

The Influence of Goal Orientation on Student Satisfaction, Academic Engagement and Achievement

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Abstract

Introduction. A variety of studies has shown that the type of goal orientation determines students' cognitive and behavioral reactions as well as their educational performance (e.g. Ames 1992, Ames/Archer 1988, Valle et al. 2003). Contrary to many views, this study perceives goal orientation as a multidimensional construct with different components and tests how multiple goals relate to student behavior and academic outcomes. This study wants to explore how students can be classified according to their goal orientation. In addition, the study examines how multiple achievement goals relate to different socio-demographic characteristics. Finally, the relative influence of goal orientation on indices of satisfaction, achievement and academic engagement among undergraduate students is assessed.

Method. This study uses data on 2309 college students from the University of California Undergraduate Experience Survey (UCUES). UCUES provides longitudinal data on student academic engagement, civic engagement, instructional technology, and institutional academic policies and practices. Using cluster analysis, different groups of students are established based on their orientation towards their mastery, performance and work-avoidance goal orientation. By means of analyses of variance the author analyzes how the different goal orientation relate to student satisfaction, academic achievement, and academic engagement.

Results. The results support the notion that students pursuing both mastery and performance goals are more satisfied with their academic experience, show a higher degree of academic engagement and achieve better grades than students who pursue a mastery orientation alone or a work-avoidance/performance orientation.

Discussion. The findings have theoretical as well as practical implications. With regard to the goal theory debate, the current findings support the multiple goal perspective, suggesting that both mastery and performance approach goals may facilitate achievement and satisfaction. One practical implication of the study of goal orientation is that student applicants could be screened on the basis of both a high mastery as well as a high performance orientation.

Keywords: Goal orientation, student attitudes, multiple goal theory, achievement, satisfaction, academic engagement

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Introduction

Psychologists and educators have long considered the role of achievement goals in student learning (Ames/Archer 1988; Dweck/Leggett 1988; Rawsthorne/Elliot 1999; Valle et al. 2003). Achievement goals are commonly defined as the purpose of an individual's achievement pursuits (Dweck/Leggett, 1988; Maehr 1989). Much of the early research on student goal orientation separated mastery from performance goals.¹ When pursuing mastery goals, the student wants to develop competence by acquiring new skills and knowledge. They value and are willing to undertake activities that allow them to improve their knowledge, and they perceive effort as a positive, effective way to achieve their goals. Mistakes are considered a normal step in the learning process (Bouffard/Couture 2003, p. 21). In contrast, students pursuing performance goals are more concerned with demonstrating their abilities relative to other students. Here, efforts are perceived negatively. Students with a performance goal see intelligence as fixed, avoid challenging tasks in an effort to avoid negative evaluations, are less likely to be intrinsically motivated and consider errors as indicative of a lack of ability (Gonzalez et al. 2001, p. 182). Besides mastery and performance orientation, some authors distinguish also a work-avoidance orientation (Meece et al. 1988, Meece/Holt 1993). Students with a work-avoidance orientation try to avoid failure even without hard work, so achievement is represented as completing a task with as little effort as possible.

A variety of studies has shown that different goal orientation determine students' cognitive and behavioral reactions as well as their educational performance (e.g. Ames 1992, Ames/Archer 1988, Valle et al. 2003). Generally it is assumed that students are more satisfied and achieve better performance if they pursue a mastery orientation or a more intrinsic motivation (e.g. Fortune et al. 2005). Students with a mastery orientation seem to be more willing to pursue challenging tasks, have positive feelings towards the learning situation, and exhibit an adaptive attributional pattern (Ames/Archer 1988, Dweck 1988). Mastery goal orientation is often linked to long-term, and high-quality involvement in learning. Performance goals in contrast are hypothesized to be associated with negative outcomes, such as surface processing of study material or reduced task enjoyment. Many works therefore suggest that students

¹ A variety of terms have been used to describe the distinction between these two general classes of student goals. Accordingly, some authors distinguish between learning goals and performance goals (Dweck 1986), other authors between ego-involvement and task-involvement (Nicholls 1984), and still others between intrinsic and extrinsic goals (e.g. Pintrich/Garcia 1991).

should be encouraged to adopt mastery goals and minimize their adoption of performance goals (e.g. Ames 1992).

More recent studies disagree with the mastery goal perspective. They indicate that in specific situations performance goals can also promote the development of competences (e.g. Harackiewicz/Sansone 1991) and call for a reconceptualization of goal theory, which acknowledges the positive effects of performance goals. It has also been pointed out that the different goal orientation do not necessarily need to be treated as opposites. For example, Meece and Holt (1993) found that students could be high in mastery motivation and also high in performance orientation, while others could be low in both dimensions. Since at least the 1990s, there has been a sustained research focus on how multiple goals interact and jointly influence student learning and achievement (e.g. Wentzel 1991, 1993; Wolters et al. 1996). From this viewpoint, achievement goals are seen as complementary and it is acknowledged that students can pursue a mastery, performance or work-avoidance orientation simultaneously (e.g. Valle et al. 2003).

