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Predicting Physical Activity Intentions Using Goal Perspectives and Self-Determination Theory Approaches

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This study used goal orientation theory and self-determination theory (SDT) perspectives to investigate the predictors of physical activity intentions in a sample of Hungarian youth (N = 723). It was hypothesized that the four behavioral regulations stemming from SDT would be proximal predictors of intention, and that goal orientations would predict intentions indirectly through self-determined forms of behavioral regulations, directly for task orientation and indirectly through perceived competence for ego orientation. The hypothesized model was tested on a sample of 301 young people and found to fit the data satisfactorily. The model was then confirmed on a second sample (N = 422). Multi-sample analysis showed the paths to be equal across the two samples so they were combined. For the whole sample, the hypothesized model was confirmed (N = 723) with 18.8% of the variance in intentions explained. The main predictors of intention were self-determined forms of behavioral regulation. The influence of task orientation and ego orientation, indirectly through perceived competence, on intentions was through identified and intrinsic behavioral regulations.

Keywords: Youth, task orientation, ego orientation.

Understanding and promoting physical activity in young people has attracted a great deal of attention in recent years. Although many young people are regularly active, there remains concern that the lifestyles of children and youth are not always conducive to optimizing health-enhancing physical activity (Biddle, Sallis, & Cavill, 1998). Most research into physical activity determinants, however, has been with adults. The study of the determinants of physical activity in young people, therefore, is a research priority (Sallis et al., 1992).

While the study of health behaviors has often used attitude-intention-behavior theories such as the Theory of Planned Behavior, often to good effect (see Conner & Armitage, 1998), contemporary approaches to the study of young people's physical activity motivation have centered on motivation-related perspectives consistent with social cognitive theorizing (see Roberts, 1992). These are considered to be particularly appropriate for the study of young people's physical activity since much structured activity for this age group will take place in sport and physical education contexts (Biddle, 1997; De Bourdeaudhuij, 1998). One of the most popular motivation theories in recent years has been the achievement goal

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orientations approach. However, in addition, some researchers (e. g., Chatzisarantis, Biddle, & Meek, 1997; Whitehead & Corbin, 1997) have suggested we consider not only how we define success (a competence-based approach), but how we regulate our behavior through qualitatively different types of reasons for acting the way we do (an autonomy-based approach). This involves the Self-Determination Theory perspective advocated by Deci and Ryan (1985).

Achievement Goal Orientations

The study of achievement goal orientations has been particularly attractive to motivational researchers in exercise and sport psychology. The growing literature in this area has confirmed the existence and importance of task and ego goal orientations. These reflect dispositions towards the way we define success. If one is task oriented, success is defined mainly in terms of personal improvement and task mastery. If ego oriented, one is more likely to define success in normative terms, such as through winning, demonstrating superiority, or showing high normative ability with low effort (Duda, 1993). Nicholls (1989) argues that with an ego orientation ability is differentiated from effort in so far as ability is viewed as a capacity. A task conception of ability (task orientation), on the other hand, views ability and effort as undifferentiated. Ego-oriented people, therefore, will view ability to be higher if success is attained with low effort.

It has been proposed, and often supported with evidence (Duda, 1993), that perceived competence mediates the relationship between ego orientation and motivational outcomes. If an ego-oriented person has low perceived competence, they expect to have difficulties on the task and thus are likely to demonstrate incompetence. This may lead to motivational impairment. High perceptions of competence, however, are proposed to protect ego-oriented individuals from such negative effects. Task-oriented individuals, on the other hand, are not so concerned with competence, at least in the normative sense. They are motivated by *improving*, rather than *proving*, their competence (Dweck & Leggett, 1988). Perceived competence, therefore, should not affect motivational outcomes of task-oriented people.

Research in sport and exercise using a goal perspectives approach has expanded rapidly in recent years (see Duda & Whitehead, 1998). While much of the evidence has linked goals to other cognitive variables, such as beliefs about the causes of success in sport (Duda, 1993), less is known about the role of goals in predicting intentions or behavior. Based on prior theorizing and research, it would be expected that a high task orientation in physical education (PE) or sport for young people will be associated with high intentions to be physically active. Equally, a high ego orientation should also predict high intentions as long as perceived competence is high.

