An Amotivation Model in Physical Education

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Abstract:

Amotivation refers to a state in which individuals cannot perceive a relationship between their behavior and that behavior’s subsequent outcome. With the belief that considering amotivation as a multidimensional construct could reflect the complexity of motivational deficits in physical education, we developed this study to validate an amotivation model. In study 1 (N = 156), an exploratory factor analysis provided preliminary support with the model comprising four dimensions: ability beliefs, effort beliefs, values placed on the task, and characteristics of the task. In study 2 (N = 499), the four-dimensional model was further corroborated through a confirmatory factor analysis. Its construct validity and predictive validity were also confirmed. Overall, the findings lend evidence to the conceptual validation of the four-dimensional structure of amotivation. Lack of motivation in physical education may result from different reasons. The multifaceted nature of amotivation in physical education must be considered and instructionally addressed during teaching and learning.

Keywords: amotivation taxonomy, self-determination theory, high school students
The area of motivation has been one of the most prolific areas of research in physical education literature (Solmon, 2003). A number of theoretical frameworks have been implemented to examine the influence of various motivational factors on learning and physical activity (Chen, 2001). Although the investigations are extensive, the fact remains that many students lack motivation in physical education, especially during their high school years. One of the most evident phenomena is that high school students do not have the desire to choose physical education courses after they have met the minimal physical education credit requirements for graduation. The enrollment in physical education in high schools decreases at an average rate of 32% yearly (Centers for Disease Control and Prevention [CDC], 2004).

Needless to say, understanding the reasons why students lack motivation or become amotivated is increasingly urgent for physical educators in order to design effective strategies to enhance students’ enrollment in physical education and prevent sedentary lifestyles toward adulthood.

According to Self-Determination Theory (SDT; Deci & Ryan, 2002), an individual’s behavior can be effectuated through intrinsic motivation (enjoyment and interest-related motives), extrinsic motivation (instrumental motives), and amotivation (an absence of motivation). These three broad theoretical types of motivation can be located at some point on a continuum, representing the relative degree of self-determination of behavior (Ryan & Connell, 1989). Individuals become more self-determined as they internalize to a greater extent their reasons for executing a given behavior, while they become less self-determined as they engage in an activity as a means to an end. On this continuum, amotivation comprises the other extreme with the least amount of self-determination and represents a complete lack of volition with respect to the target behavior (Deci & Ryan, 2002).
Amotivated individuals cannot perceive a relationship between their actions and subsequent outcomes of those actions (Pelletier, Fortier, Vallerand, & Briere, 2001). They may feel disintegrated or lacking control of their actions and will thus invest little effort or energy in accomplishment of the actions. Amotivation has been associated with boredom and poor concentration in class (Vallerand et al., 1993), poor psychosocial adjustment, high perceived stress at school (Baker, 2004), and school dropout (Pelletier et al., 2001).

In physical education, some researchers have also examined amotivation. For example, Carlson (1995) used the term alienation to describe middle and high school students’ amotivation. Through interviews with students and conducting class observations, the author found that alienated students felt that physical education was not personally important. Such students had low perceptions of competence and adherence. As a result, they were more likely to be passively participating in class, faking illness/injury, or missing classes. Similarly, Ntoumanis, Pensgaard, Martin, and Pipe (2004) explored British school children’s perception of amotivation in physical education using semi-structured interviews. They found that amotivation resulted from learned helplessness beliefs and was often displayed by nonattendance, low involvement in the class, and low intention to be physically active outside school.

Although previous studies in SDT have enhanced our understanding of amotivation, most of them treated amotivation as a one-dimensional construct or feeling of general helplessness. Given the complexity of school subjects and context, Shen, McCaughtry and Martin (2008) argued that domain specificity and different learning environments can influence students’ motivation status significantly. Because students may lack motivation for many different reasons with distinct forms, conceptualization of amotivation as general helplessness was not sufficiently revealing the whole picture of motivational deficits in school settings. Legault, Green-Demers,
and Pelletier (2006) proposed “…amotivation is itself an entity, a complex and multifaceted process, which is not so much an absence as a broad effect of unmet needs” (p. 580). The authors suggest that investigating amotivation using a multidimensional framework may enrich our understanding of the nature of lack of motivation and potentially facilitate educators to design effective motivational strategies to enhance students’ involvement.