Assessing students' achievement goals can provide valuable insights into differing ways they engage in, evaluate, and perform in academic learning. Analyzing how orientation relates to academic engagement and performance has significant theoretical and practical implications for administrative, curricular and instructional decision-making and practices (Elliott/Dweck 1988, Meece/Holt 1993). If educators and administrators wish to improve the academic experience of college students, understanding the potential factors, which enhance or undermine motivational strivings should therefore be of primary concern. This study wants to examine how multiple achievement goals relate to different socio-demographic characteristics and how they affect student behavior. Specifically, this study addresses three main issues:

The first aim of the study is to explore how students can be classified according to their goal orientation. Using cluster analysis, different groups of students will be established based on their orientation towards their mastery, performance and work-avoidance goal orientation. Second, it analyzes how the clusters relate to different demographic characteristics. Third, the study investigates whether the identified clusters differ significantly in selected variables related to academic engagement, satisfaction and college achievement.

Method

The data from the University of California Undergraduate Experience Survey (UCUES) was utilized to answer the research questions. Since 2002, students can participate in the web-based survey on the undergraduate experience at all eight undergraduate campuses of the University of California. UCUES offers longitudinal data on student academic engagement, civic engagement, instructional technology, and institutional academic policies and practices. In this study, a total of 2309 undergraduate students included in the UCUES survey of 2005 were examined in this study. More than half of the students were female (57.5%), and 41.1% were male (due to missing data the numbers do not add up to 100%). Approximately 31% of the undergraduate students were white, 43% were Asian, 10% of the respondents were Hispanic, 2% were African American, and 14% reported other ethnic backgrounds or declined to state. The UCUES team designed a variety of questions in order to produce a detailed picture of the way students vary amongst themselves and over time in terms of their motivations, perspectives, and practices. Specifically, UCUES provides data on students' goal orientation, their educational and overall satisfaction with their undergraduate experience, and their engagement in the academic life of the university. The variables relevant for this study were measured as follows:

- Goal Orientation. Three several-item subscales measured goal orientation: mastery, performance, and work-avoidance. 2309 students rated each item in the UCUES survey on a six-point Likert scale.
- The scale for mastery orientation contained 7 items for assessing students' focus on learning, acquisition of new knowledge, and gaining competence (e.g. "I prefer course materials that arouse my curiosity, even if it is difficult to learn"). The performance-oriented scale included five items reflecting students desire to indicate ability and achieving good grades (e.g. "My main concern in my classes is getting good grades"); the scale for work-avoidance orientation contained three items for assessing students' focus on minimizing efforts and time spent on studying ("Easy requirements were an important factor in deciding on my major"). The principal factor analysis with oblimin rotation confirmed the three-factor solution. Cronbach alphas ranged from 0.66 (Work-Avoidance) to 0.83 (Mastery).

- Student satisfaction. Students were instructed to evaluate different areas of their academic experience, using six-point Likert scales, ranging from 1 (very dissatisfied) to 6 (very satisfied). Two satisfaction areas were measured: educational satisfaction e.g. “Advising by faculty on academic matters” or “Availability of courses needed for graduation”, and overall satisfaction with undergraduate experience, e.g. “overall social experience”. The principal factor solution with oblimin rotation confirmed this two-factor structure. To evaluate the internal reliability, Cronbach alphas were computed for each satisfaction area. The coefficients ranged from 0.81 (overall satisfaction) to 0.87 (educational satisfaction).
- Academic achievement was represented by GPA (grade point average), which the students had achieved in the semester before the questionnaire was filled out. GPAs range from 2 to 4.
- Academic Engagement. To measure students’ academic engagement, the UCUES team created a set of items with six-point Likert scales, ranging from “Never” to “Very often”. The principal factor analysis with oblimin rotation confirmed a four factor structure with the following academic engagement categories: Integrative Learning (“Put together ideas or concepts from different classes when completing assignments”), Deep Learning (“Developed your own point of view about an issue and used facts and examples to support your viewpoint”), Effort (Worked harder than you ever thought you could to meet an instructor’s expectations”), and Team Work (“Worked with classmates outside of class to prepare class assignments”). The factors had internal reliabilities of $\alpha = 0.61$ for integrative learning and $\alpha = 0.79$ for deep learning.

Results

Cluster Formation

Cluster analysis was used for grouping students of similar goal orientation into one cluster. Since the UCUES data set is very large, k-means clustering was chosen. In this approach, the researcher specifies the number of clusters in advance, then calculates how to as-

sign cases to the K clusters. In order to classify students as a function of the mastery, performance, and work-avoidance/performance orientation, a three-cluster solution was chosen. Based on the three goal orientation underlying this study, it was assumed that students could be attached to a cluster predominated by mastery, performance, or work-avoidance orientation. However, the results of the cluster analysis indicate that the three orientations can be complementary and that it is possible for students to pursue several goals simultaneously. To assess the validity of the three-cluster solution, the inter-cluster differences in the dependent variables were analyzed. Since significant differences between three clusters were revealed, it was decided to use this three-cluster solution for the subsequent analyses. Figure 1 displays the grouping of the cluster solution:

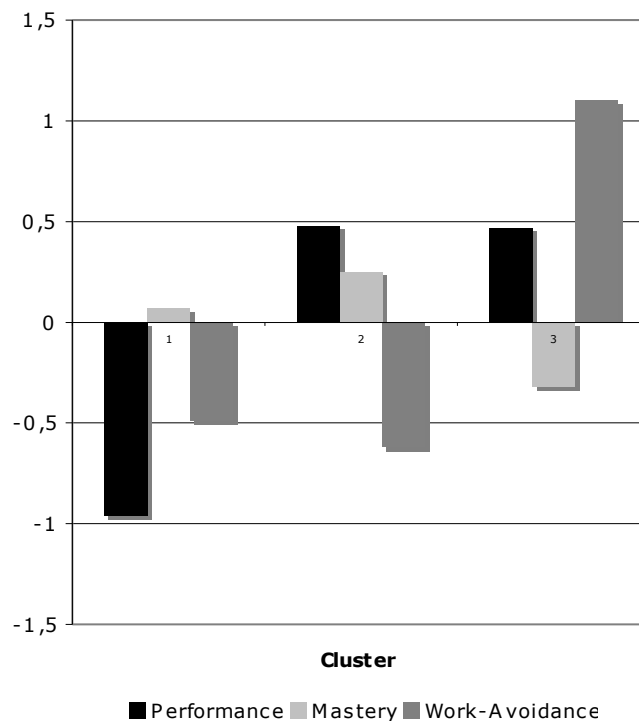


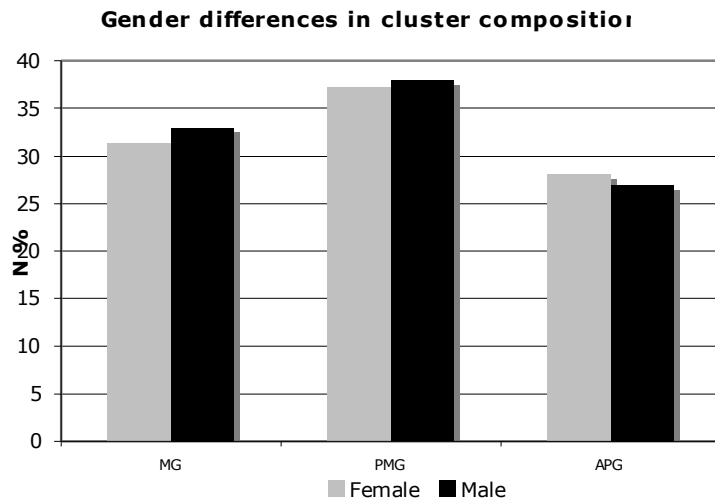
Figure 1: Graphical representation of the three clusters of goal orientation

The first cluster showed the weakest performance and work-avoidance orientation, while the pursuit of gaining knowledge and competences scored slightly above average. The second cluster had predominance in performance/orientation, but it also showed the largest mastery-orientation. In contrast to the first two clusters, the third one is characterized by a strong work-avoidance/orientation and an above average performance orientation. Compared to the variation in work-avoidance and performance orientation, the scores on mastery varied only slightly across the three clusters. Since the first cluster was low on performance as well

as work-avoidance and scored only above the mean regarding of mastery orientation, it was decided to label the first group mastery group (MG; n=708). The second group was labelled performance/mastery group (PMG; n=832), and the third one work-avoidance/performance group (APG; n=609).

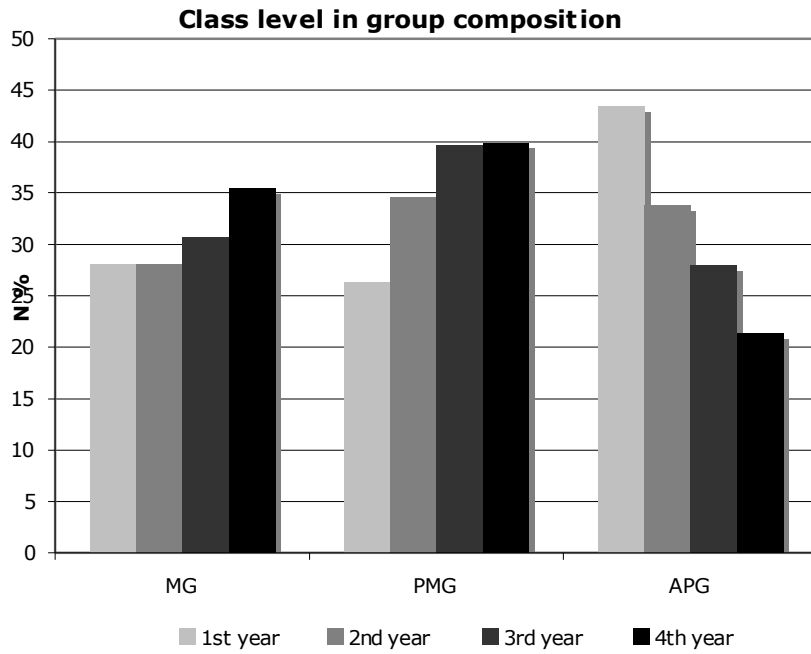
Socio-demographic Differences in Cluster Composition

Chi-square tests were performed in order to analyze students' socio-demographic characteristics in cluster membership. With the exception of gender, all analyzed background variables indicated significant differences between the clusters.

