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A dimensional and person-centered perspective on controlled reasons for non-participation in physical education☆

Nathalie Aelterman [a, *], Maarten Vansteenkiste [a], Bart Soenens [a], Leen Haerens [b]

[a] Department of Developmental, Personality and Social Psychology, Ghent University, Belgium
[b] Department of Movement and Sports Sciences, Ghent University, Belgium

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ABSTRACT

Objectives: Most theories of motivation, including Self-Determination Theory (SDT), focus mainly on students' reasons for participating in activities, at the expense of a focus on reasons for non-participation. In terms of underlying reasons for non-participation, SDT has focused primarily on amotivation. The present study investigated reasons for non-participation that are driven by externally or internally pressuring demands (i.e., controlled motivated non-participation), thereby relying on a dimensional and person-centered approach.
Design and method: Participants were 647 secondary school students (69% boys, *M*age = 13.27 years) and their 14 PE teachers (93% men; *M*age = 35.50 years). Students reported on their own motivation for participation and non-participation and outcomes (i.e., learning, feelings of resentment towards both the lesson and the teacher), and teachers rated the students' performance. Multilevel regression modeling (i.e. dimensional approach) and cluster analysis (i.e. person-centered approach) were used.
Results: Confirmatory factor analyses indicated that controlled motivated non-participation and amotivation represent distinct reasons for non-participation that can also be discerned from controlled and autonomously motivated participation. Controlled motivated non-participation yielded unique associations with feelings of resentment towards both the lesson and the teacher, but not with learning and teacher-rated performance. Person-centered analyses indicated that the group characterized by elevated levels of both controlled motivated participation and non-participation in combination with amotivation displayed the least beneficial pattern of outcomes.
Conclusion: The current findings point to the importance of more intensively studying students' reasons for non-participation. Directions for future research are discussed.

Today's physical education lesson is about rope skipping. As the teacher distributes the ropes among the students and starts giving the instruction, Peter openly expresses his dissatisfaction with this topic: 'O no miss, are you kidding me? No way that I'm jumping in a rope! Rope skipping is such a girls' sport, it really is for sissies!'

Teachers, including teachers in Physical Education (PE) are challenged on a daily basis to find ways to motivate their students. Whereas some students are quite cooperative and 'easy-going', presumably because they find the activities inherently fun and satisfying, others are less interested or lack the energy and desire to participate. Furthermore, statements such as the one in the introductory example illustrate that some students are simply unwilling to put effort in the lesson and resist complying with the teachers' requests and goals.

One motivational framework that has been quite influential over the past 15 years in the field of education in general and PE in particular, is Self-Determination Theory (SDT; Deci & Ryan, 2000; Vansteenkiste & Ryan, 2013). SDT offers an encompassing theoretical framework to understand both humans' reasons for participating in an activity (the 'why' of behavior) and for refraining to participate in an activity (the 'why not' of behavior). Within SDT, people's reasons for not performing a target activity have traditionally been studied through the notion of amotivation, which reflects a sense of discouragement to take up the activity (but see Vansteenkiste, Lens, Dewitte, De Witte, & Deci, 2004). A lack of motivation to perform requested behavior may, however, also be

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* Corresponding author. Department of Movement and Sport Sciences, Ghent University, Watersportlaan 2, 9000, Ghent, Belgium.
E-mail address: Nathalie.Aelterman@UGent.be (N. Aelterman).

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grounded in controlling or pressuring reasons (Deci & Ryan, 1985; Vansteenkiste, Soenens, Van Petegem, & Duriez, 2014). Such pressuring reasons, which we will refer to as controlled motivated non-participation, for example involve imposed pressuring expectations (e.g., stemming from peers to defy the teacher's authority) or internally held standards (e.g., stemming from an inner voice to avoid looking like a sissy).

The present study is a first step towards moving beyond amotivation as the primary reason for non-participation. Specifically, we aimed to investigate (a) whether controlled motivated non-participation can be identified as a distinct motive that can be differentiated from the classic SDT-based types of motivation (i.e., amotivation, controlled motivation, autonomous motivation), and (b) whether this construct has surplus value in predicting student self-reported (i.e., learning, feelings of resentment) and teacher-rated outcomes (i.e., performance). In addition, relying on a person-centered approach, we examined whether students with a motivational profile characterized by elevated levels of controlled motivated non-participation would display less learning and performance and more pronounced feelings of resentment.

1. Different types of motivation in physical education

Central to SDT is a distinction between qualitatively different reasons for engaging in an activity that can be situated on a continuum of increasing control versus volition (Deci & Ryan, 2000). Table 1 provides a schematic overview of these types of motivation in terms of their level of intentionality, locus of causality, degree of activity and their general characterization. Autonomous or volitional motivation refers to the enactment of an activity for the excitement, enjoyment, and interest inherent to the activity itself (i.e., intrinsic motivation), or for its perceived personal value and importance to one's own life and self-selected goals (i.e., identified regulation). Students who put effort in the PE lesson out of curiosity and personal interest or because they understand and endorse the personal relevance of what is requested are said to display autonomous motivation. When autonomously motivated, students experience a sense of psychological freedom as their behavior is represented by an internal perceived locus of causality (deCharms, 1968; Deci & Ryan, 1985).

Controlled motivation, on the other hand, involves engaging in an activity because one feels either externally or internally pressured to do so. In the case of controlled motivation, students put effort in the PE lesson to comply with the demands of others, for instance to avoid punishment, to obtain contingently offered rewards, or to meet external expectations (i.e., external regulation). However, students can also pressure themselves into action, for instance to avoid feelings of guilt, shame or anxiety, or to gain feelings of pride and ego-enhancement (i.e., introjected regulation). Students who are cooperative during a PE lesson to get good grades or to prove that they are sporty or model students constitute examples of external and introjected regulation, respectively. In both cases, students feel that they 'have to' take part in the activities offered. Specifically, students are either enforced (i.e., through punishment, guilt-induction) or seduced (i.e., by attractive incentives, rewards) to comply with the teacher's request. Because controlled motivation is characterized by pressure and coercion (see Table 1), it is represented by an external perceived locus of causality (deCharms, 1968; Deci & Ryan, 1985).

In general, SDT proposes that autonomous motivation will lead to more adaptive functioning than controlled motivation. In the context of PE, autonomous motivation has been found to predict a variety of desirable cognitive, affective, and behavioral outcomes, such as concentration, positive affect, a preference for challenging tasks (e.g., Ntoumanis, 2005), maintained effort and persistence (e.g., Standage, Duda, & Ntoumanis, 2006), vitality (e.g., Mouratidis, Vansteenkiste, Lens, & Sideridis, 2011), and positive physical self-worth (e.g., ThØgersen-Ntoumani & Ntoumanis, 2006). Notably, these desirable effects also emerged when relying on objectively measured outcomes, including objectively assessed levels of physical activity both during (e.g., Aelterman et al., 2012; Lonsdale, Sabiston, Raedeke, Ha, & Sum, 2009) and outside the PE lesson (e.g., Taylor, Ntoumanis, Standage, & Spray, 2010) and external ratings of engagement (Aelterman et al., 2012). In contrast, controlled motivation relates to less adaptive outcomes, including boredom (e.g., Ntoumanis, 2001), negative feelings (e.g., Standage, Duda, & Pensgaard, 2005), lower rated engagement (Aelterman et al., 2012) and lower objectively measured achievement (Boiché, Sarrazin, Grouzet, Pelletier, & Chanal, 2008), although it was unrelated to objectively recorded physical activity (Aelterman et al., 2012).

Although controlled forms of motivation yield a cost, they do, much like autonomously motivated activities, involve a certain goal-directedness and intentionality towards the target activity. In that respect, both autonomous motivation and controlled motivation can be contrasted with amotivation, which involves a lack intentionality to participate in the activity. Indeed, when amotivated, students are rather passive and are 'going through the motions' (see Table 1). Individuals display amotivation when they either (a) feel incapable to enact the required behaviors (i.e. lack of perceived competence), (b) believe that the enacted behaviors will not yield the desired outcomes, or (c) lack valuation of the activity (see Ryan, Lynch, Vansteenkiste, & Deci, 2011). Within SDT, amotivation represents the least self-determined type of functioning. It is therefore represented by an impersonal perceived locus of causality (Deci & Ryan, 2000). Studies in the context of PE have shown that amotivation relates negatively to well-being (e.g., Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008) and rated engagement (Aelterman et al., 2012) in PE.