Self-Determination Theory

Self-Determination Theory (SDT) is an over-arching theoretical framework proposed by Deci and Ryan (1985). SDT accounts for psychological needs and motives and assumes that people are motivated to satisfy the basic needs of autonomy, competence, and relatedness (social needs). In achievement-related contexts, such as sports, feeling competent and autonomous is likely to be associated with intrinsically motivated states. On the other hand, feeling controlled or under pressure can be associated with less intrinsically motivated states. However, Deci and Ryan (1985) suggest that an intrinsic-extrinsic dichotomy is too simplistic and instead we need to consider a continuum reflecting degrees of autonomy, ranging between external and intrinsic regulation of behavior. Four main types of behavioral regulations are central to SDT:

1. *External regulation.* Behavior is controlled by external authority, rewards, fear of punishment, coercion, or compliance.
2. *Introjected regulation.* Behavior is "internally controlling" through avoidance of guilt and shame. It is best reflected in feelings of "ought" or "should" rather than "want."
3. *Identified regulation.* Behavior is "self-determined" and occurs in accordance with one's values and goals. It is best reflected in feelings of "want" rather than "ought" or "should."
4. *Intrinsic regulation.* Behavior is for enjoyment and "for its own sake."

It is recognized that more self-determined forms of behavioral regulation—intrinsic and identified—are likely to be associated with positive behavioral, affective, and cognitive outcomes. Less self-determined forms—introjection and external—may have more negative consequences, such as anxiety and low adherence. There is limited but growing research using a SDT approach in sport and exercise (see Chatzisarantis & Biddle, 1998;

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Chatzisarantis et al., 1997; Goudas, Biddle, & Fox, 1994; Mullan & Markland, 1997; Pelletier et al., 1995; Vallerand & Fortier, 1998).

Integrating Goal Orientations and Self-Determination Theory

The relationship between task and ego goals and subsequent motivational variables, such as intention, could be accounted for by the perceived autonomy in one or other of these goal orientations. For example, a task orientation, by definition, should influence intentions to be physically active because it is a self-determining form of motivation. On the other hand, ego orientation may influence intention through less self-determined forms of behavior, due to its "other person" referencing, or through autonomous forms when perceived competence is high. For these reasons, it is important that we test the network of relationships between goals, perceived competence, behavioral regulations, and intentions to be active. Although other intention-based models are applicable for this type of research, such as the Theory of Planned Behavior (see Ajzen, 1988), alternative theories were tested in an effort to expand the research base in health and exercise psychology. In addition, although intentions rather than behavior were assessed, intentions are proposed to be immediate determinants of behavior (Ajzen, 1988). Nevertheless, it should be recognized that intentions will usually be more strongly related to antecedent psychological variables than behavior. Given the difficulty of valid measurement of physical activity in young people, the first step in identifying possible physical activity determinants is to assess behavioral intentions.

Young people in Hungary were the focus for this study. Hungary has a low life expectancy compared to many western European countries. In addition, it has been proposed that Hungarian youths lack physical activity opportunities and school physical activities have little carry-over into adulthood (Soos, 1998).

The hypothesized links between variables are shown in Figure 1 to reflect the theorizing above. Specifically, it was hypothesized that behavioral regulations (perceived autonomy) would mediate the effects of goal orientations on intention. However, given prior theoretical reasoning and evidence in goal orientations research, the effects of ego orientation, but not task orientation, were hypothesized to predict behavioral regulations through perceived competence. Given this mediating influence, ego was hypothesized to predict all four behavioral regulations whereas task orientation was predicted to link only with self-determined forms of behavioral regulation.

Method

Participants

Participants were school children (N = 723) aged 12–16 years from 28 schools across all areas of Hungary. All participants were volunteers and are likely to represent a wide range of abilities and interests in sport and physical education, although this was not tested. Data collection took place with two samples (Sample A, N = 301; Sample B, N = 422) approximately 9 months apart. This allowed for results from one sample to be tested for generalizability to the other.

