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References

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Achievement Goals, Failure Attributions, and Academic Performance in Nontraditional and Traditional College Students

This study assessed various components of Dweck's model of achievement motivation as applied to college students. Our major goals were to (a) examine both the separate and combined effects of learning and performance orientations on achievement, (b) clarify the role of performance orientation in academic achievement, and (c) extend analyses to include older, nontraditional students. We compared four goal orientation groups (high learning, high performance, mixed goals, and uncommitted) on a variety of measures related to Dweck's model: beliefs about the flexibility of intelligence, academic performance (GPA), failure attributions, and optimism. Beliefs about intelligence and optimism related to goal orientations, but not to grades. Both learning and performance orientations related positively to grades, but students with stronger performance orientations were more likely to use a negative explanatory style which was related to lower grades. Older, nontraditional students had a significantly higher learning orientation, lower performance orientation, and higher GPAs than traditional students. These two groups did not differ in their beliefs about intelligence, use of negative failure attributions, or general optimism (although optimism was positively correlated with age). Implications for both future research and possible academic intervention strategies are discussed.

Recent trends in campus enrollments indicate that university classrooms will soon be populated by large proportions of older, returning students (Hirschorn, 1988; Murray, 1997). Research efforts could facilitate this transition to increasingly diverse classrooms by providing a more detailed understanding of factors which motivate students of various ages to learn and strive for academic success. Dweck's model of achievement motivation (Dweck, 1986; Dweck & Leggett, 1988) has been useful for understanding why children of comparable ability may differ with regard to actual academic achievement. In this paper, we test the application of Dweck's model to nontraditional and traditional college students.

Dweck's Model

Dweck's model of achievement motivation is comprised of three interrelated components: implicit beliefs about the static or malleable nature of intelligence, achievement goal orientations, and corresponding

behavioral responses (see Dweck, 1986, p. 1041). Students who believe that intelligence or ability is flexible and can be increased through effort (incremental theory) tend to endorse a learning orientation, where the focus is on increasing knowledge and skills. In terms of behavioral responses, they are mastery-oriented. Students with a learning orientation actively seek out and enjoy challenging tasks. They are persistent and effective problem-solvers when faced with obstacles or failure. In contrast, students who believe that intelligence or ability is fixed and unchangeable (entity theory) tend to endorse a performance orientation, where the focus is on proving competence and avoiding negative evaluations. Students with a performance orientation prefer easier tasks where they are sure to be successful, thus actively avoiding more challenging situations. They experience considerable anxiety when being evaluated, and their confidence is easily shaken. Their performance quickly deteriorates under conditions of failure, and they tend to give up when they encounter more challenging obstacles.

With a learning orientation, errors or failure are attributed to lack of sufficient effort or the use of inappropriate strategies (both within the individual's control). From a performance orientation, errors or failure are attributed to lack of ability (clearly beyond the individual's control). It is not surprising, therefore, that students with a learning orientation are more resilient while students with a performance orientation are susceptible to learned helplessness (Cain & Dweck, 1995; Smiley & Dweck, 1994). When students feel that their efforts are ineffective, they simply give up trying (Dweck, 1975; Licht & Dweck, 1984). Thus, a key factor which distinguishes these two motivational patterns is whether or not one believes that effort makes a difference.

It is important to note that entity and incremental views are not mutually exclusive, but that we tend to place relatively more weight on either ability or effort as causal explanations for performance outcomes (Hong, Chiu, Dweck, Lin, & Wan, 1999). In fact, students may simultaneously hold both learning goal and performance goal orientations (Eppler & Harju, 1997; Henderson & Dweck, 1990; Pintrich & Garcia, 1991; Roedel & Schraw, 1995; Schraw, Horn, Thorndike-Christ, & Bruning, 1995). Pintrich and Garcia (1991), for example, point out that college students often have both intrinsic and extrinsic goals for a course. Students may work to master the material in a course because they enjoy learning (intrinsic motivation), but they are also typically concerned about their performance and how grades relate to future goals (extrinsic motivation). Similarly, Dweck and Leggett (1988) propose that effective coordination of the learning and performance orientations may contribute to academic success. The performance orientation can serve to set realistic expectations, and only becomes problematic when there is too much emphasis on demonstrating one's competence. Too much emphasis on a learning orientation, on the other hand, can lead to maladaptive overpersistence. Thus, the ability to coordinate the learning and performance orientations contributes to adaptive motivation and behavior (Heyman & Dweck, 1992).