2. Moving beyond amotivation: controlled reasons for non-participation as a distinct category

Although it is reasonable to assume that a sense of discouragement or passivity, indicative for students' amotivation, prevents them from participating in the requested activity, their non-participation could also be grounded in other reasons and, hence, be more active in nature (Vansteenkiste et al., 2004). Whereas amotivated students typically feel helpless and unable to shape their learning process (Ntoumanis, Pensgaard, Martin, & Pipe, 2004), a lack of motivation may also take the form of opposition as when students feel pressured to oppose against the teacher's

Table 1
A conceptual analysis of controlled non-participation in relation to the 'classic' SDT-based types of motivation.

	Amotivation	Controlled motivated non-participation	Controlled motivated participation	Autonomously motivated participation
Intentionality	Lack of intentionality	Intentional	Intentional	Intentional
Locus of causality	Impersonal	External	External	Internal
Degree of activity	Passive	(Re)active	Passive-active	Active
General descriptor	Passivity	Opposition	Coercion	Volition

requests and expectations to 'save face' towards their peers or to establish their independence (Van Petegem, Vansteenkiste, Soenens, & Beyers, 2015; Vansteenkiste et al., 2014). Table 1 provides a conceptual analysis of the similarities and differences between controlled motivated non-participation and the classic SDT-based types of motivation. Specifically, although amotivation and controlled motivated non-participation both represent low motivation for the target activity, they differ in their level of intentionality. In contrast to amotivation, students' controlled motivated non-participation likely comes along with energy and, much like autonomous and controlled motivation, is intentional in nature because it is oriented towards a specific goal. Further, parallel to controlled reasons for participation, students can refrain from participating in the activity for either externally or internally pressuring reasons. For instance, the presence of an overly pressuring PE teacher may lead students to put a minimal amount of effort in the lesson. As such, students' controlled motivated non-participation often represents a re-active way of functioning (Koestner & Losier, 1996).

On average, controlled motivated non-participation would arise in response to controlling environments where students are exposed to external pressures and experiences of psychological need frustration (Bartholomew, Ntoumanis, Ryan & Thøgersen-Ntoumani, 2011; Deci & Ryan, 1985; Vansteenkiste & Ryan, 2013). Indeed, pressuring circumstances may either force or seduce students to become compliant, but they can also elicit more active forms of defensive functioning and resistance (Van Petegem, Soenens, Vansteenkiste, Beyers, & Aelterman, 2015). The demands as enforced by the teacher in combination with pressure to save face in front of their peers may put students high in controlled motivated non-participation at risk for a power game with their teachers, such that they end up being resentful vis-à-vis their teachers and may even develop a conflictual relation with them. Alternatively, students could also hold particular internal stigmata they feel they have to stick to as to protect their ego. For instance, because they consider certain types of PE activities to be "girly", they feel pressured by an inner voice to not put effort in the PE class.

Regardless of whether students' non-participation is grounded in more external or internal demands, it reflects the tendency to seek distance from the teacher yet in a non-volitional way (Van Petegem, Soenens, et al., 2015; Van Petegem, Vansteenkiste et al., 2015). Because controlled motivated non-participation is not based upon self-endorsed values and choices but instead is determined by pressure, it is – similar to controlled motivation – represented by an external perceived locus of causality (see Table 1). Different from controlled motivation, controlled motivated non-participation can be conceived as a form of *'anti-motivation'* or *'anti-internalization'* (from Latin *anti* = 'against, opposite') as students reject the imposed request.

Apart from such controlled reasons for non-participation, students may also refrain from participating in the requested activity for more autonomous reasons. In that case, they have given considerate thought about the teacher's request and they have volitionally decided to refrain from activity participation because it does not align with their personal preferences, values, and interests. Although the possibility of autonomous non-participation is not directly addressed in the present study, we will discuss this issue in the Discussion.

3. A person-centered approach: identifying motivational profiles

Many teachers correctly point out that, in practice, students rarely display exclusively one particular type of motivation. Instead, many students are driven by multiple reasons (Ryan & Deci, 2007). The adoption of a person-centered approach, such as cluster analysis (Gore, 2000), is particularly useful to identify homogeneous clusters or subgroups of motivational configurations on the basis of the shared characteristics they possess (Härdle & Simar, 2003).

Over the past few years, several studies have used cluster analysis to examine motivational profiles in education in general (Ratelle, Guay, Vallerand, Larose, & Senécal, 2007; Vansteenkiste, Sierens, Soenens, Luckx, & Lens, 2009), and in PE in particular (Boiché, Sarrazin, Pelletier, Grouzet, & Chanal, 2008; Haerens, Kirk, Cardon, De Bourdeaudhuij, & Vansteenkiste, 2010; Ntoumanis, 2002; Ullrich-French, & Cox, 2009). These studies vary somewhat with respect to the motivational dimensions included, with some of them focusing on all the motivational subtypes distinguished in SDT (i.e., external regulation, introjected regulation, identified regulation and intrinsic motivation) and others using the broader dimensions of motivation (i.e., autonomous motivation, controlled motivation). Also, whereas amotivation was included in some studies (e.g., Haerens et al., 2010; Ntoumanis, 2002; Ratelle et al., 2007), it was left out in other studies (e.g., Boiché et al., 2008; Ullrich-French & Cox, 2009; Vansteenkiste et al., 2009). Regardless of the number of clustering dimensions included, across these studies it was found that profiles characterized by more autonomous motivation displayed the most desirable pattern of outcomes.

The present study aimed to build on past person-centered work by also including controlled motivated non-participation, apart from amotivation, as a reason for non-participation. By doing so, we aimed to obtain a more refined insight in the cluster results found in previous research. Especially clusters characterized by high amotivation scores, or by a combination of controlled motivation with amotivation, as observed in Haerens et al. (2010), may get refined. For instance, the high controlled motivation-high amotivation group is likely to vacillate between not only being discouraged to engage in the requested activity and feeling pressured to comply, but at the same time opposing against the teacher's requests altogether for pressuring reasons.

4. The present study

The overall goal of this paper was to examine the construct of controlled motivated non-participation in relation to other types of motivation and important PE-related outcomes. While most past studies mainly focused on motivation towards the subject of PE more generally (i.e. domain-specific), research assessing motivation at the situational level (i.e. with respect to a specific lesson) is scarce (e.g., Aelterman et al., 2012). The present study assessed two different types of reasons (i.e., autonomous, controlled) for exerting effort in PE and two types of reasons (i.e., amotivation, controlled) for not exerting effort in PE as well as well as a variety of student outcomes with reference to one specific lesson (i.e., the situational level). In this way, it was guaranteed that all variables would be assessed at the same level of generality (see Vallerand, 1997).

The following three specific aims were pursued. First, we aimed to examine whether controlled motivated non-participation would constitute a distinct motivational category. Specifically, we hypothesized that controlled reasons for non-participation would emerge as a separate motivational dimension in factor analyses (i.e. factorial validity) apart from the 'classic' SDT-based types of motivation (i.e. autonomous motivation, controlled motivation, amotivation). The second aim was to examine the predictive validity of controlled motivated non-participation by investigating its surplus value in predicting student outcomes such as learning, teacher-rated performance, and feelings of resentment towards both the lesson and the teacher. Based on the literature, we expected autonomous motivation to be associated with the most adaptive

pattern of outcomes (e.g., Aelterman et al., 2012; Ntoumanis, 2005; Standage et al., 2006), whereas controlled motivation and amotivation were expected to relate to a more maladaptive pattern (e.g., Aelterman et al., 2012; Ntoumanis, 2001). Further, we expected students displaying more controlled motivated non-participation to report less learning and more feelings of resentment, and to be rated as having performed worse during the lesson by their teacher. These associations were expected to emerge above and beyond the detrimental associations of controlled motivation and amotivation.

Finally, the third aim was to map out distinct subgroups of motivational configurations based on a cluster analysis (Gore, 2000). In line with previous studies in the PE context (e.g., Haerens et al., 2010), we expected that at least five different motivational profiles would appear: an autonomous group, a high motivation group, a low motivation group, a controlled motivation-amotivation group and an amotivation group. We further hypothesized that the additional inclusion of controlled motivated non-participation as a clustering dimension would help to refine these already established clusters, and we explored whether this additional dimension would lead us to retain a sixth group. To examine the external validity of the obtained cluster solution, we compared the retained groups with respect to the student outcomes. Consistent with our hypotheses for the dimensional analyses, we expected students with profiles characterized by the presence of controlled motivated non-participation to report less learning and more resentment, and to be rated as performing worse by the teacher, compared to clusters where controlled motivated non-participation is relatively more absent.

