



Self-handicapping in school physical education: The influence of the motivational climate

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Background. Self-handicapping is an attribution-related process whereby individuals create performance impediments/excuses to protect self-worth in socially evaluative environments. Thus, the prevailing motivational climate would appear to be an important factor when attempting to understand the situational self-handicapping process within school physical education.

Aims. Drawing from achievement goal theory, the study examined the effect of experimentally induced conditions (viz. task vs. ego) on situational self-handicapping.

Sample. Seventy British secondary school students (36 females and 34 males; M age = 11.98; SD = 0.31).

Method. Participants were randomly assigned to partake in a running endurance task in either an ego-involving (20 male students and 16 female students) or a task-involving (14 male students and 20 female students) condition. Prior to completing the experimental task, participants were given the opportunity to claim situational self-handicaps. Data for goal orientations, subjective climate perceptions, perceived ability and perceived task importance were also obtained.

Results. After determining the effectiveness of the experimental manipulation, results revealed participants in the ego-involving condition to report significantly more situational self-handicapping claims. Further, and after controlling for individual difference variables, the results of moderated hierarchical regression analysis revealed subjective perceptions of an ego-involving climate to be the main positive predictor of situational self-handicapping. Although a weaker contributor to the percentage of variance explained, task orientation emerged as a negative predictor of situational self-handicapping.

Conclusions. The findings suggest that PE teachers would be prudent to minimize ego-involving situations should they wish to reduce situational self-handicapping.

Self-handicapping represents a strategy whereby individuals actively arrange the causes of their behaviour to preserve self-esteem within socially evaluative situations

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(Jones & Berglas, 1978). Embracing two attributional goals with one strategy, self-handicapping is conceptualized as 'any action or choice of performance setting that enhances the opportunity to externalize (or excuse) failure and to internalize (reasonably accept credit for) success' (Berglas & Jones, 1978, p. 406). Evidenced by Berglas and Jones's definition, in the short term and regardless of the actual outcome the 'self-handicapping strategist cannot lose, at least in those settings where attributional implications are more important than the success of performance itself' (Jones & Berglas, 1978, p. 201).

Although Jones and Berglas (1978) allude to the intuitive appeal that self-handicapping may offer the individual, findings from the extant literature have been fairly equivocal with respect to the positive and/or negative consequences of self-handicapping. While certain studies have revealed the self-handicapping process to offer the individual certain immediate benefits (e.g. positive post-competition emotion states; Jackson & Marsh, 1996), longitudinal studies suggest these short-term gains to be offset by long-term maladaptive consequences (e.g. low persistence, diminished performance, low self-regulation, etc.; Martin, Marsh, & Debus, 2001; Zuckerman, Kieffer, & Knee, 1998). Accordingly, we believe that the self-handicapping process should be conceptualized as a maladaptive coping strategy due to the restrictive effect it has on an individual's long-term progression.

Self-handicapping strategies can take one of two forms, namely behavioural or claimed. Behavioural self-handicaps refer to real impediments that have been actively created by the individual to restrict performance (e.g. the student failing to get enough sleep before an examination or the footballer who chooses not to strap an injured ankle before a game). Claimed self-handicaps consist of performance-debilitating excuses (the impediment may or may not have occurred) that are verbalized prior to performance. Examples include the golfer who claims that they have not practised on the driving range or the pupil who maintains he/she has been ill in the week leading up to the science test. Recognizing the marked differences in the characteristics of claimed and behavioural self-handicapping, Leary and Shepperd (1986) have emphasized the need for a clear distinction between the two categories of self-handicapping. In the present work, we collected self-reported handicaps pertaining to the experimental activity, thus, we studied claimed self-handicapping.

In addition to being categorized as claimed or behavioural, self-handicaps can be used in either a chronic or situational fashion. Chronic (or trait) self-handicappers tend to use repetitive, widely applicable handicaps (e.g. claim pervasive psychological or physical problems). Situational (or occasional) self-handicappers will use momentary strategies developed for specific situations (e.g. 'I felt tired' or 'I was injured') (Berglas, 1986; Rhodewalt & Davison, 1986). As self-handicapping was explored using a specific physical activity task in the present work, the self-handicaps explored were situational in nature. Accordingly, in the present study we adopted the terminology of situational self-handicapping.

Guided by Berglas and Jones's (1978) contention that self-handicappers are 'legion in sports settings' the emergence of work centred on self-handicapping within the physical activity domain transpired through sport (Carron, Prapavessis, & Grove, 1994; Hausenblas & Carron, 1996; Kuczka & Treasure, 2005; Ryska, Yin, & Boyd, 1999). Recent research has, however, examined self-handicapping in the context of school physical education (PE) (Ommundsen, 2001, 2004). Given that a PE class has the potential to cause ability concerns and threaten one's self-esteem, it has been advanced as an ideal setting in which to study self-handicapping (Ommundsen, 2001).

