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ABSTRACT

A multiple-phase study was conducted to develop a reliable and valid instrument to examine teachers' attitudes toward teaching physical activity and fitness. Thirty-one subjects participated in the preliminary study involving the development of an attitude instrument. Subjects for the content validity study were 28 experts in physical education pedagogy. They were sent items from the attitude instrument and asked to organize them into the four domain areas of the instrument. Subjects for the reliability and validity issues were 254 teachers. Results from the content validity and reliability studies, along with the study's objectives, were used to develop the final instrument. Statistical results indicate that a reliable and valid instrument has been developed to measure teachers' attitudes toward teaching physical activity and fitness. Investigating teachers' attitudes in this area will lead to a better understanding of the role physical activity and fitness currently play in physical education. (Contains 5 tables and 28 references.) (Author/SLD)

DEVELOPMENT OF AN INSTRUMENT TO MEASURE TEACHERS' ATTITUDES TOWARD TEACHING PHYSICAL ACTIVITY AND FITNESS

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Abstract

The purpose of this study was to develop a reliable and valid instrument to examine teachers' attitudes toward teaching physical activity and fitness. The study was conducted in multiple phases. Thirty-one subjects participated in the preliminary study involving the development of an attitude instrument. Subjects for the content validity study were 28 experts in physical education pedagogy. They were sent items from the attitude instrument and asked to organize them into the four domain areas of the instrument. Subjects for the reliability and validity study were 254 teachers. Results from the content validity and reliability studies, along with the study's objectives, were used to develop the final instrument. Statistical results indicate that a reliable and valid instrument has been developed to measure teachers' attitudes toward teaching physical activity and fitness. Investigating teachers' attitudes in this area will lead to a better understanding of the role physical activity and fitness currently play in physical education.

DEVELOPMENT OF AN INSTRUMENT TO MEASURE TEACHERS' ATTITUDES TOWARD TEACHING PHYSICAL ACTIVITY AND FITNESS

The 1996 Surgeon General's Report on Physical Activity and Health addresses the importance of regular physical activity and its relationship with preventing disease and premature death, as well as maintaining a high quality of life (U.S. Department of Health and Human Services [USDHHS], 1996). The important role physical education plays in the physical fitness and health of our nation's youth has long been recognized and is emphasized by the Surgeon General's Report. Schools are the only major institution that can address the physical activity needs of most children and youth (Sallis & McKenzie, 1991). The majority of states have mandatory physical education, with classes available for almost all students (National Association for Sport and Physical Education [NASPE], 1993). For some children and youth, physical education classes are their only opportunity for participation in moderate-to-vigorous-physical activity (MVPA). Participation in physical activity outside physical education classes can be limited due to a variety of factors, including limited program availability, fiscal restraints, and urbanization (McKenzie et al., 1995). School physical education has the potential to develop habitual physical activity participation patterns in students with possible carryover into the adult years.

Several government reports and recommendations from professional organizations have called for health related physical education to be a priority in school physical education (ACSM, 1988; USDHHS, 1980, 1991). In other words, curricula oriented towards promoting physical activity during physical education classes and throughout life is being recommended (Sallis & McKenzie, 1991). Physical education programs can offer many different activities organized to maximize student participation. Physical activities that are enjoyable to students and that

promote moderate to vigorous exercise levels are recommended.

Descriptive studies of physical education classes have shown, however, that very little class time, only 7 to 8.5% of the average physical education class time is devoted to activities categorized as MVPA (Parcel et al., 1987; Simons-Morton, Taylor, Snider, & Huang, 1993). A recent study (McKenzie et al., 1995) found children engaged in moderate to vigorous physical activity (MVPA) 36% of the class time, including 25% of the time in vigorous activity. Although this study shows increased levels of MVPA in physical education classes, the level is still below the goal of 50% of class spent in MVPA by the year 2000 outlined in national public health objectives (USDHHS, 1991). Placing a priority on lifetime activities in physical education is another national health objective (USDHHS, 1991). Sport stills still predominate the curriculum in physical education (Pate et al., 1987; Siedentop, Doutis, Tsangaridou, Ward, & Rauschenbach, 1994; Steinhardt, 1992). Minimal time is allocated to fitness activities or promoting fitness in physical education classes. One study of nonspecialists physical education classes showed a focus on game play, with only 3% of the classes organized for fitness activities (Faucette, McKenzie & Patterson, 1990).