5. Method

5.1. Participants and procedure

Participants were 647 8th grade junior high school students (69% boys, *M*age = 13.27 ± .68 years) from 41 classes out of 13 different secondary schools throughout Flanders (Belgium). In terms of education type, 296 students (69%) were enrolled in an academic track, 178 students (22%) in a technical track and 45 students (8%) in a vocational track. In total, 14 PE teachers (93% men) were involved, each teaching 1 to 5 of the classes included. Teachers were on average 35.50 years old (*SD* = 13.82, *range* = 25–56), and had an average of 14.50 years of teaching experience (*SD* = 10.21, *range* = 2–37). All participating teachers were full-time certified PE teachers, who had received a teacher education program at college level. Class sizes ranged from 5 to 28 students per class ($M = 9 \pm 6$). To obtain standardization regarding the topic of the PE lesson across the different classes, all measures took place during a lesson on ball games (e.g., basketball, volleyball, soccer, badminton, table tennis). Teachers and students' parents gave informed consent for their participation in the study. Participation was voluntary and anonymity was guaranteed. Both students and teachers were asked to fill out a set of questionnaires at the end of the PE lesson about their experiences during the past PE class. The study protocol was approved by the Ethical Committee of Ghent University.

5.2. Measures

Unless mentioned otherwise, participants responded to the items on a 5-point Likert scale ranging from 1 (*not at all true for me*) to 5 (*very true for me*). Total scores for each scale were computed by averaging across the items.

5.2.1. Motivation

Students' motivation towards the past PE lesson (i.e. situational motivation) was assessed by means of the validated Behavioral Regulations in Physical Education Questionnaire (BRPEQ; Aelterman et al., 2012). The stem 'During the past PE lesson I did what the teacher requested … ' was followed by items reflecting autonomous motivation (8 items; e.g. 'because I enjoyed it, 'because I found it personally meaningful'), controlled motivation (8 items; 'because I had to prove myself', 'because I would get criticized otherwise'), and amotivation (4 items; e.g. 'I didn't see the point of this PE lesson'). Confirmatory factor analysis (CFA) on this previously validated scale (Aelterman et al., 2012) revealed that, consistent with previous studies (Aelterman et al., 2012; Haerens, Aelterman, Vansteenkiste, Soenens, & Van Petegem, 2015), one item from the introjected regulation scale ('because it is the only way to be proud of myself') loaded relatively low on its corresponding factor (i.e., .46) and cross-loaded strongly (.40) with the identified regulation subscale. In line with previous studies (Aelterman et al., 2012; Haerens et al., 2015), it was decided to remove this item from the final analyses. This resulted in a good model fit, $\chi^2(145) = 521.90$, $p < .001$, RMSEA = .07, CFI = .90, SRMR = .08. All indicator loadings were above .52. Internal consistencies were satisfactory with Cronbach's alphas of .85, .79, and .74 for autonomous motivation, controlled motivation and amotivation, respectively.

5.2.2. Controlled motivated non-participation

Students' controlled reasons for non-participation were measured relying on a newly developed 8 item-scale thereby using the stem 'During the past PE lesson I sometimes did not do what the teacher requested', followed by items representing pressuring reasons to not comply with the teacher's request. Item selection for this questionnaire was driven by the distinction between externally and internally pressuring reasons for non-participation. As for externally pressuring reasons, four items were intended to tap into students' tendency to get approval from their peers (2 items; e.g., 'because then my classmates would look up to me') or to oppose against the presence of an overly pressuring teacher (2 items; e.g., because the teacher should not have interfered with what I was doing'). As for internally pressuring reasons, four items tapped into students' tendency to stick to internal stigmata (2 items; e.g., 'because in my opinion only the teacher's pets always cooperate') or to liberate from introjects and/or perfectionism (2 items; e.g., 'because I had enough of continuously doing my best'). These 8 items were subjected to an exploratory factor analysis (EFA) relying on a maximum likelihood extraction method with Promax rotation. The scree plot supported a single-factor solution with a drop in eigenvalues between the first and the second factor (from 5.26 to .58). This factor explained 61% of the variance in controlled motivated non-participation. The defining factor loadings after Promax rotation were all above .73 and the communality coefficients ranged between .53 and .66. The scale had good reliability ($\alpha = .93$).

5.2.3. Learning

Students were asked to report on how much they had learned during the past PE lesson by means of one single item on a scale from 1 (*nothing*) to 5 (*a lot*).

5.2.4. Teacher-rated performance

To obtain an objective rating of students' performance during the past PE lesson, teachers were asked to indicate with a score of 1 (*weak*), 2 (*moderate*) or 3 (*good*) to what extent students had achieved during the lesson. Teachers were asked to rate this item for each student separately. Scores were recoded into 1 = 0, 2 = 1, and 3 = 2 for subsequent analyses.

5.2.5. Resentment towards the lesson

Three items tapped into students' self-reported feelings of resentment vis-à-vis the lesson: 'I sometimes resented the exercises', 'I got angry because what we did today was stupid', and 'The lesson provoked a sense of aggression in me'. These items were based on the resentment scale of Assor, Roth, and Deci (2004) and were internally consistent ($\alpha = .70$).

5.2.6. Resentment towards teacher

Students' feelings of resentment vis-à-vis the teacher were also measured by means of three items ('I sometimes resented the teacher', 'I got angry at the teacher', 'I got aggressive towards the teacher'). The items were based on the resentment scale of Assor et al. (2004) and were found to have good reliability ($\alpha = .83$).

5.3. Plan of analyses

All data were subjected to preliminary descriptive analyses using IBM SPSS Statistics 22.0. Pearson's bivariate correlations were computed to examine the relationships among the study variables. In our data, 647 students were nested within a smaller number of 41 classes being nested within 14 teachers, hence we relied on multilevel regression modeling. Because it is ideal to have at least 30 units at each level (Hox, 2010) and because a three-level model did not yield a better fit than a two-level model for any of the outcomes (i.e., learning, $\chi^2(1) = 1.30$, $p = .25$, teacher-rated performance, $\chi^2(1) = .46$, $p = .50$, resentment towards lesson, $\chi^2(1) = .16$, $p = .69$, and resentment towards teacher, $\chi^2(1) = 1.37$, $p = .24$), the data were conceptualized as a two-level model with students at Level 1 and classes at Level 2. Preliminary to the main analyses, associations of student (i.e. sex and age) and class (i.e. educational track) characteristics with the study variables were explored by means of separate single predictor multilevel regression models.

5.3.1. Aim 1: factorial validity

A CFA based on maximum likelihood estimation in MPlus was conducted to examine the factorial validity of the items tapping into autonomous motivation, controlled motivation, amotivation and controlled motivated non-participation. Specifically, it was tested to what extent the data fitted a hypothesized higher-order model with intrinsic motivation (4 items) and identified regulation (4 items) loading on the higher-order latent variable autonomous motivation, with introjected regulation (3 items) and external regulation (4 items) loading on the higher-order latent variable controlled motivation, and with amotivation (4 items) and controlled motivated non-participation (8 items) as two separate latent factors. To evaluate the model fit, the Comparative Fit Index (CFI); the Root Mean Squared Error of Approximation (RMSEA) and the Standardized Root Means Square Residual (SRMR) were selected. According to Hu and Bentler (1999), combined cut-off values close to .95 for CFI and close to .06 for RMSEA and .09 for the SRMR indicate good fit.

5.3.2. Aim 2: dimensional approach

Multilevel regression analyses were employed to examine the relation between motivation (i.e. autonomous motivation, controlled motivation, amotivation), controlled motivated non-participation, and student outcomes (i.e. learning, performance, resentment towards lesson and resentment towards teacher). Student sex and age were included as covariates at Level 1 and educational track was included as a covariate at Level 2. All quantitative explanatory variables were grand mean centered before they were entered into the predictor models.