Previous research with college students has tended to focus on only portions of Dweck's model at one time: beliefs about intelligence (Dweck, Hong, & Chiu, 1993; Jones, Slate, Marini, & DeWater, 1993); perceptions of ability and goal orientations (Hayamizu & Weiner, 1991); or goal orientations and academic achievement (Eppler & Harju, 1997; Schraw et al., 1995). In one of the few studies to examine all three components, Roedel & Schraw (1995) found that the basic assumptions of Dweck's model are valid for college students. They found that goal orientation does indeed mediate the relationship between beliefs about intelligence and behavioral responses to challenging tasks. These authors split their groups on beliefs about intelligence (entity vs. incremental) for comparison, and concluded that strength of learning orientation determines response to challenge independent of performance orientation. Likewise, Schraw et al. (1995) found that performance orientation was

unrelated to course achievement. Thus, the role that performance orientation plays in the academic achievement of college students remains unclear.

In the only other study to examine all three components, Miller, Behrens, Greene, and Newman (1993) reported general support for Dweck's model of achievement motivation, except that they failed to find the predicted interaction between perceived ability and goal orientation. One limitation of this study, however, is that the participants were divided into either a dominant learning orientation group or a dominant performance orientation group, depending on which score was higher. Note that the dominant learning orientation group included students with both high and low performance orientations, just as the performance orientation group included students with both high and low learning orientations. This form of classification makes it difficult to distinguish the separate effects of learning and performance orientations, and it fails to consider the possibility of students having a mixed goal orientation.

In an attempt to clarify the role of performance orientation in academic achievement, and also to assess academic learned helplessness more precisely, we utilized a measure of students' failure attributions. According to the reformulated model of learned helplessness (Abramson, Seligman, & Teasdale, 1978; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982), experience with uncontrollable aversive events can lead to negative causal attributions and loss of self-esteem. We also measured optimism, a dispositional quality which has been linked to more effective motivation and behavior. With an optimistic perspective, outcomes are construed as attainable and persistence is maintained even when a task is perceived as difficult (Carver, Pozo, Harris, Noriega, Scheier, Robinson, Ketcham, Moffat, & Clark, 1993; Scheier & Carver, 1992).

In the present study, we assessed how all three components of Dweck's model fit together in the same individuals. Our study goes beyond previous research in three important ways: (1) we examined both the separate and combined effects of learning and performance orientations; (2) we utilized measures of failure attributions and general optimism in order to clarify the role of performance orientation in academic achievement; and (3) we extended our analyses to include older, nontraditional students.

Nontraditional vs. Traditional Students

Most studies of nontraditional students have focused on how they adjust to higher education (e.g., Chartrand, 1990). These studies have found that older students are more prone to dropping out of school due to conflicting commitments, such as family and work (Bean & Metzner, 1985; Beutell & O'Hare, 1987; Frone & Rice, 1987), or because they perceive the college atmosphere as less supportive (Farrell & Mudrack, 1992). Other studies have found that nontraditional and traditional students view the learning experience differently. For example, nontraditional students reported that they were attending college primarily to gain new knowledge and skills, whereas traditional students viewed college as a career oriented path and a way to form new social relationships (Werring, 1987; Wolfgang & Dowling, 1981). Nontraditional students also reported greater involvement in classroom learning and studying for their courses than did traditional students (Harju & Eppler, 1997). In a sample of nontraditional students attending evening college, Shields (1993) found that the older the student, the more likely they were to give internal and situational reasons for attending college. Thus, nontraditional students tend to be more intrinsically motivated, while traditional students tend to be more extrinsically motivated with regard to their college experiences. These differences suggest that nontraditional students may be more likely to endorse a learning orientation, while traditional students may be more likely to endorse a performance orientation.

Recent studies have found that older, nontraditional students do indeed endorse a learning orientation more strongly than their traditional peers (Burley, Turner, & Vitulli, 1999; Eppler & Harju, 1997). In the Eppler and Harju (1997) study, both groups of students had a higher learning than performance orientation. Goal orientation was a better predictor of academic success than nontraditional versus traditional student status. However, factors which negatively impacted academic performance were different for the two groups. Traditional students were more susceptible to learned helplessness, as measured by irrational beliefs, while nontraditional students were hindered by excessive hours of employment. For both groups of students, a stronger learning orientation was associated with higher grades (cumulative GPA). The role of performance orientation was less clear-cut, but students who endorsed both learning and performance orientations were similar to students who endorsed only a learning orientation. Students who ranked low on both goal orientations had the lowest grades.

Purpose and Predictions

The purpose of this study was to test the applicability of all three components of Dweck's model (Dweck, 1986; Dweck & Leggett, 1988). We measured students' beliefs about the nature of intelligence (incremental vs. entity), achievement goal orientations, attributions for negative academic events, and optimism. Classifying students into four groups of achievement orientations allowed us to tease apart the separate effects of learning and performance orientations, and to contrast these groups with students who have a mixed set of achievement goal orientations (both high) or a seeming lack of motivation (both goal orientations low). We used cumulative grade point average (GPA) as a measure of general academic performance. Since age has been linked to motivations for learning (Harju & Eppler, 1997; Shields, 1993; Werring, 1987; Wolfgang & Dowling, 1981), and more specifically to goal orientations (Burley et al., 1999; Eppler & Harju, 1997), we predicted that nontraditional and traditional students would differ on most of our measures.