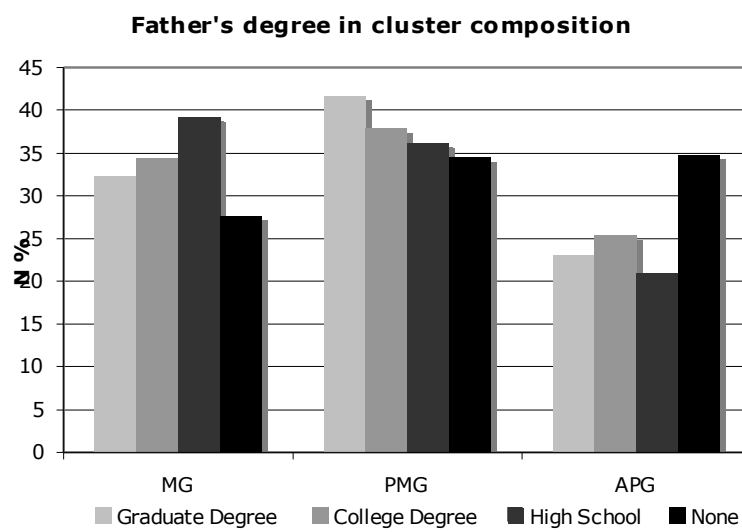


$\chi^2=1.73, p=.786, n.s.$

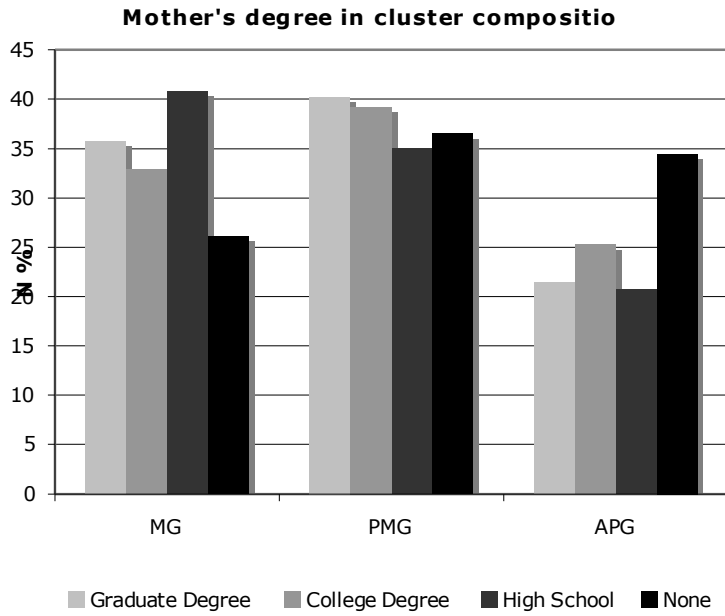
$\chi^2=57.88, p<0.001$



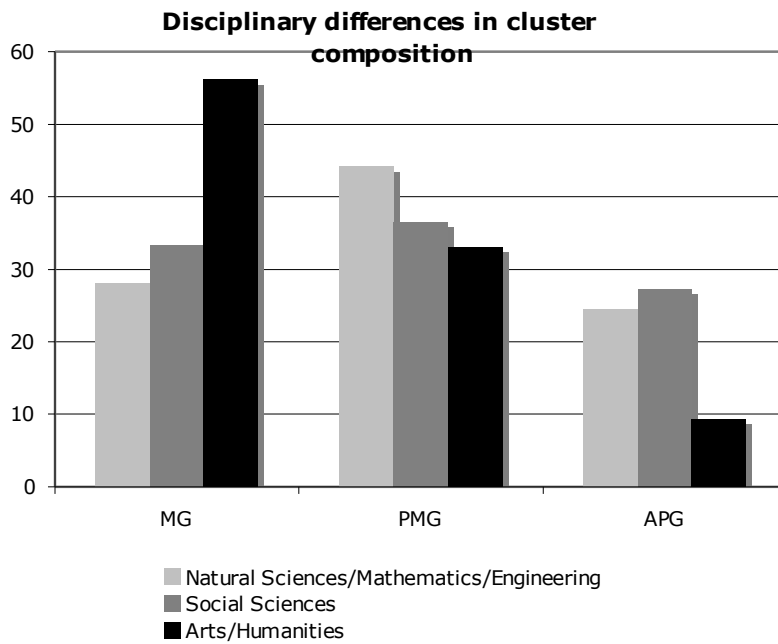
$\chi^2=39.04, p<0.001$



$\chi^2=48.42, p<0.001$



$\chi^2=68.71, p<0.001$



$\chi^2=114.7, p<0.001$

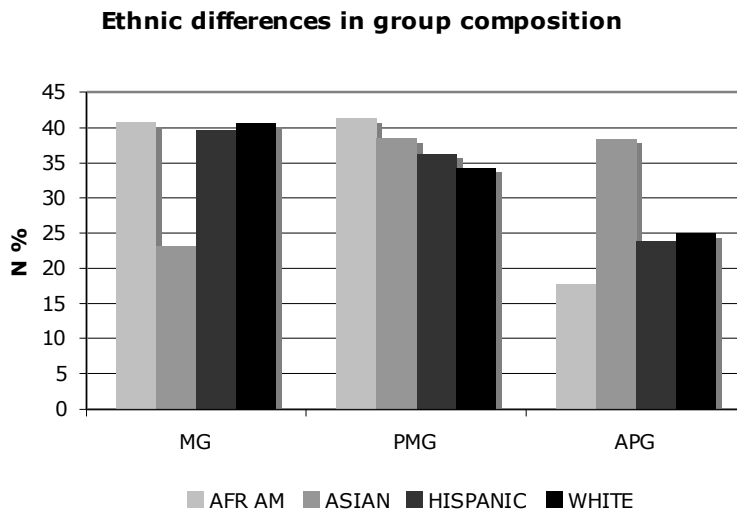


Figure 2. Socio-demographic Differences in Cluster Composition

Gender: No significant gender differences were found between the three clusters.

Class level: The Chi-square test indicated significant cluster differences in terms of class level ($\chi^2=57.88, p<0.001$). The group composition in mastery and performance/mastery oriented learning goals shows a similar student body regarding their class level: both clusters contained more students in their third or fourth academic year than students in their first or second year. In contrast, the work-avoidance/performance cluster consists of significantly more freshmen and significantly fewer students in their senior year.

Parental Education: Significant differences in terms of parental education between the three clusters were detected (father's degree: $\chi^2=39.04, p<0.001$; mother's degree: $\chi^2=48.42, p<0.001$). Parents of students in the mastery and the performance/mastery cluster have obtained more graduate and college degrees than parents of work-avoidance/performance students. Also, parents of students with a mastery orientation left school less often without degrees than parents of students pursuing a performance/mastery or a work-avoidance/performance orientation.

Disciplinary differences: Students in arts and humanities were most often associated with a mastery orientation and least often with a work-avoidance/performance orientation ($\chi^2=68.71, p<0.001$). Compared to the arts and humanities students, social and natural science

students are more equally distributed among the three clusters. Students in natural sciences, mathematics and engineering were most likely to pursue a performance/mastery orientation, and were approximately equally distributed among the work-avoidance/performance group and the mastery cluster. Social scientists were most often associated with a performance/mastery orientation and less often with a work-avoidance orientation or a mastery orientation.

Ethnic background: Also ethnic differences were found between the groups ($\chi^2=114.7$, $p<0.001$). Asian students were most often included in the work-avoidance/performance cluster and least often in the mastery-cluster. African-American, Hispanic and white students are more often associated with mastery goals and performance/mastery goals than with work-avoidance/performance goals.

