

Values-based education: The development of a questionnaire

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ABSTRACT

This study focuses on the development of an instrument that measures and evaluates the Attitudes of Children towards Values in Physical Education (ACHV-PE) class. This research is a collection of four phases. The first phase focused on content validity and item construction of the questionnaire. The second phase was a pilot-testing of the instrument to a group of students. Lastly, ($n = 449$) students from seven International Schools located in Tirana, Albania, and Rome, Italy were recruited for the third and the fourth phases. These two phases were based on Exploratory Factor Analysis and Confirmatory Factor Analysis, to assess and confirm the factor structure. From our data, Kaiser–Meyer–Olkin value was .870, and Bartlett's test of sphericity was significant ($p < .001$). The CFA demonstrated a good model fit index. From the results obtained in each phase, we established the content validity and reliability of the ACHV-PE questionnaire with 17 items.

Keywords: Values; Attitudes; Physical education; Children; Questionnaire.

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INTRODUCTION

Human values are considered to be important psychological variables within the social sciences. They are concepts of enduring beliefs which guide behaviours, attitudes, and social norms. (Rokeach, 1973; Schwartz, 2006). General values are organized into a system and in a hierarchy regarding their importance (Rokeach, 1967; Rokeach, 1973; Schwartz, 2006).

In addition, to the more generally accepted benefits of health and physical well-being, sports and Physical Education (PE) represent prime social mechanisms for values development and achievement. (Laker, 2001) believes that in addition to the physical benefits, PE promotes outcomes that can shape individual development, such as learning cooperation, responsibility, teamwork, moral and ethical values.

In terms of specific values associated with sports, various instruments were developed to measure values and attitudes in the competitive athletic settings. Beginning with the work of (Lee and Cockman, 1995), a study was designed to examine the values associated with youth sports participants in the United Kingdom. This qualitative study reported 18 values that emerged from the interviews conducted with young soccer and tennis players. Based on the results of this study, the Youth Sport Values Questionnaire (YSVQ) was developed. This tool measures the relative importance of these 18 values among adolescent athletes (Lee, Whitehead, and Balchin, 2000). The questionnaire was based on the values system and hierarchical distribution models (Rokeach, 1973; Schwartz and Bilsky, 1990; Schwartz, 1992).

In another study (Lee, Whitehead, and Ntoumanis, 2007) reported details of attitudes associated with moral decision making in youth sport by developing the Attitudes to Moral Decisions in Youth Sport Questionnaire (AMDYSQ). This tool consisted of measuring the acceptance of cheating, gamesmanship, and keeping winning in proportion.

Later, the questionnaire YSVQ was modified into YSVQ-2 in order to measure moral, competence, and status values (Lee, Whitehead, Ntoumanis, and Hatzigeorgiadis, 2008). The AMSYSQ was changed into AMSYSQ-2, to measure the same attitudes in a complete questionnaire with 15 items (Whitehead and Ntoumanis, 2013).

Questionnaires related to PE as a means to develop values are not very common. However, some researchers developed unique tools to measure values and behaviours through PE. (Hassandra, Goudas, Hatzigeorgiadis, and Theodorakis, 2002) developed a questionnaire that measures Fair Play behaviours during PE class. (Telama, Naul, Nupponen, Rychtecky, and Vuolle, 2000) also developed a tool to evaluate the Olympic ideals of young people, cited by (Naul, 2002).

(However, Clifford and Feezell, 2010) believe that principles of sportsmanship nowadays are not demonstrated to children and young players, and there is a constant need to reclaim moral language and respect for teammates, opponents, coaches, officials, and for the game itself. Although it is generally agreed that sports teach values, (Butcher and Schneider, 1998) state that values can be transformed from positive to negative, and this depends mostly on the way sports are played, taught, and practiced.

Therefore, teaching values through sports and PE does not happen by chance or wishful thinking. PE teachers and coaches must go beyond promoting the development of physical skills to highlight the need for values. This is the first step for children to learn and practice values through physical activity settings. PE

classes are the first subject area in which children learn and practice sport; therefore, it can be the appropriate area to reinforce values.