Instrumentation

All variables were assessed using a self-report questionnaire pack. All measures were available in English and were translated into Hungarian, back into English by a second translator, and checked for accuracy of meaning by the first author. The measures were:

- *Goal orientations.* Task and ego goals were assessed by the 13-item Task and Ego Orientation in Sport Questionnaire (TEOSQ; see Duda & Whitehead, 1998). The TEOSQ used in the present study had the individual item stem of "I feel most successful in sport/PE when ..." Items were answered using 5-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). Internal consistency for both subscales was satisfactory across both samples (α = .72–.90).
- *Perceived competence.* Perceptions of competence were assessed using the six Sport Competence items from Fox and Corbin's (1989) Physical Self-Perception Profile. However, to simplify the response format and make it compatible with other scales in the questionnaire pack, 5-point Likert scales were used instead of the usual alternative forced-choice format. This modification, which required bipolar statements to be converted to unipolar ones, has been used successfully elsewhere with children of similar age (Vlachopoulos & Biddle, 1997). The extent to which descriptors of sport competence were reflective of themselves was rated on 5-point scales anchored by 1 ("not at all like me") and 5 ("very much like me"). Internal consisten-

cy was satisfactory for Sample A (α = .70), but slightly lower for Sample B (α = .65).

- *Behavioral Regulations.* A modification of Ryan and Connell's (1989) Self-Regulation Scale was used to assess extrinsic, introjected, identified, and intrinsic behavioral regulations in the PE/sport context. The stem for all items was "I take part in PE/sport because . . ." and four items were used to assess each of external regulation (e. g., ". . . because I'll get in trouble if I don't"), introjection (e. g., ". . . because I'll feel guilty if I don't"), and identified regulation (e. g., ". . . because I want to improve"), and three items assessed intrinsic motivation (e. g., ". . . because I enjoy learning new skills"). The scale has been used successfully with children of similar age (Goudas et al., 1994). Internal consistency coefficients ranged from .63–.85.
- *Intention.* Using a single-item scale, children were asked the extent to which they intended to participate in sport at least once per week over "the next few months." A 5-point Likert scale was used anchored by 1 ("NO!") and 5 ("YES!").

Results

Means, standard deviations and Pearson's product moment correlation coefficients for all measures for both samples combined are presented in Table 1. Scores suggested that participants scored high in intentions and in autonomous forms of behavioral regulation, with scores on external regulation and introjection being lower. Task orientation was higher than ego orientation. There were few gender or age differences. Boys scored higher than girls only on ego (effect size (ES) = .33) and perceived competence (ES = .48), both trends being consistent with prior research. Differences between "upper primary" (aged 12–14 years) and "lower secondary" (aged 15–16 years) students were small with older pupils being less in ego orientation (ES = .33), identified (ES = .38), intrinsic (ES = .25), and lower in perceived competence (ES = .24) than younger pupils.

Consistent with theory, task and ego goal orientations were uncorrelated. In addition, the four behavioral regulation measures displayed the "simplex-like" structure proposed by Ryan and Connell (1989). This means that correlations between variables adjacent to each other in the continuum (e. g., external and introjection), showed higher correlations than with variables further along the continuum (e. g., external and identified).

Path Analyses

The structural relationships between goal orientations, perceived competence, autonomy (behavioral regulations), and intentions to exercise among two Hungarian samples were estimated through path analyses. The model specified in Figure 1 was tested first on Sample A (N = 301). If modifications to the model were required and justified, these would then be tested with Sample B (N = 422).

The test of this model in Sample A revealed a satisfactory fit (comparative fit index (CFI) = .89; LISREL goodness of fit index (GFI) = .93, standardized root mean square residual (SRMSR) = .11). While some modifications to the model were proposed by the Lagrange Multiplier and Wald tests, these were either minor or difficult to justify on theoretical grounds. It was decided, therefore, to test the model unaltered on Sample B (N = 422). This showed a better fit of the data to the model than for Sample A (CFI = .92; GFI = .96; SRMSR = .08) and provided justification for not making modifications to the model.

