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Empirical Evidence For Multiple Goals: A Gender-Based, Senior High School Student Perspective

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ABSTRACT

This exploratory study examined the range of gender-based achievement motivation patterns evident in a group of Australian final year high school students . Single, dual and multiple goal complexes were compared, enabling an evaluation of the relative impact of each of the goals on these patterns, as well as their relationships with academic self-efficacy, self-regulation and affective responses. A self-report survey measuring achievement goals, academic self-regulation, academic self-efficacy and affective distress was completed. Analyses of variance, cluster analysis and post-hoc comparisons were used to examine group differences. Gender differences in motivational goal patterns were identified, particularly with respect to the performance-approach goal. The dual task/performance-approach goal orientation reflected overall the most productive pattern of achievement motivation, and this was superior to the single task-mastery goal cluster. The performance-avoidance goal orientation exerted a strong negative effect, regardless of its combination with task or performance-approach goals. The traditionally held view that the single, task-mastery goal orientation is the most productive approach was not supported.

INTRODUCTION

The development of achievement goal theory over the last two decades has provided a valuable framework for understanding students' efforts to learn and achieve (Ames & Archer, 1988; Anderman & Maehr, 1994; Elliot & Harackiewicz, 1996; Pintrich, 2000a; Pintrich & De Groot, 1990). Up until recently, a predominantly trichotomous perspective has been adopted by researchers, whereby students were viewed as striving to either develop competence (a mastery or task goal orientation), to demonstrate competence (a performance-approach goal orientation) or to avoid the demonstration of a perceived lack of competence (a performance-avoidance goal orientation).

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Multiple Goals

An emerging area of achievement motivation research has been concerned with the concept of multiple goals (Elliot & Thrash, 2001; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Kaplan & Middleton, 2002; Midgley, Kaplan & Middleton, 2001; Pintrich, 2000a, 2000b), with some researchers calling for a re-formulation of goal theory (Harackiewicz et al., 2002). Rather than adopting a single orientation to one's school studies, it is argued that individuals adopt multiple goal pathways and that these pathways are associated with other motivational attributes such as self-regulation, affect or self-efficacy.

Pintrich (2000a) investigated multiple goals using a sample of 150 8^{th} and 9^{th} graders. Results indicated that when a high performance-approach goal is coupled with a high mastery goal there is no detrimental impact on the positive effects of a high mastery goal. Furthermore, the low-mastery/high-performance goal group demonstrated a debilitating pattern of achievement motivation over time, with declines in academic self-efficacy, task value and positive affect and increases in academic self-handicapping.

In contrast, the earlier, single goal orientation theory proposes that adopting a task goal orientation is associated with adaptive patterns of achievement motivation and adopting a performance goal orientation is associated with maladaptive patterns of achievement (Dweck & Leggett, 1988; Kaplan & Maehr, 1999; Middleton & Midgley, 1997). Research has shown that these adaptive patterns encompass such attributes as a desire to develop academic competence and task-mastery, coupled with strong beliefs in one's capacity to undertake and execute academic tasks, deep level learning strategies, low levels of negative affect and high marks. Anderman and Maehr's goal theory model of motivation (1994) captured these aspects of achievement motivation. Rather than viewing individual variables of achievement in isolation to one another, the model proposes an integration of the various internal and external, or, personal and situational, components of achievement motivation. Personal goals will influence students' beliefs concerning their academic self-efficacy and these two factors work together to influence the types of learning strategies, affects, attitudes, choices and preferences adopted by students.

The hierarchical model (Elliot & Harackiewicz, 1996) argues for a performance-approach and performance-avoidance division, with the performance-approach goal orientation being a productive goal motive overall, and the performance-avoidance goal orientation being an unproductive goal motive. Evidence regarding the performance-approach goal orientation, however, is not unequivocal. Some research suggests that the desire to demonstrate competence relative to others is associated with adaptive patterns of achievement motivation (Elliot & Harackiewicz, 1996; Wolters, Yu & Pintrich, 1996), whereby students who adopt a performance-approach goal orientation are also highly efficacious with respect to their schoolwork, highly self-regulated and perform well academically. Other research outcomes have indicated either neutral associations (Middleton & Midgley, 1997; Midgley & Urdan, 2001) or negative associations (Elliot & Sheldon, 1997; Skaalvik, 1997) between the performance-approach goal, academic self-efficacy, self-regulation and performance.

Evidence for the maladaptive characteristics of the performance-avoidance goal orientation, on the other hand, is much stronger. Students whose primary orientation is towards avoiding the demonstration of a (perceived) lack of ability have also been found to possess weak academic self-efficacy beliefs (Middleton & Midgley, 1997; Pajares, Britner & Valiante, 2000), surface learning strategies (Elliot & Church, 1997), high levels of negative affect (Middleton & Midgley, 1997), utilisation of self-handicapping strategies (Midgley & Urdan, 2001) and low marks (Elliot & Church, 1997).