Engaging children and youth in physical activity and teaching them the behavioral skills needed for future participation in physical activity could help to reduce the nation's health risks related to inactivity (McKenzie & Sallis, 1996). Participation in physical activities may provide immediate and long term health benefits for children and youth. There is some evidence to suggest that children, particularly adolescents, who habitually participate in physical activities may reduce their risk for future diseases (e.g., cardiovascular), have lower levels of adiposity and blood pressure, increased levels of high density lipoprotein (HDL) cholesterol, increased bone density, and improved psychological health and mood, (Alpert &

Wilmore, 1994; Armstrong & Simons-Morton, 1994; Bailey & Martin, 1994; Bar-Or & Baranowski, 1994; Calfas & Taylor, 1994).

Although a great deal is known about the health benefits of regular physical activity leading to the development of fitness, very little is known about physical educators' attitudes toward teaching physical activity and fitness. The attitudes, values and beliefs of teachers form belief systems (Pajares, 1992). Individual teachers have different belief systems regarding the relative importance of various goals for physical education. Teachers' belief systems influence their curricular and instructional decisions and ultimately student learning.

Teachers' attitudes and values toward teaching compose educational value orientations. Value orientations are characterized by the importance of critical components of the teaching-learning process to the teacher (Ennis & Zhu, 1991). Teachers' value orientations affect their curricular and teaching decisions. The particular school context also influences teachers' attitudes and instructional behaviors. Thus, the nature of the context and the nature of teachers' attitudes and beliefs related to physical education affect the implementation of a curriculum and student learning (Ennis, 1996).

A strong data base has been developed on the value orientations affecting teachers' curricular and instructional decisions. Very little is known, however, about teachers' beliefs, attitudes and values related to physical activity and fitness. One study found the main goal for physical education espoused by secondary teachers was to expose students to an active leisure and fitness lifestyle (Siedentop, Doutis, Tsangaridou, Ward, & Rauschenbach, 1994).

The development of a reliable and valid instrument to assess teachers' attitudes toward physical activity and fitness would lead to an improved understanding of the

current role of physical activity and fitness in physical education classes and may help to define their role in the future. Once attitudes toward physical activity and fitness can be measured, the teaching behaviors can be explored, as well as the relationship between teachers' attitudes and their behaviors in the gymnasium. The purpose of this study was to develop a reliable and valid instrument to examine teachers' attitudes toward teaching physical activity and fitness.

Method and Results

This study was completed in multiple phases. A preliminary study was conducted prior to a large scale validation study. A content validation study with content matter experts was the second phase. For the final phase, 254 teachers from 18 states were recruited to participate in the reliability and validity study. Data analysis was performed and the final instrument specifications determined.

Preliminary study

An instrument was developed to assess the belief systems of physical educators toward physical activity and fitness as they relate to the classes they teach. The preliminary instrument had three subsets. The main subset was designed to measure the relative importance of four different outcomes of physical education: physical activity/physical fitness, motor skill development, self-actualization, and social development. This subset was loosely based on research related to the value orientations of teachers (Ennis, 1992; Ennis & Hooper, 1988; Ennis, Chen & Ross, 1992; Ennis, Mueller, & Hooper, 1990). The second subset looked at the relative importance of the four components of fitness (cardiorespiratory endurance, muscular strength/endurance, flexibility, body composition). The final subset explored the importance of external motivation and student participation in activities outside

physical education to teachers. The first draft of the attitude instrument was a rating scale. It had 20 sets of four questions. Subjects ranked items in each set from one to four. One benefit of this type of format is a wide range of responses. The ranking format, however, limits the data analysis and conclusions that can be drawn from the data. The instrument was subsequently revised to include a "likert-like" scale for each of the 80 individual items. After receiving feedback from a colleague who completed the questionnaire, further revisions were made to the wording of each item to reflect the individual rating of items using the likert-like scale.