In a first step of the analyses, a baseline variance components model (Rasbash, Steele, Browne & Goldstein, 2009) or intercept-only model (Hox, 2010) was used to evaluate how much of the variation in the four outcome variables was situated at the student- versus class-level by calculating interclass correlation coefficients (ICCs). This intercept-only model served as a baseline (i.e. null model) to compare subsequent more complex models with. Next, in separate models for each of the student outcomes, students' motivation variables (i.e. autonomous motivation, controlled motivation, and amotivation) were included simultaneously as predictors in a first model (Model 1a) after controlling for the three covariates (i.e. student sex, age, and educational track). In a final step, students' controlled motivated non-participation was entered as an additional predictor of each of the outcomes (Model 2a).

5.3.3. Aim 3: person-centered approach

Similar to previous studies (Haerens et al., 2010; Vansteenkiste et al., 2009), a two-step procedure using hierarchical and non-hierarchical clustering methods (Gore, 2000) was followed to generate motivational profiles. To reduce the impact of univariate and multivariate outliers, individuals with values of more than 3 *SD* above or below the mean or having high Mahalanobis distance values (Garson, 1998) were removed from the analyses. First, Ward's method was used to conduct a hierarchical cluster analysis based on squared Euclidian distances as to identify initial cluster centers. We considered five-, six-, and seven cluster solutions and inspected the percentage of explained variance in the motivational dimensions and in each cluster solution. This variance should be at least 50% for each of these dimensions (Milligan & Cooper, 1985). In a second step, these extracted cluster solutions were used as non-random starting points in an iterative, non-hierarchical *k*-means clustering procedure with an a priori determined number of clusters. To examine the stability of the cluster solutions, a double-split cross-validation method was used (Breckenridge, 2000) by randomly splitting the sample into halves and applying the two-step procedure (Ward and *k*-means) to each subsample. The participants in each half of the sample were assigned to new clusters on the basis of their Euclidean distances to the cluster centers of the other half of the sample. The two solutions were then compared for agreement with the original clusters by means of Cohen's kappa (κ). The two resulting kappa's were averaged. An average agreement value of at least .60 was considered acceptable (Asendorpf, Bokenau, Ostendorf, & van Aken, 2001), and the most stable and replicable solution was retained for further analyses.

To explore the external validity of the retained cluster solution, we investigated whether participants in the retained motivational profiles had different scores on learning, teacher-rated performance, resentment towards the lesson, and resentment towards the teacher. To this, we performed multilevel regression analyses by adding cluster membership as a predictor in separate models for each of the outcomes. To compare the clusters in terms of means and standardized scores, the regression equations were repeated several times for each outcome by changing the reference category.

6. Results

6.1. Aim 1: factorial validity and descriptive analyses

6.1.1. Confirmatory factor analysis

The higher-order model, with intrinsic motivation (4 items) and identified regulation (4 items) loading on the higher-order latent variable autonomous motivation, with introjected regulation (3 items) and external regulation (4 items) loading on the higher-order latent variable controlled motivation, and with amotivation (4 items) and controlled motivated non-participation (8 items) as two separate latent factors, yielded a good fit with the data,

$\chi^2(314) = 908.71$, $p < .001$, RMSEA = .06, CFI = .91, SRMR = .07. As can be noticed in Fig. 1, all items loaded exclusively on their corresponding factor and indicator loadings ranged between .51 and .82.

6.1.2. Correlational analyses

Means, standard deviations, and correlations among the variables are presented in Table 2. Consistent with our theorizing that controlled motivated non-participation reflects a non-volitional and rather pressured form of functioning, it was modestly negatively associated with autonomous motivation, while being positively associated with controlled motivation. In addition, as can be expected, it yielded a positive association with amotivation. Further, controlled motivated non-participation related negatively to learning, positively to resentment towards lesson and teacher, but was unrelated to teacher-rated performance.

6.1.3. Background characteristics

To examine whether the study variables differed according to student sex, age and educational track, single predictor multilevel regression models were tested in separate models for each of the study variables. As for sex and educational track, regression equations were repeated by changing the reference category as to obtain coefficients for the two and three categories, respectively. Wald chi-square tests were used to examine whether differences were statistically significant (see Goldstein, 2003). Results indicated that boys, relative to girls, reported higher levels of controlled motivated participation ($M = 2.32 \pm .05$ vs. $M = 2.17 \pm .07$; $\chi^2 = 3.82$, $df = 1$, $p = .05$), controlled motivated non-participation ($M = 1.72 \pm .06$ vs. $M = 1.48 \pm .07$; $\chi^2 = 10.15$, $df = 1$, $p < .001$), and feelings of resentment towards the teacher ($M = 1.62 \pm .07$ vs. $M = 1.44 \pm .09$; $\chi^2 = 5.19$, $df = 1$, $p = .02$), yet were being rated by their teacher as performing better ($M = 1.56 \pm .06$ vs. $M = 1.23 \pm .07$; $\chi^2 = 26.57$, $df = 1$, $p < .001$). As for student age, a significant positive association was found for controlled motivation ($\beta = .15$, *S.E.* = .05; $\chi^2 = 6.79$, $df = 1$, $p = .009$) and learning ($\beta = .17$, *S.E.* = .06; $\chi^2 = 8.60$, $df = 1$, $p = .003$). As for educational track, we found significant differences for students' amotivation and learning. Students in an academic track were found to report significantly lower levels of amotivation ($M = 1.89 \pm .06$) than students in a technical ($M = 2.11 \pm .10$; $\chi^2 = 3.91$, $df = 1$, $p = .05$) and a vocational track ($M = 2.23 \pm .16$; $\chi^2 = 3.94$, $df = 1$, $p = .05$), who did not differ from each other ($\chi^2 = .39$, $df = 1$, $p = .53$). In addition, students in a vocational track reported significantly more learning ($M = 4.41 \pm .21$) compared to students in a technical track ($M = 3.88 \pm .13$; $\chi^2 = 4.57$, $df = 1$, $p = .03$), but did not differ from students in an academic track ($M = 4.02 \pm .08$; $\chi^2 = 2.90$, $df = 1$, $p = .09$), whereas students in an academic and technical track did not differ from each other ($\chi^2 = .88$, $df = 1$, $p = .35$). Based on these results, student sex, age and educational track were controlled for in the subsequent dimensional and person-centered analyses.

6.2. Aim 2: dimensional approach

First, estimation of a fully unconditional two-level null model and interclass correlation coefficients (ICCs) indicated that there was significant between-class level variance in learning, teacher-rated performance, resentment towards the lesson, and resentment towards the teacher with ICCs of 16% ($\chi^2 = 11.00$, $df = 1$, $p < .001$), 23% ($\chi^2 = 10.34$, $df = 1$, $p < .001$), 9% ($\chi^2 = 7.08$, $df = 1$, $p = .008$), and 17% ($\chi^2 = 11.44$, $df = 1$, $p < .001$), respectively.

Second, as can be noticed in Table 3 (Models 1a), the inclusion of

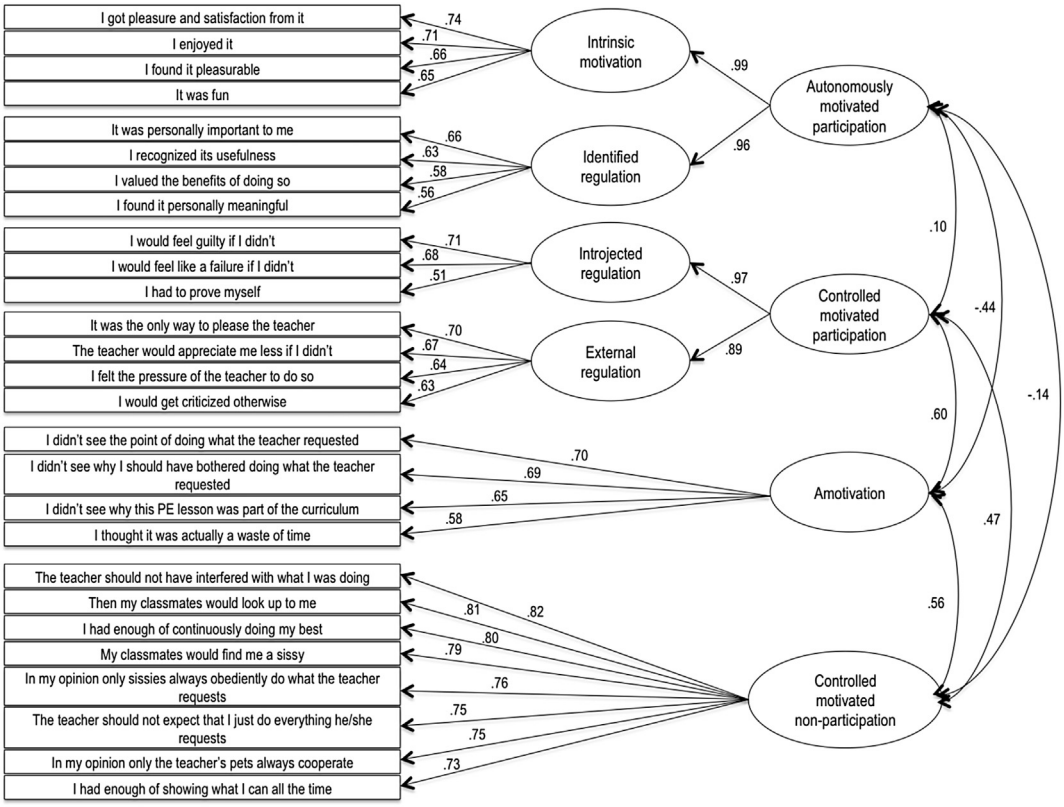

Fig. 1. Graphical representation of the measurement model including items tapping into autonomously motivated participation, controlled motivation participation, amotivation and controlled non-participation.