Echoing this suggestion, a few researchers have explored different dimensions of amotivation from a multifaceted perspective. Pelletier, Dion, Tuson, and Green-Demers (1999), for example, investigated individuals’ reasons for their lack of motivation toward environmental protective behaviors. They argued that the concept of amotivation could be more precisely understood when three dimensions are considered: amotivation because of strategy beliefs, ability beliefs, and effort beliefs. **Strategy beliefs** stem from Bandura’s (1982) concept of outcome expectancy and refer to individuals’ expectancies regarding the extent to which certain strategies are effective in producing the desired outcomes. It is proposed that one possible reason for amotivation is the belief that a specific behavior will not be effective in attaining the goal. **Ability beliefs** are similar to the concept of self-efficacy (Bandura, 1997) and refer to individuals’ expectations with respect to their aptitude to perform a certain behavior. When perceived self-efficacy is high, more ambitious challenges are pursued, and a greater goal commitment is applied. In contrast, when self-efficacy is uncertain, failure is perceived as a likely outcome. It is proposed that individuals may know that a particular course of action would produce a desirable outcome, but may not believe that they have what it takes to successfully carry out the required behaviors. This leads to amotivation (Pelletier et al., 1999).

**Effort beliefs** refer to the desire to expend the energy required by a particular behavior (Pelletier et al., 1999). Individuals may be reluctant to perform a behavior if they are unable to
sustain the necessary effort or if the behavior is difficult to integrate into their lives. Under such circumstances, although individuals may be aware of what is required to fulfill the tasks and positively appraise their ability to do so, low effort perception may create amotivation if they think that they cannot exert the sustained effort required to perform and maintain the behavior.

Built upon Pelletier et al.’s (1999) study, Legault et al. (2006) developed and conceptually validated a taxonomy of reasons that give rise to academic amotivation in school. Specifically, Legault et al. examined the relevance of Pelletier et al.’s amotivation dimensions in a school context and confirmed that ability beliefs and effort beliefs would impact students’ amotivation directly while the influence of strategy beliefs is indirect via the mediation of other factors. More importantly, Legault et al. (2006) recognized the uniqueness of school and highlighted that value placed on the learning task and characteristics of the task in class can also lead to amotivation.

Amotivation in school is associated with students’ values in relation to the task. As an incentive for engaging in different tasks, low values placed on the task may initiate amotivation, especially when the task is not an integral component or of importance in a student’s life (Ryan 1995). Values affect behaviors by influencing the perceived desirability of situations and experiences, and by contributing to the organization of personal goals (Kasser, 2002). Wigfield and Eccles (2000) suggest that devaluing school subjects may lead to serious motivational deficits. When students perceived their environments as delivering negative information about the value of school or of a particular class or subject, they are more likely to be lacking in motivation (Murdock, 1999). Researchers (e.g., Pintrich, 2003; Wigfield & Eccles, 2000) recommend that task values need to be examined to better understand motivational issues in school.
Various situational influences or specific features of a task can invoke feelings of amotivation (Ntoumanis et al., 2004). Similar to the concept of situational interest in interest-based motivation theory (Chen & Shen, 2004), characteristics of the task refers to the appealing effects of learning tasks. Unappealing characteristics of the learning task may lead to learning disengagement. Ainley, Hidi and Berndoff (2002) noted that individuals must experience some form of pleasure or interest in order to effectuate a behavior. If the qualitative experience of the activity does not engage the knowledge or stimulation of students, then students will not favor it. Legault at al. (2006) argued that although much amotivation stems from within the student, many school tasks are not inspiring or interesting enough to make students feel motivated to perform them. When students perceive the tasks as uninteresting, uninspiring, or lacking of stimulating qualities, amotivation may also occur (Carlson, 1995; Hidi & Harackiewicz, 2000).

With the defined multifaceted construct of amotivation in school, Legault et al. (2006) generated the Academic Amotivation Inventory. The inventory was designed to examine students’ reasons for not wanting to study or doing their school work. Using exploratory factor and 1st and 2nd-order confirmatory factor analyses, the authors offered support for an academic amotivation taxonomy comprising four dimensions: ability beliefs, effort beliefs, characteristics of the task, and value placed on the task. Furthermore, the proposed taxonomy was corroborated through analysis in discriminant validity and construct validity with related psychological and behavioral constructs (e.g., academic performance, self esteem, anxiety).