Taking a multiple goal perspective may address some of these theoretical difficulties. Moreover, Harackiewicz et al. (2002) argue that a revision of goal theory may help to clarify approach versus avoidant achievement efforts adopted by students, elucidate the relative potency of the performance-approach goal orientation, and identify optimal mastery-performance approach goal patterns of motivation. A multiple goals perspective thus opens up a whole new

area of research. Study of the patterns of multiple goals and associated motivational efforts may also clarify the lack of distinctiveness between the two performance goals. This approach would also enable the relative potency of the performance-avoidance goal and its impact on patterns of achievement to be explored. Thus the current study adopted a multiple goal perspective to conduct an exploratory investigation of the factors contributing to student achievement motivation in an Australian, senior school context.

Gender Differences

Previous research has indicated that gender differences occur across a variety of student groups and motivational attributes. Studies of senior school students' affective responses indicate that females report significantly higher scores on depression, anxiety and stress (Hodge, McCormick & Elliott, 1997; Kaplan & Bos, 1995; Martin, 2003; Smith & Sinclair, 2000) and test anxiety (Wolters & Pintrich, 1998). Amongst seventh and eighth grade students, female students have been found to report higher cognitive strategy use scores than male students (Wolters & Pintrich, 1998). Greater use of self-handicapping strategies by male students has been found among fifth graders (Urdan, Midgley & Anderman, 1998) as well as final year high school students (Smith, Sinclair & Chapman, 2002). Similarly, male academic self-efficacy scores have been found to be significantly higher than female scores using a university undergraduate sample of students (Pajares & Miller, 1994).

Given the previous findings showing significant gender differences, including those conducted in Australia (Martin, 2003; Smith & Sinclair, 2000; Smith et al., 2002; Smith, 2004), the influence of gender was tested for in the current study. This provides the opportunity to discover whether or not gender differences are present across *patterns* of achievement motivation attributes as well as *level* of achievement motivation variables such as those reported earlier. Furthermore, a deeper understanding of the gender-based relationships amongst these motivational characteristics can be had.

This research therefore aimed to explore the range of single and multiple goal patterns of achievement motivation in a sample of final year Australian high school students studying in a high stakes, performance-oriented environment. It was hypothesized that given the contextual demands of the final year of school a combination of mastery and performance-approach orientations would emerge as the most productive pattern of achievement motivation. In the light of research indicating gender differences it was hypothesized that differences in male and female patterns of student achievement motivation would be evident.

METHOD

Participants

Four schools in metropolitan Sydney participated in the study. One school from each of four differing regions in the Sydney metropolitan area was invited to participate, ensuring that a fairly representative range of ethnic and socio-economic backgrounds would be included.

The sample comprised 311 male and 277 female final year (Year 12) students undertaking the New South Wales Higher School Certificate (HSC). All final year students present at their school on the day of data collection participated in the study. The age range was 16 to 18 years. Students completed a survey containing items designed to measure their goal orientations, academic self-regulation, academic self-efficacy, and affective distress. The survey also contained an information sheet regarding the purpose of the study and assurances of confidentiality, instructions regarding completion of the survey and demographic questions. The survey was completed in class time, with the teacher and researcher present as supervisors. The researcher gave verbal instructions and these were also provided, in written form, on the front of the questionnaire. Students then completed the questionnaire at their own pace. This took about twenty minutes. The data were collected from the four schools in 1999. The 2000 Year 12 cohort

from two of these schools also participated the following year. On both occasions data collection occurred at the beginning of Term 1 of the school year (March).

Measuring Instruments

The Patterns of Adaptive Learning Survey (PALS) (Midgley et al., 1998) was used to measure students' personal goal orientations, academic self-efficacy and self-handicapping strategies. Items from the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich & De Groot, 1990) were used to measure Year 12 students' cognitive strategy use, self-regulated learning strategies and test anxiety. Academic performance anxiety was measured using the *Test Anxiety scale*. Sample items for these Scales are located in Appendix A. Students were asked to indicate on a 5-point Likert scale their responses to each question, where 1 = 'Not true at all of me' through to 5 = 'Very true of me'. Item scores for each Scale are then summed and averaged.

The *The Depression Anxiety Stress Scales* (Lovibond & Lovibond, 1995a) is a self-report set of scales measuring students' symptoms of negative affective distress. The DASS was normed on Australian, non-clinical sample populations, and is designed to discriminate between the negative emotional states of depression, anxiety and stress.

Respondents rate the degree to which they have experienced each state over the past week, using a zero- ("Did not apply to me at all") to 3-point ("Applied to me very much, or most of the time") scale. Scores for each scale are determined by summing the relevant items. Sample items for these Scales are found in Appendix A.

Survey items from the PALS, DASS or MSLQ were not adapted for a specific subject domain. Instead, the survey was given in the context of students undertaking their HSC. This decision was made for two reasons. First, research indicates the generalisability of some achievement constructs across domains (Bong, 1997, 2001; Chemers, 2001; Kaplan and Maehr, 1999; Roeser, Midgley & Urdan, 1996). These studies showed that academic self-efficacy and achievement goal orientations to be generalisable across a range of subject areas and that general measures provided useful data for discussion of relationships between constructs.