Table 2
Descriptive statistics and correlations among the study variables.

	M	*SD*	Min	Max	1	2	3	4	5	6	7
1. Autonomously motivated participation	3.24	.85	1.00	5.00	–						
2. Controlled motivated participation	2.29	.88	1.00	5.00	.16**	–					
3. Amotivation	1.99	.93	1.00	5.00	-.30**	.43**	–				
4. Controlled motivated non-participation	1.64	.82	1.00	5.00	-.09*	.41**	.48**	–			
5. Self-reported learning	4.02	.95	1.00	5.00	.37**	.01	-.25**	-.09*	–		
6. Teacher-rated performance	1.48	.61	.00	2.00	.18**	-.08	-.14**	-.06	.18**	–	
7. Resentment towards lesson	1.69	.83	1.00	5.00	-.17**	.31**	.44**	.47**	-.25**	-.10*	–
8. Resentment towards teacher	1.55	.86	1.00	5.00	-.18**	.25**	.41**	.52**	-.18**	-.06	.78**

Note. $N = 647$ students, $N = 41$ PE teachers. $^{*}p < .05$, $^{**}p < .01$.

students' scores for autonomous motivation, controlled motivation and amotivation produced a significantly ameliorated model for all outcomes (learning, $\chi^2 = 222.50$, $df = 7$, $p < .001$; teacher-rated performance, $\chi^2 = 133.60$, $df = 7$, $p < .001$; resentment towards the lesson, $\chi^2 = 251.71$, $df = 7$, $p < .001$; resentment towards the teacher, $\chi^2 = 232.49$, $df = 7$, $p < .001$). With respect to learning and teacher-rated performance, autonomous motivation and amotivation were found to be, respectively, positively and negatively related, whereas no relationships with controlled motivation were found. As for resentment towards both the lesson and the teacher, autonomous motivation was found to be negatively related, whereas controlled motivation and amotivation related positively.

Most importantly, in a final step (see Models 2a in Table 3), the inclusion of controlled motivated non-participation significantly ameliorated the fit of the models for all outcomes (learning, $\chi^2 = 5.07$, $df = 1$, $p = .02$; teacher-rated performance, $\chi^2 = 12.60$, $df = 1$, $p < .001$; resentment towards the lesson, $\chi^2 = 56.64$, $df = 1$, $p < .001$; resentment towards the teacher, $\chi^2 = 89.05$, $df = 1$, $p < .001$). The results of Models 2a show that controlled motivated non-participation was significantly positively related to resentment

Table 3
Summary of the model estimates for the two-level analyses of student outcomes.

Parameter	Model 1a		Model 2a		Model 1a		Model 2a	
	Self-reported learning				Teacher-rated performance			
Fixed part	*B (S.E.)*	*β*	*B (S.E.)*	*β*	*B (S.E.)*	*β*	*B (S.E.)*	*β*
Intercept	3.95 (.08)		3.95 (.08)		1.51 (.07)		1.50 (.07)	
Student sex[a]	.14 (.08)	.15	.14 (.09)	.15	-.36 (.07)***	-.59	-.36 (.07)***	-.59
Student age	.13 (.06)*	.09	.13 (.06)*	.09	-.03 (.04)	-.03	-.04 (.04)	-.04
Technical track[b]	-.06 (.14)	-.06	-.07 (.14)	-.07	.08 (.10)	.13	.09 (.10)	.15
Vocational track	.39 (.21)	.41	.39 (.21)	.41	.25 (.15)	.41	.27 (.15)	.44
Autonomously motivated participation	.34 (.05)***	.30	.34 (.05)***	.30	.11 (.03)***	.15	.11 (.03)***	.15
Controlled motivated participation	.01 (.05)	.01	.01 (.05)	.01	-.06 (.03)	-.09	-.07 (.03)	-.10
Amotivation	-.17 (.05)***	-.17	-.17 (.05)***	-.17	-.07 (.03)*	-.11	-.08 (.03)*	-.12
Controlled motivated non-participation			-.01 (.05)	-.01			.01 (.04)	.01
Random part intercept only model								
Class level variance	.15 (.05)		.15 (.05)		.08 (.03)		.08 (.03)	
Student level variance	.76 (.04)		.76 (.04)		.27 (.02)		.27 (.02)	
Random part multiple predictor model								
Class level variance	.11 (.04)		.11 (.04)		.06 (.02)		.06 (.02)	
Student level variance	.62 (.04)		.62 (.04)		.23 (.02)		.23 (.02)	
Test of significance								
Reference model	1661.23		1438.74		794.48		660.88	
Deviance test model (-2LL)	1438.74		1433.66		660.88		648.28	
X^2 *(df)*	222.50***		5.07*		133.60***		12.58***	
	Resentment towards lesson				**Resentment towards teacher**			
Intercept	1.51 (.06)		1.66 (.05)		1.58 (.07)		1.56 (.06)	
Student sex[a]	-.05 (.07)	-.06	.01 (.07)	.01	-.20 (.07)**	-.23	-.13 (.07)	.15
Student age	-.06 (.05)	-.05	-.05 (.05)	-.04	-.01 (.05)	-.01	-.00 (.05)	-.00
Technical track[b]	.06 (.09)	.07	.06 (.08)	.07	.04 (.11)	.05	.05 (.10)	.06
Vocational track	.24 (.14)	.29	.24 (.13)	.29	.18 (.17)	.21	.17 (.15)	.20
Autonomously motivated participation	-.11 (.04)**	-.11	-.11 (.04)**	-.11	-.12 (.04)**	-.12	-.11 (.04)**	-.11
Controlled motivated participation	.18 (.04)***	.19	.11 (.04)**	.12	.11 (.04)**	.11	.02 (.04)	.02
Amotivation	.27 (.04)***	.30	.18 (.04)***	.20	.24 (.04)***	.26	.12 (.04)**	.13
Controlled motivated non-participation			.32 (.04)***	.32			.40 (.04)***	.38
Random part intercept only model								
Class level variance	.06 (.02)		.06 (.02)		.13 (.04)		.13 (.04)	
Student level variance	.64 (.04)		.64 (.04)		.62 (.04)		.62 (.04)	
Random part multiple predictor model								
Class level variance	.02 (.01)		.01 (.01)		.06 (.02)		.05 (.02)	
Student level variance	.50 (.03)		.46 (.03)		.50 (.03)		.43 (.03)	
Test of significance								
Reference model	1533.63		1281.92		1533.88		1301.39	
Deviance test model (-2LL)	1281.92		1225.28		1301.39		1212.34	
X^2 *(df)*	251.71***		56.64***		232.49***		89.05***	

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. [a] 0 = male, 1 = female; reference category = male; [b] 0 = academic track, 1 = technical track, 2 = vocational track; reference category = academic track.

towards both the lesson and the teacher, whereas null-relations were found with learning and teacher-rated performance.