Motivational climate and self-handicapping

Among the most salient factors likely to evoke the use of self-handicapping strategies in PE is the evaluative demand faced by the student. A motivational framework that has been repeatedly applied to the PE context and one that may provide valuable information regarding differing class environments that set the stage for self-handicapping is achievement goal theory (AGT; Nicholls, 1984, 1989). According to AGT, the primary intent of individuals in achievement settings is the demonstration of ability. Ability can, according to the theoretical tenets of this framework, be manifested via two distinct states of goal involvement, namely task and ego (Nicholls, 1984, 1989). When in a state of task involvement an individual believes ability to be demonstrated through self-referenced means (i.e. via the attaining of knowledge, learning new skills, mastering existing skills, and when maximum effort is put forth). Conversely, an individual who is in a state of ego involvement believes that ability is demonstrated through favourable normative comparisons with others (e.g. they show that they are more able than those in a comparison group). In the case of the ego-involved individual, the focal concern is with social comparison, thus, when superior ability is revealed, the ego-involved individual perceives that he/she has been successful, especially when this is achieved by exerting less effort (Nicholls, 1989).

The situational component of AGT considers how the goal perspectives deemed to be emphasized by significant others (e.g. the PE teacher) induce different states of goal involvement and give meaning to achievement experiences (Ames, 1992a, 1992b). Specifically, employing the umbrella term of perceived motivational climate to encompass the perceptions of the overall situationally emphasized goal structure, situations can be perceived by the individual to be more or less task and ego involving. While previous work has examined associations between perceptions of the motivational climate (task and ego) and self-handicapping in the contexts of sport and classroom-based education (e.g. Kuczka & Treasure, 2005; Midgley & Urdan, 2001), electronic database searches of published work (via Web of Science, Medline (Pubmed), PsychInfo and BIDS ISS) revealed no extant research to have examined these relationships within school PE. Further, in the present study we went beyond a cross-sectional approach and employed a field-based experimental design to contrast the effect of ego-involving versus task-involving situational goal conditions and their impact on students' reported situational self-handicapping. To permit us to test our theoretical predictions, students were randomly assigned to either a task-involving or an ego-involving experimental condition.

Drawing from the tenets of AGT and past classroom-based research (cf. Urdan & Midgley, 2001), we believe that it is reasonable to assume that students exposed to PE classes in which a particular goal (viz. task or ego) structure predominates will lead to variations in claimed situational self-handicapping. Task-involving climates convey that improving one's skill level and putting forth effort to master tasks represent the manner in which individuals are recognized and evaluated. Accordingly, in task-involving environments, the recognition of one's performance is more private than public and based on personal improvement and effort. In contrast, ego-involving climates shine the light on the adequacy of personal levels of ability because such situations evaluate and recognize students based on winning a competition or demonstrating superior ability. To this end, previous research has shown that individuals who typically engage in self-handicapping are those who doubt their ability at a level that will uphold positive and/or public-images on important ability-based dimensions (Kolditz & Arkin, 1982; Self, 1990). On the basis of past work and AGT, we expected that students exposed to the

ego-involving condition would report higher levels of situational self-handicapping than those exposed to the task-involving setting.

In addition to exploring the differences between the two experimental groups, we also examined the effects of the students' subjective perceptions on reported situational self-handicapping. Previous research in sport and education settings has shown perceptions of a task-involving climate to be negatively associated with self-handicapping (e.g. Kuczka & Treasure, 2005; Midgley & Urdan, 2001; Ryska *et al.*, 1999). In contrast, because the recognition of performance is public and comparative in an ego-involving climate, such perceptions have been found to predict positively self-handicapping levels in sport and education settings (e.g. Midgley & Urdan, 2001; Ryska *et al.*, 1999). As such, based on AGT and previous research, we hypothesized that (a) perceptions of a task-involving climate would be negatively related to situational self-handicapping and (b) perceptions of an ego-involving climate would be positively related to reported situational self-handicapping.

Achievement goal orientations and self-handicapping

Individuals also vary with respect to their tendency to approach situations in a task- and/or ego-involving manner (Nicholls, 1989). Indeed, referred to as their goal orientation, people differ in terms of their degree of proneness towards adopting task and ego involvement (Nicholls, 1989). Previous classroom-based research has documented a positive association between ego orientation and self-handicapping (Midgley & Urdan, 2001), whereas research in PE (Ommundsen, 2001) has shown task orientation to be a negative predictor of self-handicapping. Based on this past work, in the present study we expected an ego orientation to be positively related, while task orientation would be negatively related, to reported situational self-handicapping.

Individual difference variables: Event importance

In view of the fact that previous research has suggested that perceived event importance may play a role in the self-handicapping process (Self, 1990), this variable was explored to assess how it relates to situational self-handicapping in the present sample. To this end, while a number of studies have removed from data analyses those participants who have reported low perceived event importance (e.g. Hausenblas & Carron, 1996), recent work has found perceived event importance to be negatively associated with situational self-handicapping (Kuczka & Treasure, 2005). Accordingly, in the present study we hypothesized that a negative association between perceived event importance and reported situational self-handicapping would emerge.

Situational and dispositional predictors of self-handicapping

According to AGT, both dispositional and situational goals should be considered when trying to predict motivational processes (Dweck, 1986; Nicholls, 1989). Thus, while the differing situational demands faced by a student are likely to evoke differential situational self-handicapping responses, it is also important to consider dispositional constructs. To this end, Duda and Nicholls (1992) proposed that it is important for researchers to consider the nature of the dependent variable. Specifically, Duda and Nicholls argued that if the dependent variable is state-like, as opposed to being more dispositional, then perceptions of the motivational climate should emerge as the most

important predictor. As situational self-handicapping responses were examined in the present work, we expected that perceptions of the experimental climate (i.e. task-involving and ego-involving climates) would emerge as stronger predictors of situational self-handicapping than the students' dispositional goal orientation (i.e. task and ego orientations).