Goal orientation, student satisfaction, achievement, and academic engagement

Two steps were taken in analyzing the outcomes that the different goal orientation relate to. By means of MANOVA, it was first determined whether the clusters identified were significantly different in the variables that are relevant to satisfaction, achievement, and academic engagement. All dependent variables revealed significant differences between the three groups, and it was decided to perform ANOVA on these significant effects. Tukey's HSD was used for post-hoc comparisons. The results are displayed in Table 1.

Table 1: Means and standard deviations obtained by clusters for each of the dependent variables

	Mastery		Performance/Mastery		Work-avoidance/Performance	
	Mean	SD	Mean	SD	Mean	SD
Satisfaction General educational experience	4.33	0.77	4.43	0.73	4.02	0.80
Satisfaction Overall Undergraduate Experience	4.45	1.10	4.53	1.07	4.27	1.07
Academic Achievement	3.30	0.45	3.41	0.40	3.18	0.45

Integrative Learning	3.65	1.13	3.71	1.16	3.34	1.11
Deep Learning	3.77	1.01	3.85	1.06	3.67	1.08
Effort	3.48	1.12	3.68	1.10	3.37	1.11
Team Work	3.44	1.15	3.81	1.16	3.63	1.11

Groups differed significantly in their satisfaction with their educational experience (SatEd: $F_{2, 2091}=29.16$, $p<0.001$). The post-hoc contrast revealed that students from the work-avoidance/performance group ($M=4.02$) were significantly less satisfied with their educational experience than students from the mastery and the performance/mastery groups. Students with performance/mastery orientation ($M=4.43$) did not differ significantly in terms of educational satisfaction from students pursuing only a mastery goal ($M=4.33$).

Significant group differences were also observed with regard to the overall undergraduate experience (SatOv: $F_{2, 2174}=10.51$, $p<0.05$). Students with a work-avoidance/performance orientation are significantly less satisfied ($M=4.27$) with their overall undergraduate experience than students from the mastery ($M=4.45$) and the performance/mastery group ($M=4.53$). Between the MG and the MPG group no significant differences were observed.

In academic achievement, the differences across all three groups were significant (AcAch: $F_{2, 2091}=47.14$, $p<0.001$). Post hoc contrasts indicated that students from the performance/mastery group had significantly higher GPA scores ($M=3.41$) than students who pursued only a mastery orientation ($M=3.3$). Students from the avoidance/performance group obtained significantly lower scores than the other two groups ($M=3.18$).