6.3. Aim 3: person-centered approach

6.3.1. Cluster analysis

Prior to running the cluster analysis, scores on autonomous motivation, controlled motivation, amotivation and controlled motivated non-participation were standardized. To reduce their impact on the results, we removed 11 univariate and 5 multivariate outliers. In addition, as data on controlled reasons for non-participation were missing for 16 students, these students were not included in the cluster analysis, resulting in a total sample of 615 students. Five clusters were retained by means of Ward's hierarchical cluster analysis. These clusters explained, respectively, 53%, 58%, 54%, and 69% of the variance in autonomous motivation, controlled motivation, amotivation and controlled motivated non-participation, thereby surpassing the threshold of 50%. With a six-cluster solution the variance explained only slightly increased, and a seven-cluster solution appeared less interpretable and less parsimonious. In the second step, the cluster centers for the five-cluster solution (see Fig. 2) were used as non-random starting points for a non-hierarchical iterative *k*-means clustering procedure. Both the standardized and absolute scores for autonomous motivation, controlled motivation, amotivation and controlled motivated non-participation are reported in Table 4. The labels of the five clusters were given based on the z-scores, which reflect relative differences between individuals in the sample. Specifically, the clusters represented (a) a controlled motivated (non-)participation-amotivation group ($n = 96$; 15.6%), (b) a controlled motivated participation-amotivation group ($n = 110$; 17.9%), (c) a low motivation group ($n = 123$; 20.0%), (d) a high motivation group ($n = 135$; 22.0%), and (e) an autonomously motivated participation group ($n = 151$, 24.6%). The cross-validation procedure across random splits of the sample resulted in a kappa value of .78, providing good evidence for the stability and replicability of the five-cluster solution. Chi-square testing revealed a significant cluster assignment by sex effect, $\chi^2 = 18.23$, $df = 4$, $p = .001$. Both sexes were almost equally distributed across the high motivation group, the low motivation group and the autonomously motivated participation group. However, both sexes were unequally distributed across the controlled motivated participation-amotivation group (74% males versus 26% females) and the controlled motivated (non-)participation-amotivation group (83% versus 17%). As for educational track, the effect was also significant, $\chi^2 = 15.62$, $df = 8$, $p = .05$, with students in an academic track being somewhat overrepresented in the autonomously motivated participation group (76% relative to 69% in the total sample), and students in an technical track being somewhat overrepresented in the controlled motivated participation-amotivation group (33% relative to 22% in the total sample) and the controlled motivated (non-)participation-amotivation group (28%). As for age, there were no significant differences in cluster assignment, $F(4,605) = 1.51$, $p = .20$.

6.3.2. Relations between cluster membership and outcomes

Pairwise comparisons conducted by means of multilevel regression analyses are presented in Table 4. Students in the autonomously motivated participation group displayed the most adaptive motivational profile as they reported the highest learning levels and the least feelings of resentment towards the lesson and the teacher. They were also rated as performing best by the teacher. This group did not significantly differ from the high motivation group, except for teacher-rated performance and resentment towards the lesson.

Students of the controlled motivated (non-)participation-amotivation group reported higher levels of resentment both vis-à-vis the lesson and the teacher, in comparison with the four other groups. The controlled motivated participation-amotivation group fell in between the group characterized by controlled motivated (non-)participation-amotivation group and the two groups in which autonomous motivation was most strongly present (i.e., the high motivation and the autonomously motivated participation group). As for learning and teacher-rated performance, consistent with the dimensional analyses, the presence of controlled motivated non-participation played a less discriminating role. While the group characterized by controlled motivated non-participation

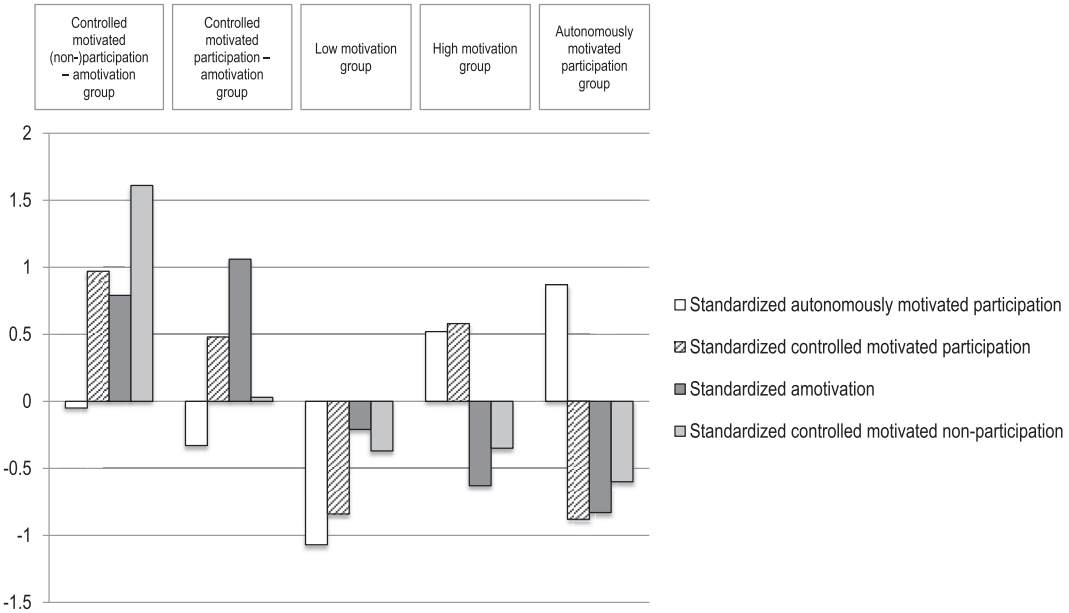

Fig. 2. Five-cluster solution based on z-scores for autonomously motivated participation, controlled motivated participation, amotivation and controlled motivated non-participation.

Table 4
Mean scores and cluster comparisons for the five clusters (N = 615).

Variable	Cluster				
	Cluster 1: Controlled motivated (non-) participation −amotivation group	Cluster 2: Controlled motivated participation − amotivation group	Cluster 3: Low motivation group	Cluster 4: High motivation group	Cluster 5: Autonomously motivated participation group
	N = 96 (15.6%)	*N* = 110 (17.9%)	*N* = 123 (20.0%)	*N* = 135 (22.0%)	*N* = 151 (24.6%)
Cluster dimensions (z-scores)					
Autonomously motivated participation	-.05 (.08)[a]	-.33 (.07)[b]	−1.07 (.07)[c]	.52 (.06)[d]	.87 (.06)[e]
Controlled motivated participation	.97 (.07)[a]	.48 (.06)[b]	-.84 (.06)[c]	.58 (.06)[c]	-.88 (.05)[b]
Amotivation	.79 (.07)[a]	1.06 (.06)[b]	-.21 (.06)[c]	-.63 (.06)[d]	-.83 (.05)[e]
Controlled motivated non-participation	1.61 (.06)[a]	.03 (.06)[b]	-.37 (.06)[c]	-.35 (.05)[b]	-.60 (.05)[d]
Cluster dimensions (raw scores)					
Autonomous motivation	3.20 (.07)[a]	2.96 (.06)[b]	2.33 (.06)[c]	3.69 (.06)[d]	3.98 (.05)[e]
Controlled motivation	3.14 (.06)[a]	2.72 (.06)[b]	1.56 (.05)[c]	2.81 (.05)[c]	1.52 (.05)[d]
Amotivation	2.73 (.06)[a]	2.98 (.06)[b]	1.80 (.06)[c]	1.40 (.05)[d]	1.22 (.05)[e]
Controlled motivated non-participation	2.97 (.05)[a]	1.67 (.05)[b]	1.34 (.05)[c]	1.36 (.04)[b]	1.16 (.04)[d]
Student outcomes					
Self-reported learning	3.76 (.11)[a]	3.87 (.10)[a]	3.71 (.09)[a]	4.12 (.09)[b]	4.31 (.08)[b]
Teacher-rated performance	1.39 (.07)[a]	1.43 (.07)[a]	1.50 (.07)[a]	1.57 (.07)[a]	1.73 (.06)[b]
Resentment towards lesson	2.24 (.08)[a]	1.95 (.08)[b]	1.55 (.08)[c]	1.48 (.07)[b]	1.25 (.07)[d]
Resentment towards teacher	2.16 (.08)[a]	1.81 (.08)[b]	1.52 (.08)[c]	1.33 (.07)[d]	1.19 (.06)[d]

Note. Values in parentheses are standard errors. A cluster mean is significantly different from another mean if they have different superscripts. Differences between the five clusters were tested by repeating the equations several times and changing the reference category. As such, coefficients for each cluster were obtained, which enables pairwise comparisons. The results were controlled for student sex, student age and educational track.

reported less learning and was rated as having performed worse by the teacher compared to the autonomously motivated participation group, they did not systematically differ on both outcomes relative to the other three groups. For instance, the low motivation group displayed a similar pattern on learning compared to the group in which controlled motivated non-participation was present, and the high motivation group primarily differed from the controlled motivated (non-)participation-amotivation group in terms of self-reported learning, but not in terms of teacher-rated performance.