The aforementioned inventory was developed and assessed in classroom settings. Little is known about the generalizability of this inventory to other settings. To our knowledge, there has been no study that systematically and conceptually investigated the dimensions of amotivation in physical education. The purpose of this study, therefore, was to examine whether Legault et al.’s
(2006) academic amotivation taxonomy could be generalized into physical education settings and whether the four dimensions of amotivation could be explained by a higher order structure of general feeling of helplessness in physical education. Specifically, two sub studies were conducted to examine the reliability, validity, and generalizability of the scores produced by the taxonomy in high school physical education settings. The objective of study 1 was to provide preliminary evidence of the four-factor structure of the amotivation construct in physical education. The objective of study 2 was to further test the hypothesized structure of the amotivation model.

Methods

Participants

This study was part of a larger project on motivation and its relation to educational outcomes among high school students in physical education. A total of 655 students from two suburban high schools in two different school districts in a major Midwest metropolitan area served as participants. The data collected from School One were used to pilot test the validity and reliability of the scores produced by the amotivation inventory, while the data collected from School Two were utilized to evaluate the generalizability of the scores. All physical education teachers in both schools were certified and active members in the state physical education association. Permission to conduct the study was obtained prior to the investigation from the university review board, the school district, the participants, and their parents.

School One is a private high school with more than 1,000 students. All physical education classes are single-sex. Participants in School One (N=156; 85 boys, 71 girls) consisted of ninth (75.0%), tenth (13.5%), and eleventh (11.5%) graders whose ages ranged from 14 to 18
years (M=15.36, SD=1.20). Ethnicity of the participants included Caucasian (90.1%), African-American (5.6%), Hispanic-American (3.1%), and others (1.2%).

School Two is a comprehensive public high school with more than 2,500 students. Unlike School One, all physical education classes are coeducational. Participants in School Two (N=499; 269 boys and 230 girls) consisted of ninth (58.2%), tenth (22.1%), eleventh (12.4%), and twelfth (7.5%) graders ranging in age from 14 to 20 years (M=16.01, SD=1.32). A majority of the students came from lower-middle to middle class socio-economic backgrounds. The sample was highly representative of the ethnic demographics for the student population in the area (80.1% Caucasian, 13.0% African American, 4.1% Hispanic American, and 2.9% Asian-American).

Both schools had a one credit requirement in physical education and health. Students usually took this credit during their first year of high school: ninth grade. Subsequently, they may take elective physical education courses in specialized areas if they wish to continue their involvement. The schools used a 90-minute rotating block schedule. Students had physical education classes every other day throughout the semester. The curriculum of the physical education classes was focused on lifetime fitness activities. With the exception of swimming as a mandatory unit, students in both schools were offered the opportunity at the beginning of the semester to choose one physical activity from each team sport (e.g., basketball, volleyball, soccer, etc.) and each individual sport (e.g., weight training, dance, aerobics, etc.) category. Their final grade was based on health-related fitness improvements and summative written tests on the units covered (e.g., technique, rules, fitness principles, etc.).

**Measures**

*Amotivation in physical education.* Amotivation Inventory- Physical Education (AI-PE) adapted from Legault et al. (2006) was used to examine students’ reasons for not wanting to
participate in physical education. The AI-PE consists of 16 items and measured the four proposed dimensions of amotivation: Ability beliefs (e.g., “Because I don’t have what it takes to do well in PE”); Effort beliefs (e.g., “Because I don’t have the energy to participate in PE”); Characteristics of the task (e.g., “Because I find that the sport/activity being played is boring”); and Value placed on the task (e.g., “Because participating in PE is not valuable to me”).

Students were first asked how often they experienced a lack of motivation in physical education. Then, they were asked to rate, from 1 to 7 on a Likert-type scale, the degree to which each statement corresponded with their reasons for not wanting to participate in physical education (1 = does not correspond at all; 7 = corresponds exactly).