Subjects. Subjects for the preliminary study were 31 upper class undergraduate students in a physical education teacher education program at a major university. They were recruited from three teacher education courses. Subjects completed an informed consent form, demographic information sheet, and the attitude instrument.

Data analysis. Data analysis was conducted by subsets of the instrument. The reliability of the items was measured using Guttman-Cronbach (G-C) alpha reliability coefficients. Correlation tests were also performed to further explore the strength of the relationship among items. The validity of the instrument was measured using several different statistical procedures. The factor structure and instrument validity were assessed using confirmatory factor analysis. Analyses were performed using the LISREL statistical program. The main subset's four domains were individually tested using a single factor model (e.g., physical activity/fitness, self-actualization, motor development, and social development). Tests measured whether each area fit a one dimensional model. An exploratory factor analysis also was performed using oblimin rotation (due to correlated factors) and the Maximum Likelihood method of extraction. The exploratory factor analysis was performed with data from the first 40 questions of

the main subset. It was hypothesized that a four factor independent clusters model would fit the 40 item data set.

Results. The main subset of the instrument, outcomes of physical education (curriculum), was kept based on the results of the preliminary study. The items were predictive and central to the objectives of the study. The results of the main subset, outcomes of physical education, are reported.

Data were analyzed to determine the reliability, validity and generalizability of the instrument. The reliability coefficients indicated strong relationships among items in each of the four domains. The G-C alpha coefficients were all above .84. The construct validity of the instrument was measured with confirmatory factor analyses using the LISREL program. The null hypothesis for each factor analysis was the domain is unidimensional. The chi-squared results all had p-values greater than .05 and the hypotheses were retained. In addition, most of the residuals associated with each factor analysis were small (less than .2) showing further evidence of the fit of the models. Similar factor loadings with small standard errors for items composing each domain offered further support for the fit of the models. The results of the chi-squared tests, however, are not very meaningful due to the small sample size. The results were used to direct further work with the instrument.

Results from the four factor exploratory factor analysis showed that the model did not fit. Information generated from the exploratory factor analysis, however, also contributed to the revision of the instrument. Reliability results for the preliminary study are available in Table 1.

insert Table 1 about here

Instrument Revision

The results of data analyses, feedback from subjects, and the study objectives were used to revise the instrument. The following statistical measures were used to identify problematic items: (a) low correlations with other item in the same area, (b) reliability analysis indicated that the reliability would increase if the item was deleted, (c) a large discrepancy measure in the confirmatory factor analysis, and (d) a lack of significance in the exploratory factor analysis. Problematic items were either dropped from the instrument or revised based on the nature of the item and the statistical results. As mentioned earlier, items from the main subset (outcomes of physical education) were retained. The revised instrument had 48 items (12 sets of four items). Refer to Table 2 for an example set of items from the attitude instrument.

insert Table 2 about here

Content Validity Study

A content validation study was initiated to confirm the appropriateness of the items in each of the domains. The attitude instrument was reorganized for use in the content validation study.

Subjects. The subjects for the content validity study were experts in physical education pedagogy. All experts were currently working in tenure track professorial positions in higher education. Thirty-five experts were sent an e-mail message asking them to participate in the validation of the attitude instrument and 28 agreed to participate. Those who agreed were sent a packet of materials including: (a) letter explaining the study with directions for completing the instrument, (b) informed consent form for the expert validation study and (c) the expert validation instrument.

Instrument. The items from the revised attitude instrument were randomly

organized using a random numbers table into 48 individual items for the logical validity instrument. The rubrics for each set of questions on the attitude instrument were used in each of the four individual questions from the set in order to maintain the integrity of the questions. Each question also had an identification scale for experts to circle the most appropriate group. Experts were asked to select the most appropriate group for each of the 48 items on the instrument from the following categories: (a) F-physical activity/physical fitness, (b) M-motor skill development (c) S-social development/responsibility, or (d) I-individual development/self-actualization. The following is an example item from the content validation instrument "How important is the following goal for physical education -- to develop personal growth (e.g., increased self-concept)?" Experts selected the most appropriate domain group for the item (e.g., F, M, S, I).

