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ABSTRACT

Three pilot studies are used to examine the relationships between academic performance, student ability, and motivation among community college students. The first study analyzed the association between motivation and academic performance in order to test the hypothesis that students who are highly motivated will earn higher grades. Results indicate that the relationship between level of motivation and academic performance fluctuate throughout the semester. The second study examined the relationship between students' attribution of success and academic performance, in order to explore beliefs held by students, the antecedents to students' beliefs, and how the beliefs are related to actual academic performance. The findings suggest that students who attribute academic performance to internal factors such as self-ability and hard work earn higher grades than those who do not. The third study addresses the notion that the affective state is an indirect measure of motivation. In order to test this relationship, a model was developed that integrated achievement motivation theory with a two-dimensional approach to emotion. The results illustrate that students who report feeling confident and enthusiastic before a test perform better on the exam than students who express feelings of anxiety or worry. The combined results of these studies can be useful to those developing "Freshmen Year Experience" courses at community colleges. (Contains 10 tables.) (SKF)

# Academic Performance as a Function of Achievement Motivation, Achievement Beliefs, and Affect States

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## Overview

In the simple case, academic performance of the individual reflects two variables: ability (cognitive skill, knowledge) and motivation. This report is concerned with three pilot studies related to the motivation of community college students. The findings are of potential use to those who are developing, "Freshmen Year Experience" courses, since these types of classes place importance on the role of motivation in academic success.

The first study tests the hypothesis that an association exists between achievement motivation and academic performance. The results of the research show that the relationship between achievement motivation and academic performance fluctuates throughout the semester. This instability may account for previous reports of low or no correlations between these variables.

The second study explores the relationship between student attributions of success (achievement beliefs) and academic performance. Findings show that students who believe in the importance of "self-ability" and "hard work" are more likely to earn higher grades than students who believe in the importance of "teacher skill" and "luck".

The third study examines the idea that affect state is an indirect measure of motivation. This research is an integration of classic achievement motivation theory and a two-dimensional model of emotions. The research results indicate that students who report feeling confident and enthusiastic before a test perform better than students who are anxious and worried.

Study 1

## Achievement Motivation and Academic Performance of Community College Students

Two of the many variables that influence the success of community college students in the classroom are motivation and ability. In relation to motivation, students often wonder the following: How much work is required for this class? How hard are the tests? How much will I learn in this class? These questions illustrate some of the issues that are important to community college students in academic achievement situations. However, college professors are aware that not all students are motivated in the classroom.

Traditionally, the study of motivation has focused on the cause of goal oriented activity. It has been proposed, (Atkinson, 1958; Atkinson and Birch, 1978; Atkinson and Raynor, 1978) that resultant achievement motivation (RAM) reflects the difference between the motive to achieve (MS) and the motive to avoid failure (MAF). These motives have been measured in the past with projective tests and questionnaires.

Given the above, the current hypothesis tested here is that community college students with a higher resultant motivation or RAM, where the motive to achieve is greater than the motive to avoid failure (i.e., MS>MAF), will earn higher grades in an introductory psychology class than students with lower resultant achievement motivation (i.e., MAF>MS).

## Method

### Participants

One hundred and twenty-four students from a variety of daytime introductory psychology classes at Oakland Community College participated in the study. There were an equal number of males and females.

### Procedure

On the first day of class, the students completed a brief biographical data sheet, as well as the Meharbian (1968) achievement motivation scale. The students also filled out the Alpert and Haber (1960) debilitating test anxiety scale (DA). The measures of student academic performance were three 50 item multiple-choice exams and assigned final grade (A, B, C, D, or F).

The predictor variable in the study was the student's RAM score. This variable was constructed by transforming the achievement motivation scores and the test anxiety scores into z-scores and then subtracting the test anxiety score from the achievement motivation score.

## Results

The relationship between demographic variables and RAM was tested first. In general, little or no association was found. However, a small correlation between gender and RAM was present, $r = -.19$ ($p<.05$.) This suggests a slight tendency for males to receive higher RAM scores.

Table one indicates a statistically significant correlation between RAM scores and student performance on the first test. The correlation between RAM scores and test two,

three and assigned final grade are in the expected direction however, the correlation fails to reach statistical significance.

Of the students sampled 20 did not complete the class. The unexpected, however very relevant finding is that among the non-completers 14 (70%) exhibit RAM scores where the students' motive to avoid failure (MAF) score is greater than their motive to succeed (MS) score.

## Discussion

The finding of a positive relationship between RAM scores and academic performance, even though small, supports the research hypothesis that higher RAM scores are related to higher grades.

