

Contemporary measures of approach and avoidance goal orientations: Similarities and differences

Smith, M; Duda, Joan; Allen, J; Hall, H

Document Version

Early version, also known as pre-print

Citation for published version (Harvard):

Smith, M, Duda, J, Allen, J & Hall, H 2002, 'Contemporary measures of approach and avoidance goal orientations: Similarities and differences', *British Journal of Educational Psychology*, vol. 72, pp. 155-190.

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.



Contemporary measures of approach and avoidance goal orientations: Similarities and differences

Michaela Smith¹, Joan Duda^{1*}, Justine Allen² and Howard Hall²

¹The University of Birmingham, UK

²De Montfort University, Bedford, UK

Background. In response to a resurgence of interest in and demonstrated utility of the approach-avoidance goal distinction, a number of researchers (Elliot & Church, 1997; Midgley *et al.*, 1998; Skaalvik, 1997) have developed instruments to assess individual differences in the tendency to adopt approach-avoidance goals. However, to date there has been no attempt to examine the psychometric properties or conceptual and measurement overlap of these instruments.

Aims. (i) To determine whether three questionnaires designed to measure approach-avoidance goal orientations are assessing the same or different constructs, and (ii) to examine the psychometric properties of each of the approach-avoidance measures (i.e., internal consistency, convergent, discriminant, factorial, and construct validity).

Sample. Participants in this study were 475 undergraduate students ($N = 228$ males; $N = 244$ females; three missing information) enrolled at two large universities in the United Kingdom.

Method. Participants completed a questionnaire which included measures of approach-avoidance goal orientations, effort regulation, test anxiety, perceived ability, and intrinsic motivation, extrinsic motivation, and amotivation.

Results. Results revealed a degree of convergence between the three instruments. Each of the instruments demonstrated good psychometric properties although construct validity results were inconsistent across the measures.

Conclusion. There is a need for future research to clarify the operational definition and subsequent measurement of the performance avoidance construct, and in particular, to examine the role that effort, impression management, and anxiety/fear of failure play in its conceptualisation.

*Requests for reprints should be addressed to Professor Joan Duda, SPORTEX, The University of Birmingham, Edgbaston, Birmingham B15 2TT, UK (e-mail: J.L.Duda@bham.ac.uk).

Contemporary achievement motivation theorists have focused on a particular class of behaviours, namely those involving the development and demonstration of competence. That is, individuals may aspire to show high competence or may strive to avoid incompetence in achievement contexts. This approach-avoidance distinction in achievement strivings was explicitly incorporated into the earliest achievement motivation conceptualisations (Atkinson, 1957; McClelland, 1951). McClelland (1951), for example, proposed that in addition to a mastery motive, 'there are at least two kinds of achievement motivation, one of which appears to be oriented around avoiding failure and the other around the more positive goal of attaining success' (p. 202).

In the recent literature, the achievement goal approach proffered by Dweck (1986, 1999), Nicholls (1984, 1989), and others (e.g., Ames, 1984; Maehr & Nicholls, 1980; Midgley, Anderman, & Hicks, 1995; Pintrich & Garcia, 1991) has emerged as the most prominent account of individual variations in motivation patterns in achievement contexts such as education and sport (Duda, 1993, 2001). Achievement goal theorists examine motivational processes from the perspective of the goals individuals pursue in achievement contexts. These goals provide meaning and, according to Maehr and Braskamp (1986) and Dweck (1999), meaning is the critical determinant of achievement behaviour. Behaviours such as participation, persistence, intensity, choice of tasks, and performance have been predicted to be directly related to the function and meaning of those behaviours to the individual (Dweck, 1999; Nicholls, 1989).

Initially, researchers examining achievement goals followed the lead of early achievement motivation theorists in incorporating the distinction between approach and avoidance motivation into their frameworks. Three types of achievement goal were posited (Dweck & Elliot, 1983; Nicholls, 1984): (1) a learning or task involvement goal focused on the development of competence and task mastery (an approach goal), (2) a performance or ego involvement goal directed toward attaining favourable judgments of competence (also an approach goal), and (3) a performance or ego involvement goal aimed at avoiding unfavourable judgments of competence (an avoidance goal).

Although these initial models incorporated the approach-avoidance distinction, the concept of independent approach and avoidance goal orientations received very little theoretical or empirical attention and was soon overlooked by researchers. For example, Dweck (1986) collapsed the desire to avoid demonstrating incompetence and the desire to demonstrate ability goals together into a unitary orientation. Nicholls (Nicholls, Patashnick, Cheung, Thorkildsen, & Lauer, 1989), although retaining the notion of work avoidance goals, eventually characterised his conceptualisation of ego and task orientations as 'two forms of approach motivation' (p. 188).

More recently, educational researchers have begun to re-examine the utility of distinguishing between approach and avoidance goals. For example, Elliot and Harackiewicz (1996) attempted to induce experimentally three different goal emphases (performance-approach, performance-avoidance, and task goals) in a group of college students. The results indicated that students who were in the performance-approach condition scored similarly to students in the task goal condition and higher than those in the performance-avoidance condition on measures of intrinsic interest, enjoyment, and task involvement. Subsequently, Elliot and Church (1997) developed a questionnaire designed to assess the three goal orientations (i.e., the tendency to adopt task/mastery, performance approach, and performance avoidance goals) in the classroom. Principal components factor analysis revealed a three-factor solution and demonstrated that the three separate goal orientations were distinguishable in an

academic context. Path analysis revealed that mastery and performance-approach goals were linked to high competence expectations whereas performance-avoidance goals were linked to low competence expectations. In addition, mastery goals were related to higher intrinsic motivation and performance-approach goals were linked to better graded performance. Performance-avoidance goals were associated with both lower intrinsic motivation and lower performance.

Overall, research findings from education based studies have highlighted a series of positive motivational processes and outcomes related to the tendency to adopt mastery goals. Mastery goal orientation has been positively linked to effort regulation, academic persistence, perceptions of academic efficacy (perceived ability), self-regulated learning, willingness to seek help with schoolwork, and intrinsic motivation (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997). As an explanation for these positive associations, Elliot (1999) suggested that because mastery goals are focused on the development of competence or attainment of task mastery, then the pursuit of these goals is 'fundamentally appetitive and challenged-based and is posited to elicit positive affective, cognitive, and behavioral processes that lead to a host of positive outcomes' (p. 177).

In contrast, performance avoidance goals have been associated with a series of negative processes and outcomes including low self-determination, disorganised studying, an unwillingness to seek help, test anxiety, low academic efficacy (perceived ability), poor performance, and reduced intrinsic motivation (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot, McGregor, & Gable, 1999; Middleton & Midgley, 1997; Skaalvik, 1997). Elliot and Harackiewicz (1996) suggested that individuals who adopt performance avoidance goals view achievement settings as a threat and may therefore try to remove themselves from that context. If this option is not available, 'the prospect of potential failure is likely to elicit anxiety, encourage self-protective withdrawal of affective and cognitive resources, disrupt concentration and task involvement, and orient the individual toward the presence of failure-relevant information, processes hypothesised to undermine intrinsic motivation' (p. 463).

The pattern of findings for performance approach goals, however, has been much less consistent. These goals have been related to positive motivational indices such as increased effort, persistence, and intrinsic motivation (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997). The tendency to emphasise performance approach goals has also been related to negative processes and outcomes such as test anxiety (emotionality component only), extrinsic motivation, and an unwillingness to seek help with schoolwork (Elliot *et al.*, 1999; Middleton & Midgley, 1997).

In response to this resurgence of interest in and recent demonstrated utility of the approach-avoidance distinction, a number of authors have developed instruments to assess individual differences in the tendency to adopt approach-avoidance goals from an achievement goal perspective. Skaalvik (1997), Elliot and colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996), and Midgley and associates (Midgley *et al.*, 1998) have independently developed questionnaires to assess approach and avoidance performance goals and a task or mastery goal orientation. Each research group has demonstrated reliable factor structures for the scales. However, although these three instruments appear to assess conceptually similar constructs, the focus of the measurement scales seem somewhat different. For example, Skaalvik's self-defeating ego orientation (performance avoidance goal) items centre on what students are concerned with at school and emphasise the attainment of favourable judgments of

ability from others (e.g., 'When I am working on the blackboard I am concerned about what my classmates think about me'). In contrast, Elliot and Church's (1997) performance avoidance items focus on concerns about poor performance but not necessarily relative to others or with respect to what others think (e.g., 'My fear of performing poorly in this class is often what motivates me').

Regarding performance approach goals, Elliot and Church (1997) emphasise the importance of comparative success, demonstrating superior ability compared with others, and gaining the approval of significant others (e.g., 'I want to do well in this class to show my ability to my family, friends, advisors, or others'). Skaalvik's self-enhancing ego orientation has similarities with Elliot and Church's in that all the items refer to comparison with other students. However, in the Skaalvik scale, the comparison is more specific; such as comparisons regarding work, grades, task management, and knowledge (e.g., 'I answer questions in class in order to show that I know more than the other students'). Finally, Midgley and colleagues' performance approach scale also focuses on defining success through social comparison but also highlights the impact on self-esteem as a result of comparative success (e.g., 'I would feel really good if I were the only one who could answer the teacher's questions in class').

Finally, there also appears to be some discrepancy between the three measures in the proposed relationships between the goals. For example, Elliot and colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996) and Midgley and associates (Midgley *et al.*, 1998) report that the approach-avoidance performance goals are positively correlated and independent of task orientation. Skaalvik (1997) also reports that the approach-avoidance performance goals (i.e., self-enhancing and self-defeating ego orientation) are correlated but he also proposes that self-enhancing ego orientation is correlated with task orientation.

The present investigation

Taken in conjunction, the work of Skaalvik (1997), Elliot and colleagues (1997), and Midgley and associates (1998) reinforces the need for clarity in both the conception and measurement of the approach-avoidance distinction. Therefore, the primary purpose of this research was to determine whether questionnaires developed by Skaalvik, Elliot and Church, and Midgley and colleagues are assessing the same or different constructs, or whether there is simply a large degree of overlap between like subscales across the given assessments. By examining this issue, we hope to pay heed to Marsh's (1994) warning about the 'jingle' (scales with the same label assessing similar constructs) and 'jangle' (scales with different labels assessing different constructs) fallacies that often befall questionnaires in the field. Aligned with the work of Marsh (1994), we attempted to address this issue by employing a confirmatory factor analysis to examine the fit of a nine-factor model (comprised of the individual subscales from each of the three questionnaires) compared to two three-factor models (combined subscales assumed to assess the same construct across the three questionnaires). It was hypothesised that a three-factor model (combined subscales across the three instruments) will provide a better fit to the data than a nine-factor model (individual subscales from the three instruments). Based upon findings from previous research (Elliot & Church, 1997; Midgley *et al.*, 1998; Skaalvik, 1997) it was also hypothesised that: (a) across all three measures, there will be moderate positive relationship between the performance

approach and performance avoidance subscales, (b) within the Skaalvik measure, there will be a moderate positive relationship between the self-enhancing ego orientation and task subscales, and (c) no significant relationship will emerge between the performance approach and task/mastery subscales of the Elliot and Church and Midgley and associates' measures.

An additional aim of this current work was to examine the psychometric properties (internal consistency, convergent and discriminant validity, factorial validity via confirmatory factor analysis, and construct validity) of each of these approach-avoidance measures. Given some of the inconsistencies highlighted above between subscales presumed to be tapping the same construct across the three instruments, it was predicted that significant but moderate relationships would emerge between parallel subscales. It was also expected that the observed associations between analogous subscales (across the three instruments) would be stronger than the relationships between subscales assessing different constructs.

With regard to construct validity, this was examined by assessing the extent to which the respective three subscales of each questionnaire correlated with measures of effort regulation (i.e., ability to control effort and attention in the face of distractions and uninteresting tasks; Pintrich, Smith, Garcia, & McKeachie, 1991), perceived ability, and test anxiety. Pulling from conceptualisations of types of motivation embedded in self-determination theory (Deci & Ryan, 1985, 1991), we also examined the relationship of the three assessments of task/mastery, performance approach, and performance avoidance goals to forms of intrinsic as well as extrinsic motivation and amotivation.