Data analysis and results. The percent agreement of the experts with the items were calculated for each of the 48 items, the four domains, and for the overall instrument. The range of scores, mean, median and mode also were calculated for each of the four domains. The mean percent agreement of the experts on all items of the instrument was .86. Similarly, there was strong agreement among the experts for items in each of the four domains. The expert agreement levels support the logical validity of the instrument.

Three of the individual items had very low levels of agreement and their sets (the last three) were dropped from the instrument, increasing the overall expert agreement to .91. All subsequent analyses for this study were conducted using the remaining 36 item instrument. Refer to Table 3 for the specific item-agreement results.

insert Table 3 about here

Reliability and Validity Study

Over 530 physical education teachers were asked to participate in the reliability and validity study. Two hundred fifty-four physical education teachers participated. Four methods of subject recruitment were used including: (a) recruitment from schools in Illinois; (b) recruitment from schools in Oregon; (c) solicitations to members of the United States Physical Education list serve group on the internet (USPE-L); and (d) referrals from various teacher educators across the country.

Recruitment of teachers. Proposals to conduct research were submitted to a number of school districts in Illinois. Once school districts agreed to participate in the study, individual principals and/or directors of research were contacted regarding the study, either by phone or by letter. Support from the principals or directors of research allowed the initial contact with potential subjects to occur. Physical educators were asked to participate in the research project using one of the following methods: (a) in person; (b) on the phone; or (c) through a written letter.

Teachers who agreed to participate in the study were given the following materials: (a) letter explaining the study, (b) informed consent form, (c) demographic information sheet, (d) attitude instrument and (e) stamped return envelope. Where there were groups of physical educators at the same school who had agreed to participate in the study, meetings were scheduled to administer the instrument to the physical educators as a group. Otherwise, they were sent the materials through the mail.

Proposals to conduct research were also submitted to the various school

districts in Oregon. Similar procedures were followed for proposing the research study, as mentioned above for Illinois schools. Soliciting subjects from Oregon added diversity to the subject pool. In addition, all the Oregon cities used for the study were proximal to each other and the subjects served as an alternate population for other aspects of this study.

Members of the United States Physical Education listserve group on the internet (USPE-L) were sent a message requesting participation of physical educators in this study. Teachers who were interested in participating were asked to respond with an electronic message. They were then sent the packet of research materials mentioned above.

A number of teacher educators across the country were asked to distribute the research materials to interested physical educators affiliated with their institution. Teacher educators who agree to participate were sent an agreed upon number of research packets. They distributed the packets to physical education teachers who were interested in participating in this study. Subsequently, the physical educators sent their completed research materials back to the lead author. Gaining subjects through teacher educators' referrals added to the diversity of research subjects, increased the reliability and validity of the study through an increased number of subjects, and improved the geographic representativeness of the sample.

Subjects. The subjects for the reliability and validity study were 254 physical education teachers from 18 states. All of the subjects were trained physical educators actively teaching physical education in schools at the elementary, middle school/junior high or high school level when data was collected.

Data analyses. The following tests were performed to measure the reliability, validity, and generalizability of the attitude instrument. The reliability of the instrument

was assessed using G-C alpha and omega calculations. Reliability and validity coefficients were determined for each domain (e.g., physical activity/fitness, self-actualization, motor development, social development). Construct validity was further assessed using confirmatory factor analysis based on an independent-clusters model. McDonald's Omega (1985) is the ratio of the common variance to the total variance. It represents the precision with which an instrument measures an attribute or the reliability of a test score. Omega coefficients also were used as a measure of the construct validity of the instrument. Given the following definition of validity "a test score is valid to the extent that it measures the attribute of the respondents that the test is designed to measure, in the population(s) for which the test is used " (McDonald, in press, p. 10). Omega also is a measure of construct validity. Furthermore, since omega is the square correlation between the total score of items on an instrument and the mean score of items on a test of infinite length it is also a measure of generalizability.