The strength of the relationship is in keeping with other studies in the literature (e.g., McKeachie, Isaacson, Milholland and Lin, 1968; Spangler, 1992). Meta-analysis suggests that questionnaire measures of achievement motivation usually correspond to school related outcomes with a median of $r = .15$. In addition, the results of this study are typical in showing the difficulty in predicting college grades from questionnaire measures of achievement motivation.

The finding that over half of the non-completers received MAF>MS scores is of great importance. This unanticipated result, that non-completers may be more failure oriented deserves further research. This outcome may suggests that one way to "avoid" failure is to leave the setting, where the evaluation occurs.

For future research, it will be useful to measure external achievement cues in the classroom such as the instructor's emphasis on high performance in the course. It would

be expected that such cues interact with the student's achievement orientation. In addition, it would be helpful to obtain a rating from each student, of the perceived importance of the class for future educational and professional goals.

Study 2 Beliefs About Academic Success Held by Community College Students and Their Actual Academic Performance

Community college students, like other college students, hold a variety of beliefs about the factors that contribute to their academic success. This study focuses on three questions: 1) What are the beliefs held 2) What are the antecedents to these beliefs? and 3) Are these beliefs related to actual academic performance?

## Methods

### Participants

This study involved 87 students who completed an introductory psychology course at Oakland Community College. The average age of the students was 23, and 50 (58%) of the students were female.

### Procedure

The students filled out a brief questionnaire on the first day of class. They provided biographical data and completed a vocabulary test to assess cognitive ability. The students rated the influence of six factors on their academic performance. These factors were measured on a 5-point scale where 1=almost never and 5=almost always. The measure of academic performance was the students' average (mean) test performance on three 40-point exams.

## Results

Table 1 displays the degree to which the students believe the six factors (self ability, hard work, luck, difficulty of class material, teacher skill, & social life) contribute to their academic success.

Table 2 shows the intercorrelations of the six factors. Of interest is the finding that students who believe that "hard work" contributes to academic success are likely to believe that "teacher skill" is a determinant of academic success and tend to reject "luck" as a positive success factor.

The correlations in Table 3 indicate the extent to which achievement beliefs are related to demographic variables (gender and age) and ability variables (vocabulary and high school grade point average). In general, there is little or no association between demographic variables and the students' achievement beliefs. However, there is a trend for older students and female students to attribute "hard work" to academic success which is less present for younger and male students.

High school grade point average and level of vocabulary were used to measure cognitive skill. This research found that students with a higher grade point average in high school are more likely to believe that "social life" does not make a positive contribution to academic performance. In terms of vocabulary level, students with higher vocabulary scores tend to strongly endorse the importance of "self ability" as a factor in academic success.

Student achievement beliefs seem to play an important role in academic performance as well. Belief in the importance of "self ability" and "hard work" are most strongly correlated with average test performance (See Table 4).

## Discussion

The data obtained in the present study shows that students who most strongly attribute "self ability" and "hard work" to academic performance receive higher test

scores on average than those who don't. In addition, one should note that "self ability" and "hard work" are both intrinsic factors while the other four factors are extrinsic. This lends support to the notion that high achievers have an "internal locus of control." The findings of this study seem worthy of future research with larger samples and different classes. Moreover, future research should examine whether students with different affect states use different cognitive strategies when studying and taking examinations.

Study 3 Academic Performance of Community College Students as Related to Emotional State

On the day of examinations in a college classroom, students exhibit a variety of emotions: some positive and some negative. Do emotions contribute in a positive manner or can they inhibit academic success? Research (Russell, 1980; Russell, Weis, and Mendelson, 1989) indicates that the two fundamental dimensions of emotion (affect) are pleasure-unpleasure and arousal-sleepiness.

Classic achievement motivation research (Atkinson, 1958; Atkinson and Raynor, 1978) suggests that differing motive states are correlated with differing emotional states. That is, when the motive to achieve (MS) is greater than the motive to avoid failure (MAF) then the emotional state of the student is more likely to be eagerness and enthusiasm. On the other hand, when the MAF is greater than the MS, one would expect the emotional state of the student to be anxiety and worry. In terms of a two-dimensional model, it is expected that MS>MAF corresponds to high "arousal-pleasure". Conversely, MAF>MS is expected to correspond to high "arousal-unpleasure".

The purpose of this study is to test the effectiveness of the complete two-dimensional model (Russell, 1980; Russell, Weis, and Mendelson, 1989). It is hypothesized that students who score high in the arousal-pleasure area will perform better on exams than students in the high arousal-unpleasure group. No theoretical expectations exist regarding performance in the other two areas (calm & depression).

## Method

### Participants

One hundred and sixty students enrolled in an introductory psychology at Oakland Community College participated in the study. In terms of gender, 56 of the students were males and 104 were females.