Our predictions regarding the correlates of performance approach, performance avoidance, and task/mastery goals were derived from the extant literature on achievement goals in the classroom, and the theoretical tenets of achievement goal frameworks (Duda, 1992; Nicholls, 1989) and self-determination theory (Deci & Ryan, 1985, 1991). Specifically, it was hypothesised that: (a) scores on the task/mastery subscales will relate positively to measures of effort regulation, perceived ability, and intrinsic motivation, (b) scores on the task/mastery subscales will relate negatively to measures of extrinsic motivation and amotivation, and will be unrelated to test anxiety, (c) scores on the performance avoidance/self-defeating ego orientation subscales will relate negatively to measures of effort regulation, perceived ability, and intrinsic motivation, (d) scores on the performance avoidance/self-defeating ego orientation subscales will relate positively to measures of test anxiety, extrinsic motivation, and amotivation, (e) scores on the performance approach/self-enhancing ego orientation subscales will relate positively to test anxiety and extrinsic motivation, (f) no significant relationships are predicted between scores on the performance approach/self-enhancing ego orientation subscales and perceived ability, intrinsic motivation, amotivation, and effort regulation.

Method

Participants and procedures

Participants in this study were 475 undergraduate students ($N = 228$ males; $N = 244$ females; three missing information) enrolled at two large universities in the United Kingdom. The age of the participants ranged between 18–41 years ($M = 20.33$, $SD = 2.46$) and they had been enrolled at university for an average of 1.84 years

(SD = .94). Participants completed a paper and pencil questionnaire administered in a classroom setting by one of the researchers towards the end of the academic year. Written consent was obtained from all participants prior to the study.

Measures

Approach-avoidance goal orientation measures

Approach-avoidance goal orientations were measured with three different questionnaires (refer to the Appendix for a complete list of items). The first questionnaire was developed by Skaalvik (1997) to examine the concerns of students within academic classes without reference to any particular school subject or activity. This instrument consists of four subscales (task orientation, avoidance orientation, self-defeating ego orientation, and self-enhancing ego orientation). Examples of items are: 'At school it is important for me to learn something new' (task orientation); 'At school I try to get away with doing as little as possible' (avoidance orientation); 'At school it is important for me to avoid looking stupid' (self-defeating ego orientation); and 'I always try to do better than other students in my class' (self-enhancing ego orientation). Skaalvik reports Cronbach alphas for the task orientation, self-enhancing ego orientation, self-defeating ego orientation, and avoidance orientation subscales of .81, .86, .89, and .93, respectively. In the current investigation, all items were adapted to focus on university classes. Participants responded to the 22 items on a 6-point Likert scale ranging from 1 (false) to 6 (true).

The second approach-avoidance goal orientation questionnaire employed in this study was developed by Elliot and Church (1997). This instrument comprises three subscales (mastery goals, performance-approach goals, and performance-avoidance goals). Examples of items are as follows: 'I want to learn as much as possible from this class' (mastery goal); 'It is important for me to do better than the other students' (performance approach); and 'I just want to avoid doing poorly in this class' (performance avoidance). Elliot and Church (1997) report Cronbach alphas of .91, .89, and .77 for the performance approach, mastery, and performance avoidance subscales, respectively. Participants responded to the 18 items on a 7-point Likert scale ranging from 1 (*not at true for me*) to 7 (*very true for me*).

The final approach-avoidance goal measure employed in this study was developed by Midgley and colleagues (Middleton & Midgley, 1997; Midgley *et al.*, 1996). Subscales assessing an orientation to task goals and to performance approach goals were taken from the Patterns of Adaptive Learning Survey (PALS) (Midgley *et al.*, 1996). Sample items include: 'An important reason I do my math work is because I like to learn new things' (task orientation); and 'I would feel successful if I did better than most other students in my math class' (performance approach orientation). Middleton and Midgley (1997) report Cronbach alphas of .84 for each of these subscales. The subscale used to assess a performance avoidance orientation was developed later by Middleton and Midgley (1997). An example item from this subscale is 'I do my math work so others in the class won't think I'm dumb'. Middleton and Midgley reported a Cronbach alpha for this subscale of .84. Participants in the current study responded to the 16 items on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*very true*). With reference to the current investigation, all items were adapted to university classes in general rather than math classes specifically.

Effort regulation

Participants' ability to control their effort and attention in the face of distractions and uninteresting tasks was assessed using the effort regulation scale developed as a component of the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich *et al.*, 1991). An exemplary item from this scale is 'I work hard to do well in this class even if I don't like what we are doing'. The scale authors report a Cronbach alpha of .69 for this measure. Participants responded to the four items on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Test anxiety

The test anxiety scale is also a component of the MSLQ (Pintrich *et al.*, 1991) and was designed to assess students' cognitive and emotional responses in testing conditions. An exemplary item from this scale is 'When I take a test I think about how poorly I am doing compared with other students.' The scale authors report a Cronbach alpha of .80 for this subscale. Responses to the five items were indicated on a 7-point Likert scale ranging from 1 (*not at all true for me*) to 7 (*very true for me*).

Perceived ability

Perceived ability was measured by a four-item scale (Hall & Kerr, 1997; Hall, Kerr, & Matthews, 1998) which required participants to rate their ability as a university student, how good they thought their lecturers would rate them as a university student, how good they thought their friends in their classes would rate them as a university student, and how good they were compared to all of the other students in their course. All items were assessed on a 7-point Likert scale ranging from 1 (*extremely weak*) to 7 (*extremely strong*).

Intrinsic, extrinsic, and amotivation

The 28-item Academic Motivation Scale for college students (AMS; Vallerand *et al.*, 1992) was used to assess participants' motivation towards educational activities. The AMS is composed of seven subscales. Three subscales assess types of intrinsic motivation: intrinsic motivation to know (e.g., 'Because I experience pleasure and satisfaction while learning new things'), to accomplish things (e.g., 'For the enjoyment I experience while surpassing myself in my studies'), and to experience stimulation (e.g., 'For the positive feelings I experience when I am communicating my own ideas with others'). Three subscales assess types of extrinsic motivation: external regulation (e.g., 'In order to obtain a more prestigious job later on'), introjected regulation (e.g., 'Because of the fact that when I succeed in my university classes I feel important'), and identified regulation (e.g., 'Because eventually it will enable me to enter the job market in a field I like'). The final subscale assesses amotivation (e.g., 'I can't see why I go to university and frankly I couldn't care less'). In previous research (Vallerand *et al.*, 1992), the AMS subscales have exhibited acceptable internal consistency ($\alpha = .72$ to $.87$) and a stable seven-factor structure. Responses were provided on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Data analyses

Preliminary analyses were conducted to examine the distributional and internal consistency of the data from each of the three approach-avoidance measures. Means, standard deviations, skewness, kurtosis, and Cronbach's coefficient alphas were calculated based on the original subscales for each questionnaire. In addition, three

separate confirmatory factor analyses were conducted to test the fit of the proposed three-factor measurement model to the data obtained from each goal orientation instrument.

To evaluate the convergent and discriminant validity of the responses to the three goal measures, a multitrait-multimethod (MTMM) correlation matrix was examined. Marsh, Richards, Johnson, Roche, and Tremayne (1994) have emphasised the importance of MTMM studies to test for convergent and discriminant validity, to assess patterns of relations between responses to different instruments, and to evaluate 'jingle' and 'jangle' fallacies outlined by Marsh (1994). These potential fallacies were also addressed by examining the fit of three models (a nine-factor and two three-factor models) to the data from all the questionnaires using confirmatory factor analysis. Specifically, the fit of a measurement model that kept all nine subscales separate (nine-factor model), and two measurement models with only three latent factors (task, performance approach, and performance avoidance) were tested.

Finally, if the three goal questionnaires were measuring the same underlying constructs, it was expected that the responses to all three questionnaires would be similarly related to other motivation-related variables. Construct validity was, therefore, examined by assessing the extent to which each questionnaire correlated with measures of effort regulation, perceived ability, test anxiety, intrinsic motivation, extrinsic motivation, and amotivation.

Results

Descriptive statistics

The descriptive statistics (means, standard deviations, observed minimum and maximum values) and distributional indices (skewness and kurtosis) for each of the approach-avoidance goal subscales are presented in Table 1. For each subscale, the mean value is above the midpoint indicating general endorsement of the scale items. For the Elliot and Church and Skaalvik subscales, the means are significantly higher for task/mastery, followed by performance avoidance/self-defeating, and lastly, performance approach/self-enhancing ($F = 210.7$ and 274.4 , respectively, $p \leq .001$). However, in the case of the Midgley subscales, the task scale has the highest mean but there was a stronger endorsement of the performance approach subscale ($M = 3.19$) than the performance avoidance subscale ($M = 2.75$). These differences were all significant ($F = 295.4$, $p \leq .001$).

With respect to the indices of scale variability, the observed standard deviation for each of the task/mastery subscales was somewhat less than that of the approach/self-enhancing and avoidance/self-defeating subscales. As shown in Table 1, the Skaalvik task and self-enhancing ego orientation subscales both exhibited negative skewness. This was also the case for each of the Elliot and Church subscales. Finally, each of the Midgley subscales also exhibited negative skewness but the task and performance avoidance subscales were also marked by large kurtosis values. This is most likely a result of the high degree of endorsement for the items on the task goal subscale, and a low degree of endorsement for the items on the performance avoidance subscale.

Cronbach's (1951) coefficient alphas were calculated to determine the internal consistency of each subscale. With the exception of the Elliot and Church performance avoidance subscale ($\alpha = .65$), each subscale was found to possess acceptable internal

Table 1. Descriptive statistics and internal consistency for the approach-avoidance subscales

Scales (N = 475)	Mean	SD	Minimum	Maximum	Skewness	Kurtosis	Alpha
<i>Skaalvik</i> ¹							
1. Task orientation	4.64	.66	2.17	6.00	-2.51	.02	.81
2. Self-enhancing ego orientation	3.45	1.00	1.00	6.00	-2.75	-.03	.82
3. Self-defeating ego orientation	3.61	1.04	1.00	6.00	-.98	-1.40	.83
4. Avoidance orientation	3.64	.94	1.25	6.00	.14	-.38	.75
<i>Elliot & Church</i> ²							
5. Mastery goal	5.38	.86	2.83	7.00	-3.08	-1.10	.81
6. Performance approach goal	4.21	1.22	1.00	7.00	-3.67	-.80	.88
7. Performance avoidance goal	4.48	.95	1.33	6.83	-3.82	1.64	.65
<i>Midgley</i> ³							
8. Task goal	3.94	.60	1.40	5.00	-5.48	4.49	.75
9. Performance approach goal	3.19	.81	1.00	5.00	-4.35	-.00	.76
10. Performance avoidance goal	2.75	.93	1.00	4.83	-4.29	-3.30	.85

¹ Scale 1 (False) to 6 (True)² Scale 1 (Not at all true for me) to 7 (Very true for me)³ Scale 1 (Not at all true) to 5 (Very true).

consistency ($\alpha = .75 - .88$) (Nunnally, 1978). Further analysis of the performance avoidance subscale in the Elliot and Church (1997) measure revealed that the deletion of item 17 ('I wish my university classes were not graded') would result in acceptable internal consistency (.69) for a six-item scale (Loewenthal, 1996).

Factorial validity

Three separate confirmatory factor analyses were employed to examine the fit of a three-factor measurement model (task/mastery, performance approach, performance avoidance) to the data from each questionnaire (Elliot & Church, Midgley, and Skaalvik). In each analysis, items were assigned to the latent factor they were originally proposed to measure. In addition, a second model that included a fourth factor (i.e., work avoidance) was examined for the data stemming from the Skaalvik questionnaire. This was in keeping with Skaalvik's original model. Correlations between the latent factors were included for scales reported to correlate by the respective author(s). Figures 1 through 4 depict the four measurement models tested.

Multiple fit indices including chi square, comparative fit index (CFI), Bentler and Bonnett's normed fit index (BBNFI), adjusted goodness of fit index (AGFI), and root mean square error of approximation (RMSEA) were employed to assess the adequacy of the measurement models. A chi-square statistic divided by its degrees of freedom that is less than two 'gives a rough indication that the model may fit the data' (Tabachnick & Fidell, 1996, p. 776). However, McIver and Carmines (1981) recommend that this ratio be less than 3.0 for adequate fit. CFI, BBNFI, and AGFI values exceeding .90 are generally considered to indicate a good fitting model (Hu & Bentler, 1995). Finally, a RMSEA of less than .10 is considered indicative of an adequate model (Browne & Cudeck, 1993) and less than .05, a good fitting model.