Table 1 shows specific predictions for the various variables by goal orientation group, and also gives a preview of our results. Briefly, we expected learning orientation to be most strongly related to incremental (malleable) beliefs about intelligence, and performance orientation to be most strongly related to entity (fixed) beliefs about intelligence. Past research (Eppler & Harju, 1997; Schraw et al., 1995) has found that a strong learning orientation (either alone or in combination with a strong performance orientation) is related to better academic performance, and we expected to replicate this finding. The effects of a performance orientation has proven more difficult to understand, and we hoped that measures of optimism and failure attributions (or explanatory style) would help to clarify the role of this variable. Since the endorsement of a negative explanatory style has been conceptualized as related to learned helplessness (Peterson & Barrett, 1987), we predicted that this style would be most closely related to performance orientation, regardless of one's learning orientation. Finally, we expected optimism to be positively related to a learning orientation and negatively related to a performance orientation.

METHOD

Participants

Participants were 153 undergraduate students enrolled full-time (12 or more semester hours) at a large public university in the southeastern United States. Four additional students were dropped from analyses due to missing data. Most participants were recruited from psychology courses (primarily introduction and developmental psychology), and these students received extra credit in their courses in return for their voluntary participation. Additional efforts were made to recruit participants through a

campus adult student services organization and from a few anthropology courses. These students received no compensation for their voluntary participation.

The final sample was comprised of 109 women and 44 men; 71% were European American and 16% were African American. With regard to class, 29% were first year students, 35% were sophomores, 15% were juniors, and 21% were seniors. Traditional or nontraditional status was defined by the criterion used by the university: students ages 18 to 23 were classified as traditional, while students ages 24 and older were classified as nontraditional. The nontraditional category was comprised of students who had taken a year or more off before completing their bachelor's degree. In the nontraditional group, 50% had a time-out period of 1 to 5 years, 12% were out for 6 to 10 years, and 38% were out for more than 10 years (median time out was 5.5 years, range was from 1 to 33 years). Fifty-six percent were reentry students who began college within one year of high school graduation, and 44% entered college for the first time as nontraditional students. No students in the traditional group had taken off more than one year (only 5 students indicated that they had taken off one or two semesters). The average age for the entire sample was 23.6 years (range = 18 to 56). There were 102 traditional students (M age = 19.6 years, SD = 1.3) and 51 nontraditional students (M age = 31.4 years, SD = 8.0).

Instruments

The first component of Dweck's model (Dweck, 1986; Dweck & Leggett, 1988), an individual's implicit theory of intelligence, was measured using Dweck et al.'s (1993) single-item measure: "You have a certain amount of intelligence and you can't do much to change it." Note that Roedel and Schraw (1995) used a similar pair of entity statements, and more recently, Hong et al. (1999) used a similar set of three entity items. Students in our study rated strength of agreement on a 5-point scale, with a higher score reflecting an entity view and a lower score reflecting an incremental view. Incremental statements are generally not included because there tends to be a positive response bias toward these items (Dweck et al., 1993, footnote; Hong et al., 1999).

Learning and performance goal orientations were measured using Roedel, Schraw, and Plake's (1994) Goals Inventory. This instrument consists of 25 statements rated on a 5-point Likert-type scale for strength of agreement. The statements assess attitudes and behaviors reflecting either a learning or performance orientation as described by Dweck and Leggett (1988). Twelve items are averaged to produce a learning orientation score (e.g., "Personal mastery of a subject is important to me."), and five items are averaged to produce a performance orientation score (e.g., "It is important for me to get better grades than my classmates."). The remaining eight statements are not scored; we omitted filler item 8 ("I am willing to cheat to get a good grade.") to avoid eliciting inaccurate speculation about the purpose of this study. Test-retest reliability (Roedel et al., 1994) has been reported as $r = .73$ for the learning orientation subscale and $r = .76$ for the performance orientation subscale. The Cronbach measures of internal consistency for our sample was .84 for the learning orientation and .76 for the performance orientation.

