flexibility, and body composition). For those students in the HFZ, the instructor helps them develop

a maintenance program and for those with fitness deficiencies, a plan for improvement.

Flohr and Williams (1997) emphasized the importance of assessing students' attitudes about fitness testing in order to better create an effective, positive, and motivating PE experience. Since it is unlikely that students benefit from a fitness testing experience that they dislike, efforts to create a positive fitness testing experience may be critical to students gaining associated learning outcomes. A positive and educationally informative fitness testing experience might be described as one where students (a) feel they are in a safe environment for testing, (b) understand the purpose of the fitness testing, (c) make connections between their own healthy-fitness levels and their physical activity behaviors, and (d) conclude the experience feeling positively about fitness testing. Therefore, in an effort to create a more positive fitness testing experience the present researchers created and administered FITNESSGRAM in a self-testing format to fifth and sixth grade PE students. According to Welk & Meredith (2008), the primary purpose of FITNESSGRAM is that students become self-sufficient with respect to personal fitness, able to test and then interpret their own results. Pangrazi (2001), and Corbin, Pangrazi, and Welk (1995) favor a self-testing approach because it focuses on the process of the test, is student-centered, and focuses less attention on performance scores (i.e., as compared to peers). Fox and Biddle (1986) and Welk and Meredith (2008) argue that the life-long value of fitness testing is realized when individuals learn to engage in the process of testing, interpreting, and making lifestyle decisions and interventions far outweighs their performance scores.

Therefore the purpose of this study was to examine (a) children's perceptions of FITNESSGRAM, administered in a self-testing format (b) children's understanding of the purpose of fitness self-testing, and (c) the effects of participation in FITNESSGRAM self-testing on children's perceptions of personal health.

## Method

### Participants and Setting

Seventy-eight fifth and sixth grade students from a mid-to-low socioeconomic status public elementary school in the western United States, who agreed to participate in this study, received and returned a signed letter of informed consent/assent. Participants understood that they would be asked to provide their perceptions about the FITNESSGRAM fitness test that would be conducted as a regular part of their PE curriculum. All procedures and methods for the study were approved by the University Institutional Review Board, school district, and school principal.

### Instrumentation and Definitions

This qualitative study utilized a written questionnaire, interviews, and field notes to determine student's perceptions of their experience participating in FITNESSGRAM using a self-testing format.

**Written questionnaire.** The researchers developed a questionnaire designed to ascertain the students' perceptions of (a) FITNESSGRAM administered in a self-testing format, (b) their understanding of the purpose of fitness testing, and (c) the effect of FITNESSGRAM on students' perceptions of their personal health. Open-ended questions were guided by earlier work and recommendations examining student perceptions specific to fitness testing of Flohr and Williams (1997), Hopple and Graham (1995), and Welch (2007). In extension of these previous works, questions for this study examined fifth and sixth grade students' perceptions specific to FITNESSGRAM conducted in a self-testing format. Once developed, the questionnaire was piloted with students who had previously participated in fitness self-testing to ensure clarity and understanding. Questions were then refined for used in this study.

**Follow-up individual interviews.** Follow-up interviews were conducted with a sample of participants representative of gender and performance, using questions

again that were previously piloted with fifth and sixth graders, and then refined by several Physical Education Teacher Education (PETE) professionals to confirm their age appropriateness, face validity, and objectivity. In order to get a representative sample of students who passed or didn't pass a majority of the test items students were categorized into two groups: those who scored in the HFZ in a majority of the test items (four or more of the six tests), and those who did not score in the HFZ in a majority of the test items (three or fewer 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. 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). Additionally, for the purpose of equal gender representation, both boys and girls were represented in the interviews (21 boys and 24 girls). These students were purposefully selected to be interviewed based on their well thought-out responses as determined by the primary researcher and peer debriefer (described in detail below) on their questionnaire.