Results. All analyses for the reliability and validity study were performed on the 36 item attitude instrument. Reliability assessments showed a high level of inter-item agreement. The G-C alpha reliability coefficients for the four domains ranged from .81 to .89, while the omega values ranged from .84 to .90. The results support the internal consistency of each of the instrument's domains and surpass the guidelines for reliability set by Carmines and Zeller (1979) of coefficients above .80 to assure internal consistency. The omega values also support the construct validity and generalizability of the domains that compose the instrument. The reliability and validity coefficients for the reliability and validity study are available in Table 4.

insert Table 4 about here

The confirmatory factor analysis provided evidence of a good fit for the four factor model. Root Mean Square Error of Approximation [RMSEA] (.064), Root Mean Square Residual [RMR] (.076), and the Goodness of Fit Index (.79), indicate a good fit with the model and are well within accepted values for the purposes of this study. The majority (94%) of the factor loadings for the items were greater than .30 . In addition, the mean factor loading for the instrument was .63. The standard errors for the items ranged from .05 to .06 and the fitted residuals for the model ranged from -.19 to .31, with the median fitted residual equal to .01. These indicators further demonstrate the construct validity of the instrument. All measures indicate the items cluster into the four domains of physical activity/fitness, self-actualization, motor development and social development and measure what they were designed to measure. The factor loadings from the factor analyses are available in Table 5.

insert Table 5 about here

Final Attitude Instrument

The results from the reliability and validity study, the content validity study, and the study's objectives were used to revise the instrument. Problematic items were identified through low agreement rates of the experts resulting in three sets of questions (12 items) being dropped from the instrument. The final attitude instrument contains 36 items, with 9 items representing each of the four domains (physical activity/fitness, self-actualization, motor development, social development). The final

version of the attitude instrument can be obtained by contacting the lead author.

Discussion

An instrument has been developed to measure teachers' attitudes toward physical activity and fitness. It demonstrates the psychometric properties of reliability and validity. The internal consistency of the items in each of the instruments' subdomains demonstrates the reliability of the instrument. There was a high level of agreement among experts in physical education pedagogy regarding the representativeness of items for each of the domains showing a high level of content validity for the instrument. Construct validity is demonstrated through omega tests and factor analyses indicating that the domains of physical activity/fitness, individual development (self-actualization), motor development and social development are all psychometrically homogeneous.

Reliability and validity results from the preliminary study prompted the elimination of two subsets from the original attitude instrument. Dropping these subsets (components of fitness and importance of student participation in physical activities outside physical education classes to physical educators), streamlined the focus of the instrument. The primary objective for developing the attitude instrument was to create a device to measure teachers' attitudes toward physical activity and physical fitness as outcomes of physical education. Components of fitness and the importance of participation outside physical education to teachers did not tie into the primary focus of physical education outcomes. It also was difficult to identify the factors represented by the items in these two subsets. Furthermore, if these subsets would have remained in the instrument, it would have been troublesome to analyze the data and interpret the results.

In the second phase of the study, experts in physical education pedagogy were able to identify the appropriate domain (physical activity/physical fitness, motor skill development, social development/responsibility, individual development/self-actualization) for individual items comprising the instrument. Three items with very low levels of agreement among the experts were dropped from the instrument, as well as the other items in their sets. The low levels of agreement among the experts for these three items can be attributed to the wording used in the items. All items on the instrument were designed to represent one domain area. The terminology used, however, in the three problematic items could be associated with one or more additional domains. For example, one item from the fitness domain used the terms "empowering students" and "self-directed fitness activities." Including these terms led many experts to categorize the item in the individual development/self-actualization domain.

Dropping three items and their sets from the instrument (total of 12 items) did not affect the integrity of the attitude instrument. All of the subjects completed all items on the instrument in the same order. Items that were dropped were additional items from the same four domains. The decreased number of items on the instrument also is advantageous from a practical perspective. The time commitment for subjects completing the instrument is minimal (approximately 15 minutes). Data analyses show high levels of internal consistency, content validity, and construct validity for the attitude instrument.