Individual difference variables: Normative ability

In addition to examining variations in how individuals construe ability in achievement settings (i.e. task and ego), in this work we also assessed the students' perceptions of their normative ability. According to achievement goal theorists (e.g. Dweck, 1986; Nicholls, 1989), normative ability should not bear relevance on the motivational strivings of the highly task-oriented student, whereas perceptions of one's level of relative ability has important motivational implications for students who are predominantly ego oriented. Specifically, individuals endorsing an ego goal who have low perceptions of normative ability are likely to display maladaptive behaviours (e.g. withdraw effort), rather than encounter the aversive emotions and self-perceptions associated with failure (Dweck, 1986). Employing moderated hierarchical regression analysis, Standage, Duda, and Ntoumanis (2003) recently found support for Nicholls' prediction regarding the moderating role of perceived ability. Specifically, the authors found a significant interaction that revealed that PE students high in ego orientation exhibited higher levels of intrinsic motivation to know when they held high, as opposed to low, perceptions of ability. In view of the proposed moderating role of normative ability for those high in ego orientation (Nicholls, 1989), we expected ego orientation and perceived ability to interact to predict variations in reported situational self-handicapping.

A parallel pattern of predictions holds with respect to the moderating role of perceived ability and the students' perceptions of the climate (cf. Nicholls, 1989). That is, while variations in perceptions of ability should have little influence on the motivation of students perceiving a climate strong in task-involving features, students perceiving a climate rich in ego-involving features who doubt their ability are expected to manifest maladaptive motivational responses. Because an ego-involving climate puts the normative ability of students on the line by focusing on social comparisons, we hypothesized that normative ability would, in the present work, moderate the situational self-handicapping responses of those perceiving a climate rich in ego-involving cues.

The present research

By employing a field-based experimental design, this study sought to extend on previous research that has examined the associations between aspects of AGT and self-handicapping using cross-sectional study designs. The main aim of the work was to manipulate the PE class environment to be ego involving or task involving so as to examine the effects of these two climates on students' levels of reported situational self-handicapping. To this end, we expected that students exposed to the ego-involving climate would report higher levels of situational self-handicapping than those exposed to the task-involving situation.

A number of supplementary hypotheses was explored. First, we examined the students' subjective perceptions of the experimental PE environment. Consistent with self-handicapping research in sport, perceptions of an ego-involving climate

were expected to be positively related, whereas perceptions of a task-involving climate were hypothesized to be negatively related to reported situational self-handicapping (Ryska *et al.*, 1999; Kuczka & Treasure, 2005). Second, aligned with AGT and based on past work (e.g. Midgley & Urdan, 2001; Ommundsen, 2001), we expected an ego orientation to be positively related, while task orientation would be negatively related to reported situational self-handicapping. Third, we hypothesized that a negative association would emerge between perceived event importance and situational self-handicapping (Self, 1990). Fourth, consistent with Duda and Nicholls' assertion that state-like dependent variables should be better predicted by situational goal perspectives, we expected that perceptions of the experimental climate would predict reported situational self-handicapping responses above and beyond the students' dispositional goal orientation responses. Finally, we used moderated hierarchical regression to examine the moderating role of perceived ability in the AGT framework. Specifically, we hypothesized that higher situational self-handicapping scores would be reported when (a) high ego orientation scores were accompanied by low, as opposed to high, scores for perceived ability (ego orientation \times ability) and (b) high scores for perceptions of an ego-involving climate were accompanied by low, as opposed to high, scores for perceived ability (perceptions of an ego-involving climate \times ability).

Method

Participants

The students who participated in the present study were attending a comprehensive school in the south-east region of England. The school was located in a middle-class area. Data were originally collected from 72 students (38 females and 34 males). However, after the deletion of one case on the basis of missing data and one case due to an extreme score on the Mahalanobis distance criterion ($p < .001$), the final sample consisted of 70 participants (36 females and 34 males; M age = 11.98; $SD = 0.31$, range = 11.2-12.8 years).

Measures

Goal orientation

Individual differences in the proneness for task and ego involvement were assessed by responses to the children's version of the Perception of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998). The POSQ is a 12-item scale consisting of six task (e.g. 'I perform to the best of my ability') and six ego (e.g. 'I do better than others') items. In the present study, each participant responded to the item 'When participating in Physical Education, I feel most successful when . . .' Each item is rated on a five-point Likert scale anchored by 1 *strongly disagree* to 5 *strongly agree*. The POSQ has demonstrated acceptable reliability with similar aged participants in previous PE-based research (Treasure & Roberts, 1994, 2001). For example, Treasure and Roberts (1994) reported alpha coefficients of .92 and .90 for task orientation and ego orientation, respectively.