**Field notes.** Field notes on verbal and nonverbal language of the students were taken during the assessment of FITNESSGRAM and during individual interviews by the primary researcher. These field notes consisted of summaries of conversations along with emerging ideas, strategies, hunches, and insights obtained throughout the data collection and analysis process (Bogdan & Biklen, 1998). These notes served as guides to the discussions held with the peer debriefer and in formulating the themes and the subsequent categories that emerged from the analysis of the data.

**Definition.** FITNESSGRAM assesses the five health-related fitness components using a criterion-referenced standard directly related to health outcomes. As such, the HFZ's give an indication of personal health as it relates to each fitness component. In an attempt to teach

the fifth and sixth graders in this study about the HFZs, in an age and developmentally appropriate way, the teacher defined the HFZ's as the range of scores which tell them they have enough fitness to be healthy. All comments and responses from participants in this study should be understood in this context. These participants understood that if they reached the HFZ they were considered healthy in that area.

### **Procedures and Manipulation**

This study followed recommended protocol (described below) for administering FITNESSGRAM in a self-testing format (Welk & Meredith, 2008) and added the station format to facilitate the self-testing process. FITNESSGRAM was administered to all students during PE class in the last month of the school year. In this school, fifth and sixth grade classes attended PE once a week for 30 minutes. The students self-tested the following activities from FITNESSGRAM: curl-ups, push-ups, shoulder stretch, back-saver sit-and-reach, trunk lift, and the Progressive Aerobic Cardiovascular Endurance Run (PACER).

#### **Prior to fitness self-testing days.**

Participants had regular PE activities for several weeks prior to their testing. During the weeks prior to fitness self-testing, students were instructed on how each of the tests were performed and given an opportunity to practice doing the test correctly. They were also taught the purpose of fitness testing, particularly FITNESSGRAM, and students were encouraged to be honest in recording their results, which would be neither right nor 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 specifically emphasized that the fitness test is not a competition, but an effort to classify their personal health. 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. It was explained to the students that when they are healthy and continue to be physically active, they will reduce the risk of having some diseases in their lives now and in the future.

Students were taught what the healthy fitness zones (HFZs) were for each of the tests and how to look up their scores on a chart to see if they are in the HFZ (information on the development of the healthy fitness zone standards can be obtained from FITNESSGRAM, Welk & Meredith, 2008). It was specifically mentioned that the process they would go through and what they learned from their self-testing experience was the 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 regarding their health.

**Fitness self-testing days.** 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.

All fitness tests were presented in a station format except for the PACER. Each station had a sign with directions of how to complete the test and scoring charts informing the students of the HFZ. Students self-administered the tests, on their own or with a partner, in any order they chose. Students carried a personal fitness card with them to each fitness testing station which allowed them to record their own scores. The teacher did not interfere in the process but was available to the students for clarifications of any questions.

Upon completion, students turned in their scorecards to the teacher. Students completed

the five testing stations within the 30 minutes of their PE class time. The PACER was the sixth test. Because it was designed to be performed in a group setting, it was done on the second testing day (which was not until the next week) during students' PE 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 the written questionnaire about their experience participating in FITNESSGRAM. The students were informed that their fitness scores and their responses to the written questionnaire would be kept confidential, used for research purposes only, and they would not be graded on them.

**One week after fitness testing.** After an initial review of the responses given on the written questionnaires, the researcher and peer debriefer purposefully selected participants for the individual interviews as described in the instrumentation section. The researcher called the students out of their homeroom classrooms and conducted one-on-one interviews. The students were able to elaborate on their responses in the questionnaire during the interviews, and follow-up questions were asked to probe for deeper understanding and clarification as needed. Each interview was audio taped and took approximately 10 minutes.

### **Data Analysis**

Three different data sources were used: questionnaires, follow-up individual interviews, and the primary researcher's field notes. The primary 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 the raw data. Categories emerged by comparing the individual themes with each other looking for any further commonalities.

The outcome of this process was three main categories made up of their subsequent themes representing all of the data collected.