The loadings for the items from the Elliot and Church and Midgley and associates approach-avoidance goal measures are presented in Figures 1 and 2, respectively. All of

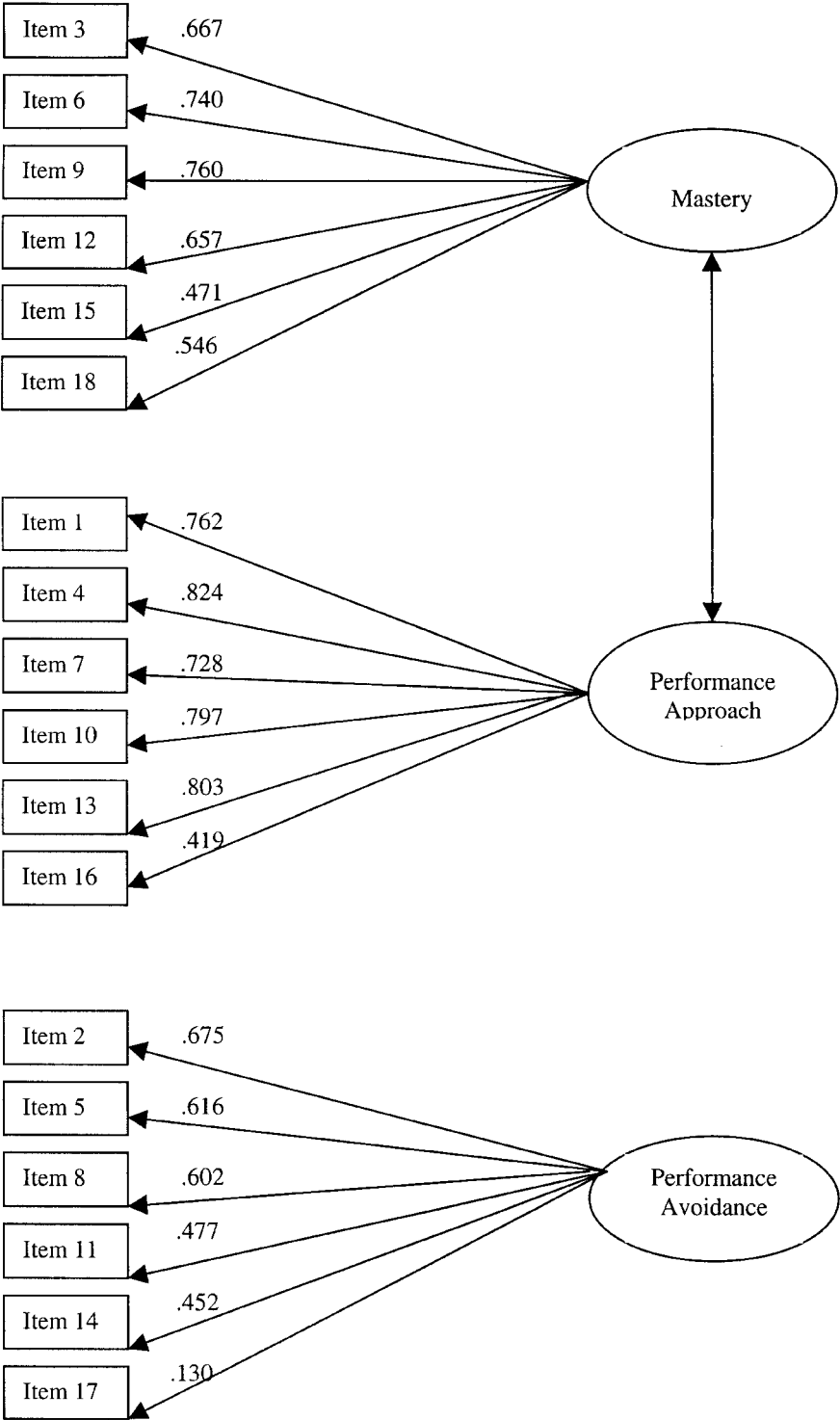


Figure 1. Measurement model (and observed factor loadings for items) for the Elliot & Church approach-avoidance goal orientation questionnaire

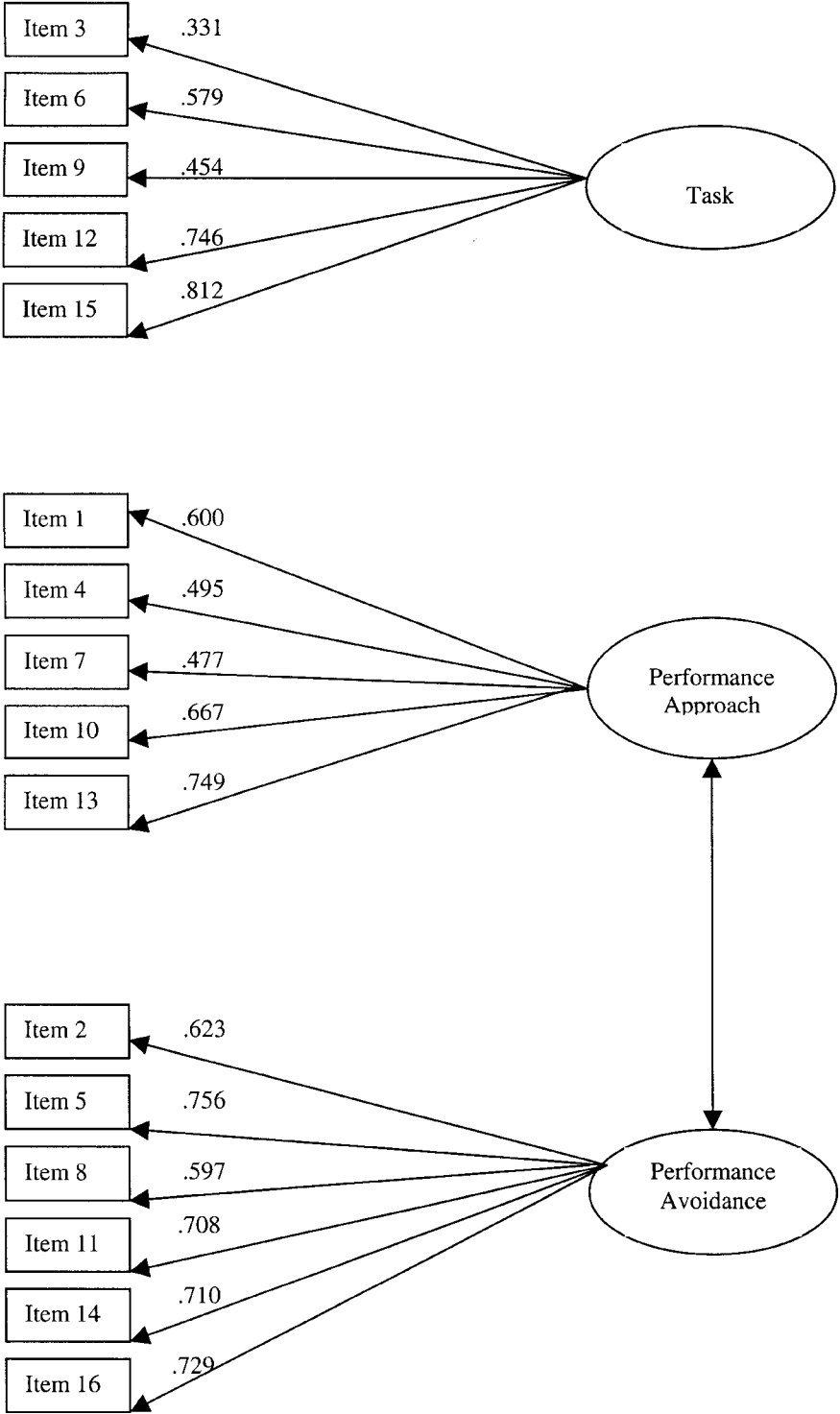


Figure 2. Measurement model (and observed factor loadings for items) for the Midgley approach-avoidance goal orientation questionnaire

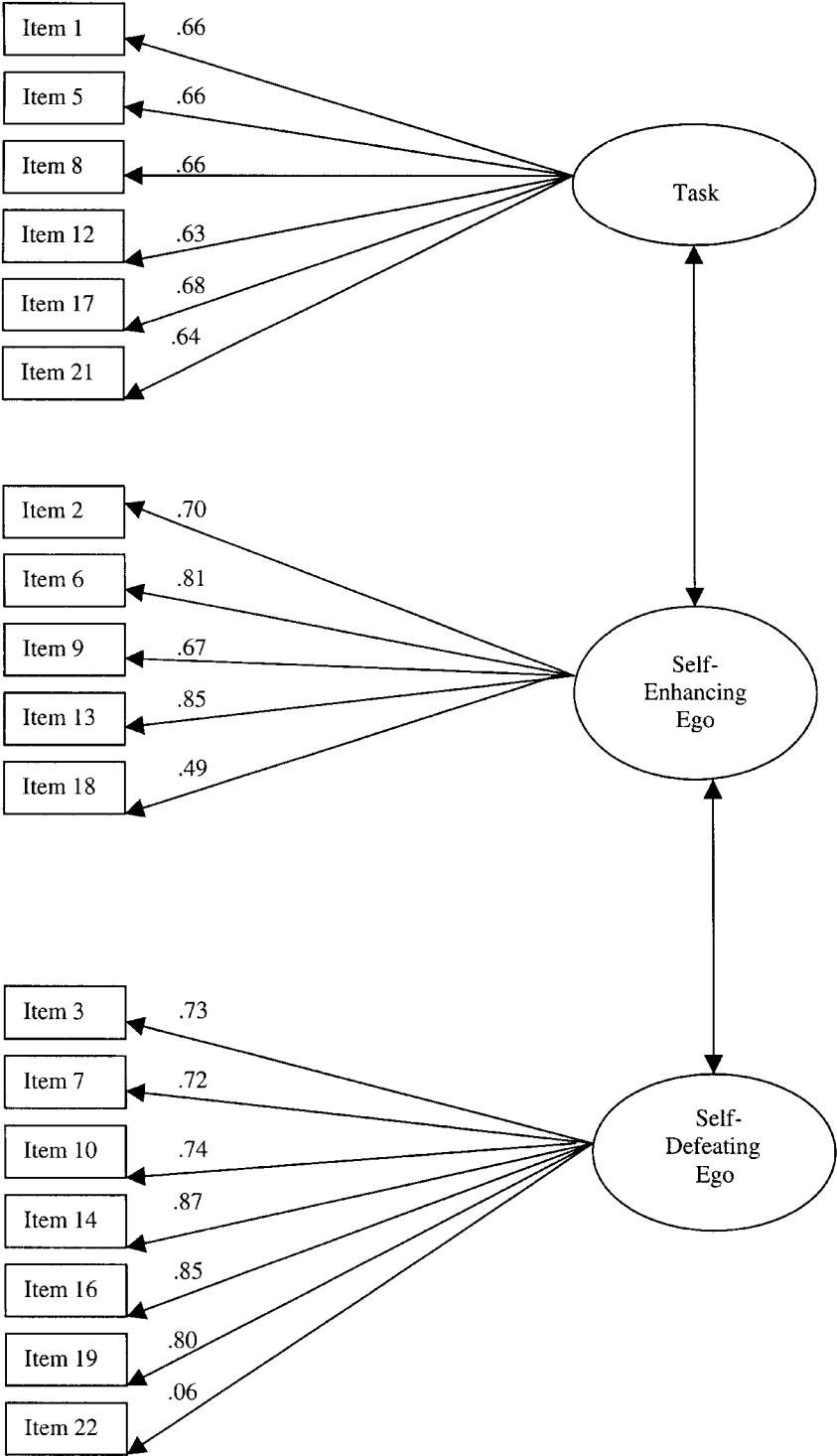


Figure 3. Measurement model (and observed factor loadings for items) for the Skaalvik 3-factor approach-avoidance goal orientation questionnaire