Situational self-handicapping

Participants were presented with a list of 20 claimed self-handicapping strategies, all of which have arisen from previous research (Hausenblas & Carron, 1996; Rhodewalt,

Saltsman, & Wittmer, 1984). Using a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*), participants were asked to rate the degree to which each claim would disrupt their performance with respect to the specific experimental task. Example items include 'I didn't sleep well last night' and 'I have been injured'. Using the same seven-point Likert scale response format, an additional five spaces were provided for participants to enter any additional self-handicapping claims that they believed might impact on their performance. Since the number of listed self-handicapping claims varied among the participants, we adopted an approach used by Carron *et al.* (1994) in which we averaged the strength of each claim so as to provide a representative overall measure for each participant. Support for the reliability of this measure has been reported in past work (e.g. $\alpha = .85$; Kuczka & Treasure, 2005).

Perceived event importance

Since past work has suggested that individuals have to be motivated in order to self-handicap (Self, 1990), perceived event importance was assessed. Specifically, participants were asked to rate the degree of personal importance of the experimental task on a nine-point scale anchored by 1 (*not at all*) and 9 (*very much so*). This approach is consistent with past work examining the antecedents of self-handicapping in physical activity settings (Hausenblas & Carron, 1996; Kuczka & Treasure, 2005).

Perceived ability

Given that the experimental task was novel, the participants' perceived ability was assessed by one item that simply asked, 'How good do you think you are at the bleep test?' Responses were made on a nine-point scale ranging from 1 (*not very good at all*) to 9 (*extremely good*).

Manipulation check inventory

Ten items adapted from the work of Standage and colleagues (Standage, 2003; Standage, Duda, & Pensgaard, 2005) were used to assess the degree to which the participants found the experimental setting to be task involving and/or ego involving. The task-involving (e.g. 'we focused on our own performance rather than on how others were doing') and ego-involving (e.g. 'we felt like we were competing against our classmates') items were rated on a five-point Likert scale anchored by 1 *strongly disagree* to 5 *strongly agree*.

Experimental task

The Multi-Stage Fitness Test (20 m shuttle run test; 20 m SRT) (Brewer, Ramsbottom, & Williams, 1988) served as the experimental task. The 20 m SRT is a field-based test that permits large numbers of individuals' to be tested concurrently. Participants are required to run between two markers set 20 m apart. The running speed is dictated by audio signals on a tape. Starting at 8.5 km/h the speed increases by 0.5 km/h for each of the test's 20 progressive stages. The greater the number of levels and shuttles completed is indicative of better aerobic fitness. Participants withdraw from the test either when they fail to be within 3 m of either end marker on two consecutive occasions when the audio signal sounds, at volitional exhaustion or when the test administrator feels that the participant should be asked to stop in order to prevent injury.

Design and procedure

Prior to the experiment and the collection of data, informed consent was obtained from the head teacher. Specifically, the head teacher of the state school was asked to act in *loco parentis* in accordance with the British Psychological Society (2000) guidelines.

The experiment took place within the school's indoor sports hall during the students' normal PE class period. Since the experiment was a between-subjects design, on the day of the experiment the participants were randomly assigned to either a task-involving or ego-involving experimental condition. This assignment resulted in the 34 participants in the task-involving setting (14 male students and 20 female students) and 36 in the ego-involving condition (20 male students and 16 female students). Although the distribution was random, it yielded an unequal number of male and female participants to the two experimental groups. Accordingly, gender was explored in subsequent analyses. Subsequently, participants were asked to provide responses to a short demographic questionnaire and to the POSQ (Roberts *et al.*, 1998). It was emphasized at this time that there were no right or wrong answers to any of the questionnaire items, that they were free to withdraw their participation at any time without penalty and that their responses would remain confidential. An investigator distributed the questionnaires and was available to help any participant who had questions pertaining to the wording and/or meaning of any of the questionnaire items.

Participants were then introduced to the experimental task by one of the researchers. Following this initial introduction, all subsequent instructions, including the induction of the two experimental conditions, were provided using pre-recorded audio tapings. This approach was adopted in order to facilitate the intended experimental manipulation and to diminish the potential influence of interpersonal factors (e.g. experimenter's mood, tone of voice, etc.).

The two experimental conditions were manipulated in the following ways:

Ego-involving condition

In this condition, the recorded induction was designed to emphasize situational cues that endorsed public evaluation, normative comparison, interpersonal competition and punishment of mistakes.

. . .the important thing is the score that you achieve. This score is very important and you will be ranked in order, from the highest to the lowest. The results will be announced to the class straight after the test to see who was the best. These scores will then be posted on a notice board so that you can compare your score with the other students in the class. The results will also be pasted on the school website so that other people can see how well you did. . .the test is not about teamwork, it is only your individual performance and winning. Anyone who makes a mistake or does the test wrong will be eliminated or penalised for the mistake. They will end up with no score and will be ranked near the bottom of the class. Remember that this is a competition. . .try to win.

Task-involving condition

In this condition, the recorded induction was designed to emphasize situational cues that foster hard work, private feedback, effort, self-referenced learning, co-operation and provide a context in which mistakes are considered part of the learning process.

During the exercise test today we would like you to try your hardest. The test is not a competition, however, and we are not interested in who can run for the longest. Just try and do your best . . . Once the test has finished, your scores will be written down but nobody will see them . . . You can ask the researchers if you are interested in checking your own score against the normal fitness levels for children of your age. This is up to you. This score is for your personal reference only, and it doesn't matter what level your best friend or classmate achieved . . . When the instructions are explained later, listen carefully, but don't worry if you make a mistake or you don't understand. Try to encourage each other, and help the others in the group out if they don't understand. . . Remember, just do the best that you can.