**Established trustworthiness.** In qualitative research, various strategies are implemented to ensure the study has rigor just as measures are taken for reliability and validity in quantitative research. The following protocols were implemented to ensure rigor:

**Researcher roles.** Adler and Adler (1994) imply three principal researcher membership roles: (a) the complete member; "those who study scenes where they are already members or those who become converted to genuine membership during the course of their research," (b) the active member; "those who become more involved in the setting's central activities, assuming responsibilities that advance the group, but without fully committing themselves to members' values and goals," and (c) the peripheral member; "those who observe and interact closely enough with members to establish an insider's identity without participating in those activities constituting the core of group membership" (Adler & Adler, 1994, p. 380). The primary researcher in this study took on the role of active member researcher, interacting closely enough with the students in the classes to establish an insider's identity without participating in the fitness self-testing, written questionnaires, or interviews.

**Peer debriefer.** The primary researcher worked with a peer debriefer (a university professor) to review and analyze the data to avoid any research bias (Gerdes & Conn, 2001). The role of the peer debriefer included exploring the researcher's biases, discussing the researcher's field notes, clarifying the researcher's interpretations, and playing the role of devil's advocate (Hanson & Newburg, 1992). The peer debriefer was present for some of the interviews to ensure that the researcher was not biasing students' responses by asking leading questions. Following the interviews, he met with the primary researcher on a weekly basis until all raw data had been categorized and placed in an appropriate theme.

**Inquiry audit.** An inquiry audit was the last technique used to give the study credibility. This technique is metaphorically based on a fiscal audit, in other words, the auditor examines the audit trail to determine if the categories and themes are based on data and that logical conclusions were made. In order for the inquiry audit to occur, the author primarily responsible for data analysis prepared and maintained an audit trail. This audit trail consisted of five categories: (a) gathering raw data, (b) data reduction and analysis products, (c) data reconstruction and synthesis products, (d) process notes, and (e) instrument development information (For further clarification on what these steps entail see Lincoln & Guba, 1985). One of the secondary researchers (a university

professor) not involved in the data collection, peer debriefing, and data analysis process performed the inquiry audit.

## Results

The data analyses identified three main categories in student perceptions, (a) self-testing procedures, (b) cognitive understanding, and (c) overall influence of fitness testing. Each category has two to four respective themes that are representative of the data collected. Table 1 shows the number and type of comments that were identified for each category and theme. Each category and its supporting themes, along with examples of positive and negative comments, will be discussed in the following paragraphs.

**Table 1**

*Children's Perceptions of Fitness Self-Testing*

Categories (and Themes)	# of Comments	Positive	Negative
<b>1. Testing Procedures</b>	156	122	34
Partner Selection	125	112	13
Score sheets	31	10	21
<b>2. Cognitive Understanding</b>	217	146	5
Health/Fitness Assessment	66	*	*
Knowledge of Results	151	146	5
<b>3. Overall Influence of Fitness Testing</b>	283	275	8
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
<b>TOTAL</b>	<b>656</b>	<b>543</b>	<b>47</b>

\* *Health/Fitness Assessment responses did not present as positive or negative in nature and are therefore not classified.*

## Self-Testing Procedures

Self-testing procedures was the first category identified and is defined by comments which related to is the self-testing format in which FITNESSGRAM was administered. This category is supported by two themes: (a) Partner Selection, and (b) Score Sheets.

**Partner selection.** This theme is defined as students' preference of whom to do FITNESSGRAM self-testing with, a partner or on their own. One hundred and twelve comments 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. From these results, students showed preference for doing the fitness test with a chosen 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; Note: Page numbers refer to the original source of the comment in the raw data set). 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, because of the encouragement they received from them. Two of the thirteen students who would rather do a fitness test with a teacher administering the test said: "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). Other 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 stated, "I would like it for everyone to see my scores cuz I'm proud of it" (Student 43, pg. 116).

## Cognitive Understanding

Cognitive understanding was the second category and is defined by comments related to the reasons for doing fitness self-testing and students' understanding of the results. This category had two themes: (a) health/fitness assessment, and (b) knowledge of results.