Failure attributions were measured using the Academic Attributional Style Questionnaire (Peterson & Barrett, 1987), which is modeled after the more general Attributional Style Questionnaire (Peterson et al., 1982). Both instruments are designed to measure explanatory style, or the causes people use to explain bad events that happen to them. The Peterson and Barrett (1987) questionnaire presents 12 negative academic situations (e.g., "You fail a final exam."). For each statement, students identify the major cause of this event if it happened to them, and they also rate how important it is. Students then rate each of the statements (7-point Likert scales) on three causal dimensions (internal/external,

stable/unstable, and global/specific) which are averaged together to create a composite explanatory style score. Note that a negative attribution style is represented by internal, stable, and global ratings (higher scores), whereas a positive attribution style is represented by external, unstable, and specific ratings (lower scores). Peterson and Barrett (1987) reported an internal consistency alpha of .84 for their sample of first-year college students. The Cronbach alpha for our sample was comparable at .82.

Finally, optimism was measured with the shorter (10 items), revised version of the Life Orientation Test (Scheier, Carver, & Bridges, 1994). The LOT-R consists of six statements (plus four filler items which we inadvertently omitted) assessing general expectations for positive or negative outcomes (e.g., "In uncertain times, I usually expect the best"). Strength of agreement with each statement is rated on a 5-point Likert-type scale ranging from 0 to 4. The three negative outcome or pessimistic items are reverse coded and a sum score is used. Thus, higher scores reflect greater optimism, while lower scores reflect more pessimistic outlooks. Internal consistency for the six test items using Cronbach's alpha was .75 for our sample, which is comparable to Scheier et al.'s (1994) report of .78.

Procedure

Data were collected over a single academic year. The questionnaires were administered to groups ranging in size from 1 to 30 students. Students signed consent forms that gave us permission to obtain their cumulative grade point averages from university records. Students also gave self-report GPAs, and these two sources were highly correlated ($r = .79$, $p < .001$). Students reported an average cumulative GPA of 2.84 ($SD = .71$), and the actual average cumulative GPA on record was 2.84 ($SD = .61$), out of a maximum possible GPA of 4.00. We used the actual GPAs from university records in our analyses. The questionnaire items began with demographic information, followed by the LOT-R, the Goals Inventory, the implicit theories of intelligence question, and the Academic Attributional Style Questionnaire. Completion of the entire survey took students about 30 minutes on average.

RESULTS

Goal Orientations

A 2 (student group) X 2 (goal orientation) mixed design ANOVA¹ was used to compare endorsement of learning and performance orientations for nontraditional and traditional students. The main effect for orientation was significant [$F(1,151) = 111.55$, $p < .001$]; both groups of students endorsed a learning orientation ($M = 3.95$, $SD = .56$) more strongly than a performance orientation ($M = 3.20$, $SD = .91$). The main effect for student group was not significant [$F(1,151) = 1.66$, $p = .20$], but there was a significant interaction for the two variables [$F(1,151) = 27.47$, $p < .001$]. Figure 1 illustrates this interaction. Endorsement of the learning orientation was stronger for nontraditional students ($M = 4.17$, $SD = .55$) than for traditional students ($M = 3.84$, $SD = .54$) [$t(151) = 3.48$, $p < .001$], and endorsement of the performance orientation was weaker for nontraditional students ($M = 2.83$, $SD = .98$) than for traditional students ($M = 3.39$, $SD = .81$) [$t(151) = 3.54$, $p < .001$]. In fact, age was strongly correlated with both orientations. The older the student, the more strongly they endorsed a learning orientation ($r = .32$, $p < .001$); and conversely, the younger the student, the more strongly they endorsed a performance orientation ($r = -.27$, $p < .001$).

Learning and performance orientations are distinctly separate constructs, both theoretically (Dweck, 1986; Dweck & Leggett, 1988) and empirically (Eppler & Harju, 1997; Miller et al., 1993; Roedel & Schraw, 1995; Roedel et al., 1994; Schraw et al., 1995). These two variables were not correlated in our sample ($r = .004$). We used median splits for the two variables to create four goal orientation categories: high learning (high on learning and low on performance orientation); high performance (high on

performance and low on learning orientation); mixed (high on both learning and performance orientations); and uncommitted (low on both orientations). The median for learning orientation in our sample was 4.00, and the median for performance orientation was 3.20; scores above the median were classified as high for that orientation, and scores equal to or below the median were classified as low. These groupings allowed us to tease apart the separate effects of learning and performance orientations, and subsequent analyses involve comparisons of the four goal orientation groups (see Table 1 for predictions and mean scores).

Goal Orientations and Beliefs About Intelligence

Our first test was a comparison of beliefs about intelligence for the four goal orientation groups. A 2 (student group) X 4 (goal orientation group) ANOVA revealed a significant main effect for goal orientation [$F(3,152) = 3.05, p < .03$]. Mean belief scores for the four groups are listed in Table 1. Post hoc paired comparisons (HSD, $p < .05$) indicated that the beliefs scores differed significantly for the performance and learning orientation groups.