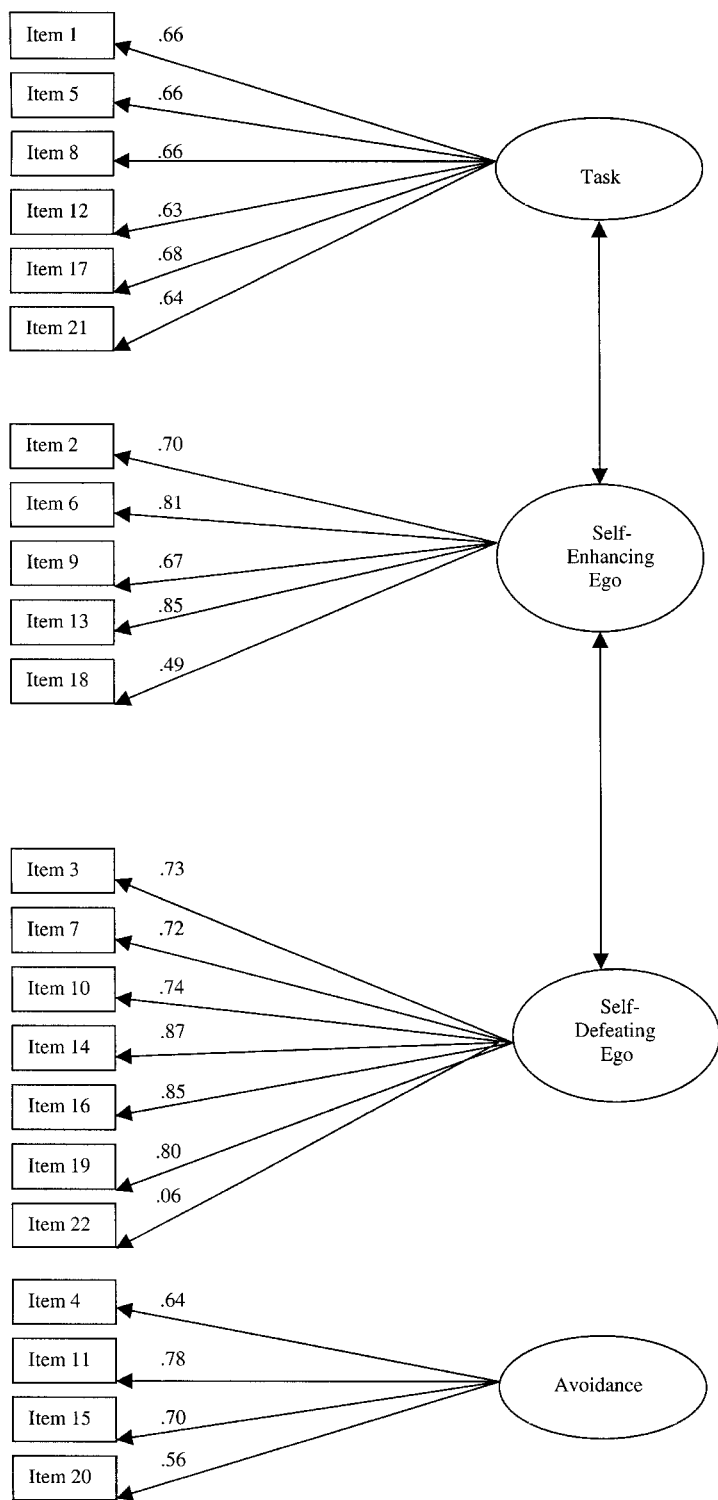


Figure 4. Measurement model (and observed factor loading for items) for the 4-factor Skaalvik approach-avoidance goal orientation questionnaire

the factor loadings, with the exception of item 17 (Elliot & Church) and item 3 (Midgley) are significant and above .40. The correlation between the approach and avoidance factors was .38 (Elliot & Church) and .57 (Midgley). Both of these values were significant.

The fit indices for the measurement models are presented in Table 2 and indicate that the models approach acceptable fit of the data. Although the chi-square to degrees of freedom ratio is not less than three, the BBNFI, AGFI, and CFI are very close to .90, and the RMSEA values are below .10, indicating an adequate fit.

With regard to the Skaalvik measure, the loadings for the four-factor (including the avoidance factor) and three-factor (removing the avoidance factor) models are presented in Figures 3 and 4. All of the loadings with the exception of item 22, are significant and above .40.

Table 2. Confirmatory factor analysis fit indices for the four measurement models based on the original subscales

	Chi-square	d.f.	Chi-square/d.f.	<i>p</i>	BBNFI	AGFI	RMSEA	CFI
Skaalvik								
4-factor	850.50	207	4.10	.000	.80	.81	.08	.84
3-factor	462.25	133	3.47	.000	.87	.85	.07	.90
Elliot & Church	460.05	134	3.43	.000	.84	.87	.07	.88
Midgley	330.62	103	3.20	.000	.88	.89	.06	.89

For both models, the correlation between the self-enhancing ego orientation and self-defeating ego orientation was .44 and the correlation between self-enhancing ego orientation and task orientation was .26. All of these correlations were significant ($p \leq .05$). Examination of the fit indices indicates that the three-factor model is approaching an acceptable fit (Table 2). Although the chi-square to degrees of freedom value is above three, the BBNFI and AGFI are close to .90, and the CFI is above .90. Finally, the RMSEA value is below .10. In contrast, examination of the fit indices for the four-factor model indicates that this model provides a poor fit to the data. The chi-square to degrees of freedom ratio is above four and the BBNFI, AGFI, and CFI values do not meet the minimum standard for an acceptable fitting model.

Construct validity

To examine the construct validity of the various instruments, the Pearson product-moment correlations between the three goal orientations assessed by the three questionnaires and effort regulation, perceived ability, test anxiety, and intrinsic and extrinsic motivation were calculated (Table 3).

As expected, the task/mastery goal subscales were significantly and positively related to effort regulation ($r = .29 - .36$). A similar pattern of relationships existed between the task/mastery goal subscales and perceived ability ($r = .21 - .29$). Moderate significant relationships also emerged between task/mastery and the various types of intrinsic motivation targeted. Specifically, all three task/mastery goal subscales related positively to intrinsic motivation to know ($r = .54 - .60$), intrinsic motivation for accomplishment ($r = .47 - .51$), and intrinsic motivation to experience stimulation ($r = .44 - .48$). A weaker but significant relationship emerged between the task/

Table 3. Pearson product-moment correlations between approach-avoidance subscales and indices of motivation

(N = 475)	Skaalvik				Elliot & Church			Midgley		
	Task	Self Enhancing	Self Defeating	Avoidance	Mastery	Performance Approach	Performance Avoidance	Task	Performance Approach	Performance Avoidance
1. Test Anxiety	-.00	.08	.43**	.16**	.03	.15**	.51**	-.05	.11*	.39**
2. Effort Regulation	.36**	.09	-.07	-.44**	.31**	.12**	.00	.29**	.04	-.18**
3. Perceived Ability	.28**	.14**	-.11*	-.23**	.21**	.15**	-.21**	.29**	.15**	-.22**
4. IM-To know	.54**	.03	-.09	-.35**	.57**	.03	-.03	.60**	.02	-.14*
5. IM-To accomplishment	.47**	.13**	.03	-.30**	.50**	.11*	.02	.51**	.08	-.03
6. IM-To experience stimulation	.45**	.06	-.12*	-.31**	.44**	.04	-.06	.48**	-.00	-.11*
7. EM-Identified	.28**	.07	.12*	-.14**	.26**	.11*	.16**	.30**	.11*	.07
8. EM-Introjected	.23**	.21**	.24**	-.10*	.31**	.23**	.31**	.25**	.24**	.27**
9. EM-External Regulation	.08	.24**	.24**	.11*	.07	.26**	.21**	.09	.26**	.18**
10. Amotivation	-.32**	.00	.10*	.32**	-.29**	.01	.12*	-.32**	.01	.19**

* $p \leq .05$ ** $p \leq .001$

mastery goal subscales and two of the extrinsic motivation subscales. That is, the task/mastery goal subscales related positively to identified motivation ($r = .26 - .30$), and introjected motivation ($r = .23 - .31$). Further, consistent with predictions, the task/mastery goal subscales were significantly related to amotivation. Students who exhibited higher scores on the Skaalvik, Elliot and Church, and Midgley task/mastery goal subscales reported lower levels of amotivation ($r = -.29 - -.32$). Finally, no significant relationships emerged between the task/mastery goal subscales and external regulation motivation or test anxiety.

In summary, students who reported higher task/mastery orientation toward university work also indicated higher effort regulation, perceptions of academic ability, and intrinsic, identified, and introjected motivation towards their classes. This relatively adaptive motivational pattern of relationships was similar across the three measures of task/mastery goal orientation.

The relationships between the three performance approach goal subscales and indices of motivation are presented in Table 3. Except for the weak but significant correlation between the Elliot and Church performance approach subscale and effort regulation ($r = .12$), scores on the three performance approach subscales were not associated with effort regulation. Low but significant positive associations emerged between the performance approach subscales and perceived ability for all three goal measures ($r = .14 - .15$) and test anxiety for two of the measures [$r = .15$ (Elliot & Church) and $r = .11$ (Midgley)]. The Skaalvik performance approach subscale was not significantly related to test anxiety. With the exception of two significant but weak associations between the Skaalvik and Elliot and Church subscales and intrinsic motivation to accomplish ($r = .13$ and $.11$, respectively), no other significant relationships emerged between these variables. No significant associations were observed between the performance approach goal subscales and identified extrinsic motivation. However, significant positive relationships did emerge between all of the performance approach goal subscales and the extrinsic motivation introjected and extrinsic motivation external regulation subscales. In summary, the pattern of relationships was similar across the three goal orientation measures and indicated that students who endorsed a performance approach goal orientation towards their academic work also reported greater emphasis on extrinsic forms of motivation. These findings suggest that motivation is less self-determined when a performance approach goal orientation is emphasised.

Finally, from the relationships observed between the performance avoidance goal subscales and targeted indices of motivation (Table 3), it can be seen that with respect to effort regulation, only the Midgley subscale was significantly and negatively related ($r = -.18$) (It should be noted, however, that a moderate, negative correlation emerged between the Skaalvik work avoidance scale and effort regulation). Weak but significant negative correlations emerged between the three performance avoidance goal subscales and perceived ability ($r = -.11 - -.21$). Finally, moderate positive relationships emerged between this goal orientation and test anxiety ($r = .39 - .51$). In terms of the associations between the performance avoidance goal subscales and forms of intrinsic motivation, no significant relationships emerged with the exception of significant, but weak correlations between the Skaalvik and Midgley subscales and intrinsic motivation to experience stimulation ($r = -.12$ & $-.11$, respectively), and the Midgley subscale and intrinsic motivation to know ($r = -.14$). In contrast, with the exception of the relationship between the Midgley performance avoidance goal subscale and extrinsic motivation identified, all other relationships between the

performance avoidance goal subscales and extrinsic motivation were significant albeit weak ($r = .12 - .31$). Finally, minimal but significant correlations emerged between the three performance avoidance goal subscales and amotivation ($r = .10 - .19$).

In summary, students who reported higher performance avoidance goals towards university work were more likely to perceive their ability to be lower and to suffer from higher test anxiety. In addition, students who endorsed these goals were more likely to report higher levels of extrinsic motivation (external regulation, introjected regulation, and identified regulation motivation) and amotivation.

Nine- versus three-factor model

In order further to examine whether the goal orientation measures were assessing similar constructs (namely, task, performance-approach and performance-avoidance goals), a confirmatory factor analysis (CFA) combining the items from the nine different subscales was conducted. Specifically, parallel to the procedure adopted by Marsh (1994), a nine-factor model (comprising the individual subscales from the three measures; Figure 5) was contrasted with two three-factor models (which combined subscales across the three measures; Figure 6). With respect to the nine-factor model, correlations between latent variables were included for subscales reported to correlate by the respective authors. With respect to the three-factor models, the first of these two models (three-factor Model A) is consistent with the theoretical predictions made by Midgley and associates (1998), and Elliot and Church (1997). This model included an inter-factor correlation between the performance approach and performance avoidance subscales but no links between these subscales and the task/mastery subscale. The second of the three-factor models was consistent with the theorising of Skaalvik (1997; three-factor Model B). In addition to the association between the performance approach/self-enhancing ego orientation and the performance avoidance/self-defeating ego orientation factors in Model A, a correlation between the performance approach/self-enhancing ego orientation and task/mastery factors was included. If the three measures were examining the same underlying constructs, it was expected that both of the three factor models would provide a superior fit to the data than the nine-factor model.

For the nine-factor model, item 22 from the Skaalvik measure proved to have the only non-significant factor loading. The inter-factor correlation between the Skaalvik task/mastery factor and the self-enhancing ego orientation and self-defeating ego orientation factors were .25 and .47, respectively, and both were significant. The correlation between the performance approach and performance avoidance factors for the Elliot and Church and Midgley measures were .35 and .52, respectively, and were also significant. Examination of the fit indices presented in Table 4 indicated that the nine-factor model provided a weak fit to the data. Specifically, the chi-square to degrees of freedom ratio was greater than three, and the BBNFI, AGFI, and CFI values are well below .90, the minimum standard for an acceptable fitting model.