Second, self-report measurements of negative affective states explicitly tied to specific subject areas would be difficult to operationalise. Whilst students could be expected to be able to separate out their general emotions (such as dislike or tension) in relation to particular subjects, it would be more difficult for them to separate out more pervasive emotional states such as depression or anxiety.

Each of the Scales used for this project was subjected to validation procedures (Smith et al., 2002; Smith, 2003), indicating some modifications be made to improve factor structure. These included removal of the reversed items from the MSLQ Cognitive Strategy Use and Learning Strategies scales, and a combining of these two scales. The new, combined scale was re-named Learning Strategies. The reliability co-efficients (standardised item alphas) for each of the scales were as follows: Task Goal - .79; Performance Approach Goal - .80; Performance-Avoidance Goal - .76; Academic Self-Efficacy - .80; Academic Self-Handicapping - .86; Learning Strategies - .87; Test Anxiety - .74; Depression - .85; Anxiety - .81; Stress - .84.

RESULTS

Table 1 below provides the sample descriptive statistics for the model constructs being measured, namely, goals, self-regulation, academic self-efficacy, and negative affective distress. Screening analyses for conformity to multivariate and univariate analysis assumptions produced satisfactory results.

Gender differences analyses

A multivariate analysis of variance (MANOVA) was performed on each of the achievement goal, self-regulation and negative affect constructs. Due to their one-dimensional

status, an analysis of variance (ANOVA) was performed on the academic self-efficacy and test anxiety constructs to determine gender differences.

As indicated in Table 1, there were no significant differences between male and female students' scores on task, performance-approach or performance-avoidance goal orientations. However, multivariate, univariate and stepdown procedures for the remaining constructs showed significant gender differences on students' scores. Study of the mean scores shows that female student scores were higher for learning strategies, stress, anxiety and test anxiety. Male students' scores were higher for self-handicapping and academic self-efficacy. There were no gender differences for depression scores.

The results of these analyses showed that significant gender differences were present in this sample's achievement motivation constructs, namely, academic self-efficacy, negative affect, test anxiety, and self-regulation. Students' achievement goal scores were not influenced by gender.

Table 1: Mean scores (standard deviations) of Achievement Constructs (N=588) and tests of significance for gender

Variable	Mean (SD) Male N=311	Mean (SD) Female N=277	Mean (SD) Total N=588	P value* for gender differences
Task Goal	3.29 (.77)	3.36 (.71)	3.33 (.74)	NS
Performance-Approach Goal	3.56 (.90)	3.64 (.85)	3.60 (.88)	NS
Performance-Avoidance Goal	2.30 (.81)	2.24 (.76)	2.28 (.79)	NS
Academic Self-Efficacy	3.66 (.71)	3.54 (.71)	3.60 (.71)	<.05
Learning Strategies	3.34 (.62)	3.58 (.56)	3.45 (.61)	<.03
Self-Handicapping	2.29 (.94)	2.12 (.94)	2.21 (.94)	<.03
Test Anxiety	2.94 (.87)	3.20 (.91)	3.07 (.90)	<.05
Depression	12.68 (10.06)	14.45 (10.27)	13.51 (10.19)	<.02
Anxiety	8.20 (8.56)	9.84 (8.53)	8.97 (8.58)	<.02
Stress	12.38 (8.99)	18.35 (10.44)	15.19 (10.14)	<.02

* Family-wise alpha

Analyses of patterns of goal orientation and associated motivational constructs

K-means cluster analysis was undertaken to determine the variety of goal complexes existing in the sample of students. This method of cluster analysis is an iterative partitioning technique, recommended for large sample sizes and when there is a theoretical rationale to hypothesize the potential number of clusters (Drew & Bishop, 1999). The achievement goals construct was selected as the clustering variable to provide the framework for investigating multiple goals. The effects of the remaining constructs could then be studied within each of the goal Cluster Groups, and according to gender. The dominating elements of each of the resulting goal orientation Cluster Groups were determined using relativity and statistical significance as criteria for interpretation.

As there were no significant gender differences in the achievement goal construct, the full sample of students (N=588) was used to establish clusters of cases. It was reasoned that students may adopt a range of goal approaches to their studies, ranging from predominantly single goal oriented to a mixture of two or even three goals. For example, a student who might be strongly oriented towards a task goal would report high scores in response to the task goal orientation questions and relatively lower scores on the performance-approach and performance-avoidance goal orientation questions. Based on the three goal orientations – task, performance-approach and performance-avoidance – it was thus hypothesised that potentially seven different goal clusters may exist. These groups are as follows: (i) Task; (ii) Performance-approach; (iii) Performance-

avoidance; (iv) Task, Performance-approach; (v) Task, Performance-avoidance; (vi) Task, performance-approach, performance-avoidance; (vii) Performance-approach, performance-avoidance.