7. Discussion

Up until now, within Self-Determination Theory (SDT; Deci & Ryan, 1985; 2000), reasons for non-participation have been studied almost exclusively through the notion of amotivation. The present study aimed at contributing to this research area both conceptually and empirically by introducing the notion of controlled motivated non-participation in the context of compulsory PE at secondary school, thereby relying on a dimensional and person-centered approach.

7.1. Controlled reasons for non-participation as a distinct type of motivation in physical education

According to SDT, amotivation or general discouragement may explain why students sometimes put little or no effort in activities during a PE lesson. In the present study, we extended SDT's consideration of the 'why not' of behavior by moving beyond the concept of amotivation. Specifically, we reasoned that students may also be driven towards non-participation by externally or internally pressuring demands. That is, students may feel forced by their peers to not put effort in PE to garner their attention or to avoid critical comments or they could possibly react against the pressure put on them by their teacher. Alternatively, internally held ideas regarding PE in general or certain topics in particular may prevent them for exerting effort in the lesson. For instance, they may hold the belief that only model students do their best for PE, yet they don't want to align themselves with such an image, leading them to reject teachers' requests and to refrain from putting effort in the lesson.

Consistent with our hypothesis that controlled motivated non-participation would represent a separate motivational category for students' non-participation, items tapping into this form of motivation loaded exclusively on a separate factor in confirmatory factor analyses. These findings are promising and begin to suggest that controlled motivated non-participation represents a distinct motivational dimension that can be differentiated from the 'classic' SDT-based types of motivation.

In addition, controlled motivated non-participation correlated in meaningful ways with the other retained factors. For instance, controlled motivated non-participation and amotivation – two categories involving reasons for non-participation – were positively correlated. Further, controlled motivated participation and non-participation were positively correlated, which indicates that – consistent with our theorizing – both constitute pressured functioning, yet the pressure manifests differently. In the case of controlled motivated participation, the pressure manifests through either enforced or seduced compliance, that is, the students give in

to the encountered demands, while, in the case of controlled motivated non-participation, the pressure is grounded in opposition against an imposed or internally held demand, with students taking distance. Finally, the negative relation between controlled motivated non-participation and autonomous motivation is also to be expected: whereas controlled reasons for non-participation represent an opposition against requests, thus constituting a form of anti-internalization, autonomous motivation involves a willing participation in the learning activity because one has fully endorsed (i.e., internalized) its personal value.

7.2. Correlates of controlled motivated non-participation

Consistent with past work (Aelterman et al., 2012; Boiché et al., 2008; Ntoumanis, 2001; 2005; Standage et al., 2005; 2006) and our predictions, autonomous motivation related to the most adaptive pattern of outcomes, whereas controlled motivation related particularly to maladaptive outcomes. Specifically, autonomous motivation related positively to learning and teacher-rated performance, while being negatively related to feelings of resentment vis-à-vis the lesson and the teacher.

In contrast, controlled motivation yielded a positive relation to resentment towards the lesson and the teacher, while being unrelated to students' self-reported learning and teacher-rated performance. It seems, at least from these dimensional analyses, that when students feel pressured into the requested activities, they may have a negative opinion about the lesson and the teacher, yet they do not necessarily learn less or perform worse. Previous studies in education in general (e.g., Vansteenkiste, Zhou, Lens, & Soenens, 2005) and in PE in particular (e.g., Aelterman et al., 2012) have also reported null relations between controlled motivation and positive behavioral outcomes. Theoretically (Deci & Ryan, 2000), controlled motivation can elicit desired behavior, yet, such behavior may only be emitted in the short term (e.g., Pelletier, Fortier, Vallerand, & Brière, 2001), be of lower technical quality (e.g., Grolnick & Ryan, 1987; Vansteenkiste et al., 2005) and the behavior itself may not necessarily coincide with students' felt emotions during activity engagement, being indicative of lack of authenticity (Aelterman et al., 2012). Consistent with the latter interpretation, controlled motivated students may perhaps have made some progress, yet, their learning efforts were undergirded by considerable resentment vis-à-vis both the teacher and the lesson itself.

As for amotivation, a significant negative association was found with learning and teacher-rated performance, whereas a positive association was found with students' feelings of resentment towards the lesson and towards the teacher. These findings correspond with previous studies showing that amotivation is detrimental for a multitude of student outcomes (e.g., Aelterman et al., 2012; Ntoumanis, 2001; Ntoumanis et al., 2004).

A more central focus of the present research concerned the unique predictive value of controlled motivated non-participation. In accordance with our predictions, controlled reasons for non-participation related positively to feelings of resentment vis-à-vis the lesson and the teacher, and these associations emerged above and beyond those for other motivational dimensions. Yet, the hypothesis that controlled reasons for non-participation would uniquely predict less self-reported learning and teacher-rated performance could not be confirmed. It seems that, when students report higher controlled motivated non-participation, their negative opinion about the lesson and the teacher is not necessarily reflected in reduced learning and performance. Overall then, the pattern of findings for controlled motivated non-participation mirrors the pattern obtained for controlled motivated participation. Perhaps, because students in a PE lesson are almost under constant supervision by their PE teacher, they have little freedom to truly display their opposition. They can reduce their efforts and put the required minimal amount, but they cannot escape the lesson, as PE lessons are obligatory. Perhaps, if more freedom would be allowed or if PE teachers would monitor the behavior less, the negative effects of controlled reasons for non-participation on the made progress and effective performance would show up. On the other hand, the close monitoring by the teacher did not cancel the negative effects of amotivation on students' learning and rated performance. Whereas the items tapping into amotivation reflected the extent to which students felt that the lesson was a waste of time, this was not the case for those tapping into controlled motivated non-participation. So, an alternative explanation is that students high on controlled motivated non-participation may, perhaps more than those scoring high on amotivation, care about the activities in the PE lesson. Perhaps more than the lesson itself, the way the activities are introduced, communicated, and organized by the teacher is experienced by some participants (particularly those concerned with issues of social standing and peer pressure), as causing their classmates to view them as overly compliant to the teacher and subordinate, which creates a controlled motive for non-participation in a lesson they actually value. Given that the study of controlled reasons for non-participation is new, unexplored territory, qualitative research may be helpful to gain insight into the psychological dynamics that characterize individuals scoring high on either of these two forms of a lack of motivation (see Ntoumanis et al., 2004 for an example with respect to amotivation).

7.3. Motivational profiles and outcomes

Complementary to the dimensional analyses, a person-centered approach was adopted to explore how combinations of situational motivation towards PE lesson participation naturally co-occurred. A stable and replicable five-cluster solution was obtained, with two of the five clusters representing clearly motivated groups of students (i.e. an autonomously motivated participation group and high motivation group), and three clusters representing (far) less motivated groups (i.e. a low motivation group, a controlled motivated participation-amotivation group, and a controlled motivated (non-) participation-amotivation group). These motivational configurations had differential associations with all of the outcomes.

Corroborating past research (e.g., Boiché et al., 2008; Vansteenkiste et al., 2009; Haerens et al., 2010) and the present dimensional findings, the results confirmed that the autonomously motivated profile yielded the most desirable pattern of outcomes, as indexed by the highest levels of learning and performance and the lowest levels of resentment. The high motivation group also displayed a relatively adaptive pattern of outcomes. Specifically, although students with this profile reported significantly higher levels of resentment towards the lesson than the autonomously motivated participation group, they did not differ in terms of self-reported learning and feelings of resentment towards the teacher. In addition, students in the high motivation group were rated by their teacher as performing significantly worse than the autonomously motivated participation group, yet, they equally reported greater learning and less feelings of resentment compared to the other groups. Previous studies (Haerens et al., 2010; Vansteenkiste et al., 2009) found that this high motivation group scored similar on a number of outcomes (e.g., learning strategies), while being different on others (e.g., test anxiety). A similar mixed pattern emerged in the present study. Perhaps, the addition of controlled motivation to autonomous motivation becomes especially detrimental for students' learning in the longer run (i.e., across a series of classes) and to a lesser extent within the context of one specific class.

