

Report for Quantitative Research Article

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Step	Keyword/Phrase to find this	
1	CITATION (1) What study report is this? Write a complete and accurate reference citation	Keating, X. D., Guan, J., Ferguson, R. H., Chen, L., & Bridges, D. M. (2008). Physical Education Teacher Attitudes toward Fitness Tests Scale: Cross-Revalidation and Modification. <i>Measurement in Physical Education and Exercise Science, 12</i> (2), 72-87. Retrieved from EBSCOhost.
2	PURPOSE AND GENERAL RATIONALE (1) In broad terms, what was the purpose of the study, and how did the author/s make a case for its general importance?	The purpose of the study was to provide further validation (cross-validate) and reliability for the Physical Education Teacher Attitudes toward Fitness Tests Scale (PETAFTS), consisting of the affective and cognitive domains. PETAFTS has been used to examine teacher attitudes towards fitness tests in schools. The author highlights the growing obesity epidemic and discusses the importance of better understanding fitness tests and how they should be used within school-based physical education programs. The study is important because the authors believe that teachers' attitudes towards the tests may affect how the tests are administered and whether or not they are used effectively within their programs.
3	FIT AND SPECIFIC RATIONALE (1) How does the topic of the study fit into the existing research literature, and what is the rationale used to make a specific case for this investigation?	In past research, PETAFTS has shown evidence of reliability and validity in examining teacher attitudes, which has helped researchers collect data regarding how the teachers perceive the fitness tests. In the authors' first study (2004) in which they developed the scale, it was cautioned that further validation and analysis would be desirable to be able to use the scale with more confidence. Thus, the authors wanted to cross-validate the scale with a different sample of teachers to gain more confidence in the scale. Understanding the relationship between attitudes and the use of fitness tests may lead to further understanding of the "entire issue of youth fitness testing practice in school-based physical education programs, which might have played an important role in influencing many youth's fitness/PA behaviors and teachers' fitness instruction". (p. 76).
4	PARTICIPANTS (1) Describe who was studied (give number/s and characteristics) and how they were selected	469 full-time elementary and secondary physical education teachers from public schools in two southwestern states participated in the study. 55.4% were female and 44.6% were male. 68.9% (323) of the teachers were from a state that had a mandatory requirement for implementing the FITNESSGRAM. 31.1% (146) of the teachers came from a state with no fitness test requirements. 83.2% of the teachers were from secondary schools. All participants implemented fitness tests within last two years and 71.6% of them implemented the FITNESSGRAM. A convenience sample was used for this study due to the distribution of the surveys to district teachers in the area and those attending a statewide conference.
5	CONTEXT (1) Where did the study take place? Describe any important characteristics of that context.	This study took place in two southwestern states (unnamed) in the United States, and data was collected from full-time physical education teachers in public elementary and secondary schools. There were no physical observations in one school setting, nor were the surveys distributed just at one time.
6	STEPS IN SEQUENCE (3) In the order performed, what were the main procedural steps in the study? <u>Diagram in a flow chart (can add at end)</u> , showing order and any important relationships among the steps.	See attached flowchart at end of document.
7	DATA (2) What constituted data (e.g., test scores, questionnaire responses, frequency counts), how was it collected, and what was the role of the investigator/s in process.	Data was collected through the use of surveys containing a 16-item scale evaluating the affective and cognitive domains. The affective domain had two sub domains (enjoyment of implementing fitness tests and enjoyment of using fitness test results), and the cognitive domain had one sub domain (beliefs in the usefulness of test results). Additionally, they used a 7-item Likert scale to measure the strength of teacher attitudes. Beyond the recruitment of teachers to take the survey (by phone, by giving survey to teachers at a conference, and by mail), the investigators did not interact very much with the participants. All survey responses were sent back to researchers by mail.