To preserve the content validity of the amotivation taxonomy in physical education, we took the following steps. First, we consulted with a panel of six professionals about the questionnaire items prior to data collection. The panel consisted of one school district physical education coordinator and five experienced high school physical education teachers (each of them have taught physical education over 15 years). The panel members were asked to read the items and evaluated their consistency with the dimensions on a 5-point Likert scale (1 = very inaccurate/inappropriate, 5 = very accurate/appropriate). They also examined the wording and language usage of the instrument. Based on their suggestions, two items for task characteristics and one item for effort beliefs were rewritten to better reflect the nature of students’ learning in physical education. Finally, all items scored above 4.5 in average, suggesting that the questionnaire has an acceptable content validity. Second, we ran a pilot test on 35 nonparticipating high school students in their physical education classes to refine the AI-PE. The first author administered the questionnaire and encouraged students to ask questions if they had
difficulty understanding instructions or items in the questionnaire. The students raised no questions while completing the AI-PE.

*In-class effort.* The physical education teachers were asked to provide an overall rating of each student’s levels of effort in physical education. For each student, his/her PE teacher provided a single rating on a 7-point scale (1= no effort at all- 7= high levels of effort). In the initial introduction, the physical education teachers were informed that the scale was going to assess how hard the students tried to improve their skills and whether they “do their best” during PE lessons. Ntoumanis (2005) used this scale in physical education with similar aged participants.

Compared to students’ self-reports, teachers’ evaluations were more objective (Ntoumanis, 2005). Given that the teachers in this study demonstrated strong commitment to teaching, we believe the ecological validity of this measure could be assumed. However, it is worthwhile to notice that using a single item to measure in-class effort made it impossible to evaluate the scale psychometric properties. In the future research, a more comprehensive evaluation including self-reports, teacher ratings, and behavioral observations with multiple-item measures is recommended to better reflect students’ performance in class.

*Procedure*

Using the same protocol in both schools, the AI-PE was administered to students by the first author and a graduate student in spring during regularly scheduled physical education classes in the gymnasium. The AI-PE took approximately 13 minutes to complete. To diminish students’ tendency to give socially desirable responses, they were ensured that their responses would not affect their grades and their teachers would not have access to their individual responses. Students were also told that there were “no right or wrong answers.” Finally, students were informed that filling out the survey was voluntary and that they could withdraw at any time.
they wanted. During the data collection, the teachers assisted in managing non-participated students by assigning different tasks for them.

**Data Analysis**

The response scores from students at School One were analyzed by an exploratory factor analysis with varimax rotations. According to the theoretical dimensions of amotivation, we specified the number of factors as four in the extraction. Because the sample size in School One was relatively small (less than 200), we followed Stevens’ (2001) recommendation in which the factor determination was based on the criteria of factor loadings greater than or equal to .45 and without cross loadings. In addition, Cronbach’s alpha coefficients were used to examine the internal consistency of test scores produced by the AI-PE. Following Kline (1998), we set the internal consistency as acceptable with a Cronbach alpha value greater than .70 in the present study.

Confirmatory Factor Analysis (CFA) was then employed to examine the construct of the Amotivation Taxonomy with students’ scores in School Two. To evaluate model fit, several model-data-fit values in the analysis were selected to assess the model’s validity (Hu & Bentler, 1999). To evaluate the model’s absolute or parsimonious fit relative to the hypothetical model, the comparative fit index (CFI) was utilized with a value close to .95 or above indicating a good fit. A Standardized Root Mean Squared Residual (SRMR) was used to evaluate the model-data fit by estimating the overall discrepancy between the observed and model-implied covariances. An SRMR value of .09 or less indicates an adequate fit. To estimate the difference between the hypothesized covariance matrix and the actual sample covariance matrix, the root mean square error of approximation (RMSEA) was used to determine model-data fit with a value of .06 or less indicating a good fit (Hu & Bentler, 1999).
Given the differences between the two schools in terms of school characters (i.e., private versus public) and physical education context (i.e., single-sex versus coeducational), we employed a multistep analysis of invariance procedure (Kline, 1998) to assess the generalizability and strength of the factor structure. In the multistep modeling, the model structure in both school samples were added simultaneously in a system of equations. Then, all the parameters in the equation which were equal across the two samples were constrained increasingly. In addition, we also calculated the correlations between students’ amotivation and their in-class effort to provide information regarding the predictive validity of the AI-PE. It was hypothesized that all dimensions of amotivation would be negatively associated with their in-class effort.