**Health/fitness assessment.** Students cognitively understood that the reason for doing fitness testing was to see if they were healthy/fit, and to learn what they can do to maintain or improve 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). Another 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). This student's comment demonstrated a general understanding that the HFZ tells you "where you are supposed to be at for your age and gender" (Student 22, pg. 61).

**Knowledge of results.** The students' knowledge of their results on the FITNESSGRAM and what that meant in terms of their health defined this theme. 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, only realizing after that their health for their age was satisfactory. One 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).

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).

### **Overall Influence of Fitness Self-Testing**

This category is defined as being the overall influence, positive and negative, that FITNESSGRAM self-testing had on the students. Results indicated that FITNESSGRAM self-testing was a fun, educational, and motivating experience for the students. Only five comments showed that the experience was "hard" or "tiring." Even though these students felt this way some of them still enjoyed participating in fitness self-testing. 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.

**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. Eighty-five 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. Only two students mentioned that it did not have an impact on them citing that they were already active.

The following comments represent the positive influence of FITNESSGRAM on the students: "It made me happy, so it makes me feel like I should do it more and be active" (Student 19, pg. 55). 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 self-testing 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 student mentioned:

It kind of changed 'cause 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).

Many students admitted that they have not been very active in their daily lives and after doing FITNESSGRAM self-testing their attitude changed. "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). "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). Another student simply said, “It got me pumped” (Student 37, pg. 98)!

**Results 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 from this theme indicated 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 scored in the HFZ. “Because I was able to pass most of the tests (HFZ), and when I did that it made me feel like I was pretty healthy” (Student 27, pg. 75). Others mentioned that simply participating in fitness self-testing 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 that FITNESSGRAM self-testing 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 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). 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 fitness self-testing as being a challenge, all but one implied that the challenge was a good thing. 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. One student said, “I liked it because I got to see how far I went” (Student 13, pg. 35). Another student said, “...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).

Even though students understood that FITNESSGRAM self-testing was not about comparing themselves to their peers they still liked to compete a little and see how they measured up to their friends. One student said, “It’s just fun to compare” (Student 30, pg. 82).

**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. For example, some liked the PACER because they like to run and some did not like it because they do not like to run. Several students said they liked FITNESSGRAM self-testing only because they passed, or reached the HFZ for their age. One girl said, “I passed and so I feel good that I’m healthy” (Student 15, pg. 40). 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 self-testing was boring because, “I didn’t think I was good at any of them” (Student 38, pg. 102).

## Discussion

Given the present climate of outcomes-based education, fitness outcomes will continue to be an important indicator for PE teachers to assess for the foreseeable future. Past student perceptions of fitness testing have shown an overall dislike because they do not understand why they are taking the test, do not like how it is administered, do not feel 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 showed that after participating in FITNESSGRAM in a self-testing format, and with a focus on educating the students on the purpose of the fitness test prior to the testing experience, children generally liked a self-testing approach, understood the purpose for fitness self-testing, and connected their results to their overall health. By using a health-related criterion referenced standard to measure fitness, students can self-assess their personal fitness and compare it to a HFZ that is directly linked to health indicators. They no longer have to worry about being tested in front of their peers and being compared to a norm-referenced standard. PE teachers can teach the purpose of fitness testing in advance and provide follow-up information on how to interpret their results and make a plan for fitness maintenance or improvement.

### Students' Perceptions of FITNESSGRAM, Administered in a Self-testing Format

Self-testing procedures emerged as a category in the data analyses and participants expressed a definite preference for working with a partner of their choice. Keating (2003) identified three problems with typical administration of fitness testing: (a) the majority of tests are administered in public, (b) peer-scored tests are not confidential, and (c) the administration of fitness tests is time intensive. All three of these problems were resolved through administering the fitness test using self-testing stations.

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, a greater degree of privacy can be maintained.