8	<p>ANALYSIS (2)</p> <p>What form of data analysis was used, and what specific questions was it designed to answer? What (if any) statistical operations and computer programs were employed?</p>	<p>-Descriptive statistics were performed using SPSS version 15.0.</p> <p>-Cronbach's alpha was calculated to assess the internal consistency (<u>reliability</u>) of scores produced by PETAFTS.</p> <p>-Confirmatory factor analyses (CFA) were performed to analyze the PETAFTS test score factorial <u>validity</u> (using AMOS version 7.0). This is used to test whether measures of a construct are consistent with a researcher's understanding of the nature of that construct (or factor). In this case, the constructs were the affective and cognitive domains. CFA was also used to examine the overall structure of the scale (which was the 16 item original scale proposed by Keating in 2004).</p> <p>One and two factor models were used to test homogeneity of each domain and the two sub-factor structure in the affective domain. Modification Indices were used to examine which items in the scale were unfit. Items with larger MI are problematic.</p>
9	<p>RESULTS (2)</p> <p>What did the author/s identify as the primary results? (Products or findings produced by the analysis of the data)</p>	<p><u>Reliability of original/modified* Scale-</u></p> <p>The alpha for one affective sub domain (enjoyment of implementing fitness tests) was .84, alpha for the affective domain was .84, alpha for the cognitive domain was .77, and alpha for the overall scale was .89. These all indicate acceptable reliability. The alpha for the second affective sub domain (enjoyment of using fitness test results) was .66, which was smaller than acceptable for reliability.</p> <p>*After modification (removal of item #3: my students' fitness test results have not impact on my physical activity/fitness instruction), alphas changed slightly but still indicated acceptable reliability.</p> <p><u>Validity for original/modified* scale-</u></p> <p>The CFA results (for 16 items in the scale/constructs) were statistically significant and meaningful as they were all greater than .30. The CFA for the overall structure of the scale did not have results within acceptable range and therefore the researcher found cause to modify the scale. The Modification Indices (MI) results revealed that by deleting Item #3 within the cognitive domain, the scale would be a better fit for the model. *All item factors in each domain were over .30 after modification of the scale.</p>
10	<p>CONCLUSIONS (2)</p> <p>What did the author/s assert about how the results in Step 9 responded to the purpose/s established in Step 2, and how did the events and experiences of the entire study contribute to that conclusion?</p>	<p>-The author asserted that the "findings from the study provided valuable information concerning the scale reliability and validity, based on a sample drawn from the population it was designed to use (in contrast to the original sample). They believe that the results reinforced the ongoing need for reliable and valid data collection instruments in order to facilitate research efforts. More specifically, they feel that their modifications to the scale helped to improve the validity of the PETAFTS and the confidence level to which it can be used.</p> <p>-They felt their participant to item ratio (29:1) was large enough to convincingly carry out the study.</p> <p>-The authors noted that even though the original PETAFTS demonstrated acceptable reliability and validity, the data from this study did not fit the original model. They suggested the overall construct validity was not acceptable and therefore needed modification. The modification still allowed the scale to maintain original structure with the two domains.</p>
11	<p>CAUTIONS (1)</p> <p>What cautions does the author/s raise about the study itself or about interpreting the results? <u>Add here any of your own reservations.</u></p>	<p>The authors cautioned readers when interpreting results of the study since the physical educators were only sampled from two southwestern states (limited generalizability of study). They noted that the modifications made to the scale during this study should be further investigated. The authors mentioned that the 'lack of fit' (unacceptable ranges for CFA fit indices) might be a 'sample-specific anomaly' because most of the participants used the FITNESSGRAM. Personally, I was also concerned about the sample representativeness. As the authors pointed out, 71.6% of the participants used FITNESSGRAM and many of those teachers are mandated by state to do so. Many states (as of 2008) do not require fitness testing, so the sample used does not represent target population of physical educators. Also, the sample was 83.2% secondary teachers and needs to be more evenly distributed across elementary, middle, and high school physical educators.</p>
12	<p>DISCUSSION (3)</p> <p>What interesting facts or ideas did you learn from reading the report? (Results, research designs and methods, references, instruments, history, useful arguments, or personal inspiration.</p>	<p>Due to the nature of this study dealing with cross-revalidation and modification of a scale, I had to take more time understanding the data and the corresponding analyses of the data. The results were not simply the results from the fitness scale; they were dealing with the actual constructs/factors within the scale. This definitely helped me to better understand construct validity more and really get an idea of what the researchers were trying to measure in the PETAFT. I thought the limiting and nonchalant way that the authors distributed the survey was somewhat underachieving for a study that is created to reach a larger population and felt that this was a threat to external validity of the study. I think the authors make a solid argument for the need for proper implementation of fitness testing in our physical education programs. I would like to learn more about overall teacher attitudes towards fitness testing in an effort to get teachers (and admin.) more on board with it.</p>

Flowchart – (Keating et al. – “Physical Education Teacher Attitudes towards Fitness Tests Scale: Cross-Revalidation and Modification”)