In keeping with this exploratory study comparisons could not be planned in advance and no *a priori* decisions were made concerning cluster membership apart from the initial grouping hypothesis. As standardised scores for the three goal orientations enhanced cluster group distinctiveness and aided the interpretation of the clusters, these were used in the clustering analysis. The following Figure illustrates the goal clusters.

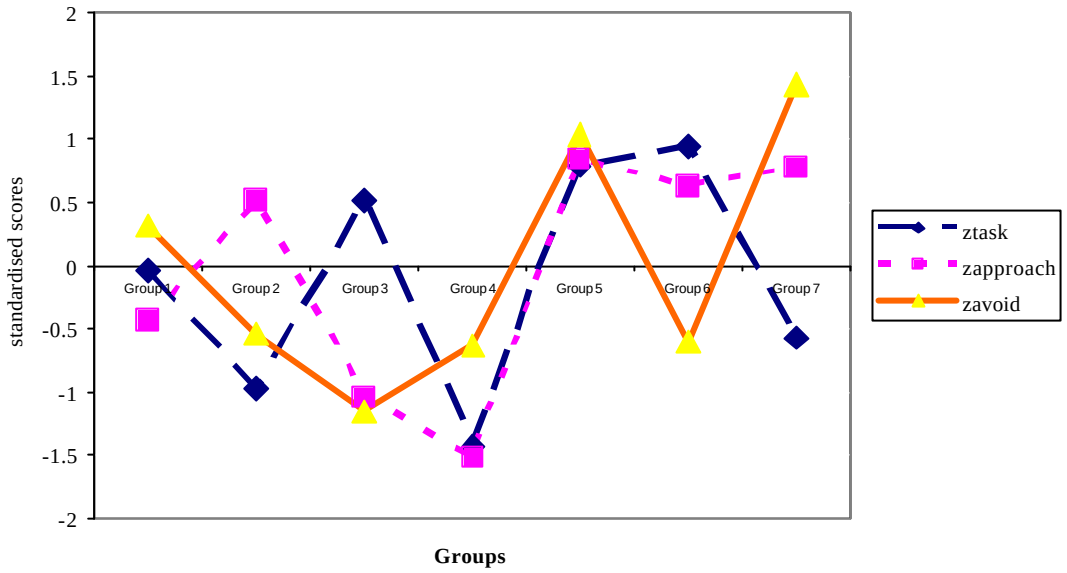

Figure 1: Cluster Group Z-scores – Goal Orientations

Analyses of cluster group

Both variable-centred (*z*-scores) and cluster centred (relative placement) comparisons can be made. In this way, internal (within clusters) profile criteria can be applied along with external (between cluster) comparisons. Study of Figure 1 above indicates a range of dominating goal orientation(s) patterns evidenced by the Cluster Groups. A predominantly single goal orientation characterises Groups 2 and 3, with performance-approach goal dominating in Cluster Group 2, and task goal dominating in Cluster Group 3. A dual goal orientation is evident in Groups 6 and 7, whereby task goal and performance-approach goal orientations dominate Group 6 and the two performance goal orientations dominate Group 7. A multi-goal pattern emerges in Cluster Groups 1, 4 and 5. Notably, the performance-avoidance goal orientation dominates each of these multi-goal clusters. Overall, in four of the groups performance-avoidance goal scores are highest, in two of the groups task goal scores are highest and in one group performance-approach goal scores are highest.

Thus, these cluster-centred patterns of achievement goals indicate that a variety of goal orientations have been adopted by this sample of Year 12 students. Taking into consideration within cluster relativities and the variable-centred *z*-scores, as well as external comparison to other Clusters, the Clusters can be categorised. These are displayed in Table 2 below.

Table 2: Predominant Cluster Group Goal Orientations

Cluster Group	Predominant Goal Orientation(s)	Cluster Group Name	N = 588
1	Average overall, dominated by Performance-Avoidance: multi goal	*Average multi- goal*	M=63; F=56 Total=119
2	Performance-Approach: single goal	*Approach*	M=39; F=35 Total=74
3	Task: single goal	*Task*	M=38; F=31 Total=69
4	Low overall, dominated by Performance-Avoidance: weak multi-goal	*Disengaged*	M=39; F=26 Total=65
5	Task+Performance-Approach+ Performance-Avoidance: strong multi-goal	*Strong multi -goal*	M=50; F=43 Total=93
6	Task+Performance-Approach: dual goal	*Task/Approach*	M=49; F=56 Total=105
7	Performance-Avoidance+Performance- Approach: dual goal	*Avoid/Approach*	M=33; F=30 Total=63

These results indicate the presence of a range of single and multiple goal orientation patterns of achievement amongst Year 12 high school students. The next step is to determine the relationships between goals and self-regulation, self-efficacy and affect. Any gender differences can also be identified with respect to patterns of achievement motivation characteristics. The goal-based Cluster Groups were used to investigate these issues. To these ends, a series of MANOVAs or ANOVAs, with Cluster Group as the independent variable, were conducted to determine significant differences between groups. The reason for the use of these two statistical procedures is conceptual. For example, in this study the self-regulation construct comprises two variables - learning strategies and self-handicapping strategies and the self-efficacy construct is a uni-dimensional construct. Affect comprises three variables, depression, anxiety and stress. Thus, manovas were used for the multi-dimensional constructs and anovas for the uni-dimensional constructs.