In the variable integrative learning, there were significant group differences, too (IntLearn: $F_{2, 2167}=25.41$, $p<0.001$). Students from the work-avoidance/performance group engage significantly less in integrative learning ($M=3.34$) than students from the mastery ($M=3.65$) and the performance/mastery group ($M=3.71$). No statistically significant differences were observed between the two latter groups.

With regard to deep learning, the groups differed significantly (DeepLearn: $F_{2, 2142}=5.79$, $p<0.01$). In this case, post hoc contrasts showed that students from the work-avoidance/performance group ($M=3.67$) obtained significantly lower scores than students from the performance/mastery group ($M=3.85$). The differences between the mastery ($M=3.77$) and the performance/mastery group were not statistically significant.

The study also revealed significant differences with regard to the effort students spent on academic activities (Eff: $F_{2, 2143}=14.39$, $p<0.001$). Students from the performance/mastery group ($M=3.68$) spent significantly more time on studying than students from the mastery ($M=3.48$) and the work-avoidance/performance group ($M=3.37$). On the other hand, no significant differences were obtained between the mastery and the work-avoidance/performance groups.

With regard to teamwork, all groups differed significantly from each other (TeamW: $F_{2, 2169}=25.59$, $p<0.001$). Post hoc contrasts indicated that students with a performance/mastery orientation engage more often in teamwork ($M=3.81$) than students from the work-avoidance/performance group (3.63). Students who pursue a mastery goal orientation scored significantly lower than the other two groups ($M=3.44$).

Discussion

The purpose of this study was to develop and test a model on students' goal orientation and their relation to student satisfaction, academic achievement and engagement. In contrast to previous research, this study was based on a trichotomous goal approach, which focuses not only on the traditional dual goal structure of mastery and performance, but also included the dimension of work-avoidance. By means of cluster analysis, three different groups of goal orientation were established. The first cluster contained students with an above average mastery orientation and a low performance and work-avoidance orientation. The second cluster was characterized by the simultaneous pursuit of mastery and performance goals, while the third cluster included student with a strong work-avoidance and performance orientation. These results suggest that students do not have either one goal orientation or another (Middleton/Midgley 1997), but various levels of different goal orientation.

In a second step, differences in selected demographic variables between the three clusters were analysed. So far, little research has been conducted on the variables associated with the type of goal orientation pursued. As Midgley et al. (2001, p. 82) point out, there is a need for further investigation of differences in goal orientation by background characteristics that are prevalent in the student body. Previous research has found that demographic variables can have a profound affect on students' goals orientations (e.g. Hayashi/Weiss (1994), White/Zellner (1996), Nicholls/Miller (1984), Gonzalez et al. (2001)). Current goal theories therefore need to acknowledge the role that context factors (e.g. culture, parents, or academic level) can play in eliciting and shaping goal orientation of students. Consideration of students' sociodemographic characteristics may be especially critical to resolve the problem of how goal orientation develops and how they change over the course of time. Besides the more common demographic variables, such as age, gender or cultural background, a number of additional sociodemographic factors seldom discussed in the literature were included in this analysis. The results of the chi-square test indicated significant differences in the following variables between the clusters:

Gender. Several studies tried to identify goal orientation as a function of gender (Ethnier et al. 2001, Brdrar et al. 2006, Meece/Holt 1993). Brdar et al. (2006, p. 62) found that boys are more likely to adopt work-avoidance goals, while girls are more likely to pursue mastery goals. Gender differences have also been observed by Thorkildsen/Nicholls (1998) as well as Isogai et al. (2003). The UCUES data did not support the assertion that goal orientation differs between the sexes, which is consistent with the result of Meece/Holt (1993) and Niemivirta (1996), who concluded that performance orientation is equally frequent among male and female students.

Class level. Previous studies have focused on age differences and how they relate to goal orientation, while this study analyzed goal orientation as a function of the class level in which students were enrolled. Some age-related studies found that performance and work-avoidance was more prevalent among older students, while younger students tend to be more focused on learning (Brdrar et al. 2006, p. 63, Bouffard et al. 1998). This observation is often associated with contextual factors such as the increasing importance of obtaining good grades in order to get access to higher academic levels. Other studies found that older students were more likely to be learning oriented. Loevinger (1976) suggested that as ego development proceeds through adulthood, individuals move away from a pure performance orientation to more

internally derived goals. In a similar vein, Kohlberg (1976) argued that as people develop morally, they move away from a desire to conform to the standards of others and toward more individually determined standards of right and wrong.

This tendency is also supported by the results of this study. It seems that students in later study phases are more mastery or performance/mastery oriented than students in their first or second academic year. Three quarter of the students in their fourth year pursued either of the two goals, while less than one quarter belonged to the work-avoidance/performance group. In contrast, students in their first academic year were most often found in the work-avoidance/performance group (43%), and least often in the performance/mastery group (26%). A possible explanation for this observed pattern is that university students who are approaching graduation may value competences and practical skills that are useful for the job market more than grades. College seniors may therefore be more willing to invest more efforts in obtaining abilities and job-related skills rather than focusing on external evaluations alone. Younger students, in contrast, may value good grades and the social experience of their undergraduate studies more highly and adopt a work-avoidance orientation.