Results

The results of descriptive statistics are presented in Table 1. The four sub-dimensions of amotivation across the two school samples had an average score below the midpoint of the inventory. The standard deviations ranged from .88 to 1.61. Univariate skewness and kurtosis ranged from -.90 to 1.22, indicating that the observed variables in both samples were approximately normal. Further analysis showed that Mardia’s coefficient (Mardia, 1970) was 4.67, suggesting that the multivariate normality assumption for model testing was not violated.

In order to investigate the structure of the AI-PE, we performed an exploratory factor analysis with the School One data. Results are displayed in Table 2. The four factors with eigenvalues greater than or close to one accounted for a substantial portion (73.3%) of the total item variance. Factor loadings displayed a clean factor structure, which offered preliminary support for a four-dimensional conceptualization of amotivation. Moreover, the magnitude of factor loadings was satisfactory (i.e., loadings on target factors ranged from .61 to .78). As can be seen
in Table 1, the amotivation dimensions were positively and moderately correlated. Cronbach’s alpha coefficients for the four dimensions ranged from .82 to .91. All values exceeded the minimum recommended value of .70, indicating that the scores produced by the AI-PE had acceptable internal consistency in this population of high school students.

In order to statically test the factor structure of amotivation, we performed a CFA with maximum-likelihood estimation using the School Two data. We hypothesized that the four-factor structure of the amotivation construct would be verified by granting the conceptualization of amotivation in terms of ability beliefs, effort beliefs, characteristics of the task, and value placed on the task. The CFA was specified as a typical measurement model where target loadings, item uniqueness values, and factor variances and covariance were estimated. Results of the CFA yielded the following fit indices: CFI = .96, SRMR = .04, and RMSEA = .06, suggesting that the hypothesized model fits the data well.

Because the first-order model fits the data well, we tested whether the four factors identified in the model could be explained by the higher order structure of general amotivation (i.e., general feeling of helplessness in physical education). The hierarchical structure of amotivation is presented in Figure 1. Results revealed that the data fit in the model adequately, CFI = .95, SRMR = .06, and RMSEA = .06. Additionally, all standardized factor loadings ranged from .65 to .85 and was significant at the $p < .01$ level, indicating that all the items are indicators of the factors they are hypothesized to measure. Cronbach’s alpha coefficients for the four dimensions ranged from .85 to .89.

Further, the multi-step invariance analysis of the hierarchical structure revealed that items from the AI-PE are equally valid for students in the two school settings. Baseline multi-group model (school One and school Two together, unconstrained) revealed that the data fit the model
well, CFI = .96, RMSEA = .04, and SRMR = .06. In following two consecutive steps, we (1) constrained the factor loadings to equivalence across schools, and (2) constrained the covariance matrix to be invariant with the factor loadings still constrained across schools. With imposed increasing equality constraints, indexes of data-model fit showed little loss moving from the baseline model to the more stringent models. Those fit indices, CFI = .95, RMSEA = .06, and SRMR = .04, for the first invariance model while CFI = .95, RMSEA = .06, and SRMR = .05, for the second, indicated that the hypotheses of equal factor loadings and covariance across the two samples were all tenable.

Lastly, in order to extend the predictive validity of amotivation in physical education, we assessed correlations among the dimensions of amotivation and in-class effort assessed by the teachers. As hypothesized, all four dimensions of amotivation were associated negatively with in-class effort, with correlation coefficient ranging from -.33 to -.41, as reflected in Table 1. The result indicated that students’ amotivation might have influenced their involvement in physical education class.

Discussion

In terms of SDT, amotivation can be characterized as the state of motivational deficit (Deci & Ryan, 2002) or feelings of alienation and helplessness in physical education (Ntoumanis et al., 2004). The purpose of this study was to develop and validate a comprehensive taxonomy of amotivation in high school physical education settings. The findings provide convincing evidence for the multidimensional nature of amotivation in physical education, suggesting that there are different sources that may lead students to be amotivated.

Our exploratory factor analysis and CFA exhibited favorable psychometric properties, supporting the construct validity of the scores produced by these high school student populations.
The results confirmed the appropriateness of using the amotivation inventory in high school physical education. It is suggested that students lacking motivation in physical education can be classified under the following four categories: their ability beliefs, effort beliefs, value placed on tasks, and characteristics of the tasks.

