Predicting physical activity intention and behaviour using achievement goal theory: A person-centred analysis

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ABSTRACT

The purpose of the current study was to identify the 2 × 2 achievement goals profiles at the intra-individual level using a latent profile analyses (LPA) approach while controlling for the nesting of students within classroom. Additional analyses involving the direct inclusion of predictors and outcomes to the final latent profile solution were also used to examine the relationships between the latent profiles and perceived motivational climate, intention to be physically active and physical activity participation. A sample of 1810 school children aged 14–19 years drawn from 79 classes in 13 Singaporean schools took part in the study. Using the latent profile analysis, four distinct motivational profiles could be identified. The results from multinomial logistic regressions showed that profile membership was significantly predicted by perceptions of mastery and performance climate. Finally, the results showed that the four profiles differed significantly in terms of intention to be physically active and physical activity participation.

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In the past decades, researchers have focused on a social cognitive approach to understand motivation and human behaviours in achievement contexts. Within the social cognitive approach, achievement goal theory (Ames, 1992; Dweck & Leggett, 1988; Elliot, 1997; Nicholls, 1984, 1989) is one of the most popular frameworks in studying achievement motivation, and it has generated much research in sport and exercise psychology. In this approach, researchers typically examine the effects of dispositional goal orientation and perceived motivational climate on various outcomes. Thus, Biddle, Wang, Kavussanu, and Spray (2003) reviewed the correlates of achievement goal orientations in physical activity classes and found 98 studies, published between 1990 and 2000, including a total of 110 independent samples (total $N = 21,076$). In addition, Ntoumanis and Biddle (1999) reviewed 14 studies (total $N = 4484$) on the motivational impact of perceived classroom climates within physical education classes. This clearly illustrates the importance that achievement goal theory has had in research on physical education and physical activity within the last decade.

1. Achievement goal theory

The dichotomous achievement goal theory proposed by Nicholls (1989) and Dweck (1999) focuses on two contrasting and complementary goals, conceptualised as dispositional. The first focuses on self-referenced mastery or learning how to do the task, and is usually labelled "mastery" goal. The second emphasises normative comparison of ability or performance relative to others and is labelled "performance" goal (Pintrich, 2000). Furthermore, variations in these two goal orientations, or tendencies, are thought to be linked to different cognitive, affective, and behavioural outcomes.

In the revised achievement goal framework, Elliot (2005) proposes to separate achievement goals from dispositions. He views achievement goals as "aims" toward which individuals strive, a conceptualisation that is consistent with the "prototypical use of the term in the broader motivational literature, and it affords conceptual precision without, ultimately, sacrificing conceptual breadth" (p. 65). In addition, Elliot et al. (Elliot, 2005; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001) propose to incorporate an approach-avoidance dimension to the mastery-performance distinction of the dichotomous achievement-goal theory, leading to a 2 × 2 conceptualisation of achievement goals.

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Mastery-approach goals focus on achieving task-based intra-personal competence, with objectives related to skill development, mastery of task, and self-improvement. Mastery-avoidance goals focus on avoiding task-based intrapersonal incompetence, aiming to avoid not learning or not completing the task. Performance-approach goals focus on normative competence, with the objective to outperform others, win, or show others that you are better. Performance-avoidance goals focus on avoiding normative incompetence, aiming to avoid losing or performing badly compared to others. Interestingly, the 2 × 2 achievement goal framework does not assume that these goals are mutually exclusive, and recognises that individuals will vary along each of these 2 × 2 dimensions.

Research has showed these four goals predicted different cognitions, affects, and outcomes. Generally, mastery-approach and performance-approach goals contribute to positive affects and consequences, while mastery-avoidance and performance-avoidance goals predict less adaptive outcomes (Elliot & McGregor, 2001; Lochbaum, Podlog, Litchfield, Surles, & Hilliard, 2013; Lochbaum & Gottardy, 2015; McGregor & Elliot, 2002; Rawsthorne & Elliot, 1999; Wang, Biddle, & Elliot, 2007). These achievement goals reflect the personal perspective of motivation (Lau & Nie, 2008).

It is noted that researchers who examined the relationships between 2 × 2 achievement goals and related outcomes adopted variable-centred (multiple regressions, structural equation modelling, etc.) approaches (e.g., Cury, Elliot, Fonseca, & Moller, 2006; Elliot & McGregor, 2001), which describe the average relations among variables observed within the complete sample. However, such variable-centred approaches provide information about the underlying continuous structure of psychological constructs, their stability over time, and their relations with other meaningful variables as they apply to the average person in the sample, but ignore potentially critical differences occurring between various subgroups present in the sample (Morin & Wang, in press).