United Nations Educational Scientific and Cultural Organization (UNESCO) developed a program called "Values Education Through Sport" that introduces sport values across school-based curricula. Through sports, children can learn and be taught values, such as Respect, Fairness, Inclusion, Equality, Teambuilding, Discipline, and Perseverance.

It can be interesting to evaluate in which level children poses these values or what attitudes they show towards these values in their PE classes in different countries. This can be an essential step in order to work more on their actions, behaviours or beliefs.

Additionally, this study aims to measure and evaluate children's attitudes related to the seven values that UNESCO considers as the most important to teach and learn through Sports Education. To do so, we faced the need of building a questionnaire that measures and evaluates the attitudes that middle school students show towards values in their PE classes.

MATERIAL & METHOD

Building a new instrument can be difficult and risky; it needs a very detailed strategy with clear steps. To construct the questionnaire: *Attitudes of Children towards Values in Physical Education* (ACHV-PE), we divided the work into four phases.

First phase: Item construction

The main purpose of this phase was to develop preliminary items, based on the theory of each value and in reference questionnaires. All items were constructed in English language and were based on a 5-point Likert scale with a scoring system from 1 to 5 detecting the level of agreement (1 = strongly disagree, 5 = strongly agree). The items were constructed for middle school students (grades 6 -8). Once constructed the items, we focused on establishing the construct validity by seeking the important opinions of experts in the field. First, we conducted a session with four experts who were proficient on item construction to *discuss* related the items. The four content area experts were from the following disciplines of study: psychology, general pedagogy, sports pedagogy, and philosophy. Second, we evaluated the *experts' opinions*. In a formal questionnaire, we asked other experts to match each item with one of the values and to assess the level. In their opinion, the items represented the associated values based on a 3-point scale (1-weak representation of value, 2-medium representation of value, 3-strong representation of value). They were proficient on the general topic, in the fields of general pedagogy, sports psychology, health and exercise for children, and a PE teacher.

Second phase: Pilot-testing

This phase was based on two steps. In the first step, we used a *group interview* with five students, (two boys and three girls of ages between 11 and 14 years) from one International school in Tirana, Albania. Second, a *pre-test distribution* was made, when the questionnaire was distributed to twenty-six ($n = 26$) 6th graders, ages 11 and 12 years from the same school.

Third phase: Identification of potential factors

Two hundred thirty-nine ($n = 239$) middle school students ($M = 13.41$, $SD = 1.37$) from five International Schools located in Tirana, Albania were used to run Exploratory Factor Analysis (EFA) and Cronbach's α coefficient. The statistical software package used for analysing the data was the SPSS IBM, version 24.

Fourth phase: Confirmation of factorial structure

Two hundred ten ($n = 210$) middle school students ($M = 12.93$, $SD = 1.05$) from two International Schools in Rome, Italy, were involved to run the Confirmatory Factor Analysis (CFA). We used SPSS IBM and AMOS, version 25 to obtain the CFA model.

RESULTS**First phase: Item construction**

The session of *experts' discussion* lasted 1 hour and 5 minutes; the experts gave their opinions on all items. During the discussion, there were small changes made, especially on reformulating the items and using synonyms that were considered more appropriate and adequate for children. Based on the discussion, we kept all of the 56 items that were developed by the research group. Also, all the items were grouped in the value they belong to.

Evaluating the *experts' opinion* as to which item more appropriate for each value, we only consider the items with a minimum total score of 9 out of 12, from the four *experts' opinions*. From 56 items (eight items for each of the seven values), we ended up with 30 items consisting of four items for each value, except for team building which had six items. To keep a consistent number of items on each value, we decided to remove the two lowest scoring items from team building. Hence, we obtained the 28-item final questionnaire, with four items for each of the seven values established by UNESCO.

Second phase: Pilot-testing

The *group interview* with the five children lasted 1 hour and 12 minutes. During the discussion, students gave their individual opinions regarding each item, as well as assigning the items to the seven values. They were not sure if the item: *I respect the opinions of the teacher even when I do not agree*, belongs to the value Respect or Discipline. Similarly, the students were not sure if the item: *It is important to shake hands with your opponent regardless if I win or lose*, belongs to the value Fairness or Respect. Based on the *pre-test distribution*, the 6th-graders did not have any difficulty in completing the questionnaire.