Another possible explanation for these non-significant differences in self-reported learning and resentment towards the teacher is that autonomous and controlled motivation were not equally present in this highly motivated group (see absolute scores in Table 4). In fact, pairwise comparisons indicated the stronger presence of autonomous relative to controlled reasons in this group. Overall, to fully understand the (lack of) between-group differences in studied outcomes, not only between-group differences in motivation (as reflected in z-scores) may need to be considered but also the absolute presence of each motivation subtype within each subgroup (as reflected in the absolute scores). Indeed, Table 4 shows that in the absolute sense autonomous reasons were strongest in each of the five clusters.

As for the 'unmotivated' groups, the low motivation group directly resembled the low motivation cluster obtained in past person-centered work (e.g., Haerens et al., 2010; Vansteenkiste et al., 2009). The addition of controlled motivated non-participation as an additional clustering dimension next to the classic SDT-based motives yielded a qualitative refinement of the motivational clusters obtained in these prior studies. Specifically, one cluster was characterized by high scores on controlled motivated participation and amotivation, but relatively low scores on controlled motivated non-participation, which resembles the controlled motivation-amotivation group observed in Haerens et al., (2010). Yet, there was another cluster that was characterized by not only high scores on controlled motivated participation and amotivation, but also very high scores on controlled motivated non-participation. The latter group of students may vacillate between being discouraged to engage in the requested activities, feeling pressured to comply with the teacher's requests, and at the same time feeling pressured to oppose against the requests as to gain approval from their peers, establish their independence or liberate themselves from internally held standards. The first group, however, may perhaps have learned to better cope with the encountered feelings of helplessness and pressure, such that they do not lash out against imposed requests.

Consistent with our theorizing, the first group of students was the most vulnerable group, as it was found to display to most maladaptive pattern of outcomes, especially in terms of feelings of resentment towards the lesson and the teacher. Although students in the second group reported significantly lower levels of resentment towards the lesson and the teacher than students in the first group, they did not differ in terms of self-reported learning and teacher-rated performance. In sum, these findings indicate that refraining from participating in a target activity can – much like participating in a requested activity – be multi-determined.

7.4. Further reflections on reasons for non-participation

Although the present study adds to the extant literature by introducing the notion of controlled motivated non-participation in addition to amotivation as a reason for non-participation, more systematic empirical work is needed. First, it would be interesting to examine how amotivation and controlled motivated non-participation are related to the satisfaction and frustration of the basic needs for autonomy, competence and relatedness (Deci & Ryan, 2000). Second, it can be examined whether both constructs relate to wider range of undesirable outcomes, including sedentary and passive behavior, but also disruption, conflict, lateness and truancy. For example, sedentary behavior (i.e. sitting on the sideline) during the PE lesson might be relatively more strongly related to amotivation, as students being passive and disinterested do not always have the tendency to oppose against the teacher. Along similar lines, compared to amotivation, controlled motivated non-participation might be relatively more strongly related to conflict with the teacher (Koestner & Losier, 1996; Vansteenkiste & Ryan, 2013).

Further, it should be noted that, apart from having controlled reasons for non-participation, students might also refrain from participating in an activity for more autonomous reasons. That is, students can display autonomously motivated non-participation, a possibility that was previously suggested in the context of (health) behavior change (e.g., Vansteenkiste, Williams, & Resnicow, 2012) and (physical) education (Haerens, Vansteenkiste, Aelterman, & Van den Berghe, 2015). In the case of autonomously motivated non-participation, students are likely to reflect upon their personal preferences, values and interests and will evaluate whether the teacher's request align with these preferences and interests. Thus, rather than just rejecting the requests made by an authority figure or opposing against the teacher out of pressuring reasons (e.g., peer pressure), students displaying autonomously motivated non-participation might have given more considerate thought about their reasons for not engaging in the requested activity, such that they have volitionally decided to refrain from activity participation (Vansteenkiste et al., 2004; 2014). Presumably, in their opinion the offered activity truthfully does not make sense or they are highly competent in the activity at hand and see little challenge in what is offered. Since autonomously motivated non-participation is hypothesized to be more volitional in nature, it is possible that it may not produce the counter-productive outcomes that controlled motivated non-participation yields. Specifically, in the case of autonomous reasons for non-participation, students may be more open for discussion about the request and wish to either be convinced of the value and the benefits of complying with the request or to convince the teacher about an acceptable alternative. This may lead to more constructive forms of negotiation with the authority figure (Skinner, Edge, Altman, & Sherwood, 2003), where students attempt to transform the teacher-student relationship or the PE activity itself into something more need-supportive. As such, students transform non-participation into volitional participation, which may create opportunities for positive outcomes. Reeve and colleagues talk about this student-led process as agentic engagement, which occurs when students intentionally and somewhat proactively try to personalize and otherwise enrich both what is to be learned and the conditions and circumstances under which it is to be learned (Reeve, 2013; Reeve & Tseng, 2011).

Finally, within these broader categories of autonomously and controlled motivated non-participation, there may be room for more subtle differentiations, depending on whether students are *pushed away* from engaging in the target activity or, alternatively, whether students are *pulled into* different activities that are difficult to reconcile with the requested activity (e.g., Chirkov, Vansteenkiste, Tao & Lynch, 2007 for a similar distinction in migration motivation). That is, students can also be attracted to a non-compatible competing activity for different reasons, which lead them to spend less effort or even give up the target activity. To illustrate, students can refrain from engaging in technical volleyball exercises during the PE lesson because they have considered these exercises and believe they are not meaningful for them (an autonomous motive - push factor) or they could value playing a volleyball game more (an autonomous reason - pull factor). Along similar lines, students can refrain from concentrating on the exercises as to gain approval from their friends (a controlled reason - push factor) or because their friends expect them to talk about the weekend activities during the lesson (a controlled reason - pull factor).

7.5. Limitations and future directions

The present research has a number of limitations, including the cross-sectional design, which precludes the inference of causal

relationships. For example, although the present study presented resentment towards the learning material and resentment towards the teacher merely as outcomes of controlled reasons for non-participation, feelings of resentment could also predict controlled motivated non-participation rather than follow from it, with resentment being rooted in psychological need frustration. Future research using longitudinal or experimental designs is needed to further disentangle these associations and to examine the causal and long-term effects of controlled reasons for non-participation on student outcomes during PE.

Another issue relates to the measurement of several variables involved. Specifically, to assess learning and performance, the students and the teacher were, respectively, asked to respond to a single item. Perhaps, the reliance on more advanced measures to map out students' progress and achievement within one lesson or even across a series of lessons would provide another picture of the findings. In addition, future studies could include a more comprehensive measure tapping into various aspects of amotivation (see Ryan et al., 2011), including the lack of perceived competence and the lack of perceived contingency between the expected behavior and a desirable outcome. Along similar lines, future research is needed to map out if autonomous and controlled reasons for non-participation can actually be distinguished and whether and how these constructs relate to differential antecedents and outcomes. Further, it should be noted that the scales assessing autonomous motivation, controlled motivation and amotivation used a different sentence stem (i.e., 'During the past PE lesson I did what the teacher requested because …) than the scale assessing controlled motivated non-participation (i.e., 'During the past PE lesson I sometimes did not do what the teacher requested because … '), which may have driven our factor analytical findings and needs to be considered when interpreting the distinctiveness of the items. Therefore, future research would do well to assess all the items using the same format of a questionnaire.

Finally, future studies on students' reasons for non-participation could try to distinguish between motivational responses to the content of the lesson versus the manner this content is transmitted to students. Moreover, it may be interesting to also assess the extent that students are concerned with issues of status in the peer group. Future analyses can examine two-way and three-way interactions between these aspects to detect students who are particularly likely to act with opposition and feel completely controlled during the lesson.

8. Conclusion

In an attempt to extend the SDT perspective on non-participation beyond amotivation, the present study investigated whether controlled motivated non-participation can be considered an additional reason for non-participation. Specifically, our results provided support for controlled motivated non-participation as a distinct motivational category in addition to the classic SDT-based motivational subtypes of amotivation, controlled motivation, and autonomous motivation. Further, we found evidence that controlled reasons for non-participation relate to a maladaptive pattern of student outcomes (as shown in the dimensional approach), and especially in the motivational most vulnerable group of students (as shown in the person-centered approach). These findings call for future research to further explore under which conditions the PE teacher's teaching style may trigger controlled reasons for non-participation and, more importantly, how PE teachers can prevent these reasons from occurring.

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