With respect to the two three-factor models (A & B), with the exception of one item (Skaalvik item 22), all of the factor loadings were significant. The correlation between the performance approach/self-enhancing ego orientation and performance avoidance/self-defeating ego orientation factors was significant for both models [$r = .50$ (Model A), and $r = .48$ (Model B)]. The inter-factor correlation between the task/mastery and performance approach/self-enhancing ego orientation factors in Model B was .19 and was also significant. The CFA results presented in Table 8 indicate that the three-factor

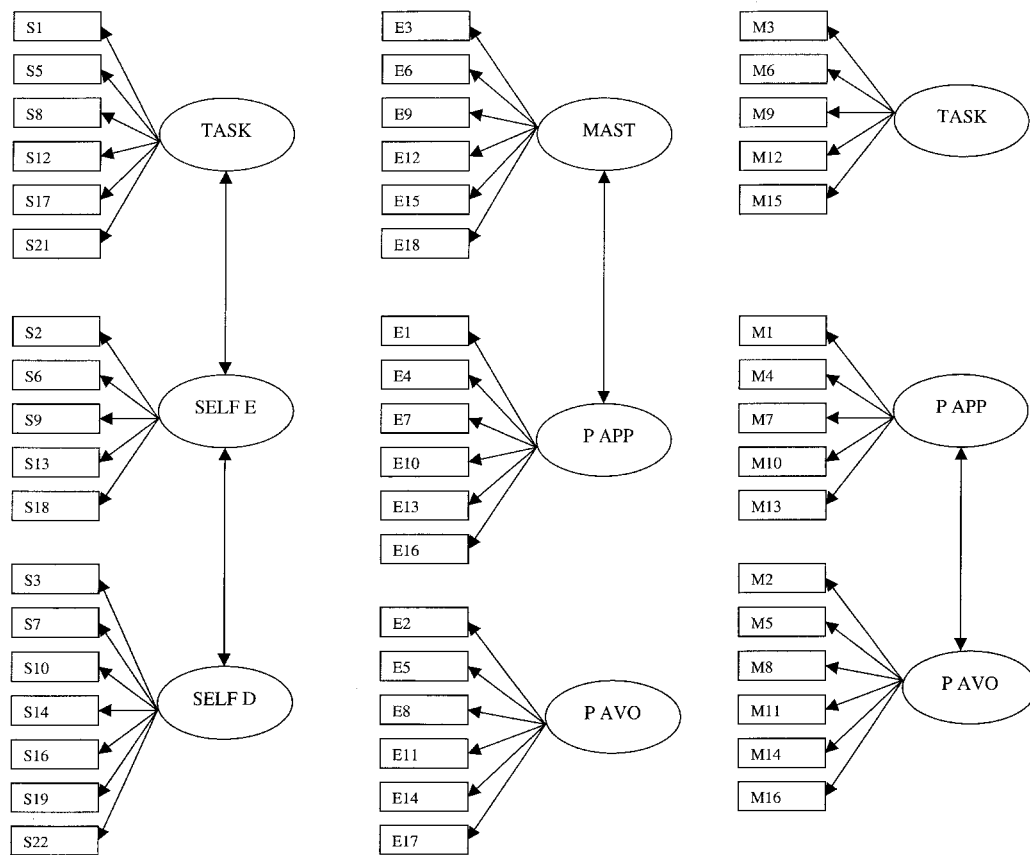


Figure 5. Nine-factor measurement model

Note: S = Skaalvik items, E = Elliot & Church items, M = Midgley & associates items, MAST = Mastery goal orientation, TASK = Task goal orientation, SELF E = Self-enhancing ego orientation, SELF D = Self-defeating ego orientation, P APP = Performance approach orientation, P AVO = Performance avoidance orientation

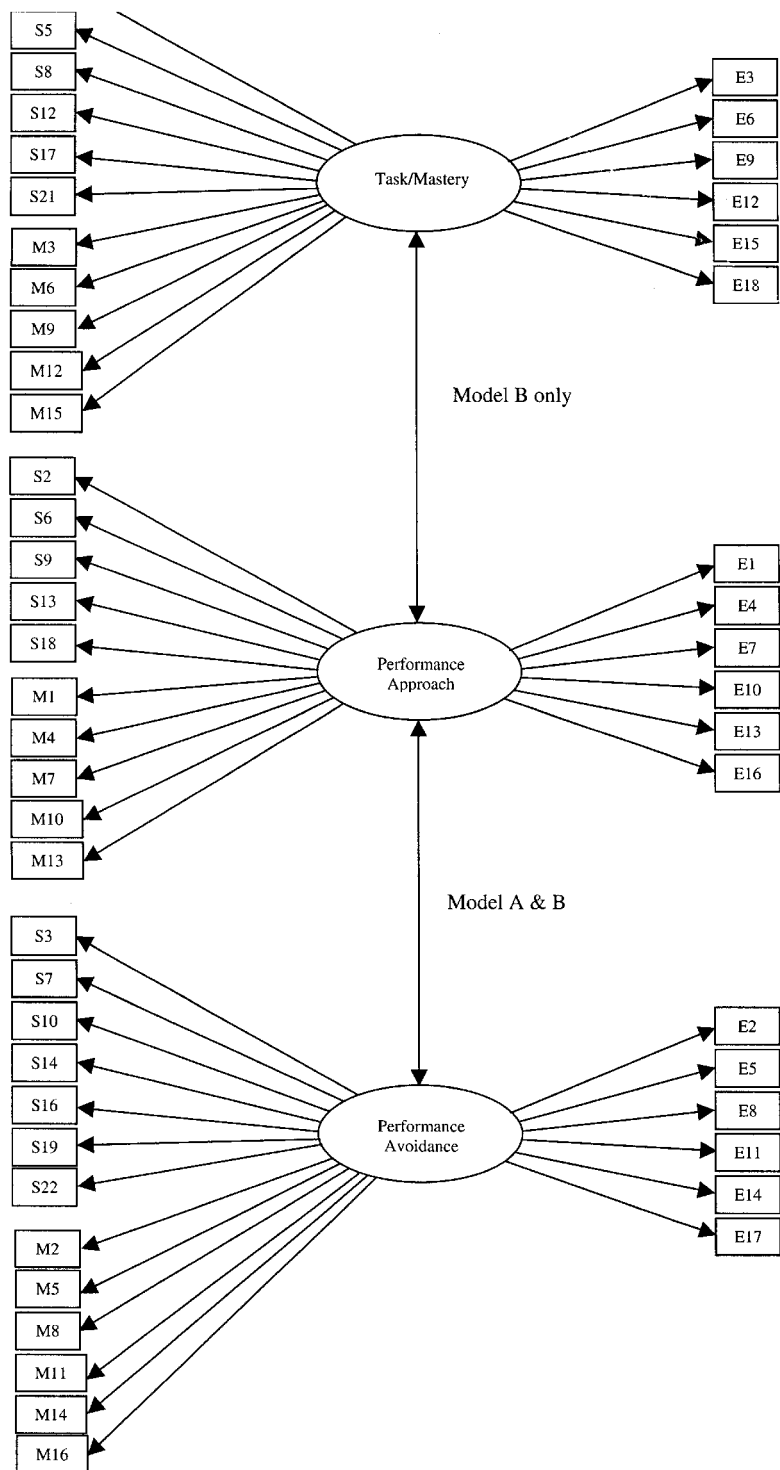


Figure 6. Three-factor measurement models

Note: S = Skaalvik items, M = Midgley items, and E = Elliot & Church items

Table 4. Fit indices for proposed goal orientation models

	Chi-square	d.f.	Chi-square/df	<i>p</i>	BBNFI	AGFI	RMSEA	CFI
3-factor model (A)	3427.01	1273	2.69	.001	.71	.70	.06	.80
3-factor model (B)	3409.72	1272	2.68	.001	.71	.70	.06	.80
9-factor model	4583.12	1270	3.60	.001	.62	.65	.08	.69

models have almost identical fit indices. However, none of these indices reaches a level indicating an acceptable fit of the model to the data. Although the chi-square to degrees of freedom ratio is less than three, the BBNFI, AGFI, and CFI values are below .90 and, therefore, do not meet the minimum standard for an acceptable fitting model.

Convergent and discriminant validity

Multitrait-multimethod (MTMM) analysis was adopted to examine the convergent and discriminant validity of the three measures. In MTMM analysis (Campbell & Fiske, 1959; Marsh, 1988), it is typical to evaluate convergent and discriminant validity by comparing convergent correlations (associations between matching traits/constructs), heterotrait-heteromethod correlations (associations between different scales measured by different instruments), and heterotrait-homomethod correlations (associations among non-matching scales from the same instrument). Large convergent correlations support the convergent validity of the scales in question, whereas discriminant validity is supported when convergent validities are larger than correlations among different scales assessed with different methods. Finally, method effects are inferred when heterotrait-homomethod correlations involving a particular method approach 1.0 or are higher than heterotrait-heteromethod correlations.

Correlations between the subscales of the three measures are presented in an MTMM matrix (Table 5). This MTMM matrix is divided into triangular submatrices of correlations among different traits/subscales assessed by the same method (heterotrait-monomethods; HTMM), square sub-matrices of relations among measures assessed with different methods (heterotrait-heteromethods; HTHM), and relations among the same traits/subscales assessed with different methods (convergent validities).

Drawing from Campbell and Fiske’s (1959) four guidelines for examining MTMM matrices, we found:

- 1) The convergent correlations were substantial. All nine convergent correlations were statistically significant, varying between .53 and .77 (mean $r = .67$).
- 2) Convergent correlations (mean $r = .67$) were higher than the HTHM correlations (mean $r = .13$). Thus, there was good support for the discriminant validity of the measures.
- 3) Convergent correlations (mean $r = .67$) were higher than the HTMM correlations (mean $r = .17$). Therefore, there is good support for this criterion of discriminant validity.
- 4) The pattern of correlations between different traits is similar for different methods. All correlations between goal orientation 1 (task) and goal orientation 2 (performance-approach) are consistently small (range $r = .05 - .17$). The correlations between goal orientation 1 (task) and goal orientation 3 (performance-avoidance) are also consistently small (range $r = -.02 - .17$). Finally, the

Table 5. Multitrait-Multimethod (MTMM) correlation matrix

	Skaalvik TASK	Skaalvik SELF_EN	Skaalvik SELF_DE	Elliot & Church MASTERY	Elliot & Church P_APP	Elliot & Church P_AVOID	Midgley TASK	Midgley P_APP	Midgley P_AVOID
<i>Skaalvik</i>									
TASK	—								
SELF_EN	.17	—							
SELF_DE	−.02	.45	—						
<i>Elliot & Church</i>									
MASTERY	.68	.11	−.03	—					
P_APP	.14	.77	.73	.13	—				
P_AVOID	.06	.20	.53	.14	.33	—			
<i>Midgley</i>									
TASK	.65	.08	−.10	.65	.06	−.04	—		
P_APP	.08	.73	.42	.05	.72	.22	.05	—	
P_AVOID	−.11	.40	.71	−.07	.41	.56	−.16	.44	—

Note: TASK = Task goal orientation, SELF_EN = Self-Enhancing ego orientation, SELF_DE = Self-Defeating ego orientation, MASTERY = Mastery goal orientation, P_APP = Performance approach goal orientation, P_AVOID = Performance avoidance goal orientation

correlations between goal orientation 2 (performance-approach) and goal orientation 3 (performance-avoidance) are all small to moderate (range $r = .33 - .45$). This similar and theoretically consistent pattern of relationships provides little support for method effects.

Overall, the results of the MTMM analysis provide good support for the convergent and discriminant validity of the three measures.

Discussion

Recently researchers have begun to re-examine the utility of a distinction between approach-avoidance achievement strivings in educational settings (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Skaalvik, 1997; Midgley *et al.*, 1998). This research has resulted in the development of a number of instruments designed to assess individual differences in the tendency to adopt approach-avoidance goals. The purpose of the present study was to compare the psychometric properties of three popular approach-avoidance goal orientation measures (Skaalvik, 1997; Elliot & Church, 1997; Midgley *et al.*, 1996), and to determine whether the three measures were assessing the same or distinct constructs. Each of the targeted measures comprised three subscales of interest in this work; i.e., an assessment of task/mastery goals, performance avoidance goals, and performance approach goals (although the Skaalvik instrument also contains a work avoidance subscale). Firstly, we will discuss the distribution and factorial validity merits of each set of subscales.