Third phase: Identification of potential factors

The instrument scores for this sample produced a negatively skewed distribution, with the skewness and kurtosis values of $-.871$ ($SE = .157$) and $.812$ ($S = .314$), respectively. The sampling adequacy of items was determined via the Kaiser–Meyer–Olkin (KMO) measure, and Bartlett's sphericity test was used to the appropriateness of conducting a factor analysis. For our data, we have a value of $.870$ for KMO, and Bartlett's test of sphericity was significant ($\chi^2 (378) = 2048.593$, $p < .001$), which means that the factor analysis is appropriate.

Subsequently, the orthogonal varimax rotation was used in order to determine the number of factors. To be retained, traditionally and most commonly is to use either Kaiser's eigenvalue greater than 1 rule or Cattell's scree test. Our EFA revealed that all items loaded onto seven factors (without fixing the number of components). The resultant seven factors with the Eigenvalue of 1.032, accounted for a cumulative 56.4%

of the variance in the item correlations. The items and their loadings for the corresponding factors were displayed in Table 1.

There were not loading on the correspondent factor seven items that were removed.

Upon evaluating the internal consistency via Cronbach's α coefficient, we report the following Cronbach's α coefficients: Team building $\alpha = .755$; Respect $\alpha = .734$; Inclusion $\alpha = .715$; Fairness $\alpha = .655$; Discipline $\alpha = .547$; Equality $\alpha = .430$; and Perseverance $\alpha = .358$. Additionally, Cronbach's α smaller than .5 is considered unacceptable to assess reliability. Therefore, taking the opinions of the experts and the group of researchers into consideration, we decided to remove the items belonging with the values of Equality and Perseverance and continue the study with 17 items that belong to the five values.

Table 1. Factor Loading of EFA.

Items/ Factor	F1	F2	F3	F4	F5	F6	F7
<i>Teambuilding</i>							
Item 3	.686						
Item 7	.522						
Item 11	.740						
Item 15	.644						
<i>Respect</i>							
Item 1		.728					
Item 10		.684					
Item 14		.730					
<i>Inclusion</i>							
Item 5*			.632				
Item 9*			.564				
Item 13			.751				
Item 17*			.573				
<i>Fairness</i>							
Item 2*				.751			
Item 8*				.564			
Item 12*				.680			
<i>Discipline</i>							
Item 4					.637		
Item 6					.764		
Item 16					.543		
<i>Equality</i>							
Item 18						.526	
Item 26						.715	
<i>Perseverance</i>							
Item 22							.780
Item 28							.409

Note:(*) indicates reverse items.

Fourth Phase: Confirmation of factorial structure

The sample used for the CFA scores a negatively skewed distribution, with the skewness and kurtosis values of $-.633$ ($SE = .168$) and $.399$ ($SE = .334$). The fit index from the CFA model with five values is reported in Table 2.

Table 2. Fit indices and error of variance of ACHV-PE.

Fit indices	Values
χ^2 - Chi-square	142.379 ($p < .001$)
Df - Degrees of freedom	109
χ^2/df	1.306
RMSEA- root mean square error of approximation	.038
SRMR- Standardized root mean square residual	.070
CFI- Comparative fit index	.964
NFI- Normed fit index	.865
IFI- Incremental fit index	.965
TLI- Tucker-Lewis index	.955

CFA results with the error of variance for the ACHV-PE are displayed in Figure 1.