Subsequent research studies can be performed using the attitude instrument to investigate the role of physical activity and fitness in physical education. For example, studies comparing the attitudes of physical educators teaching in rural versus urban

environments toward the outcome goal of physical activity and fitness. In addition, the instrument can be used to add the dimension of teachers' attitudes in this area to other studies involving physical activity and fitness.

Several government reports and professional organizations have called for health related physical education to be a priority in schools. The Surgeon General's report on Physical Activity and Health also emphasizes the importance of regular physical activity and its relationship with preventing disease and premature death, as well as maintaining a high quality of life. The health benefits of regular physical activity leading to the development of fitness are well established. Very little data is available, however, regarding physical educators' attitudes toward teaching physical activity and fitness. Investigating teachers' attitudes will lead to a better understanding of the role physical activity and fitness currently play in physical education. This may also lead to an increased understanding of how school physical education can make more of an impact on the physical activity patterns of our nation's children and youth in the future.

References

Alpert, B. S., & Wilmore, J. H. (1994). Physical activity and blood pressure in adolescents. Pediatric Exercise Science, 6, 361-380.

American College of Sports Medicine. (1988). Physical fitness in children and youth. Medicine and Science in Sports and Exercise, 20, 422-423.

Armstrong, N. & Simons-Morton, B. (1994). Physical activity and blood lipids in adolescents. Pediatric Exercise Science, 6, 381-405.

Bailey, D. A. & Martin, A. D. (1994). Physical activity and skeletal health in adolescents. Pediatric Exercise Science, 6, 330-347.

Bar-Or, O. & Baranowski, T. (1994). Physical activity, adiposity, and obesity among adolescents. Pediatric Exercise Science, 6, 348-360.

Calfas, K. J., & Taylor, W. C. (1994). Effects of physical activity on psychological variables in adolescents. Pediatric Exercise Science, 6 406-423.

Carmines, E. G. & Zeller, R. A. (1979). Reliability and validity assessment. Beverly Hills: CA: Sage Publications, Inc.

Ennis, C. D. (1992). The influence of value orientations in curriculum decision making. Quest, 44, 317-329.

Ennis, C. D. (1996). A model describing the influence of values and context on student learning. In S. J. Silverman & C. D. Ennis (Eds.), Student learning in physical education: Applying research to enhance instruction (pp. 127-147). Champaign, IL: Human Kinetics.

Ennis, C. D., Chen, A. & Ross, J. (1992). Educational value orientations as a theoretical framework for experienced urban teachers' curricular decision making. Journal of Research and Development in Education, 25, 156-164.

Ennis, C. D. & Hooper, L. M. (1988). Development of an instrument for assessing educational value orientations. Journal of Curriculum Studies, 20, 277-280.

Ennis, C. D., Mueller, L. K. & Hooper, L. M. (1990). The influence of teacher value orientations on curricular planning within the parameters of a theoretical framework. Research Quarterly for Exercise and Sport, 61, 360-368.

Ennis, C. D. & Zhu, W. (1991). Value orientations: A description of teachers' goals for student learning. Research Quarterly for Exercise and Sport, 62, 33-40.

Faucette, N., McKenzie, T. L., & Patterson, P. (1990). Descriptive analysis of nonspecialist elementary physical education teachers' curricular choices and class organization. Journal of Teaching in Physical Education, 9, 284-293.

McDonald, R. P. (1985). Factor analysis and related methods. Hillsdale, N.J.: Erlbaum.

McDonald, R. P. (in press). Test theory: A unified treatment. Adison-Wesley, Longman.

McKenzie, T. L., Feldman, H. Woods, S. E., Romero, K. A., Dahlstrom, V., Stone, E. J., Stikmiller, P. K., Williston, J. M., & Harsha, D. W. (1995). Children's activity levels and lesson context during third-grade physical education. Research Quarterly for Exercise and Sport, 66, 184-193.

McKenzie, T. L. & Sallis, J. F. (1996). Physical activity, fitness, and health-related physical education. In S. J. Silverman & C. D. Ennis (Eds.), Student learning in physical education: Applying research to enhance instruction. (pp. 223-246). Champaign, IL: Human Kinetics.