The second-order CFA conducted in School Two specified amotivation in physical education as a higher order construct with four sub-dimensions. This higher order factor may indicate general amotivation, or the overall state of alienation, and helplessness, as described in SDT (Deci & Ryan, 2002) in physical education. Multi-step invariance test of the amotivation taxonomy across schools revealed that both the measurement and structural model were invariant. There were no significant factor loading or factor covariance differences detected between the two schools. The generalizability of the scores produced by the AI-PE is further demonstrated.

Correlations among the four amotivation factors also supported the proposed taxonomy. Moderate correlations suggest that the four sub-dimensions of amotivation are components of the same higher order factor but represent four independent constructs. Additionally, Cronbach’s alpha coefficients in both School One and School Two for the four dimensions were greater than .82, indicating the scores from the AI-PE had reliable internal consistency for these two samples of high school physical education students.

As hypothesized, the predictive validity correlations in School Two revealed a general pattern in which all sub-dimensions of amotivation were negatively correlated with teacher rated in-school effort, a beneficial behavior construct in physical education. The overall associations may reflect the influence of the common variance shared by the four amotivation sub-dimensions, which represent the manifestation of the latent general amotivation concept. Results from this
study lend support to the notion that students’ amotivation status may be directly associated with their class involvement.

In summary, this study represents a first attempt to apply the taxonomy of amotivation to the high school physical education setting. The substantiation of the taxonomy (AI-PE) makes an important contribution to physical education research because it offers a theoretically sound and methodologically valid and reliable test score for assessing students’ amotivation in high school physical education settings. This study supports the appropriateness of the use of this instrument in physical education settings, implying that a consideration of amotivation as a factor in classroom learning may also be useful in models of learning and instruction in physical education settings. Such efforts have potential to extend our understanding of this comprehensive body of knowledge by clarifying the processes involved in amotivation in physical education. The taxonomy of amotivation in physical education or AI-PE may help future researchers to assess and examine how students’ amotivation and self-determined motivation simultaneously affect their cognition, affect, and behavior in physical education settings. The multifaceted nature of amotivation in physical education must be considered and instructionally addressed during teaching and learning.

Validation is a continuous process. It is suggested that future research should continue examining the psychometric properties of the taxonomy with larger and more diverse samples. We suggest that future research should examine how consistent the scores produced by the AI-PE are over time (test-retest reliability) and if the score can predict other outcome variables, such as students’ physical activity involvement and knowledge/skill learning. Also, we suggest that additional multi-step invariance analyses under different school level and physical education curriculum are needed to better assess the generalizability of the AI-PE. Finally, because social
interaction is an important component of physical education (Balderson & Sharpe, 2005), we suggest that future study consider social factors in the amotivation taxonomy and examine the possible relationships of social deficits with other amotivation dimensions and overall amotivation concept in physical education.
References


Table 1

*Correlation among Dimensions of Amotivation in Physical Education*

<table>
<thead>
<tr>
<th>Dimension</th>
<th>M/SD</th>
<th>Alpha</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>School One (n=156)</td>
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<tr>
<td>1. Ability beliefs</td>
<td>2.54/ .88</td>
<td>.86</td>
<td>1.00</td>
<td>1.01</td>
<td>__</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Task character</td>
<td>2.98/1.13</td>
<td>.82</td>
<td>.80</td>
<td>.21</td>
<td>.42</td>
<td>__</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Value of task</td>
<td>3.04/1.35</td>
<td>.91</td>
<td>.99</td>
<td>.87</td>
<td>.44</td>
<td>.69</td>
<td>__</td>
<td></td>
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<tr>
<td>4. Effort beliefs</td>
<td>3.25/1.25</td>
<td>.83</td>
<td>1.21</td>
<td>.42</td>
<td>.48</td>
<td>.48</td>
<td>.53</td>
<td>__</td>
<td></td>
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<tr>
<td>5. In-class effort</td>
<td>4.67/1.50</td>
<td>__</td>
<td>- .90</td>
<td>-.67</td>
<td>-.37</td>
<td>-.35</td>
<td>-.41</td>
<td>-.40</td>
<td>__</td>
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<tr>
<td>School Two (n=499)</td>
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</tr>
<tr>
<td>1. Ability beliefs</td>
<td>2.91/1.20</td>
<td>.87</td>
<td>1.22</td>
<td>.94</td>
<td>__</td>
<td></td>
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<td></td>
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<tr>
<td>2. Task character</td>
<td>3.76/1.50</td>
<td>.85</td>
<td>.88</td>
<td>.11</td>
<td>.50</td>
<td>__</td>
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<tr>
<td>3. Value of task</td>
<td>3.49/1.56</td>
<td>.89</td>
<td>1.11</td>
<td>.43</td>
<td>.51</td>
<td>.60</td>
<td>__</td>
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<tr>
<td>4. Effort beliefs</td>
<td>3.45/1.35</td>
<td>.87</td>
<td>1.12</td>
<td>.80</td>
<td>.58</td>
<td>.54</td>
<td>.59</td>
<td>__</td>
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<tr>
<td>5. In-class effort</td>
<td>4.80/1.61</td>
<td>__</td>
<td>-.60</td>
<td>-.37</td>
<td>-.33</td>
<td>-.33</td>
<td>-.38</td>
<td>-.33</td>
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</table>