Table 3 below details the results of these analyses, and indicates significant differences occurred between cluster groups on each of the constructs. Study of the Effect Sizes for the constructs indicate a larger proportion of the variance in the data being explained by self-regulation and academic self-efficacy, than affective distress or test anxiety.

Table 3: Tests of significance – cluster groups

	Male Students			Female Students		
	F	*P*	Effect Size	*F*	*P*	Effect Size
Self-Regulation (MANOVA)	(12,608) =13.63	<.05	.21	(12,540) =9.03	<.05	.17
Academic Self-Efficacy (ANOVA)	(6,304) =11.10	<.05	.18	(6,270) =13.06	<.05	.23
Affective Distress (MANOVA)	(18,912) =4.11	<.05	.08	(13,810) =3.17	<.05	.07
Test Anxiety (ANOVA)	(6,304) =8.15	<.05	.14	(6,270) =3.46	<.05	.07

As comparisons could not be predicted in advance, these procedures were followed by post-hoc comparisons to establish which Cluster Groups were significantly different from one another. Given the significant gender differences that were identified in this sample of Year 12 students with respect to these remaining constructs, the following analyses are gender-based. To enhance interpretability, the effects of each of the variable constructs across the Clusters will be considered separately.

Results from MANOVAs – Self-Regulation

Post-Hoc comparisons, using Tukey's HSD test, revealed a number of significant differences between Cluster Groups on self-regulation scores, as displayed in Table 4 below. The male student Cluster Group *Task/Approach* is more highly self-regulated than all other cluster groups except the *Strong Multi-Goal* cluster group. It is also significantly more self-regulated than the single goal cluster groups of *Task* or *Approach.* Adopting this dual goal orientation appears to enhance the adoption of self-regulated learning strategies. As indicated in Table 3 the moderately strong effect size for the self-regulation construct lends further support to these findings.

However, male students in the *Strong multi-goal* Cluster Group are also highly self-regulated with respect to learning strategies, despite the presence of the performance-avoidance goal orientation. The presence of the task-mastery and/or performance-approach goal orientation(s) in this cluster may thus confer positive learning strategies attributes. The significantly lower self-regulated learning strategies scores for the *Disengaged* Cluster Group compared to other groups possibly reflects the non-necessity of organizational skills and productive cognitive strategies when there is a lower level of motivation to pursue an achievement goal.

Table 4: Male and female student Cluster Groups mean scores (standard deviation) and significant differences – Self-Regulation

	Males		Females	
Cluster/Sig. Diffs between Clusters	Learning Strategies	Self-Handicapping Strategies	Learning Strategies	Self-Handicapping Strategies
1 .*Average Multi-goal*	3.23 (.38)	2.67 (.91)	3.45 (.49)	2.33 (.89)
2. *Approach*	3.20 (.67)	1.76 (.76)	3.50 (.56)	2.15 (1.10)
3. *Task*	3.33 (.62)	2.05 (.79)	3.55 (.46)	1.77 (.87)
4. *Disengaged*	2.64 (.57)	2.17 (.79)	3.04 (.61)	2.34 (.97)
5. *Strong Multi-goal*	3.69 (.46)	2.61 (1.00)	3.75 (.45)	2.01 (.84)
6. *Task/Approach*	3.76 (.56)	1.96 (.76)	3.92 (.46)	1.61 (.62)
7. *Avoid/Approach*	3.34 (.44)	2.56 (1.09)	3.47 (.54)	2.90 (.85)
Significant differences between clusters (.05 level)	6>1,2,3,7 5>1,2,3 1,2,3,5,6,7> 4	1>2,3,6 5,7>2,6	6>1,2,3,4,7 1,2,3,5,6,7>4	1,4>6 7>2,3,5,6

The female Cluster Groups display some similar patterns of achievement motivation, but with some notable differences. As with the male sample, the female *Task/Approach* Group is also significantly more self-regulated with respect to learning strategies compared to every other Cluster Group except for *Strong multi-goal.* However, unlike the Male Cluster Groups, the Female *Strong multi-goal* Group does not have significantly higher learning strategies scores compared to other Groups, except for *Disengaged.* In contrast to the male students therefore, it is

possible that the presence of the performance-avoidance goal attribute may erode any strong adoption of learning strategies for female students.

Differing patterns of self-handicapping strategies are evident for the male and female cluster groups. Male students in the *Task/Approach* cluster group demonstrate lower self-handicapping scores compared to those Cluster Groups incorporating an unproductive performance-avoidance goal orientation (*Strong multi-Goal, Average multi-goal, Avoid/Approach*). This highlights an interesting profile for the *Strong multi-goal* Cluster Group. These students are highly self-regulated with respect to learning strategies, yet also engage in a high degree of self-handicapping. This inconsistent pairing of achievement characteristics is accompanied by high levels of affective distress. This is not surprising given the conflict that must arise when students adopt a multiple goal approach to their studies using task, performance-approach and performance-avoidance orientations.