Following the experimental induction, but prior to participating in the experimental task, participants were asked to respond to the measure of situational self-handicapping and to the perceived event importance and perceived ability items. Participants were then asked to partake in the 20 m SRT (as dictated by the official NCF audiotape; Brewer *et al.*, 1988). Following the experimental trial, participants were asked to respond to a 10-item manipulation check measure (Standage *et al.*, 2005). After the experiment, participants were thanked, debriefed on the purpose of the research, and the participants who completed the experimental task within the ego-involving condition were assured that their results would not be made public.

Data analysis

Data were examined for univariate and multivariate outliers and offending cases were removed. The normality of the data was assessed and transformations applied if a scale significantly deviated from distributional assumptions. All data were measured at the interval level and assumptions pertaining to homogeneity of variance, linearity and multicollinearity were examined. Unless stated, the data met these statistical assumptions.

Descriptive statistics pertaining to the study variables were computed initially. At this time, alpha coefficient (Cronbach, 1951) values were also calculated for all measures and assessed based on Nunnally and Bernstein's (1994) criteria of $\alpha \geq .70$ advanced for the psychological domain.

Main analyses

The main purpose of this investigation was to contrast the effect of task-involving versus ego-involving experimental PE class climates on reported levels of situational self-handicapping. Prior to proceeding to the main analysis we conducted a multivariate analysis of variance (MANOVA) on the responses of the manipulation check inventory so as to ascertain whether the participants held differing perceptions of the class environment due to the condition to which they had been exposed. Further, to determine whether the groups differed in their goal orientation, perceived ability and perceived event importance prior to participating in the experiment and whether gender had an effect on these variables, a 2×2 (gender \times group) MANOVA was conducted. Follow-up univariate *F* tests were used to examine between group differences. Subsequently, to test the main hypothesis that greater levels of self-handicapping would occur in an ego-involving condition we conducted an independent *t* test.

For each group difference comparison, effects sizes (ES) were conducted to assess the meaningfulness of the statistical findings. Owing to the unequal sample sizes, the pooled standard deviation ($M_1 - M_2 / SD_{\text{Pooled}}$) of the comparison groups was used as the measure of group variability (g) (Hedges, 1981). Consistent with the standards advocated by Cohen (1988) for the social and behavioural sciences, an effect size of 0.2 was considered small; 0.5 a moderate ES; and 0.8 and above a large ES.

Supplementary analyses

Bivariate correlations were calculated to provide an insight into the interrelationships between subjective perceptions of the experimental context, goal orientations, perceived ability, perceived event importance and situational self-handicapping responses.

In order to examine whether subjective perceptions induced by the manipulation of the climate would predict variance in situational self-handicapping above and beyond that explained by individual difference main effects, we conducted moderated hierarchical regression analysis. After controlling for gender, the individual difference variables (goal orientations, perceived ability, perceived task importance) were entered in the first step and the perceptions of the manipulated motivational climate were entered in the second step. To test whether perceived ability moderated responses pertaining to ego orientation and perceptions of an ego-involving climate, in the third step we entered the interaction terms between ego orientation and perceived ability and between perceptions of an ego-involving climate and perceived ability. Variables that failed to contribute significantly to the regression equation were excluded from the regression model, and the model subsequently recalculated (Jaccard, Turrisi, & Wan, 1990).

Since the hierarchical regression analysis incorporated interaction terms each of the predictor variables were centered (standardized) so as to avoid problems associated with unstandardized solutions (see Aiken & West, 1991). While the predictor variables were centred, the dependent variable (namely self-handicapping) remained uncentred as this would remove the original criterion of assessment and has no effect on regression coefficients in equations including interaction terms (Aiken & West, 1991).

Results

Descriptive statistics and reliability

Descriptive statistics for the total sample and by experimental condition are shown in Table 1. As shown, the mean values for participants in the ego-involving condition were markedly higher for perceptions of an ego-involving context and reported situational self-handicapping. In contrast, the mean values for those in the task-involving condition were higher for perceptions of a task-involving experimental context. Also shown in Table 1 are the alpha coefficients (Cronbach, 1951) for all measures. All subscales exceeded the $\alpha = .70$ criteria deemed to represent acceptable internal consistency for the psychological domain (Nunnally & Bernstein, 1994).

Table 1 also contains the z -scores for the skewness and kurtosis values for the study variables. As shown, the z scores for skewness (-3.53) and kurtosis (2.76) for task orientation exceeded 1.96. Accordingly, a square root transformation was used on the

Table 1. Descriptive statistics and internal reliability of each measure by total and by experimental group

	Task-involving manipulation (N = 34)		Ego-involving manipulation (N = 36)		Overall (N = 70)		z-score for skewness	z-score for kurtosis	α
	M	SD	M	SD	M	SD			
Task-involving perceptions	3.40	1.22	2.43	0.77	3.34	0.97	-1.79	-.19	.74
Ego-involving perceptions	2.93	1.03	3.79	0.67	2.94	1.13	-.15	-1.66	.84
Task orientation	4.00	0.95	4.02	0.77	4.01	0.85	-3.53	2.76	.72
Ego orientation	2.92	0.94	3.08	0.81	3.00	0.87	.75	.60	.80
Perceived event importance	5.15	2.23	5.33	2.06	5.25	2.13	-1.12	-.34	-
Perceived ability	5.09	1.81	5.24	1.81	5.17	1.80	1.54	-.59	-
Self-handicapping	2.32	0.89	2.81	1.04	2.57	1.00	1.59	-1.01	.88

measure of task orientation. Following this transformation, the z scores for skewness and kurtosis for task orientation were -1.61 and $.018$, respectively.