Psychometric properties

Overall, the Skaalvik (1997) measure proved to have the best distributional qualities of all three instruments. The items on the task orientation and self-enhancing ego orientation subscales were highly endorsed leading to a distribution that was slightly negatively skewed. However, the kurtosis values for all subscales were acceptable and the mean for each subscale was near the middle of the response scale. The internal consistencies of the Skaalvik (1997) subscales were also examined. The observed alpha coefficients were all above the standard criterion of .70.

To examine the factorial validity of the Skaalvik measure, two separate confirmatory factor analyses (CFA) were conducted. Firstly, a three-factor model incorporating the task, self-enhancing ego orientation, and self-defeating ego orientation dimensions was examined. Secondly, in keeping with Skaalvik's original proposed multi-dimensional assessment of goal orientations, a four-factor model that included a work avoidance factor was also tested. For both models, all of the item loadings with the exception of item 22 (i.e., 'In my university classes I try not to be among the poorest students') were significant. This is the only item in the self-defeating ego orientation subscale of Skaalvik that makes a direct reference to increasing effort (i.e., '... I try ...') and, in contrast to the other items, does not refer to performing poorly in front of others. In addition, it was noted during questionnaire administration that a number of participants commented that they were unsure if this item referred to being financially poor or academically poor. These discrepancies may account for the less than adequate factor loading of this item. As predicted, the self-enhancing ego orientation and self-defeating ego orientation subscales from the Skaalvik (1997) instrument were moderately

correlated. In addition, the self-enhancing ego orientation and task subscales were also moderately associated providing support for this hypothesised relationship.

The CFA results from the two Skaalvik models indicated that Model A (excluding the avoidance subscale) provided a superior fit to the data than Model B (including the avoidance subscale). This suggests that the avoidance subscale may be psychometrically problematic and further examination of this measure is warranted. Overall, the fit indices for the three-factor model indicated that the model was acceptable. Thus, evidence for the factorial validity of the three-subscale Skaalvik instrument emerged in the current study.

With respect to the distributional properties of the Elliot and Church (1997) measure, the items on the mastery subscale were highly endorsed, and participants moderately agreed with the items on the two performance goal subscales. In each case, this led to a distribution that was slightly negatively skewed. All of subscales, nevertheless demonstrated acceptable kurtosis levels. The observed internal reliabilities were acceptable for the mastery and performance approach subscales. However, the performance avoidance subscale did not demonstrate acceptable internal consistency. Further analysis of this subscale revealed that the deletion of item 17 ('I wish my university classes were not graded') resulted in an acceptable alpha level. This item may have emerged as problematic because students may not want a class to be graded for either avoidance or non-avoidance reasons. For example, students may not desire a graded course because they want to avoid demonstrating low ability, but equally, they may not want a class graded because they are intrinsically motivated to learn (a non-avoidance reason). Elliot (1999), who modified the original Elliot and Church (1997) performance-avoidance goal scale by replacing this problematic item with the more face-valid item 'My goal for this class is to avoid performing poorly', has recently addressed this problem. Elliot and McGregor (1999) report that the inclusion of this new item results in slightly improved internal consistency.

The factorial validity of the Elliot and Church (1997) measure was also examined with CFA. With the exception of the problematic item (item 17), all factor loadings were moderate and significant. Overall, the fit indices for the measurement model presumed to underlie the Elliot and Church (1997) instrument were approaching acceptable levels. Not surprisingly, the modification indices suggested the removal of item 17 would result in a significant improvement in the fit indices. As predicted, the correlation between the performance approach and performance avoidance subscales of the Elliot and Church instrument was moderate and significant. Also predicted was the observed non-significant correlation between the performance approach and mastery subscales.

Finally, the distributional properties of the Midgley and associates' (1996) measure of approach-avoidance goals proved to be the weakest of all three measures. The items on all three subscales were negatively skewed. In addition, the task goal and performance avoidance subscales also exhibited leptokurtic and platykurtic distributions, respectively. The observed internal consistency, though, was acceptable for all three subscales of this measure.

With respect to factorial validity, the Midgley model demonstrated a better fit when compared to the other two measures. With the exception of item 3 ('I like academic work I'll learn from even if I make lots of mistakes'), all factor loadings were significant and above .40. This item may have been problematic because it provides students with a conflict between what they would ideally like (i.e., learning from mistakes) and reality where mistakes count and may lead to poorer grades. Overall, the fit indices for the

Midgley measure were acceptable but could have been improved slightly with the deletion of item 3. Consistent with what we hypothesised, the correlation between the performance approach and performance avoidance subscales was significant and moderate, and no significant association was observed between the performance approach and task subscales.

In summary, the Skaalvik measure demonstrated the best distributional properties and internal consistencies. However, based on an examination of the factorial validity, the Midgley and associates' (Midgley *et al.*, 1998) subscales were slightly superior. In addition, although Skaalvik (1997) originally proposed a four-factor model (including a work avoidance dimension), CFA results revealed better support for the three-factor solution.

Construct validity: Task/mastery subscales

The construct validity of the three measures was assessed by examining the extent to which the respective three subscales of each questionnaire correlated with measures of effort regulation, perceived ability, test anxiety, intrinsic motivation, extrinsic motivation, and amotivation. Based on the extant literature on achievement goals in the classroom, it was predicted that scores on the task/mastery subscales would relate positively to measures of effort regulation, perceived ability, and intrinsic motivation. In addition, scores on this subscale were predicted to correlate negatively to measures of extrinsic motivation and amotivation, and to be unrelated to scores on test anxiety. As expected, all three task/mastery subscales were significantly and positively related to effort regulation and to perceived ability. Although the observed associations were low, the Skaalvik task subscale exhibited the strongest correlation with effort regulation. Although the Elliot and Church subscale implies the exhibiting of effort to meet challenging tasks, the Skaalvik task orientation measure is the only one that includes an item that makes a direct reference to increasing effort ('At school I like to solve problems by trying hard') and this may account for the observed slightly higher correspondence with effort regulation. The correlations that emerged between the three task/mastery subscales and perceived ability were also low; however, the Midgley task subscale exhibited the strongest association. One of the Midgley task items ('I like math work I'll learn from, even if I make lots of mistakes') suggests that students who endorse this item think they can learn even if they experience errors. With this in mind, it is perhaps not surprising that such students tend to be more confident about their ability.

As predicted, all three task/mastery subscales related positively to the three dimensions of intrinsic motivation (i.e., intrinsic motivation to know, to accomplish, and to experience stimulation). In this case, the Midgley task subscale exhibited the strongest correlations with each dimension of intrinsic motivation. Each of the Midgley task items represents an intrinsic motive for engaging in university work (e.g., 'I do my academic work because I am interested in it') and it is therefore not surprising to find scores on this subscale linking to dimensions of intrinsic motivation.

Overall, the relationships revealed between the task/mastery goal subscales and positive indices of motivation (i.e., effort regulation, perceived ability, and intrinsic motivation) are consistent with theoretical predictions (Dweck, 1999; Nicholls, 1989). Specifically, the adoption of task/mastery oriented goals is presumed to result in behaviours that are conducive to long-term achievement and investment for individuals with all levels of perceived ability. Individuals are likely to exhibit high levels of self-

determination when endorsing task goals because achievement is considered to be under the person's control to a greater extent than when other goals are emphasised. That is, individuals who adopt a task/mastery orientation tend to believe that success stems from investing effort. Hence, extrinsic regulating factors are not necessary to energise achievement striving when task goals are held to be important. In addition, because the focus of an individual who is task oriented is on personal skill development, this should result in enhanced feelings of competence (or a reduced probability of feeling incompetent) during achievement activities. As a result, such individuals are more likely to be intrinsically motivated, put forth maximum effort, and regulate their effort levels in an adaptive manner. Empirical support for the positive motivational implications of a task orientation has been provided by a number of studies carried out in education (e.g., Duda & Nicholls, 1992; Elliot & Church, 1997; Middleton & Midgley, 1997) and physical activity settings (e.g., Duda & Nicholls, 1992; Kavussanu & Roberts, 1996).

As predicted, no significant negative relationships emerged between the task/mastery subscales and test anxiety. Task/mastery oriented individuals are focused on self-referenced mastery of the activity rather than how performance will compare with others. This form of challenge-based regulation is unlikely to evoke a stress response as the student's self-worth is not perceived to be under threat (Elliot & McGregor, 1999). Surprisingly, and contrary to what was predicted, no significant negative relationships emerged between the task/mastery subscales and the three dimensions of extrinsic motivation (i.e., extrinsic motivation identified, introjected, and external regulation). Each of the task/mastery subscales was positively correlated with extrinsic motivation identified, and extrinsic motivation introjected, but no significant relationships were found with external regulation. This finding may be explained by the self-regulating nature of the introjected and identified dimensions of extrinsic motivation (Deci & Ryan, 1985, 1991). Specifically, these two dimensions represent more self-determined forms of extrinsic motivation whereas external regulation is the least self-determined form. Previous work in the context of physical education has also revealed positive associations between task orientation and identified and introjected forms of extrinsic motivation (Brunel, 1999). In both educational and sporting contexts, task-oriented individuals can pursue valued goals in those environments for instrumental reasons as well as intrinsic grounds.

Finally, as predicted, each of the task/mastery subscales related negatively to amotivation. That is, students who adopted task/mastery goals were more likely to see reasons for engaging in their classes. On the other hand, students who were lower in task/mastery orientation were more likely to not perceive contingencies between their behaviour and the outcome of such behaviour. It seems likely that as a consequence of their strong task/mastery orientation these students are more likely to be focused on the challenge of the task accomplishment and the belief that hard work leads to success. In essence, they should be more likely to perceive that their actions are within their control and, therefore, be lower in amotivation (Duda, Chi, Newton, Walling, & Catley, 1995).

Construct validity: Performance avoidance subscales

With respect to the performance avoidance subscales, positive associations were predicted for test anxiety, extrinsic motivation, and amotivation. In contrast, negative correlations were expected in terms of effort regulation, perceived ability, and intrinsic

motivation. We found that each of the performance avoidance subscales was positively linked to test anxiety. Among individuals who are motivated by avoiding the demonstration of poor normative ability (i.e., high in performance avoidance), an evaluative situation such as an examination provides an arena in which failure may occur. It is not surprising, therefore, that these individuals report an increase in anxiety relating to testing conditions because they are concerned with the adequacy of their ability (Dweck, 1999; Nicholls, 1989).

The strongest correlation between performance avoidance goals and test anxiety was observed for the Elliot and Church subscale, and the weakest in the case of the Midgley subscale. In explaining this result, it should be noted that the Elliot and Church performance-avoidance items do appear to tap into students' fear of failure (e.g., 'My fear of performing poorly in this class is often what motivates me'). In the achievement motivation literature, the fear of failure and trait test anxiety constructs have been regarded as conceptually equivalent, and to this end, researchers have often employed trait test anxiety measures as a proxy for fear of failure (Elliot & McGregor, 1999).

With the exception of the correlation between the Midgley performance avoidance subscale and extrinsic motivation identified, all of the other correlations between the performance avoidance subscales and the dimensions of extrinsic motivation were positive and significant. This pattern of results is not surprising given previous research that has revealed an interdependence between performance avoidance goals and less self-determined forms of motivation (e.g., Elliot & Harackiewicz, 1996). For more failure avoidant students, achievement settings are viewed as threatening and likely to lead to potential negative consequences. The corresponding perceived lack of control over *desirable* outcomes is a rational, although not adaptive, repercussion of seeing the motivation for one's actions as externally determined. This process may also explain the observed positive (albeit weak) relationship between the performance avoidance goals and amotivation. As predicted, students who endorsed performance avoidance goals were more likely to report an absence of reasons for doing the activity. In order to get those who endorse a performance avoidance orientation to invest, some extrinsic regulation is necessary. This can vary from extrinsic goals, to the occurrence of guilt, to the presence of rewards. When such extrinsic regulating factors lose their meaning and value or no longer are present, we would expect that performance avoidant students would become amotivated.

Consistent with our hypotheses, each of the performance avoidance subscales was significantly and negatively related to perceived ability and effort regulation. The highest correlation with perceived ability was observed for the Midgley performance avoidance subscale compared to the lowest correlation observed for the Skaalvik subscale. Overall, the focus of the performance avoidance items embedded in the three measures is on self presentation and the desire to avoid looking stupid in front of others. It makes sense that individuals who have limited confidence in their ability would be more likely to agree with such items.