The high performance orientation group (with low learning orientation) was significantly more likely to endorse an entity theory of intelligence than the high learning orientation group (with low performance orientation). The high learning group's low mean for the beliefs measure indicates strong endorsement of an incremental theory of intelligence. No other comparisons were significant. Neither the main effect for student group nor the interaction were significant [$F < 1$, ns for both comparisons], and the correlation between beliefs and age was near zero ($r = .08$). Thus, nontraditional and traditional students did not differ regarding their beliefs about the static or malleable nature of intelligence.

Goal Orientations and Academic Performance

Previous research with college students has clearly established positive links between a learning orientation and various measures of academic performance (Eppler & Harju, 1997; Miller et al., 1993; Schraw et al., 1995). The role of a performance orientation has been less clear-cut. It is important to address our limited understanding of how a performance orientation relates to the academic achievement of college students, given the crucial link between performance orientation and learned helplessness in Dweck's model. One strategy was to compare groups who have either a separate orientation (high learning or high performance) or a combined orientation (both high or both low).

A 2 (student group) X 4 (goal orientation group) ANOVA with GPA as the dependent measure revealed a significant main effect for student status; nontraditional students ($M = 3.05, SD = .66$) had significantly higher GPAs than traditional students ($M = 2.73, SD = .56$) [$F(1,152) = 10.08, p < .002$]. The main effect for goal orientation group was also significant [$F(3,152) = 2.87, p < .04$]. Mean GPAs for these four groups are listed in Table 1. Post hoc paired comparisons (HSD, $p < .05$) indicated that GPAs were significantly higher for the learning and mixed groups than for the uncommitted group. Students with a high performance orientation alone had slightly lower GPAs than the two high learning orientation groups, but this difference was not significant. Finally, the interaction between student group and goal orientation group failed to reach significance [$F(3,152) < 1$, ns].

Goal Orientations, Optimism, and Failure Attributions

Based on our analyses of academic performance, learning orientation was clearly related to higher GPAs. Performance orientation, on the other hand, seems to be related to GPA in a more complex way, and we now consider the possibility of intervening variables. In a 2 (student group) X 4 (goal orientation group) ANOVA with optimism as the dependent measure, only the main effect for goal orientation was

significant [$F(3,152) = 7.23, p < .001$]. Mean optimism scores for the four goal orientation groups are listed in Table 1. Post hoc paired comparisons (HSD, $p < .05$) found that the performance orientation group had significantly lower optimism scores than all three of the other groups. Although none of the other comparisons were significant, the learning orientation group had the highest optimism scores, while the two mixed groups had intermediate optimism scores. Although nontraditional and traditional students did not differ on the optimism measure [$F(1,152) = 2.89, p = .09$], there was a significant correlation between age and optimism ($r = .23, p < .003$). With increasing age, students were generally more optimistic. The interaction between student status and goal orientation was not significant [$F(3,152) < 1, ns$].

General optimism alone does not explain the goal orientation group differences for academic performance. Even though the performance orientation group was the most pessimistic, their GPAs were only slightly lower than those of the two learning orientation groups who were both significantly more optimistic. Thus, we considered an alternative variable that is more specifically related to academic situations — failure attributions.

Failure attributions was a composite measure with higher scores indicating a negative explanatory style. Consistent with previous measures, a 2 (student group) $\times$ 4 (goal orientation group) ANOVA showed a significant main effect for goal orientation [$F(3,152) = 5.56, p < .001$]. Mean explanatory style scores for the four groups are listed in Table 1. Post hoc paired comparisons (HSD, $p < .05$) found three significant differences. Both the mixed and performance orientation groups had higher scores than the learning orientation group, and the mixed group also had higher scores than the uncommitted group. More specifically, the two groups with high performance orientation used more negative failure attributions, while the group with high learning orientation alone used more positive failure attributions. Neither the main effect for student group [$F(1,152) < 1, ns$] nor the interaction [$F(3,152) = 2.35, p = .075$] were significant, and the correlation between age and explanatory style was near zero ($r = -.08$). Thus, nontraditional and traditional students did not differ on the kinds of attributions they made regarding failure in academic situations.

Relationships Among the Variables

Finally, we used a correlation matrix to examine intercorrelations of all our variables. Since we found age differences for some of the variables but not for others, we controlled for age when we ran the correlations. To briefly recap, nontraditional students had a significantly higher learning orientation, lower performance orientation, and higher GPAs than traditional students. These two groups did not differ in their beliefs about the static or malleable nature of intelligence, on use of negative failure attributions, or on general optimism (although optimism was positively correlated with age). Table 2 shows the correlations for all of our variables with age partialled out.