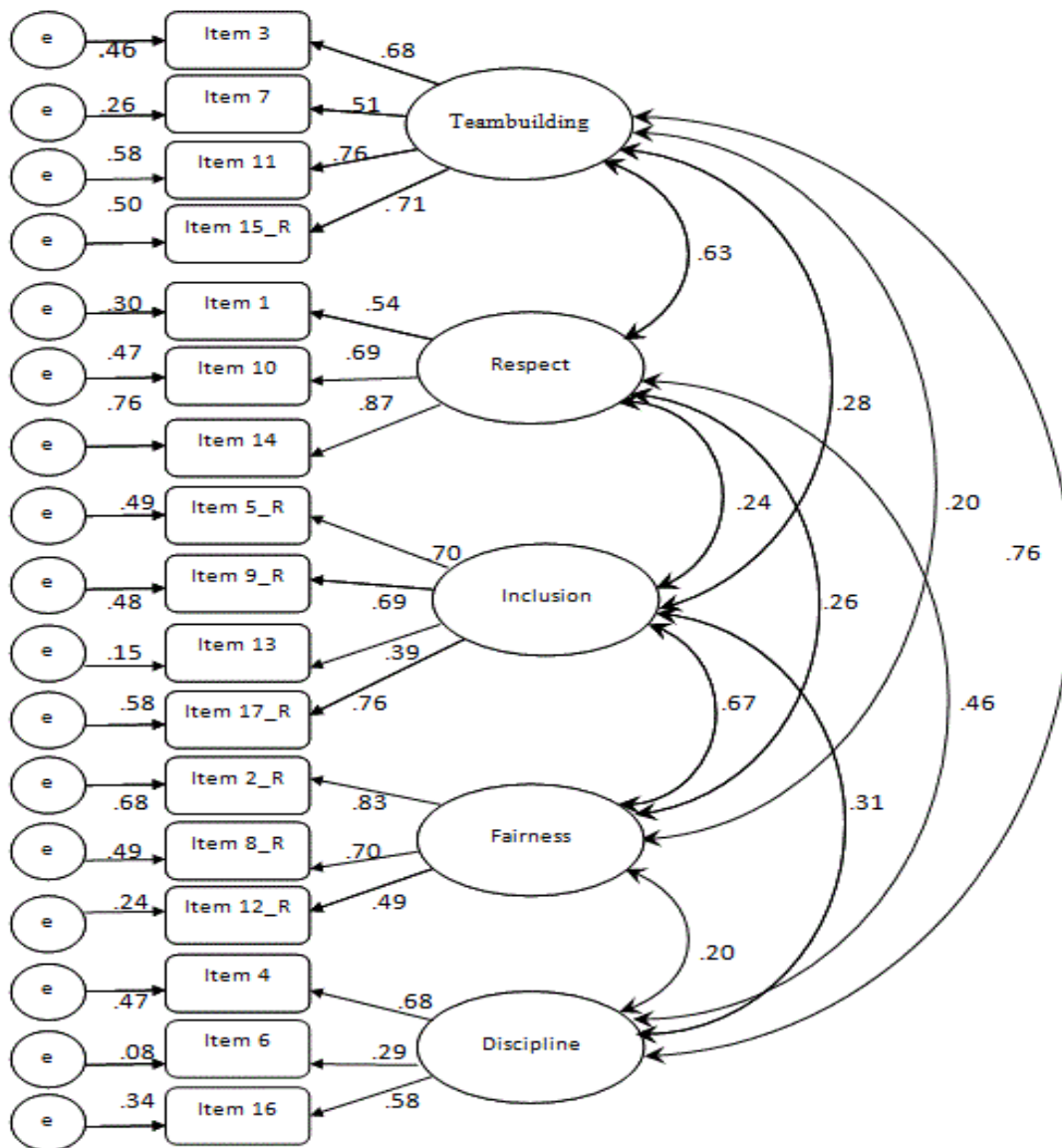


Figure 1. CFA and error of variance for ACHV-PE.

DISCUSSIONS & CONCLUSIONS

Through this study, we want to establish a valid and reliable questionnaire that measures and evaluates the attitudes of children towards values in PE class. Values that UNESCO considered as the most important to teach and learn through Sport Education. As mentioned above the process of questionnaire development was based in four phases.

The **first phase** was based on item construction. Through the session of *experts' discussion*, we established the development of the 56-item questionnaire. Then, we evaluated *experts' opinion* on matching each item with one value and to assess the level of representations. Having done so, we reduced the number of items from 56 to 28, which was the main purpose of this phase.

The **second phase** involved a group of 31 children (5 children were involved for the group interview, and 26 for the pre-test distribution) in conducting a pilot-testing process. The group interview did not seem to have any difficulties in understanding the items, and in their opinion, the questionnaire was straight forward for them to understand.

Related *pre-distribution*, the 6th-graders responded that all items were understandable and that they did not have any difficulties with the questionnaire. Before the general distribution, this step gave us the much-needed confirmation that the questionnaire was appropriated for the middle school students of the participants.