Manipulation check

A significant multivariate main effect emerged for experimental condition on perceptions of task-involving and ego-involving climates (Wilks' $\lambda = .62$, $F(2, 67) = 20.44$, $p < .001$). Follow-up univariate analyses revealed that the children assigned to the ego-involving condition perceived the environment to be richer in ego-involving cues than children exposed to the task-involving situation (M s 3.40 and 2.43, respectively) ($F(1, 68) = 15.45$, $p < .001$, $g = .93$). Likewise, children in the task-involving condition perceived the climate to be more task-involving than children who participated in the ego-involving condition (M s 3.79 and 2.93, respectively) ($F(1, 68) = 17.09$, $p < .001$, $g = .97$).

Baseline and gender differences

Results of the 2×2 MANOVA indicated that the participants in the two experimental groups did not differ on any of the individual difference variables. A significant main effect for gender did, however, emerge (Wilks' $\lambda = .72$; $F(4, 63) = 5.92$, $p < .001$). To decompose the significant multivariate effect we examined the F tests. Results revealed that males ($M = 3.47$) reported higher scores for ego orientation than females ($M = 2.59$). In view of this gender effect, gender was controlled for in the regression analysis and explored when analysing the climate group differences.

Experimental condition differences

The main purpose of the investigation was to contrast the effect of a manipulated climate on the levels of reported self-handicapping. Results revealed that participants in the ego-involving setting reported significantly more situational self-handicapping claims than those in the task-involving setting, $t(68) = 2.01$, $p = .040$, $g = .50$ (M s 2.81 and 2.32 for the ego-involving and task-involving conditions, respectively). These findings are presented in Figure 1. With respect to gender, males and females did not differ in the degree to which they reported situational self-handicapping claims.

Correlation analyses

The intercorrelations among the study variables appear in Table 2. A positive significant relationship emerged between perceptions of an ego-involving experimental context and situational self-handicapping ($r = .43$, $p < .001$). Task orientation was negatively associated with situational self-handicapping ($r = -.26$, $p = .03$). A negative, but non-significant relationship emerged between perceived ability and situational self-handicapping ($r = -.13$, $p = .29$). Finally, perceived event importance ($r = -.01$, $p = .96$), ego orientation ($r = .00$, $p = .99$) and perceptions of a task-involving climate ($r = -.03$, $p = .80$) were shown to be unrelated to situational self-handicapping.

Moderated hierarchical regression analysis

The final moderated hierarchical regression model accounted for 26% of the variance in situational self-handicapping responses. As shown in Table 3, task orientation emerged

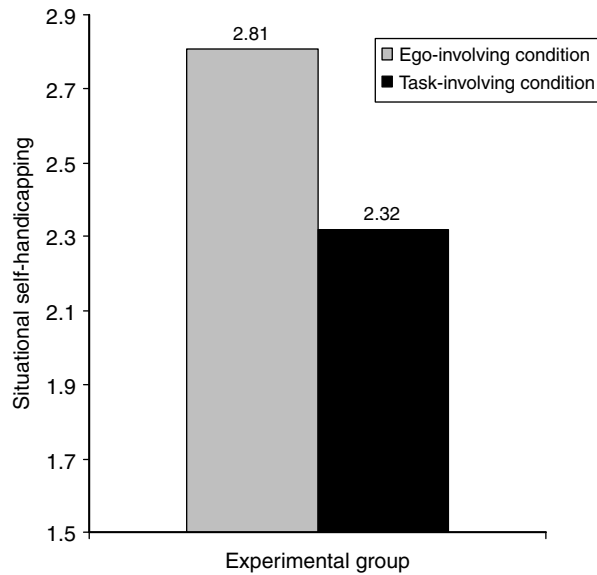


Figure 1. Means for reported situational self-handicapping as a function of experimental condition.

Table 2. Bivariate correlations among the study variables

	1	2	3	4	5	6	7
Task orientation (1)	–						
Ego orientation (2)	.14	–					
Task-involving climate (3)	.08	.12	–				
Ego-involving climate (4)	.09	.08	–.02	–			
Perceived ability (5)	.10	–.01	.09	.01	–		
Perceived event importance (6)	–.06	.01	.07	.06	.34**	–	
Situational self-handicapping (7)	–.26*	.00	–.03	.43**	–.13	–.01	–

Note. *Correlation is significant at the .05 level (two-tailed); **correlation is significant at the .01 level (two-tailed).

as a negative predictor of situational self-handicapping in Step 1 ($b = -0.30$, $\beta = -0.26$; $p = .030$), accounting for 7% of the variance. Perceptions of an ego-involving context emerged as the primary predictor of situational self-handicapping ($b = 0.39$, $\beta = 0.44$; $p < .001$). When added to the regression model at Step 2, perceptions of an ego-involving climate added 19% to the variance accounted for in situational self-handicapping responses. No other main or interaction terms were significant predictors of situational self-handicapping. It should be noted that in view of the impact of small sample size when evaluating interactions terms (cf. McClelland & Judd, 1993), in the present work the addition of the ego orientation \times ability ($b = .00$, $\beta = 0.01$; $p = .97$) and ego-involving climate \times ability ($b = 0.02$, $\beta = 0.03$; $p = .79$) terms did not add meaningfully to the percentage of variance explained for in situational self-handicapping responses ($F(2, 60) = .035$, $p = .97$; $R^2 = .001$).