The Female Cluster Groups display a slightly different pattern of self-handicapping strategies. *Task/Approach* cluster group has the lowest mean score on self-handicapping and is significantly lower on that variable than *Average multi-goal, Avoid/Approach* and *Disengaged* groups. The *Avoid/Approach* Cluster Group, on the other hand, indicate the highest self-handicapping strategies of the seven Clusters, and scores for this Group are significantly higher than those scores for *Approach, Task, Strong multi-goal* and *Task/Approach* Groups for the Female students.

Results from MANOVAs – Affective Distress

Post-Hoc comparisons, using Tukey's HSD test, revealed significant differences between Cluster Groups on affective distress scores, as displayed in Table 5 below. The goal clusters *Task/Approach* and *Task* show the lowest levels of depression, anxiety and stress, apart from the *Disengaged* Cluster Group. Notably, the dual goal of developing and demonstrating mastery (*Task/Approach*) is, at times, less associated with affective distress than the single goal of developing mastery (*Task*). Given the highly competitive environment in which these students are learning, being less competitively oriented may in fact be more discomforting for those students who are primarily oriented towards developing competence than their more competitively oriented peers.

Male Year 12 students who belong to Cluster Groups *Average multi-goal, Strong multi-goal* and *Avoid/Approach* experience higher levels of depression, anxiety and stress compared to the other Groups. Each of these cluster groups is dominated by the performance-avoidance goal orientation. The presence of the more positive and productive goals of task and performance-approach do not appear to offer protection against affective distress when combined with the remaining, unproductive and negative goal of performance-avoidance. For those students who are oriented towards all three goals, being motivated to develop competence without demonstrating perceived incompetence, as well as compete normatively, must be challenging. This clustering of goal characteristics appears counter-intuitive, but clearly, a significant number of students are engaging in a set of achievement behaviours which may be counter-productive and thus set up emotional hurdles that are difficult to negotiate.

A male student (Table 5) who could be described as being disengaged from his studies, or a-motivational, experiences less affective distress than students in any other groups. The students in this group may be particularly vulnerable to performance-demanding academic contexts and thus do not engage with their studies in order to protect themselves psychologically in a situation that is perceived to be threatening.

Amongst the female student Cluster Groups, there were fewer significant differences between Groups on the affective distress variables. Like the male Cluster Groups, *Task* and *Task/Approach* groups indicate the lowest level of affective distress, however, unlike the male student groups, those female students who demonstrate disengagement with their studies do not feature as being significantly less distressed. In addition, despite the absence of the performance-

Table 5: Male and Female Goal Cluster Group Means (Standard Deviations) and Significant Differences – Affective Distress

Cluster/Sig. Diffs between Clusters	Males			Females		
	Depression	Anxiety	Stress	Depression	Anxiety	Stress
1 .*Average Multi-goal*	13.36 (10.14)	10.25 (8.60)	13.18 (8.47)	14.48 (10.60)	10.66 (7.09)	17.86 (8.42)
2. *Approach*	13.32 (9.85)	6.61 (8.02)	11.48 (9.61)	19.01 (10.54)	10.14 (8.35)	20. 17 (10.25)
3. *Task*	12.21 (9.91)	6.00 (6.08)	9.77 (6.94	9.88 (7.66)	6.58 (8.42)	15.26 (11.07)
4. *Disengaged*	11.56 (9.04)	4.51 (5.28)	7.75 (7.78)	16.36 (11.98)	9.15 (8.24)	14.27 (11.86)
5. *Strong Multi-goal*	15.39 (10.48)	12.99 (11.18)	16.52 (9.25)	14.45 (9.09)	12.25 (19.64)	20.21 (10.98)
6. *Task/Approach*	7.75 (6.45)	4.63 (4.74)	10.57 (7.74)	10.96 (9.49)	6.94 (6.38)	17.72 (10.84)
7. *Avoid/Approach*	15.69 (12.67)	11.12 (9.48)	16.67 (9.96)	18.60 (9.91)	13.82 (9.41)	22.33 (9.75)
Significant differences between clusters (.05 level)	7,1>4,6 5>2,3,4,6	7,1>4,6 5>2,3,4,6	7,5>3,4,6 1>4	7,2>3,6	7>3,6 5>6	

avoidance goal orientation, high levels of affective distress are evident within the *Approach* Cluster, revealing high levels of depression and anxiety. This is in contrast to the male Cluster Groups. None of the female Cluster Groups is significantly discriminated by the stress variable.