National Association for Sport and Physical Education. (1993). Shape of the nation 1993: A survey of state physical education requirements. Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Parcel, G. S., Simons-Morton, B. G., O'Hara, N. M., Baranowski, T., Kolbe, L. J., & Bee, D. E. (1987). School promotion of healthful diet and exercise behavior: An integration of organizational change and social learning theory interventions. Journal of School Health, 57, 150-156.

Pate, R. et al. (1987). Physical eduation and its role in school health promotion. Journal of School Health, 57, 445-450.

Sallis, J., & McKenzie, T. (1991). Physical education's role in public health. Research Quarterly for Exercise and Sport, 62, 124-137.

Siedentop, D., Doutis, P., Tsangaridou, N., Ward, P. & Rauschenbach, J. (1994). Don't sweat gym! An analysis of curriculum and instruction. Journal of Teaching in Physical Education, 13, 375-394.

Simons-Morton, B. G., Taylor, W. C., Snider, S. A., & Huang, I. W. (1993) The physical activity of fifth-grade students during physical education classes. American Journal of Public Health, 83, 262-264.

Steinhardt, M. A. (1992). Physical education. In P. W. Jackson (Ed.), Handbook of Tesearch on Curriculum (pp. 964-1001). New York: Macmillan.

U.S. Department of Health and Human Services. (1980) Promoting health/preventing disease: Objectives for the nation. Washington, DC: Government Printing Office.

U.S. Department of Health and Human Services. (1991) Healthy People 2000: National health promotion and disease prevention objectives. Washington, DC: U.S. Department of Health and Human Services, Public Health Service. DHHS Publication No. (PHS)91-50212.

U.S. Department of Health and Human Services. (1996) Physical activity and health: A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and

Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

Table 1.
Preliminary Study Reliability Coefficients

Subset		G-C Alpha
Curriculum		
	Social Development	.860
	Physical Activity/Fitness	.856
	Self-actualization	.866
	Motor Skill Development	.840
	Total Subset	.920
Areas of Fitness		
	Flexibility	.731
	Muscular	.615
	Body Composition	.751
	C.V. Endurance	.600
	Total Subset	.822
External Motivation		
	Total Subset	.530

Table 2.

Example Set of Items from the Attitude Instrument

How important are the following physical education outcomes in promoting participation in physical activities?	
1. Developing positive social interactions among students	1 2 3 4 5
2. Developing increased self-confidence or self-efficacy	1 2 3 4 5
3. Developing health-benefits from regular participation in physical activities	1 2 3 4 5
4. Developing motor skills that can be used ot participate in a variety of sports and activities	1 2 3 4 5

Table 3.

Percent Agreement Among Experts on Item Content Focus

Domain	Mean	Median	Mode	Range
Physical Activity/Fitness	.902	.963	.963	.593-1.00
Self-Actualization	.894	.926	.982	.654-1.00
Motor Development	.918	.926	.926	.593-1.00
Social Development	.942	1.00	1.00	.667-1.00
Overall Instrument	.914	.964	1.00	.571-1.00

Table 4.

Reliability and Validity Study Coefficients

Domain	G-C Alpha	ω
Physical Activity/Fitness	.89	.90
Self-Actualization	.81	.84
Motor Development	.85	.86
Social Development	.86	.87

Table 5.

Reliability and Validity Study Confirmatory Factor Analyses (Factor Loadings)

Item Number	Physical Activity/Fitness	Individual Development	Motor Skill Development	Social Development
1	.77			
8	.66			
11	.76			
13	.79			
18	.71			
24	.48			
27	.69			
30	.75			
36	.61			
4		.81		
7		.85		
10		.84		
16		.60		
17		.46		
21		.45		
26		.48		
31		.59		
35		.29		
3			.79	
5			.80	
12			.87	
14			.94	
19			.55	
23			.34	
25			.32	
29			.37	
33			.52	
2				.76
6				.49
9				.85
15				.89
20				.78
22				.26
28				.71
32				.52
34				.50

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