The **third phase** was focused on examining the underlying factor structure using EFA. The results of our EFA analysis showed that all of the 28 items loaded onto seven factors. The value for the KMO statistic varies between 0 and 1 when value close to 0 indicates that the sum of partial correlations is relatively large to the amount of the correlation, which would result in factor analysis to be appropriate. A value close to 1 shows that factor analysis should yield distinct and reliable factors. According to Kaiser (1974), KMO values greater than .5 are considered acceptable; values between .5 and .7 are deemed acceptable, values between .7 and .8 would be good, values between .8 and .9 are considered great, and values above .9 would be excellent. For our data, we have a value of .870 for KMO, which falls into the high end of the range of being great. Bartlett's test of sphericity was significant ($\chi^2(378) = 2048.593, p < .001$), which means factor analysis is appropriate.

The Cronbach's α coefficients were as follows: for Team Building $\alpha = .755$, for Respect $\alpha = .734$, for Inclusion $\alpha = .715$, for Fairness $\alpha = .655$, for Discipline $\alpha = .547$, for Equality $\alpha = .430$, and for Perseverance $\alpha = .358$. According to George and Mallery (2003), the accepted level for Cronbach's α coefficient needs to be at least .5. Hence, we evaluated the possibility of modifying the items with loading problems. However, based on the feedback received from the PE teachers and the observations during the administration of the questionnaire, we noticed that the questionnaire was quite long for the children to sustain focus towards the end.

At this point, we evaluated the opinion of experts and the group of researchers, and we decided to remove the items that were not loading in the correspondent factor. Also, we had to remove the values of Equality and Perseverance that had only two items and in which the Cronbach's α coefficient was unacceptable. We decide to keep the value Discipline even that the Cronbach's α coefficient is considered poor and to evaluate possible modifications on the future. Doing so, we established the questionnaire with 17 items that belong to the five values.

The **fourth phase** consisted of confirming the factors obtained in the third phase by conducting a CFA. According to Schreiber et al. (2006) the most crucial model fit indices to report are as follows: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI). The cut-off criteria for several fit indices are widely accepted: RMSEA < .07, CFI > .95, TLI > .95 and SRMR < .08 (Hu and Bentler, 1999). Similarly, Marsh et al. (2005) state that for CFI, TLI, and IFI values above .95 are considered good, and the values higher than .90 are considered acceptable. For our study, the model appears to have a set of good fit indices with CFA = .96, TLI = .96, NFI = .87, IFI = .97, RMSEA = .04 and SRMR = .07. Therefore, it can be said that the model can be considered reliable to measure and evaluate the ACHV-PE class using this data.

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APPENDIX

Attitude of Children towards Values in Physical Education- (ACHV-PE) questionnaire.

1. It is important for me to congratulate my opponent even when I lose the game.
2. I think that it is a good idea to make your opponents angry.
3. It is important to help teammates to reach common goals.
4. It is important to behave well in PE class.
5. I think that students with disabilities could be an obstacle in the game.
6. In the PE class, teachers should use “strategies” to correct misbehaviour.
7. I can encourage my teammates’ to play with good effort.
8. It is acceptable to make your opponents angry during the game.
9. I do not need to accept students with disabilities in games.
10. It is important to shake hands with your opponents when the game finishes.
11. In the game, you have to collaborate with your teammates.
12. I think it is ok to provoke my opponents as long as I do not break the rules.
13. I can help students with disabilities in PE class.
14. It is important to shake hands with your opponent regardless if I win or lose.
15. It is important to have support between teammates.
16. I respect the opinions of the teacher even when I do not agree.
17. If we include students with disabilities in the game, we are not going to have fun.

Total/ 5 = Score

Teambuilding – Items 3, 7, 11, 15

Respect – Items 1, 10, 14

Inclusion – Items 5*, 9*, 13, 17*

Fairness – Items 2*, 8*, 12*

Discipline – Items 4, 6, 16

(*) The score assigned for these items will be in reverse order from the Likert scale. For example, answer scored points “5” will be assigned “1” point (and 1 = 5; 2 = 4; 4 = 2); answers that scores “3”, will remain unchanged.