As discussed, those Cluster Groups which display a strong orientation towards the task goal or the task goal coupled with performance-approach goal (*Task* and *Task/Approach*) experience relatively low levels of affective distress. When a task goal orientation does not play a role, such as in *Approach* and *Avoid/Approach* groups, affective distress is high. In Cluster Group *Strong multi-goal,* affective distress is uniformly high despite the presence of task goal orientation. This may be due to the presence of the performance-avoidance goal orientation which overshadows the affective effects of the performance-approach and task goal orientations.

Affective distress features when the performance-approach goal has either a predominating role (*Approach*) or is coupled with performance-avoidance goal (*Strong multi-goal).* This is also the case for the female *Disengaged* group. Therefore, although the motivation to achieve through the development of competence (Task Goal) appears to act as a psychologically protective mechanism this is only the case when it is not accompanied by an orientation towards the debilitating performance-avoidance goal.

Results from ANOVAs– Academic Self-Efficacy and Test Anxiety

Significant post-hoc comparisons using Tukey's HSD test are displayed in Table 6 below. The Male Cluster Group displaying the highest academic self-efficacy scores was *Task/Approach* and this Group's scores were significantly higher than *Average multi-goal, Approach, Disengaged and Avoid/Approach* Groups. Thus, students who adopt this dual goal of developing and demonstrating competence are highly efficacious with respect to their studies. The Cluster Group representing the single goal orientation of developing competence (*Task),* a goal orientation traditionally associated with high levels of academic self-efficacy (Kaplan & Maehr, 1999; Roeser et al., 1996; Skaalvik, 1997) is only significantly different on academic

self-efficacy scores when compared to *Average multi-goal* and *Disengaged* Cluster Groups. The task goal orientation overall, however, features in those Cluster Groups which do display significantly higher scores on this construct (*Task, Strong multi-goal, Task/Approach).*

Table 6: Male and Female Cluster Group Means (Standard Deviations) and Significant Differences – Academic Self-Efficacy and Test Anxiety

Cluster/Sig diffs between groups	Males		Females	
	Self-Efficacy	Test Anxiety	Self-Efficacy	Test Anxiety
1. *Average Multi-goal*	3.45 (.59)	3.10 (.75)	3.41 (.63)	3.34 (.72)
2. *Approach*	3.53 (.79)	2.74 (.87)	3.31 (.69)	3.24 (.89)
3. *Task*	3.83 (.60)	2.47 (.76)	3.74 (.75)	2.77 (.91)
4. *Disengaged*	3.23 (.80)	2.66 (.82)	2.84 (.68)	3.07 (.97)
5. *Strong Multi-goal*	3.90 (.67)	3.28 (.90)	3.68 (.54)	3.38 (.98)
6. *Task/Approach*	4.15 (.49)	2.76 (.74)	4.01 (.53)	2.98 (1.01)
7. *Avoid/Approach*	3.53 (.64)	3.50 (.84)	3.35 (.65)	3.61 (.68)
Significant differences between clusters	6>1,2,4,7 3,5>1,4	5,7>2,3,4,6 1>3	6>1,2,4,7 1,3,5>4	7>3,6

Academic self-efficacy scores for female students parallel the male students on the *Task/Approach* Cluster Group in terms of significant differences. The only other significant differences lie between the higher *Disengaged* scores compared to *Average multi-goal, Task* and *Strong multi-goal* Cluster Groups. Academic self-efficacy scores are lowest for the *Disengaged* Group for both genders. This weak belief in one's capabilities to undertake and execute academic tasks may thus be a powerful de-motivator in achievement settings.

With respect to male students' test anxiety, the highest scores occurred for the *Strong multi-goal* and *Avoid/Approach* Groups, and both of these Groups' scores were significantly higher than *Approach, Task, Disengaged* and *Task/Approach* clusters. Thus it appears that those Cluster Groups that exhibit negative and un-productive characteristics of performance-avoidance goal orientation, even when coupled with task-mastery or performance-approach goal orientations, are also the most test anxious.

For the female Cluster Groups only two sets of significantly different test anxiety scores were evident. These were between *Avoid/Approach* and *Task*, and between *Avoid/Approach* and *Task/Approach*. Thus, once again, the presence of the performance-avoidance goal orientation appears to exert a negative influence on achievement motivation.

DISCUSSION

Overall, when Year 12 students' achievement motivation scores were clustered according to goal orientation, the dual goal orientation of *Task/Approach* was found to be the most productive for both male and female students. Self-regulated learning strategies and academic self-efficacy were strong, whilst anxiety and depression, self-handicapping strategies and test anxiety were weak. This combination of developing *and* demonstrating competence was more strongly associated with positive and adaptive achievement motivation attributes than the single goal clusters of *Task* or *Approach.*

Although *Task* was also a positive and productive goal cluster in its own right, it was eclipsed by *Task/Approach* in the learning strategies area. The single goal *Approach* was, on

balance, a negative and unproductive cluster, particularly for females. The performance-avoidance goal orientation exerted a strong, negative influence on patterns of achievement motivation, irrespective of the goal cluster it featured in.