Table 3. Summary of the final moderated hierarchical regression analysis for variables predicting situational self-handicapping ($N = 70$)

Predictor	β	B	SE b	t	F Change	p
Situational self-handicapping						
Step 1						
Task orientation	-.26	-.30	.13	-2.21*	4.89	.030
Step 2						
Task orientation	-.27	-.31	.12	-2.52*		.014
Ego-involving climate	.44	.39	.09	4.16**	17.32	.0001

Note. $R^2 = .07$ for Step 1; $\Delta R^2 = .19$ for Step 2.

Discussion

The present study sought to extend previous cross-sectional research and examine the associations between components of AGT and self-handicapping from an experimental perspective. The main purpose of this work was to contrast the effect of a manipulated motivational PE class climate on the level of situational self-handicapping claims. In line with our hypothesis, we found that while the students in the two experimental groups did not initially differ on any of the individual difference variables, participants who were exposed to the ego-involving condition reported significantly more situational self-handicapping claims than those exposed to the task-involving setting. As indicated by the moderate effect size ($g = .50$), the difference between the groups was not only statistically significant but also meaningful. Such a finding makes conceptual sense, as when exposed to ego-involving cues students become preoccupied with their comparative ability (i.e. appearing able or not appearing unable), thus making self-handicapping more likely as the individual uses this self-protective mechanism to deflect attention away from a lack of ability (Midgley & Urdan, 2001; Urdan & Midgley, 2001). Coupled with past work in classroom education (e.g. Urdan, Midgley, & Anderman, 1998), the present findings suggest that PE teachers may be able to reduce the incidence of self-handicapping in their classes if they were to de-emphasize ego-involving situations in which the relative abilities of students are compared publicly.

Congruent with past work, subjective perceptions of an ego-involving context were found to be positively related to the students' reported level of situational self-handicapping (e.g. Midgley & Urdan, 2001; Ryska *et al.*, 1999). Accordingly, this finding supports our objective experimental condition finding (i.e. that those exposed to ego-involving condition reported more situational self-handicapping claims) and suggests that students who perceive the objective environment to convey ego-involving cues have an increased propensity to feel the need to employ situational self-handicapping claims. This positive relationship may reside with the fact that when performance attainments are not guaranteed to promote or protect perceptions of relative ability, perceptions of a context that reinforces ability to be based on social comparison heightens the need to preserve self-esteem via the self-handicapping process.

Contrary to previous sport-based work (e.g. Kuckza & Treasure, 2005; Ryska *et al.*, 1999), perceptions of a task-involving climate were not related to situational self-handicapping responses. This unexpected finding may reside with both the nature of the experimental task (i.e. the 20 m SRT) and the short duration of the experimental manipulation. The 20 m SRT is a running task that requires the student to perform a learned skill as opposed to mastering a new skill/technique. Accordingly, although effort

and self-referenced aspects were conveyed to the students via the experimental manipulation, the nature of the task and single trial used may not have permitted the learning and improvement elements of a task-involving context to be reinforced. With regard to the duration of the manipulation, it may be that the task-involving cues employed were too short in duration to enable the participants to completely disregard the use of situational self-handicapping.

A significant negative association between task orientation and situational self-handicapping emerged. This finding is aligned with our hypothesis and past work (e.g. Midgley & Urdan, 2001; Ommundsen, 2001, 2004). Specifically, the more the students endorsed a task-oriented conception of ability, the less apt they were to report situational self-handicaps. Such a finding makes conceptual sense, as the task-oriented student does not feel the need to enhance or protect self-image but rather their competence-related foci rests with self-referenced criteria such as individual effort and personal improvements.

Contrary to our hypothesis, but consistent with past work (Ommundsen, 2001), no association between ego orientation and situational self-handicapping emerged. A plausible explanation for this finding may rest with our use of a unidimensional approach to ego orientation. Drawing from recent theorizing (e.g. Elliot, 1999; Elliot & Harackiewicz, 1996), the addition of a directional component pertaining to ego orientation (namely, an approach [ego augmentation] vs. avoidance [ego protection] distinction) has been explored in relation to self-handicapping (e.g. Midgley & Urdan, 2001; Urdan, 2004). A consistent finding from this work has been that the avoidance aspect of ego goals predicts self-handicapping responses. In an initial application of this goal approach to PE, Ommundsen (2004) found ego-avoidance goals to positively predict more trait like self-handicapping responses. Interestingly, when analysing the joint impact of task, ego avoidance and ego-approach goals in-group profile analysis, Ommundsen found a high task orientation to buffer the self-handicapping responses of those with high ego-avoidance goals. Since self-handicapping is essentially an avoidance strategy (Urdan & Midgley, 2001), future work embracing the approach/avoidance distinction may provide researchers with a clearer picture of the effect of various goals on situational self-handicapping responses in school PE.