Note. All correlations are significant at the .01 level.
Table 2

*Dimensions of Amotivation in Physical Education (Study 1: Exploratory Factor Analysis)*

<table>
<thead>
<tr>
<th>Item</th>
<th>AB</th>
<th>TC</th>
<th>TV</th>
<th>EB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I am not good at PE</td>
<td>.68</td>
<td>.22</td>
<td>.24</td>
<td>.26</td>
</tr>
<tr>
<td>Because I don’t have what it takes to do well in PE</td>
<td>.78</td>
<td>.06</td>
<td>.24</td>
<td>.21</td>
</tr>
<tr>
<td>Because I don’t have the knowledge/skill required to succeed in PE</td>
<td>.78</td>
<td>.21</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Because the tasks demanded of me in PE surpass my ability</td>
<td>.70</td>
<td>.29</td>
<td>.10</td>
<td>.24</td>
</tr>
<tr>
<td>Because I find that the sport/activity being played is boring</td>
<td>.30</td>
<td>.71</td>
<td>.23</td>
<td>.22</td>
</tr>
<tr>
<td>Because I don’t like the sport/activity being played in PE</td>
<td>.25</td>
<td>.77</td>
<td>.30</td>
<td>.11</td>
</tr>
<tr>
<td>Because I have the impression that it’s always the same thing in PE everyday</td>
<td>.11</td>
<td>.61</td>
<td>.27</td>
<td>.25</td>
</tr>
<tr>
<td>Because the sport/activity in PE is not stimulating</td>
<td>.19</td>
<td>.77</td>
<td>.24</td>
<td>.20</td>
</tr>
<tr>
<td>Because for me, PE holds no interest</td>
<td>.22</td>
<td>.27</td>
<td>.74</td>
<td>.28</td>
</tr>
<tr>
<td>Because participating in PE is not important for me</td>
<td>.18</td>
<td>.36</td>
<td>.76</td>
<td>.28</td>
</tr>
<tr>
<td>Because participating in PE is not valuable to me</td>
<td>.28</td>
<td>.36</td>
<td>.65</td>
<td>.24</td>
</tr>
<tr>
<td>Because I have no good reason to participate in PE</td>
<td>.30</td>
<td>.38</td>
<td>.61</td>
<td>.25</td>
</tr>
<tr>
<td>Because I’m not energetic enough for PE</td>
<td>.27</td>
<td>.19</td>
<td>.23</td>
<td>.76</td>
</tr>
<tr>
<td>Because I’m a bit lazy</td>
<td>.22</td>
<td>.28</td>
<td>.26</td>
<td>.67</td>
</tr>
<tr>
<td>Because I don’t like to invest the effort that is required for PE</td>
<td>.33</td>
<td>.27</td>
<td>.30</td>
<td>.60</td>
</tr>
<tr>
<td>Because I don’t have the energy to participate in PE</td>
<td>.25</td>
<td>.16</td>
<td>.20</td>
<td>.77</td>
</tr>
</tbody>
</table>

| Eigen values            | 7.25 | 2.07 | 1.42 | .99 |
| Percentage of variance explained (%)      | 45.3 | 13.0 | 8.85 | 6.20 |

*Note: AB = Ability Beliefs; TC = Task Characteristics; VT = Value of Task; EB = Effort Beliefs*
Figure 1. Hierarchical structure of amotivation in physical education

Note: All parameters are significant at the .01 level.