Second, students in this study preferred doing the tests on their own or with a partner of their choice. If students choose to do the fitness test with a partner, they are demonstrating that they do not mind if their partner sees their results. Keating's (2003) concern about confidentiality of scorecards related to one-third of the students in this study 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. If one-third of students still fear being made fun of because of their scores, then teachers still need to educate their students on privacy of scores and respect of classmates. The majority, however, showed a more confident attitude, saying that it did not matter what other people thought and would not mind if others saw their scores. Some 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) have the opinion that too much time in PE classes is being spent on fitness testing. This study demonstrates how FITNESSGRAM can be administered in two 30-minute periods, which is a reasonable and manageable amount of time for physical educators.

### Children's Understanding of the Purpose of Fitness Testing

Researchers (Keating, 2003; Keating et al., 2002) suggest that the purpose of fitness tests should be to promote lifetime participation in physical activity. This is also one of the stated purposes of FITNESSGRAM administered in a self-testing format (Welk & Meredith, 2008). Hopple and Graham's (1995) study 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 & 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 positive experience doing it, most likely because the teacher explained to them the reasons for doing it.

Using FITNESSGRAM's healthy fitness zones, students were able to see firsthand 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 self-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 self-testing was to test their personal fitness status and to see how they compared to healthy fitness standards and not to their peers.

Students who misunderstand the intended purpose of fitness testing may feel dissatisfied following the testing experience. For example, students who view the purpose of fitness testing as competitive often feel expected to achieve high levels of performance that if they don't reach they may view 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, Corbin, Beighle and Pangrazi (2006), FITNESSGRAM was created to promote enjoyment and intrinsic motivation for lifelong physical activity among youth. Results from this study support this purpose.

### **Effect of Participation in FITNESSGRAM on Students' Perceptions of Their Personal Health**

Results showed that participation in FITNESSGRAM in a self-testing format had a positive impact on students' perceptions

of their personal health. They felt that their results told them they were healthy, which made them feel 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. Many students expressed a desire to participate in more physical activity and try to get in the HFZ or to stay in the HFZ because of their participation in fitness self-testing.

**Limitations.** There were some limitations to this study. Fitness tests were self-administered, so student test scores may not have been completely accurate. Some may argue that student perceptions expressed in this study are based on inaccurate results. This may have had an influence on students' perceptions; but it is important to focus on the main purpose of this study, which is to assess perceptions of the process of self-testing. In elementary schools, students are not going to be basing their long-term health decisions on the results of this test. They will gain more from the experience of self-testing as a means of discovering their health status. As these students continue to develop in junior high and high school, and they continue to participate in fitness testing, the accuracy of their results will likely improve. This gradual increase in accuracy, understanding, and application is no different in PE than it is in other academic content area. A child's spelling and punctuation, for example, improve over time, facilitating greater accuracy and application throughout life. FITNESSGRAM indicates that greater proficiency can be expected as students grow. They become not only more capable and accurate self-testers, but they are also able to process the results with increasingly deeper analysis. Their abilities to make choices that affect their health will also improve. It would be beneficial for teachers in elementary schools to emphasize to students that their results may be inaccurate but can be used as a general guide (Welk & Meredith, 2008). Future studies with elementary age students might evaluate the process of self-testing and ensure accurate results to determine if student

perceptions are appreciably different from the results of this study.

This study was also limited to fifth and sixth graders at an elementary school in a western state in the United States. The researcher in this study was the PE 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 who chose not to participate may have done so because they or their parents do not like fitness testing.

### Conclusion

In conclusion, this study shows that children enjoyed a self-testing format, understood the purpose of fitness self-testing, and connected their results on FITNESSGRAM to their overall health.

Results from this study have direct implications for PE teachers. Test administration procedures are important to students' perceptions and enjoyment. We recommend that teachers follow the self-testing procedures used in this study to administer FITNESSGRAM to students. Allow students to self-test each fitness component, let them choose a partner to work with and to keep their own score cards. Give them good instruction prior to testing so that they have a clear understanding of the purpose of fitness testing. Provide them with good follow-up information on what their results mean and how they can work to maintain or improve their health-related fitness. Using this approach can lead to a positive educational experience for students.

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