Although certain researchers (e.g. Self, 1990) have suggested that perceived event importance plays a central role in the self-handicapping process, consistent with past work (Prapavessis, Grove, Maddison, & Zillmann, 2003) perceived event importance was not significantly associated with situational self-handicapping in the present work. While it may be that a direct measure of event importance did not appropriately capture the construct (see Prapavessis *et al.*, 2003) an interesting point was recently forwarded by Kuczka and Treasure (2005). Commenting on their findings, Kuczka and Treasure advanced that citing the importance of the impending event to be low appears to actually represent the most fundamental and significant self-handicap. Should this be the case, questions emerge regarding the utility of filtering out participants in previous empirical investigations. Future research exploring the role that perceived event importance plays in the self-handicapping process would seem to be an important avenue of work.

In revealing perceptions of an ego-involving climate to be the main positive predictor of situational self-handicapping, the results of the moderated hierarchical regression analysis are in accord with previous self-handicapping research (Ryska *et al.*, 1999; Urdan *et al.*, 1998). Indeed, perceptions of an ego-involving climate positively predicted situational self-handicapping responses above and beyond individual difference

variables and gender. Thus, congruent with past research in sport (Ryska *et al.*, 1999), the present finding suggests that the PE motivational climate that students are exposed to is more important than individual differences in motivational orientation (and in the present work also gender, perceptions of ability and perceptions of event importance). Although task orientation emerged as a negative predictor of situational self-handicapping, our findings are consistent with the suggestion of Cury *et al.* (1996) that in compulsory activities such as school PE, situational goal perspectives may take prominence over dispositional goal orientations.

Contrary to theoretical predictions (Nicholls, 1989), results pertaining to the interactions between perceived ability and ego orientation, and between perceived ability and an ego-involving climate emerged non-significant. These null findings are probable, in part, to reside with the limited statistical power of our sample size to detect interaction effects (cf. Aiken & West, 1991). Specifically, within the social sciences interaction terms typically account for small to moderate increments in the percentage of explained variance beyond first order effects (Cohen, Cohen, West, & Aiken, 2003). Accordingly, and coupled with the fact that the measures used in the current study were not perfectly reliable, in excess of 100 participants were required for power .80 to detect small to moderate interaction effects (see Aiken & West, 1991). In addition to sample size issues, the measure of perceived ability employed in the present study failed to specify whether ability was based on normative, self-referenced or other criteria (i.e. participants were asked 'How good do you think you are at the bleep test?'). Commenting on a non-significant ego orientation \times perceived ability finding, Ntoumanis (2001) correctly pointed out that perceived ability can only play a moderating role in the achievement goal framework when ability is construed normatively. Using a larger sample size, future work addressing the interplay between goal orientations, motivational climate and perceived ability would do well to examine this conceptual issue.

There was a number of limitations to the present work. First, the age range of the students in the present work was limited. It would be informative to explore AGT constructs with older school children. We suspect that as children transcend into the upper years of secondary school, the prevalence of situational self-handicapping within PE will increase commensurate with increasing normative evaluative demands (e.g. formal PE exams) and an increased awareness of one's relative ability. Second, the manipulation was employed to just one PE class. Since AGT suggests that goal orientations are not traits and may be malleable to the influence of situational factors (Dweck & Leggett, 1988; Nicholls, 1989), future longitudinal studies in PE would provide more insight into how increased exposure of students to mastery and performance-oriented climates shape dispositional goal orientations. Such work would be aligned with the suggestion of Ames (1992a, 1992b) that a long-term exposure to a mastery climate should promote task orientation while a performance climate ought to encourage the development of ego orientation. Third, the experimental task was not the most conducive to facilitating the improvement and learning aspects of a task-involving context. Future work employing multiple trials with novel tasks/skills may be more conducive to facilitating a cleaner test of the effect of a task-involving context on situational self-handicapping in PE. Finally, and although based on past work, the measures of perceived ability and perceived importance were potentially limiting. Future work examining these constructs with multi-item assessments may provide greater insight into how these variables contribute to the situational self-handicapping process.

In conclusion, our experimental study supports previous cross-sectional work by documenting a positive association between perceptions of an ego-involving class structure and situational self-handicapping. Moreover, students that were exposed to an ego-involving climate, irrespective of individual difference factors were more likely to report situational self-handicapping claims than students subjected to a task-involving environment. Given that students that self-handicap still engage in PE enough to care about how others perceive their ability (Urda & Midgley, 2001), PE teachers would be prudent to minimize ego-involving situations should they wish to reduce self-handicapping and cultivate positive PE settings. With the latter in mind, the present work corroborated past research in finding task orientation to be inversely related to situational self-handicapping (e.g. Ommundsen, 2001, 2004). To this end, from a practical perspective, efforts aimed at fostering task orientation to students in PE would appear beneficial to counter the self-handicapping process.

Clearly, much more work is needed to examine the antecedents of self-handicapping in school PE settings. In gaining further insight into the independent and interactive predictors of self-handicapping, strategies may be developed to reduce self-handicapping in PE. Finally, while a 'pure empirical test of private-public audience factors as they relate to self-handicapping may never be possible' (Snyder, 1990, p. 118), further experimental research examining the various antecedents of self-handicapping in naturally occurring PE contexts would be fruitful for our understanding of the self-handicapping process in real-world PE settings.

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