A multi-group analysis was conducted to test for equality of models between the two samples. The fit was good (CFI = .91; GFI = .94; SRMSR = .10). All paths were shown to be equal between the two samples; consequently, the final analysis tested the model with Samples A and B combined (N = 723), and again the fit was shown to be good (CFI = 91; GFI = .95; SRMSR = .09). The standardized solution and path coefficients for the combined sample are shown in Figure 1. This shows that intention is mainly predicted by self-determined forms of behavioral regulation. Task orientation predicts self-determined regulation, as does ego orientation indirectly through perceived competence. The model predicted 18.8% of the variance in intentions.

Discussion

This study aimed to shed light on social-psychological variables predicting intentions to be physically active in a moderately large sample of young people from 28 schools in Hungary. Specifically, goal orientation and self-determination theory perspectives were combined. At this stage, it is not known how different Hungarian youth are from samples reported in the international literature. However, further cross-cultural study seems prudent at this stage as we seek answers to sedentary behavior in young people.

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Table 1
Means, standard deviations, and correlations for all variables for the combined sample (N = 723).

	M	SD	1	2	3	4	5	6	7
1. Intention	4.02	1.05							
2. Perceived Competence	2.67	0.66	.37						
3. Ego	2.53	1.01	.09	.30					
4. Task	3.72	0.63	.37	.30	.09				
5. External	2.44	0.83	–.12	.01	.07	–.04			
6. Introjection	2.68	0.77	.19	.36	.25	.19	.29		
7. Identified	3.64	0.90	.43	.51	.21	.44	–.10	.38	
8. Intrinsic	3.53	0.88	.39	.48	.16	.42	–.15	.32	.73