With regard to the relationship between effort regulation and performance avoidance goals, the Midgley subscale demonstrated the strongest and only significant negative association with effort regulation. The Midgley performance avoidance subscale is unique in its description of the use of effort within the items. In some items (e.g., 'The reason I work in my university classes is so the lecturer doesn't think that I know less than others'), it is implied that students are putting forth some effort but the reason for that effort is motivationally questionable (i.e., so that the lecturer doesn't perceive that they are less capable than others). In contrast, in other items (e.g.,

'One reason I might *not* participate in my university classes is to avoid looking stupid') the concern with avoiding looking stupid is present, but this aim is pursued via the withdrawal of effort. This 'mixed' use of effort within the items may explain the negative association between the Midgley performance avoidance subscale and effort regulation. Students who indicate they try to avoid looking 'stupid' and also rescind effort because they do not want to demonstrate low ability are not regulating effort in an adaptive manner.

Finally, regarding the dimensions of intrinsic motivation, the majority of the observed relationships with the performance avoidance subscales were negative but only three of the correlations were significant: Midgley and associates' performance avoidance subscale was significantly and negatively related to intrinsic motivation to know, and Midgley and colleagues' and Skaalvik's performance avoidance subscales were significantly and negatively related to intrinsic motivation to experience stimulation. The observed negative relationships in the current study are congruent with the findings of previous research examining the correspondence between performance avoidance goals and intrinsic motivation (e.g., Elliot & Harackiewicz, 1996). Elliot and Harackiewicz propose that because performance-avoidance individuals view achievement settings as a threat to their sense of self they are likely to experience a series of negative processes and outcomes that ultimately undermine intrinsic interest. For example, the prospect of potential failure is likely to elicit anxiety and orient the individual toward the presence of failure-relevant information. Overall, the observed negative associations between the Midgley and associates' performance avoidance subscale and the dimensions of intrinsic motivation were the strongest of the three measures. In comparison to the Skaalvik, and Elliot and Church subscales, the Midgley performance avoidance items centre more on the avoidance of demonstrating incompetence with respect to external sources, i.e., teachers and classmates. A student who is so externally referenced (as suggested via his/her endorsement of the Midgley performance avoidance items) would be expected to be less self-determined in terms of why he/she does the activity.

Due to some of these observed differential relationships between the Skaalvik (1997), Elliot and Church (1997), and Midgley *et al.* (1998) assessments of ego performance avoidance goals and the targeted indices of motivation, we further examined the nature of the 16 ego performance avoidance goal items embedded in these subscales via principal components factor analyses (with both orthogonal and oblique rotations). In both cases, a three-factor solution emerged with an eigenvalue greater than 1 but due to the observed inter-correlations between the factors, the solution stemming from the oblimin rotation was interpreted. A loading of .40 or greater was considered necessary for an item to be considered to load on a particular factor. As can be seen in Table 6, six items loaded on the first factor and this dimension was labelled Impression Management. The last two factors, labelled Fear of Failure and High Effort to Avoid Low Ability, comprised three and four items, respectively. The observed correlation between Impression Management and Fear of Failure was .45 while Impression Management was more strongly related to the third factor ($r = .63$). The Fear of Failure and the High Effort to Avoid Low Ability dimensions were also positively correlated ($r = .43$).

All in all, these results raise questions about about *what* is being tapped in the individual measures of ego/performance goal orientation developed by Skaalvik (1997), Elliot and Church (1997), and Midgley and colleagues (1998). The Impression Management dimension is primarily, although not exclusively, comprised of items

Table 6. Principal components factor analysis (oblique rotation) of items from the Skaalvik, Elliot & Church, and Midgley ego avoidance subscales

Item (Subscale)	Factor 1 Impression Management	Factor 2 Fear of Failure	Factor 3 ↑ Effort to Avoid ↓ Ability
When I answer questions in my university classes I am concerned about how I am perceived by the other students (Skaalvik)	.85		
When I give a wrong answer in a university class, I am most concerned about what my classmates think of me (Skaalvik)	.78		
In my university class, I am concerned not to make a fool of myself (Skaalvik)	.76		
When I am working on something in one of my university classes, I am concerned about what my classmates think of me (Skaalvik)	.75		
I'm afraid that if I ask my lecturer/professor a 'dumb' question, he or she might not think I'm very smart (Elliot/Church)	.55		
It's very important to me that I don't look stupid in my university class (Midgley)	.50		
I worry about the possibility of getting bad grades (Elliot/Church)		.76	
I often think to myself 'What if I do badly in my university classes?' (Elliot/Church)		.75	
My fear of performing poorly in my university classes is often what motivates me (Elliot/Church)		.91	
The reason I work in my class is so the lecturers don't think I know less than others (Midgley)			.79
The reason I work in my class is so that others in the class won't think I'm dumb (Midgley)			.73
One of my main fears in my university class is to avoid looking like I can't do my work (Midgley)			.70
An important reason I do my work is so I won't embarrass myself (Midgley)			.46
Eigenvalue	6.4	1.5	1.3
Percentage of Variance	39.8%	9.4%	7.9%

Note: Only loadings > .40 presented above.

stemming from the Skaalvik instrument. Items from the Elliot and Church questionnaire form the Fear of Failure factor. The last dimension, Exert Effort to Avoid Low Ability, is composed of items from the Midgley and colleagues' scale only. Thus, although the findings presented above suggest empirical overlap across the three ego/performance

avoidance subscales, there seems to be some intriguing conceptual distinctions between the measures. At the very least, the results indicate that the construct of ego or performance avoidance goals (as assessed in contemporary education-based measurement tools) is multi-dimensional.

Further, the results stemming from the exploratory factor analysis hold implications for *what* is being measured in current measures of ego/performance avoidance goal orientation *in general*. When students doubt their ability in salient achievement situations, it seems that protection of self-worth becomes a highly relevant issue. In higher education settings, this is particularly important as most university students have selected a degree course of their own volition and by implication value achievement in this domain. For students questioning their competence in such an environment, it is not failure per se that appears to be of primary concern but the broader implications that failure has on self-worth. This preoccupation with self-worth is highlighted in the exploratory factor analysis of the avoidance items where 40% of the variance is accounted for by one factor containing items related to impression management. Only 6% of the total variance is accounted for by a second factor containing items that focus solely on fear of failure. Although explaining only 5% of the variance, the principal focus of the third factor also revolves around concerns regarding self-worth. In this case, students agreeing with these items desire to protect self-worth through effort regulation.

While the suggested behaviours of those endorsing these factors might be viewed conceptually as failure avoidance-oriented, they are clearly self-defeating. As such, the term 'ego avoidance' might be better considered as 'ego self-protection'. The results of the exploratory factor analysis might therefore lead researchers to question whether fear of failure alone underpins the choice of avoidance goals (Elliot & Church, 1997). These findings should also encourage researchers to test whether Elliot's ideas on low competence underpinning the endorsement of avoidance goals holds true (Elliot & Church, 1997). Such a view suggests that performance or ego approach and avoidance goals are conceptually different, whereas Nicholls' (1984, 1989) perspective on achievement goals implies that approach and avoidance goals form part of the same construct, i.e., an ego orientation. The question that is in need of empirical verification is whether Elliot's avoidance goal is conceptually different from an ego approach goal (and suggesting different motivational processes), or whether an avoidance goal is simply a behavioural strategy adopted by those with self-presentational concerns brought on by a fragile sense of ability interacting with an ego orientation (Duda, 2001).

Construct validity: Performance approach subscales

With respect to the performance approach subscales, positive correlations were expected between this subscale and test anxiety. With the exception of the Skaalvik self-enhancing ego orientation subscale, the two other performance approach subscales were significantly but weakly related to test anxiety. In retrospect, the weak nature of this relationship is perhaps not surprising. A plausible explanation for this finding is the moderating role that perceived ability is assumed to have on the relationships between performance approach goals and anxiety. Specifically, it could be argued that individuals who evaluate their self-worth on the basis of comparative judgments of their ability (i.e., performance approach oriented individuals) are at risk of experiencing excessive anxiety, particularly when they perceive their ability to be low. More specifically, these individuals fear evaluations that might indicate they have low ability and when these ability evaluations are based upon comparison with others,

perceptions of high competence are not completely in the individual's control. For individuals who doubt their perceived ability, this process results in greater uncertainty about the outcome and ultimately leads to an increase in anxiety. The perceived ability of the students in this study was quite high and there was limited variability (measured on a 7-point Likert scale: $M = 4.61 \pm .66$) and these factors may account for the relatively weak relationship observed between performance approach goals and test anxiety.

Due to the equivocal findings emanating from previous research, no significant associations were expected between the performance approach goals and the dimensions of intrinsic motivation. In contrast to this hypothesis however, two significant correlations emerged between two of the performance approach subscales (i.e., Skaalvik, and Elliot and Church) and intrinsic motivation to experience accomplishment. A viable explanation for this finding is that students who endorse performance (ego) approach goals are motivated to accomplish at university because this is likely to lead to the demonstration of superior normative ability. The potential moderating role of perceived ability, though, may have affected the outcome of this relationship in the current study. Specifically, by generating evaluative pressure or anxiety about performance among those who think their ability is low, performance approach goals should undermine intrinsic motivation. As noted above, the present sample of students generally felt themselves to be competent in the academic milieu. When individuals perceive themselves to be capable, performance approach goals may not impair intrinsic motivation (Harackiewicz & Elliot, 1993). Indeed, Harackiewicz and Elliot argue that 'if individuals typically define competence in terms of ability and normative standards, a performance goal orientation can make them more likely to think about or value their competence at an activity, thereby intensifying the positive impact of competence processes on intrinsic motivation' (p. 905).

Contrary to our hypotheses, each of the performance approach subscales was significantly and positively related to perceived ability. It seems likely that UK students who adopt this goal in the university context believe that to some extent they are capable of demonstrating normatively high ability. A low but positive interdependence between performance goals and perceived ability has emerged in previous research on US students in educational contexts (e.g., Duda & Nicholls, 1992). Duda and Nicholls (1992) have suggested that individuals, as a whole, would be less likely to endorse ego (approach) goals if they did not have some sense of adequate competence in the activity at hand. The present findings are also consonant with Elliot and Church's (1997) proposition that competence judgments (operationalised as performance expectations in their work) underlie goal adoption.

Positive associations were hypothesised between performance approach goals and indices of extrinsic motivation. With the exception of the association between the Skaalvik performance approach subscale and extrinsic motivation identified, each of the performance approach subscales significantly correlated with the three dimensions of extrinsic motivation in this study. In addition, the strength of the correlations increased as the motivational regulations became less self-determined. Consistent with previous research (Brunel, 1999; Elliot & Church, 1997), these findings suggest that individuals who adopt performance approach goals use external criteria for success and tend to view the achievement activity as a means to an end, i.e., the demonstration of competence, rather than an end in itself (Nicholls, 1989).

Finally, with respect to amotivation, as predicted, no significant relationships emerged between the three performance approach subscales and amotivation. This

finding is logical, given the positive links observed between performance approach goals, intrinsic motivation and perceived ability in the current study.

Conclusion

The main purpose of this paper was to determine whether the three measures of approach and avoidance goals were assessing the same or independent constructs, or whether there was simply a large degree of overlap between like subscales across the given instruments. The results of two separate confirmatory factor analyses supported the hypothesis that a three-factor model (combined subscales across the three instruments) would provide a better fit to the data than a nine-factor model (individual subscales from the three instruments). This result highlights a degree of convergence between the subscales tapping the same constructs across the three instruments and suggests that the subscales are measuring similar constructs. Further support for the overlap between the same or similarly named subscales across the three instruments came from the analysis carried out to examine the convergent and discriminant validity of the subscales. Results of a multi-trait-multi-method (MTMM) correlation analysis provided support for the convergent and discriminant validity of each measure. Specifically, as hypothesised, the convergent correlations from each measure were higher than the observed associations among different orientations assessed with different measures, and among different orientations assessed with the same measures. The consistent nature of these results suggests that each of the approach-avoidance measures is assessing similar constructs. However, the magnitude of the observed correlations suggests too that there is either a significant amount of error or the beginning of systematic variance in the underlying constructs.

Overall, the findings of this study provide encouraging support for the validity of the three goal orientation instruments. Although marginally different, each of the subscales within the three measures demonstrated good factorial validity, internal consistency, discriminant, and convergent validity. In addition, support was found for the construct validity of the three measures. However it is important to highlight that, although many of the predicted theoretical relationships emerged, very few were statistically strong (amount of variance accounted for ranged from 1% to 36%). This was particularly the case with the performance approach and performance avoidance subscales. It is suggested that this may be due to slight differences in the operational definition proffered by the author of each measure, and the subsequent item content of the subscales.