Learning orientation was significantly related to higher grades and higher optimism, while performance orientation was also significantly related to higher grades but to lower optimism and more negative explanatory styles. Beliefs about intelligence were negatively correlated with learning orientation (i.e., higher learning orientation related to an incremental view of intelligence) and positively correlated with performance orientation (i.e., higher performance orientation related to an entity view of intelligence). A more entity view of intelligence was also significantly related to lower optimism scores, but was not directly related to explanatory style or to grades. Optimism was not directly related to grades, whereas explanatory style was negatively related to grades (i.e., negative failure attributions were related to lower grades).

DISCUSSION

The purpose of this study was to test the application of Dweck's model (Dweck, 1986; Dweck & Leggett, 1988) to nontraditional and traditional college students. Although both groups endorsed a learning orientation more strongly than a performance orientation, nontraditional students endorsed a stronger learning orientation and a weaker performance orientation relative to traditional students. This replicates previous reports of a significant relationship between learning orientation and age (Burley et al., 1999; Eppler & Harju, 1997). It is also consistent with the literature on nontraditional students' academic motivation (Shields, 1993; Werring, 1987; Wolfgang & Dowling, 1981). Their stronger learning orientation indicates greater intrinsic motivation (focused more on gaining new knowledge and skills), while traditional students' stronger performance orientation indicates greater extrinsic motivation (focused more on avoiding negative evaluations and gaining entry to a career).

In the present study, cumulative grade point averages (GPA) were significantly higher for nontraditional students than for traditional students. This difference was not significant in the Eppler and Harju (1997) study, probably because that sample included part-time students who were most often nontraditional (26% versus only 3% of traditional students) and working significantly more hours. The present study focused exclusively on full-time students. Nontraditional and traditional students did not differ in their implicit beliefs about their own intelligence or ability, on the use of negative failure attributions, or on general optimism. Thus, the major focus of our analyses was to compare different goal orientation groups.

Students' personal beliefs about the fixed (entity theory) or flexible (incremental theory) nature of intelligence matched predictions from Dweck's model. Students with a high performance orientation (and a low learning orientation) held a stronger entity view of intelligence, while students with a high learning orientation (and low performance orientation) held a stronger incremental view of intelligence (Table 1). The two groups with mixed orientations (both high or both low) showed intermediate ratings on the beliefs about intelligence measure, indicating a less defined view of their own intelligence.

Roedel and Schraw (1995) found only partial support for the predicted relationship between beliefs about intelligence and goal orientation (i.e., entity theory was positively correlated with a performance orientation, but did not show the expected negative correlation with a learning orientation). In contrast, our data matched Dweck's model for both goal orientations. Our study differed from Roedel and Schraw (1995) in that we treated mixed goal orientations as separate groups. We found that each respective goal orientation (either learning or performance) matched the predicted beliefs about intelligence, but only when the other orientation was not strongly endorsed. Our findings should be interpreted with caution, however, since we measured students' beliefs about intelligence with a single entity item (as used by Dweck et al., 1993). Although this single item effectively discriminated entity and incremental views in previous research (see Dweck et al., 1993), there is some question about its reliability.

Although a positive link between learning orientation and academic performance has been established (Eppler & Harju, 1997; Miller et al., 1993; Schraw et al., 1995), the role of performance orientation has been unclear. Given the critical link between a performance orientation and learned helplessness in Dweck's model, it is important to address this limited understanding of how a performance orientation relates to the academic achievement of college students. We found that students with a high performance orientation maintained a high GPA as long as they also had a high learning orientation, but their grades were slightly lower if they had a low learning orientation (Table 1). This is consistent with previous findings (Eppler & Harju, 1997), and indicates that the learning orientation (either alone or in

combination with a performance orientation) is important in predicting higher academic success. Students who scored low on both learning and performance orientations demonstrated the lowest academic performance. These findings indicate that the relationship between performance orientation and academic achievement is not as direct as the relationship between learning orientation and academic achievement. It appears that the relationship between performance orientation and academic achievement is mediated by factors such as general optimism or negative failure attributions.

Comparison of levels of optimism for the four goal orientation groups revealed that the high performance orientation group had significantly lower optimism than all three of the other groups (Table 1). Optimism does not, however, account for group differences in academic performance. The high performance orientation group was the most pessimistic, yet they maintained a level of academic achievement that was only slightly below that of the two learning orientation groups who were both significantly more optimistic. Even the uncommitted group, who exhibited the lowest academic achievement, had higher optimism scores than the performance orientation group.

Students' failure attributions for academic events did a better job of delineating the relationship between performance orientation and academic success. Consistent with our predictions, the two groups with a high performance orientation (high performance alone and both orientations high) exhibited a relatively negative explanatory style, whereas the high learning orientation group exhibited a more positive explanatory style (Table 1).