Parents: Several studies on the relationship between goal orientation and family characteristics are congruent with the assertion that parents influence the type of achievement goals students adopt (e.g. Bergin/Habusta 2004). Parents often assume the role of motivator, and their own educational background may influence whether a child performs with a performance, mastery or work-avoidance orientation. In this study the chi-square test indicated that the types of academic degrees parents obtained differed significantly across the three clusters of goal orientation. Students with a mastery or a performance/mastery orientation came more often from family backgrounds where mother and father had obtained a graduate or college degree and less often from families, where parents did not obtain a degree. It seems that the more educated the parents are, the greater the mastery or the performance/mastery orientation of children, while little education may foster a stronger work-avoidance/performance orientation. It seems reasonable to suggest that parents' educational experience influences their children's goal orientation, an idea, which deserves further research.

Disciplinary differences. In some academic subjects, specific goal orientation seem to be more common than in others. For example, Newstead et al. (1996) reported that perform-

ance orientation is more common in science and technology than in other disciplines. The chi-square test supported this result: The majority of engineering students (39%) were found in the performance/mastery group. Humanities and arts students were more likely to pursue a mastery orientation. In the work-avoidance group, natural scientists and social scientists were approximately equally distributed; only students in the arts and humanities were clearly underrepresented. Students who decide to learn a language or develop skills in the performing arts may be more interested in improving their skills and obtaining practical competences in a specific field of knowledge than in external evaluations. Differences in the goal orientation of social scientists are less obvious, which may be attributable to the broad variety of subjects, which are subsumed under this category. Further, the body of knowledge and the kind of competencies students can acquire in the social sciences are usually less clearly defined (e.g. Whitley 1984). Students in the social sciences may therefore have difficulties in adopting a clear mastery orientation, because the abilities and skills can often be derived only indirectly from social science knowledge.

Cultural differences. Cultural differences in goal orientation have been addressed in several studies (e.g. Isogai et al. 2003, Gano-Overway/Duda 2001, Brandt 2003, Lee et al. 2003). In this study, the brief comparison of the cultural backgrounds between the different clusters supported the importance of cultural factors when studying goal orientation. Overall, African-American, Hispanic and white students rated higher in their mastery goal orientation than the Asian students. Asian students choose a work-avoidance/performance goal orientation more often than the other ethnic groups. These results are partially consistent with the results reported by Lee (2000), who found that Anglo-American and Mexican-American physical education college students exhibited significantly higher mastery orientation scores as compared to other ethnic groups. Similarly, Isogai et al. (2003) reported that Japanese students scored significantly higher on performance orientation and significantly lower on mastery orientation than white students. While differences in goal orientation between ethnic groups are clearly indicated, additional investigation is needed to better understand these differences.

Goal orientation and Academic Achievement. The results of the ANOVA indicated that students who pursue a performance/mastery orientation achieve better college grades than students who pursue a mastery orientation alone. Students with a work-avoidance/performance orientation displayed the lowest level of academic achievement. Sig-

nificant differences were found among all three clusters. This indicates that the relationship between goal orientation and achievement may be more complex than often hypothesized in previous studies. Early works on goal theory found that a mastery orientation is positively associated with academic achievement, while a performance orientation is linked to lower achievement test scores (e.g. Ames 1992). The multiple goal approach indicates that the combination of performance and mastery goals can lead to higher academic achievements than the pursuit of mastery goals alone or the adoption of a work-avoidance/performance orientation. Similar results were obtained by Archer (1994) and Bouffard et al. 1995), who showed that students with multiple goals were able to obtain higher academic achievement.

This finding also supports the notion that the dichotomous distinction between mastery and performance goals may be too simplistic; not always does a pure mastery orientation increase achievement and satisfaction and performance goals do not always predict lower outcomes and less motivation. Recent studies revealed a more complicated picture of the dichotomous goal theory. For example, Barron and Harackiewicz (2001) argued that performance goals can lead to higher, not lower grades and do not affect intrinsic motivation. Consonant with the finding of this study, Pintrich and Garcia (1991) reported that students classified in high learning and high performance goals showed the highest level of self-efficacy. The multiple goal perspective, in which performance and mastery goals are combined, may therefore represent a more realistic picture on student goals and offers the potential for a more sophisticated understanding of the complex phenomena of student learning and achievement.

Goal orientation and Student Satisfaction. Previous research has suggested that dispositional achievement goals have an important influence on students' behaviors and cognitions. However, little research has examined the influence goal orientation has on students' satisfaction with their educational experience. The results of the ANOVA showed that undergraduate students who pursue a performance/mastery or a mastery orientation are more likely to be satisfied with their educational experience and their overall undergraduate experience. Moreover, it seems that especially the combination of performance and mastery goals may be more facilitative for educational and general satisfaction. In contrast, the pattern of results for students with a work-avoidance orientation is that they are less satisfied with both their educational as well as their overall undergraduate experience, a pattern that has been observed in some other studies, too. For example, in her study on female athletes, Petherick and Weigand (2002) highlighted the importance of promoting a mastery team climate when attempting to

foster adaptive affective and cognitive motivational responses in female athletes. She found that a mastery goal orientation was positively related to intrinsic motivation and team satisfaction, and negatively associated with feelings of pressure and tension. In contrast, a performance goal orientation corresponded positively to pressure and tensions and negatively to enjoyment and team satisfaction. Similarly, Ames/Archer (1988) found that students who perceived an emphasis on mastery goals in the classroom had a more positive attitude toward the class and a higher level of task enjoyment.