The performance avoidance goal has been conceptualised as a desire to avoid a negative outcome or being seen as unable (Elliot, 1999; Midgley *et al.*, 1998; Skaalvik, 1997) but each of the performance avoidance goal subscales targeted in this investigation seems to have a different emphasis. Via an examination of the face validity of the items, we suggested that Skaalvik's (1997) subscale tends to focus on self-presentational concerns/impression management with respect to other students and social anxiety. Elliot and Church's (1997) items primarily centre on students' fear of failure and anxiety while Midgley and colleagues' (1998) subscale revolves around impression management with respect to teachers and other students, and also the exhibiting of effort to avoid looking 'stupid'. Our initial observations of variability in item content and questions regarding the operationalisation of performance avoidance goals across the three instruments were supported in the results of an exploratory factor analysis. Specifically, a factor analysis of all the performance avoidance items (i.e.,

from the Skaalvik's, Elliot & Church's, and Midgley and associates' questionnaires) revealed a three-dimensional structure. That is, in the approach-avoidance goal instrumentation targeted in the current work, three different albeit interconnected facets of ego/performance avoidance goals were revealed, namely an impression management, fear of failure, and focus on working to avoid the demonstration of low ability dimension.

Given these inconsistencies, it seems important for future research to clarify the conceptual underpinnings of the performance avoidance construct. What part is played by effort and anxiety in the conceptualisation and measurement of this goal orientation? Moreover, the role that self-worth plays in avoidance goal adoption (and its assessment) requires further consideration because, when the self becomes heightened, students who question their ability to present a positive sense of self may be more likely to choose avoidant strategies. As Nicholls (1989) suggests, those choosing to avoid the demonstration of low ability may have given up all hope of a more positive aspiration; namely demonstrating high ability. For these people, fear of failure may be less of an issue, as 'failure' is highly probable when they must perform. Indeed, extrapolating from the current results, what may be most important for these individuals, is 'saving face'! Undoubtedly, theoretical refinement and advancement in measurement will result from subsequent work centred on the nature and implications of performance avoidance goals in particular.

References

- Ames, C. (1984). Competitive, co-operative, and individualistic goal structures: A cognitive-motivational analysis. In R. Ames & C. Ames (Eds.), *Research on motivation in education: Vol. 1. Student motivation* (pp. 177–208). New York: Academic Press.
- Atkinson, J. (1957). Motivational determinants of risk-taking behaviour. *Psychological Review*, *64*, 359–372.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Brunel, P. C. (1999). Relationships between achievement goal orientations and perceived motivational climate on intrinsic motivation. *Scandinavian Journal of Medicine and Science in Sport*, *9*, 365–374.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by multitrait-multimethod matrix. *Psychological Bulletin*, *56*, 81–105.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.
- Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- Deci, E. L., & Ryan, R. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation: Vol. 38. Perspectives on motivation* (pp. 237–288). Lincoln, NE: University of Nebraska Press.
- Duda, J. L. (1992). Motivation in sport and exercise: A goal perspective approach. In G. C. Roberts (Ed.), *Motivation in sport and exercise* (pp. 57–91). Champaign, IL: Human Kinetics.
- Duda, J. L. (1993). Goals: A social cognitive approach to the study of motivation in sport. In R. N. Singer, M. Murphy, & L. K. Tennant (Eds.), *Handbook of research in sport psychology* (pp. 421–436). New York: Macmillan.
- Duda, J. L. (2001). Goal perspectives research in sport: Pushing the boundaries and clarifying some misunderstandings. In G. C. Roberts (Ed.), *Advances in motivation in sport and exercise* (pp. 129–182). Champaign, IL: Human Kinetics.

- Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology, 84*(3), 290–299.
- Duda, J. L., Chi, L., Newton, M. L., Walling, M. D., & Catley, D. (1995). Task and ego orientation and intrinsic motivation in sport. *International Journal of Sport Psychology, 26*, 40–63.
- Dweck, C. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040–1048.
- Dweck, C. (1999). *Self theories: Their role in motivation, personality, and social development*. Hove: Psychology Press.
- Dweck, C., & Elliot, A. E. (1983). Achievement motivation. In E. Hetherington (Ed.), *Handbook of child psychology: Socialization, personality, and social development* (pp. 643–691). New York: Wiley.
- Elliot, A. E. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*(3), 169–189.
- Elliot, A. E., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*(1), 218–232.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*(3), 461–475.
- Elliot, A. J., & McGregor, H. A. (1999). Test anxiety and the hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 76*(4), 628–644.
- Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology, 91*(3), 549–563.
- Hall, H. K., & Kerr, A. (1997). Motivational antecedents of pre-competitive anxiety in youth sport. *The Sport Psychologist, 11*, 24–42.
- Hall, H. K., Kerr, A., & Matthews, J. (1998). Pre-competitive anxiety in sport: The contribution of achievement goals and perfectionism. *Journal of Sport and Exercise Psychology, 28*, 194–217.
- Harackiewicz, J. M., & Elliot, A. E. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 65*, 904–915.
- Hu, L., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modelling: Concepts, issues, and applications* (pp. 76–99). London: Sage.
- Kavussanu, M., & Roberts, G. C. (1996). Motivation in physical activity contexts: The relationship of perceived motivational climate to intrinsic motivation and self-efficacy. *Journal of Sport and Exercise Psychology, 18*, 264–281.
- Loewenthal, M. (1996). *An introduction to psychological tests and scales*. London: UCL Press.
- Maehr, M. L., & Braskamp, L. A. (1986). *The motivation factor: A theory of personal investment*. Lexington, MA: Lexington Books.
- Maehr, M. L., & Nicholls, J. G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross-cultural psychology* (pp. 221–267). New York: Academic Press.
- Marsh, H. W. (1988). Multitrait-multimethod analyses. In J. P. Keefe (Ed.), *Educational research methodology, measurement, and evaluation: An international handbook* (pp. 570–578). Oxford: Pergamon.
- Marsh, H. W. (1994). Sport motivation orientations: Beware of jingle-jangle fallacies. *Journal of Sport and Exercise Psychology, 16*, 365–380.
- Marsh, H. W., Richards, G. E., Johnson, S., Roche, L., & Tremayne, P. (1994). Physical self-description questionnaire: Psychometric properties and a multitrait-multimethod analysis of relations to existing instruments. *Journal of Sport and Exercise Psychology, 16*, 270–305.
- McClelland, D. (1951). *Personality*. Chicago: Dryden.
- McIver, J. P., & Carmines, E. G. (1981). Unidimensional scaling. *Quantitative Applications in Social Sciences, 24*, 96–107.
- Middleton, M. J., & Midgley, C. (1997). Avoiding the demonstration of lack of ability: An underexplored aspect of goal theory. *Journal of Educational Psychology, 89*(4), 710–718.

- Midgley, C., Anderman, E. M., & Hicks, L. (1995). Differences between elementary and middle school teachers and students: A goal theory approach. *Journal of Adolescence, 15*, 90–113.
- Midgley, C., Kaplan, A., Middleton, M. J., Maehr, M. L., Urdan, T., Anderman, L. H., Anderman, E., & Roeser, R. (1998). The development and validation of scales assessing students' achievement goal orientations. *Contemporary Educational Psychology, 23*, 113–131.
- Midgley, C., Maehr, M. L., Hicks, L. H., Roeser, R. W., Urdan, T. C., Anderman, E. M., & Kaplan, A. (1996). *Patterns of adaptive learning survey*. Unpublished manuscript. University of Michigan, Ann Arbor, MI.
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328–346.
- Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.
- Nicholls, J. G., Patashnick, M., Cheung, P., Thorkildsen, T., & Lauer, J. (1989). Can achievement motivation succeed with only one conception of success? In F. Halisch & J. Van den Bercken (Eds.), *International perspectives on achievement motivation* (pp. 187–208). Amsterdam: Swets & Zeitlinger.
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 371–402). Greenwich, CT: JAI Press.
- Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: National Center for Research to Improve Post-Secondary Teaching.
- Skaalvik, E. M. (1997). Self-enhancing and self-defeating ego orientation: Relations with task and avoidance orientation, achievement, self-perceptions, and anxiety. *Journal of Educational Psychology, 89*(1), 71–81.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*. New York: Harper Collins.
- Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52*, 1003–1019.

Received 8 February 2001; revised version received 22 August 2001

Appendix

Approach and Avoidance Items

Skaalvik (1997)

Task Orientation

- 1) In my university classes it is important for me to learn something new
- 2) In my university classes I am concerned about improving my understanding
- 3) In my university classes it is important for me to learn to solve the problems with which we are presented
- 4) In my university classes I like to solve problems by working hard
- 5) What I learn in my university classes makes me want to learn more
- 6) In my university classes I like to learn something interesting

Self-Enhancing Ego Orientation

- 1) I feel successful in my university classes when I know my work is better than other students
- 2) In my university classes I try to score higher on tests than other students
- 3) In my university classes it is important for me to manage tasks that other students do not manage

- 4) I always try to do better than the other students in my university classes
- 5) I answer questions in my university classes in order to show that I am more able than the other students.

Self-Defeating Ego Orientation

- 1) When I answer questions in my university classes I am concerned about how I am perceived by the other students
- 2) When I am working on something in one of my university classes, I am concerned about what my classmates think of me
- 3) In my university classes I am concerned not to make a fool of myself
- 4) When I give a wrong answer in a university class I am most concerned with what my classmates think about me
- 5) The worst thing about making mistakes in a university class is that other students may notice
- 6) In my university classes it is important for me to avoid looking stupid
- 7) In my university classes I try not to be among the poorest students

Avoidance Orientation

- 1) In my university classes I hope that we are not assigned a lot of work
- 2) I like university classes best when there is no hard work
- 3) In my university classes I like to do as little as possible
- 4) In my university classes I hope to avoid any hard questions

Elliot and Church (1997)

Mastery Orientation

- 1) I want to learn as much as possible from my university classes
- 2) It is important for me to understand the content of my university courses as thoroughly as possible
- 3) By the end of my university classes, I hope to have gained a broader and deeper knowledge of the areas covered in each class
- 4) I desire to completely master the material presented in my university classes
- 5) In my university classes I prefer course material that arouses my curiosity, even if it is difficult to learn
- 6) In my university classes I prefer course material that really challenges me so I can learn new things

Performance Approach Goal

- 1) It is important for me to do better than other students in my university classes
- 2) My goal in my university classes is to get a better grade than most of the other students
- 3) I am striving to demonstrate my ability relative to others in my university classes
- 4) I am motivated by the thought of outperforming my peers in my university classes
- 5) It is important for me to do well compared to others in my university classes
- 6) I want to do well in my university classes to show my abilities to my family, friends, advisors, or others

Performance Avoidance Goal

- 1) I often think to myself, "What if I do badly in my university classes?"
- 2) I worry about the possibility of getting bad grades in my university classes
- 3) My fear of performing poorly in my university classes is often what motivates me
- 4) I just want to avoid doing poorly in my university classes
- 5) I'm afraid that if I ask my lecturer/professor a 'dumb' question, he or she might not think I'm very smart
- 6) I wish my university classes were not graded

Midgley and colleagues (1996 & 1997)

Task Orientation

- 1) I like academic work that I will learn from, even if I make lots of mistakes
- 2) An important reason I do my academic work is because I like learning new things
- 3) I like academic work best when it really makes me think
- 4) An important reason I do my academic work is because I want to get better at it
- 5) I do my academic work because I am interested in it

Performance Approach Goal

- 1) I want to do better than the others in my university classes
- 2) I feel successful in my university classes if I do better than most of the other students
- 3) I would feel really good if I was the only one who could answer the lecturer's questions in a university class
- 4) I like to show my lecturers that I am smarter than the other students in my university classes
- 5) Doing better than other students in my university classes is important to me

Performance Avoidance Goal

- 1) The reason I work in my university classes is so the lecturers don't think I know less than others
- 2) The reason I work in my university classes is so that others in the class won't think that I am dumb
- 3) One reason I might not participate in my university classes is to avoid looking dumb
- 4) One of my main goals in my university classes is to avoid looking like I can't do my work
- 5) It's very important to me that I don't look stupid in my university classes
- 6) An important reason I do my work is so I won't embarrass myself