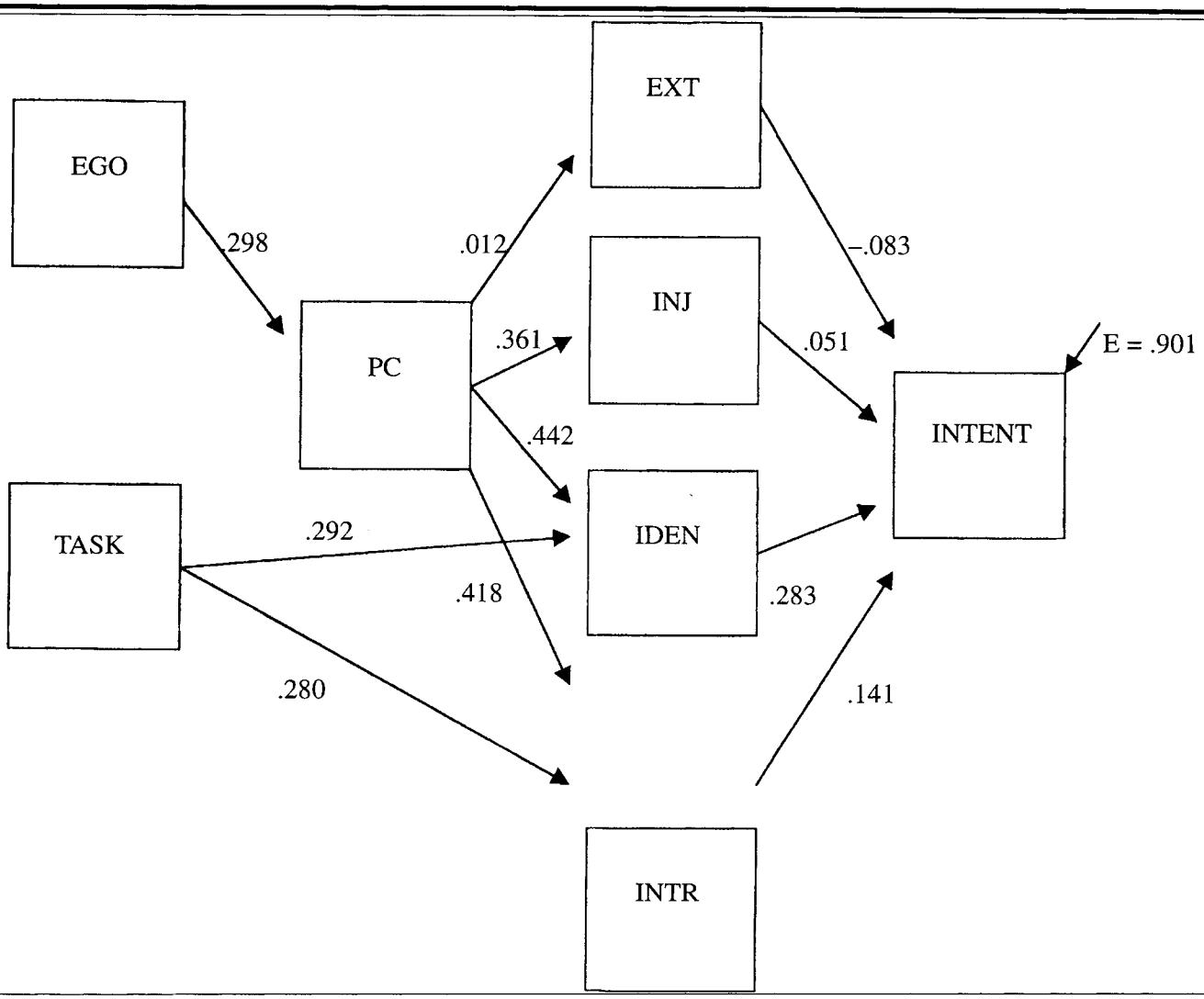

Figure 1
Hypothesized relationships between goal orientations, perceived competence, behavioral regulations and intentions. All paths are significant except PC–EXT and INJ–INTENT. PC = perceived competence; EXT = external regulation; INJ = introjected regulation; IDEN = identified regulation; INTR = intrinsic regulation; INTENT = intentions. Errors not given on Figure for sake of clarity: EXT = .999; INJ = .933; IDEN = .844; INTR = .861; PC = .955.

Data showed that intentions to be physically active in young Hungarians can, in part, be accounted for by their reasons for acting and goal orientations. As hypothesized, perceived competence mediated the effects of ego orientation. Confidence in the network of relationships is enhanced for three reasons:

- First, the theoretically grounded model proposed showed satisfactory fit statistics across two subsamples.
- Second this model was confirmed with a moderately large combined sample.
- Third, multigroup analysis showed that all paths were equal.

However, only 18.8% of the variance in intentions was predicted. This may partly be accounted for by high scores on intention. It might be better in future research to use a stricter criterion for the assessment of intentions than used in the present study. In addition, research by Chatzisarantis and coworkers (1997) has suggested that intentions may function differently if assessed in either autonomous or controlling ways. Measures of intentions that do not account for such differences may be weakening the relationship between intentions and antecedent variables.

Intention is best predicted by self-determined forms of behavioral regulation. Task orientation, through identified and intrinsic regulation, as well as ego orientation, through perceived competence and identified and intrinsic regulation, show the strongest links to intention. In particular, identified regulation is associated with intention. This is not a surprising finding as identified motivation is likely to be a key aspect of free-choice behavior in an achievement-related context such as PE or sport. Mean scores for identified and intrinsic regulation (see Table 1) show a slight preference for identified forms, although the difference is small (ES = .12).

Task orientation did not have a direct effect on intention. This, in combination with the effects for self-determined regulations, suggests that the positive motivational effects of a task orientation can be accounted for by self-determined reasons for acting. This is an important conclusion suggesting that such behavioral regulations explain why a task orientation is beneficial and thus contributes to our understanding of the mechanisms of goals in intentional behavior. The same argument can also be made for the effects of ego orientation when perceived competence is high. However, the effects of controlling forms of behavioral regulation appear to be slight. Promoting self-determined forms of behavioral regulation, such as through greater choice or autonomy-supportive environments, may be a fruitful way of enhancing intentions to be physically active.

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