Correlational analyses provided further insight into the relationship between orientation and grades. Both learning and performance orientations were positively correlated with academic achievement. Students' failure attributions, however, appear to provide an additional indirect negative link between performance orientation and grades. Performance orientation was correlated with a negative explanatory style, and a negative explanatory style was correlated with lower grades. Learning orientation, in contrast, was not related to explanatory style. These findings suggest that performance orientation may motivate students to perform well for extrinsic reasons, until they encounter failure situations. When faced with academic failure, students with a strong performance orientation (independent of their learning orientation) tend to utilize a set of attributions which has been linked to learned helplessness and depression. This supports the view that students who endorse a performance orientation are at risk for learned helplessness. The surprising finding is that the strong learning orientation of the mixed group (both goals high) do not counter or offset the negative attributions associated with a performance orientation.

Although students' general levels of optimism were positively related to a learning orientation and negatively related to both a performance orientation and beliefs about intelligence, optimism was not directly related to grades. This suggests that both incremental beliefs about intelligence and a learning orientation reflect a higher level of general optimism, but it is the learning orientation that promotes the behaviors which result in successful academic achievement. In a parallel fashion, both entity beliefs regarding intelligence and performance orientation reflect a higher level of general pessimism, but it is a performance orientation that promotes the learned helplessness response.

Since these data are correlational, it is possible that these variables operate in the opposite direction. For example, because of their higher grades, successful students may feel free to endorse a learning orientation. They may simply feel more positive about the learning process (because it is usually successful), less focused on the outcome evaluation (because this feedback is usually positive), and

more motivated to be persistent in the face of obstacles (because this usually pays off). Dweck and colleagues have tested the components of this model experimentally in children, and Dweck has repeatedly emphasized that it is often the brightest students who are the most prone to learned helplessness (see Dweck, 1986 for a review of these studies). Undoubtedly, academic success reinforces the learning orientation, but does academic success actually produce a learning orientation? The answer to this question awaits comparable experimental work with college students.

One purpose of the present study was to clarify the role that a performance orientation plays in the academic achievement of college students. Few studies have examined how students with combined learning and performance orientations actually compare to students with primarily one or the other orientation. Pintrich & Garcia (1991) reported that college students with an intrinsic orientation (i.e., oriented more toward a learning orientation) expressed greater interest in course material, higher levels of self-efficacy, and used more complex cognitive strategies (e.g., elaboration) when learning course material. However, intrinsic goals were not directly related to course grades. In fact, extrinsic goals were positively related to course grades through more effective motivational and cognitive strategies, but only when intrinsic goals were low.

Having both high intrinsic and high extrinsic goals was not as adaptive as either set of goals alone, because the use of more effective strategies was offset by greater test anxiety related to extrinsic motivation. In the present study, we found that students with a mixed orientation differed from both the high learning and high performance orientation students in their beliefs about the static or malleable nature of intelligence; but there were also striking similarities. Students with a mixed orientation had the advantage of being similar to the learning orientation group on general academic achievement (GPA), yet they had the disadvantage of being similar to the performance orientation group on failure attributions.

An important direction for future research is to compare the actual behavioral responses of the four orientation groups in experimentally induced failure situations. Students with a strong performance orientation should be more prone to learned helplessness than students with a strong learning orientation, but where would students with a mixed orientation fall?

One strategy for academic intervention would be to strengthen the learning orientation by encouraging students to attend to steps in the learning process, rather than focusing exclusively on outcome measures and evaluation. A shortcoming of this approach may be that the learning orientation does not buffer students with a mixed orientation from making negative failure attributions that lead to a learned helplessness response. The key to successful intervention may be found in monitoring and modifying students' responses to failure, particularly their explanations for the causes of failure (Dweck, 1975).

We found surprisingly few differences for nontraditional and traditional students. Nontraditional students' stronger learning orientation and weaker performance orientation may help them to be more resilient to academic learned helplessness, yet there were no group differences for failure attributions. One limitation of the present study is the small sample of nontraditional students, which forced us to treat them as a homogeneous group. Nontraditional students are, in reality, a relatively heterogeneous group. For example, while they are generally more mature than traditional students, their motivations and academic skills may vary considerably depending on why they did not complete the college degree at the traditional age. The nontraditional group also varies widely in terms of the number of different roles or time demands they have in addition to being full-time students. Some students have heavy family

responsibilities (e.g., young children) while others have fewer family responsibilities (e.g., no children or retired with grown children). Future research should examine how these roles impact academic achievement in nontraditional students. In sum, Dweck's model of achievement motivation helps us to understand why students of comparable ability may differ with regard to actual academic achievement, and also points to strategies for academic intervention.

Authors' Note: Portions of this study are based on C.C.P.'s undergraduate senior honors thesis.