On the other hand, person-centred approaches aim to identify meaningful subgroups of participants (also called profiles) characterised by different patterns of relationships among the variables under study (e.g., Chen, 2012; Smith, Deemer, Thoman, & Zazworsky, 2014; Zuber, Zibung, & Conzelmann, 2015). In relation to achievement goal theory, a variable-centred approach may investigate the relations between achievement goals (mastery-performance; approach-avoidance) alone, in combination, or in interaction, and a variety of relevant predictors, correlates and outcomes. However, these relations are assumed to apply to all individuals forming the sample. In contrast, a person-centred approach aims to identify subgroups of participants presenting distinct achievement goals profiles, and then relate these profiles to meaningful covariates (predictors or outcomes). Importantly, we are not arguing that person-centred approaches are inherently "better" than variable-centred approaches. Rather, we argue that person-centred approaches contribute to enrich our understanding of important research questions by providing a complementary, and perhaps more heuristic, perspective focused on inter-individual differences and similarities on a configuration of key constructs of interest, rather than focussing on relations among constructs (e.g., Delbridge & Fiss, 2013; Morin & Wang, in press). Conceptually, some researchers (e.g., Ntoumanis & Biddle, 1999; Wang, Liu, Chatzisarantis, & Lim, 2010) have argued that since all the goals may vary within the same person, the variable-centred approach imposes an artificial structure on the observed data, and this may not fit the 'reality'. Therefore, the use of the person-centred approach may further our understanding of the intra-individual differences in goal profiles and relationships with other variables.

Another limitation of most previous studies is the failure to consider the nesting of students within classroom, even though many of the processes under investigation are assumed to occur within classrooms (e.g., physical education classes) under the influence of a specific teacher shared by all students forming the classroom. The purpose of this study is to address these limitations through the identification of achievement goals profiles using a latent profile analysis (LPA) while controlling for the nesting of students within classrooms. In addition, predictors and outcomes were incorporated to this model to further investigate the relationships between the profiles and perceived motivational climate (predictor), intention to be physically active (outcome) and physical activity (outcome).

2. Students perceptions of classroom goal structures

At the classroom level, the learning context is expected to have a direct impact on the adoption of specific goals (Ames, 1992; Nicholls, 1989). The study of perceived goal structures in the classroom thus becomes very important as it directly relates to the adoption of specific achievement goals by students (Papaioannou, Marsh, & Theodorakis, 2004). There are two main types of classroom goal structures derived from achievement goal theory: 'performance' (ego-involving) and 'mastery' (task-involving) motivational climates (Ames, 1992; Ntoumanis & Biddle, 1999). In performance-oriented classrooms, instructional practices and evaluation procedures are structured to emphasise interpersonal competition, discourage mistakes, and reward normative ability. In mastery-oriented classrooms, instructional practices and evaluation procedures would rather emphasise learning and improvement, effort is rewarded, mistakes are seen as part of learning, and choice is provided for task engagement.

Findings from variable-centred correlational studies (e.g., Ntoumanis & Biddle, 1999; Papaioannou, 1995; Wang et al., 2008) have consistently shown that perceptions of a mastery structure are related to adaptive outcomes, and performance goal structures are linked to maladaptive consequences. A study by Wang et al. (2010) adopted a person-centred approach. Their results showed that subgroups (or profiles) of students presenting different perceptions of the physical education classroom motivational climate, also tended to favour different types of achievement goals. Specifically, they found that differences in perceptions of mastery climates seemed influential in determining mastery goals adoption, and enjoyment. However, it should be noted that this study failed to take into consideration students' nesting within classes. Similarly, since achievement goals are personal constructs operating at the individual level, it would make more sense to create the subgroups (or profiles) of students to present more distinctive achievement goal profiles, rather than to classify these same individuals based on their perceptions of their classroom motivational climate. This way, the association of perceived motivational climate (predictor) on the adoption of distinct achievement goals profiles can be studied in combination with the impact of achievement goal profiles on intentions to be physically active and involvement in physical activity (outcomes). Recently, Morin and Wang (in press) suggested a method allowing for the integration of predictors and outcomes to a LPA solution that we use in the current study.

3. The present study

The purpose of the current study was to identify subgroups of students with distinct achievement goal profiles, while controlling for their nesting within classrooms. In addition, a multinomial logistic regression was conducted to examine the relation of classroom climate on profile membership. Finally, outcomes were added