In this analysis, students with performance and mastery orientation reported the highest degree of satisfaction in both areas, educational and overall undergraduate experience. This may be due to the fact that multiple goals guarantee students some flexibility to adapt more successfully to a variety of learning situations (e.g. Valle et al. 2003). Students adopting multiple goals may have more opportunities to satisfy either one goal or the other, depending on the concrete demands and the learning context. In contrast, students who only focus on one goal, e.g. social goals (prestige or friendship) may be more easily disappointed during the examination phase. However, adopting multiple goals also requires coordination and flexibility when establishing priorities in the achievement of any one goal. Students could therefore also feel incapable of coordinating these goals (e.g. Valle et al. 2003, p. 74). Considering that the students with a high performance/mastery orientation were most satisfied with their undergraduate experience, it can be concluded that the students in this sample showed sufficient skills and abilities to coordinate effectively and manage to achieve different goals (see also Wentzel 1999, 2000).

Goal orientation and Academic Engagement. Students with a performance/mastery orientation engaged more frequently in integrative learning, applied deep learning strategies more often, spent more effort preparing for classes and were more actively involved in teamwork than students with a mastery orientation. Mastery and performance/mastery students were more similar in terms of academic engagement, while students with a work-avoidance/performance orientation paid the least attention to integrative learning, effort, and deep learning. The results coincide in general terms with those observed in most studies (e.g. Meece 1994, Seifert 1995, Valle et al. 2003), thus confirming that the group who focuses on learning and the group with a performance/mastery orientation both present a similar engagement in academic issues. On the basis of the ANOVA concerning the three clusters of goal orientation and their type and intensity of academic engagement, it can be suggested that

when mastery or performance/mastery orientation is prominent, students engage more actively in coursework and are more willing to value and use deep learning processes.

Summing up, students who pursue both a strong mastery and a strong performance orientation, are more satisfied with their educational experience and their overall undergraduate experience, achieve higher performance outcomes, integrate their knowledge gained in different courses more frequently, examine their own point of view more often, work harder, and work with classmates to better understand the course material more often than students with a mastery or a work-avoidance/performance orientation.

The findings have theoretical as well as practical implications. The classical dualistic perspective perceived goal orientation as contradictory and mutually exclusive: one goal could only be achieved at the expense of another one. In contrast, these findings indicate that this trade-off is not as distinct as often assumed. Moreover, the simultaneous pursuit of performance and mastery goals may be more beneficial than pursuing a mastery orientation alone – a view that has dominated in the goal theory literature for a long time. With regard to the goal theory debate, the current findings support the multiple goal perspective, suggesting that both task and performance approach goals may facilitate achievement and satisfaction. This result has also been observed in previous studies (Elliot/Harackiewicz 1996, Brdra et al. 2006, Valle et al. 2003). However, the observed effects were often very small, which requires empirical research that replicates these findings (Linnenbrink 2005, p. 210).

What are the practical implications of the present findings? Because great support was garnered for the possibility that the combined pursuit of performance and mastery goals has beneficial associations, one implication of the study of goal orientation is that student applicants could be screened on the basis of both a high mastery as well as a high performance orientation. If administrators, professors and other instructors wish to improve the achievement levels and the general satisfaction of students with their undergraduate experience, they may be well advised to screen and inspire the type of goals their students pursue. Given that students can and do pursue multiple goals, it is important to understand how different types of achievement goals interact to influence achievement and satisfaction. Therefore, knowledge on how goal orientation develops, changes and how it affects motivational and educational outcomes will be tremendously useful to everybody who is involved in shaping and improving the academic learning environment.

There are a number of limitations to this study. First, because the sample in the present study was limited to college students, it is necessary to broaden the age spectrum of participants. Additional empirical work is required to determine the generalizability of the findings to other educational settings. Second, it is important to note that the data in the present study is exclusively quantitative in nature, as students' goal orientation and satisfaction levels were assessed by means of predesigned, closed-ended questionnaire items. More open-ended approaches may be helpful to supplement the quantitative approach with an increased understanding of the interplay between achievement goals, their development and their impact on learning processes. Finally, the data used was collected at one point in time, therefore, no causal links can firmly be established. More longitudinal studies that follow students from elementary school to college and measure changes in their goal orientation are needed.

Several recommendations for future research are warranted. More research is needed on the extent to which students are predisposed to adopt a particular goal orientation and how this orientation may shift over time. A clearer understanding of the complex relationship between demographic variables, students' achievement goals and their relative effect upon indices of achievement and satisfaction could be gained from a longitudinal perspective. Those approaches could help to ascertain where dispositional goal orientation comes from and how it develops (e.g. socialization factors such as parents, peers etc.). Empirical work on these issues would be particularly beneficial to teachers and administrators who may wish to understand the process of how students set their goal orientation and what other changes might occur concomitantly. Also, continuing to adopt a multiple goal orientation will hopefully contribute to a fuller understanding of the influence of achievement goals in different learning contexts.

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