1 For most of our ANOVAs, we could not include sex of the participants as a variable because several cells were too small (e.g., nontraditional males in various goal orientation groups). In analyses where it was possible to include sex, none of the main effects for sex nor any of the interactions with sex reached significance.

TABLE 1 Predictions and Outcomes for the Four Goal Orientation Groups

Legend for Chart:

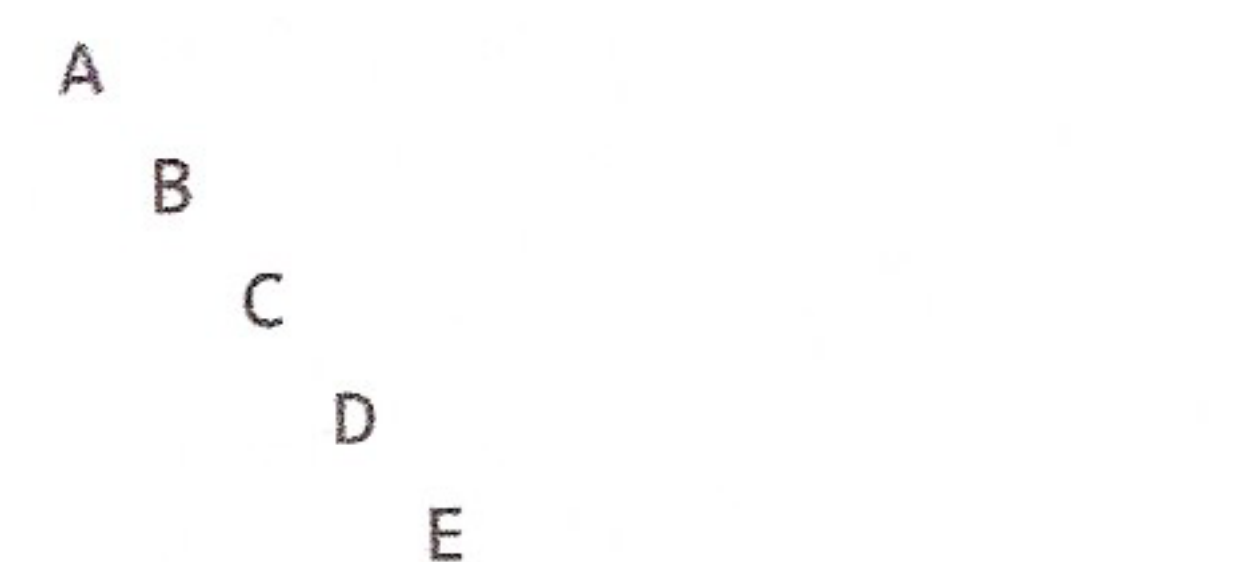
A-Goal Orientation

B-High Learning n = 40

C-High Performance n = 40

D-Mixed (both high) n = 32

E-Uncommitted (both low) n = 41



Beliefs About Intelligence

Prediction

incremental (low)

entity (high)

mixed

mixed

Outcome

1.77(1.10)[a]

2.52(1.06)[a]

2.25(1.32)

2.07(1.01)

Grade Point Average

Prediction

high

moderate

high

low

Outcome

2.99(.63)[a]

2.77(.64)

2.96(.56)[b]

2.65(.56)[a][b]

Failure Attribution (Explanatory Style)

Prediction

positive (low)
negative (high)
negative (high)
mixed

Outcome

4.17(.67)[a][b]
4.59(.66)[a]
4.70(.59)[b][c]
4.32(.68)[c]

General Optimism

Prediction

high
low
moderate
low

Outcome

18.25(3.83)[a]
12.95(3.89)[a][b][c]
15.03(4.39)[b]
15.39(4.05)[c]

Note: Standard deviations are given in parentheses next to the respective mean scores. Matching superscript letters indicate pairs of means that differed significantly at the .05 level. Outcomes fit predictions in all cases except for optimism.

TABLE 2 Intercorrelations of Variables Controlling for Age

Legend for Chart:

A-
B-1
C-2
D-3
E-4
F-5
G-6

A	B	C	D	E	F	G
1. Beliefs About Intelligence						
-	-.21[**]	.17[*]	-.34[***]	.10	-.01	
2. Learning Goals						
		-.09	.42[***]	.08	.18[*]	
3. Performance Goals						
			-.26[***]	.21[**]	.18[*]	
4. Optimism						
				-.07	-.01	
5. Explanatory Style						

6. Grade Point Average

-

* $p < .05$.; ** $p < .01$; *** $p < .001$.

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GRAPH: FIGURE 1 Differences in Goal Orientation for Nontraditional and Traditional College Students

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By Marion A. Eppler, Department of Psychology, East Carolina University, Greenville, NC 27858-4353;  
Catherine Carsen-Plentl, East Carolina University and Beverly L. Harju, East Carolina University

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