It is possible that normatively competitive Year 12 female students find the experience to be more psychologically demanding than Year 12 male students. Given the significant role that affect plays in academic self-efficacy (Bandura, 1997; Pajares, 1997) the associated low levels of academic self-efficacy for the performance-approach oriented female students perhaps is not surprising. Therefore, whilst adopting a purely performance-approach goal orientation has positive benefits for male Year 12 students, particularly in terms of lower levels of affective distress, this does not appear to be the case for their female counterparts.

Taken as a whole, the Approach cluster group does not display a particularly productive pattern of achievement motivation. Pintrich (2000a) found a similarly debilitating pattern of achievement motivation when a strong performance-approach orientation was coupled with a weak mastery orientation. In his repeated measures study, academic self-efficacy, and positive affect declined over time, and self-handicapping increased. What is not known from that study, however, is the extent to which the results may have been gender-moderated.

Although previous research has indicated that efforts to demonstrate competence can be associated with strong academic performance (Smith, 2003; Wolters et al., 1996), when it is examined within a 'complex' of motivational attributes there is some indication of unproductive elements associated with this single goal cluster. Given the emphasis on normative performance that characterizes the final year of study for this sample of students, the Approach cluster group may have been expected to reflect a more productive pattern of achievement than has emerged. Clearly, despite these contextual presses, the adoption of a task goal orientation along with a performance-approach goal orientation is of benefit.

With respect to the performance-avoidance goal orientation, regardless of its pairing with task and/or performance-approach goals, it appeared to exert a powerful debilitating effect on achievement motivation, again highlighting the negatively-valenced potency of the performance-avoidance goal. Therefore, with the exception of *Task/Approach*, none of the multiple goal clusters (*Strong multi-goal, Avoid/Approach, Average multi-goal, Disengaged)* was associated with strong achievement motivation attributes.

Gender differences also came to light in the cluster analysis procedures. However, the clear gender differences previously identified in variable-centred analysis procedures did not appear to be quite so marked when case-centred clusters of achievement motivation were studied. Similar patterns of achievement motivation were evident between male and female Cluster Groups with respect to test anxiety, academic self-efficacy and self-regulation. Dissimilar patterns were evident with respect to anxiety, depression, stress and self-handicapping. This indicates that whilst results so far have shown that gender differences in *level* were clear for all constructs except goals, differences in *pattern* were not quite as pronounced.

The limitations of this study must be acknowledged. Multiple goal patterns may well vary depending on developmental stage and grade of the school student. As previous research indicates that performance goals become more salient as a student advances in grade (Maehr & Fyans, 1989), the findings of the present study need to be replicated with younger grades and in different contextual environments. The study also did not investigate the stability of these goal clusters over time. As the academic year unfolds, and examinations draw nearer and assignment marks are known, students may modify their motivational efforts to learning and achievement.

A further limitation was the lack of academic performance data. Whilst the dual task/approach goal cluster indicated superior motivational approaches to school studies in comparison to other goal clusters, the impact of this on actual performance is still unknown. Ideally, making comparisons between the cluster groups' academic performance outcomes would provide insight to how effective the *Task/Approach* cluster is in terms of academic achievement. Further research will also be needed to examine whether the present findings may be refined by

having students state their goal orientation(s) for specific school subjects rather than generally, as was the case in this investigation.

To conclude, the concept of multiple goals is a new area of achievement motivation research. A major finding of the cluster analysis procedures was the superior characteristics of the dual task/performance-approach goal cluster. This cluster overall reflected the best collection of productive and positive achievement motivation characteristics. Importantly, it was superior to the single task cluster group. In the light of the recent literature concerning multiple goals (Harackiewicz et al., 2002; Pintrich, 2000) the benefits conferred by adopting a dual mastery/performance-approach goal are supported by the results of the current study.

The results of this study lend empirical support for multiple goal theory, and have provided evidence for the adoption of multiple goal patterns of achievement motivation by final year high school students. 'Overall, the findings reflect a theoretical perspective which has been shown empirically to be an improvement on the hierarchical single-goal theory approach to achievement motivation. Gender differences were also identified in these patterns of achievement motivation. Some indications regarding the relative potency of the performance-approach and performance-avoidance goal orientations have been elucidated, as have the relationships between multiple goals and their associated achievement motivation attributes.

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APPENDIX

Sample Items for Self-Report Scales

Scale	Sample Item
Task Goal	I do my school work because I'm interested in it
Performance Approach Goal	I want to do better than other students in my class
Performance Avoidance Goal	The reason I do my work is so others won't think I'm dumb
Academic Self-Efficacy	I can do even the hardest work in class if I try
Academic Self-Handicapping	Some students fool around the night before a test, so that if they don't do well, they can say that is the reason. How true is this of you?
Cognitive Strategy Use	When studying, I copy my notes over to help me remember material
Self-Regulation	I ask myself questions to make sure I know the material I have been studying
Test Anxiety	I have an uneasy, upset feeling when I take a test
Depression	I felt down-hearted and blue
Anxiety	I was aware of dryness of my mouth
Stress	I found it hard to wind down