### Procedure

On the first day of class, the participants completed a student data sheet where they indicated, "how they typically felt when taking exams". The four categories that they selected from are displayed in Table 1. On the same day students also completed a vocabulary test. Over the course of the semester the students took four, 50 question, multiple-choice exams which served as the dependent variable.

## Results

The research results show that there is a trend for females to report more negative feelings while taking tests (See Table 2). However, this trend was not found to be statistically significant. On average students whose MS score is greater than their MAF score received higher vocabulary scores, while students whose MAF is greater than their MS scored lower. These results are displayed in Table 3.

Table 4 clearly indicates that MS>MAF students perform better overall than MAF>MS students. As expected, the depressed group performed the lowest on the four exams. However, the difference among the groups fails to reach statistical significance ($p<.09$). Finally, the MAF>MS group contained the greatest percentage of non-completers (See Table 5).

## Discussion

The results of this study lend support to the notion that students in the MS>MAF group perform better than student in the MAF>MS group. Also supported is the idea that students in the MAF>MS group are more likely not to complete the course. In the educational literature, dropping out of a class is interpreted as "failure". However, from the point of view of the student, especially the students with a high motive to avoid failure, dropping out of the class is actually a way to avoid failure.

The findings of this study suggest that one of the components of the MAF>MS students is the fact that they are realistically aware of their lack of a given skill. Also, the results indicate the usefulness of the two-dimensional affect-state model as a supplement to achievement motivation theory. In future research student affect state should be recorded for each test given as well as the students' perceived importance of the class itself.

Study 1-Table1

Correlations Between Resultant Achievement Motivation (RAM) and Test Performance

n=124 (Course Completers)

| Test Number | Correlation |
|---|---|
| One | .25* |
| Two | .16 |
| Three | .16 |
| Final Grade | .13 |

*P<.05

Study 2-Table 1

Mean Ratings of Student Belief Factors and their Contribution to Academic Success

| Factor | Mean | SD |
|---|---|---|
| Working Hard (Study Efforts) | 4.0 | 1.1 |
| Teacher Skill | 3.8 | 1.0 |
| Self Ability | 3.7 | 1.0 |
| Difficulty of Class Material | 2.8 | 0.9 |
| Luck | 2.1 | 0.9 |
| Social Life | 2.1 | 1.1 |

Study2-Table 2

Intercorrelations of Student Belief Factors About Academic Success

| | Self Ability | Hard Work | Teacher Skill | Class Difficulty | Social Life |
|---|---|---|---|---|---|
| Hard Work | .49** | - | - | - | - |
| Teacher Skill | .38** | .32** | - | - | - |
| Class Difficulty | .29** | .13 | -.11 | - | - |
| Social Life | .12 | 0 | 0 | .10 | - |
| Luck | 0 | -.27** | -.14 | -.11 | 0 |

*p<.05

**p<.01

Study 2-Table 3

Success Beliefs and Background Demographic Variables

| | Self Ability | Hard Work | Class Difficulty | Luck | Teacher Skill | Social Life |
|---|---|---|---|---|---|---|
| Gender | 0 | .21* | 0 | 0 | 0 | -.12 |
| Age | .10 | .13 | 0 | 0 | 0 | -.13 |
| HS GPA | .10 | .18 | 0 | .13 | -.18 | -.30** |
| Vocabulary | .33** | .15 | .13 | 0 | -.13 | -.15 |

*p<.05

**p<.01

Study 2-Table 4

Success Belief Factors and Academic Performance

| Beliefs | Average Test Performance |
|---|---|
| Self Ability | .21* |
| Hard Work | .21* |
| Luck | 0 |
| Course Difficulty | .11 |
| Teacher Skill | 0 |
| Social Life | -.11 |

*p<.05

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| Teacher Skill | 0 |
| Social Life | -.11 |

*$p<.05$

Study 3-Table 1

Descriptive Adjectives for Affect State

| MAF>MS | MS>MAS |
|---|---|
| Anxious | Aroused |
| Nervous | Confident |
| Tense | Enthusiastic |
| Worried | Excited |
| | |
| Depressed | Calm |
| Bored | At Ease |
| Drowsy | Calm |
| Sleepy | Leisurely |
| Tired | Relaxed |

Study 3-Table 2

Gender and Affect State

| MAF>MS | MS>MAF |
|---|---|
| 70% Female | 55% Female |
| **Depressed** | **Calm** |
| 75% Female | 56% Female |

Note: 65% of the sample were female
F=1.19, DF=3/156, p=.32

Study 3-Table 3

Vocabulary Level in Percentile as a Function of Affect State

| MAF>MS | MS>MAF |
|---|---|
| 50th Percentile | 64th Percentile |
| **Depressed** | **Calm** |
| 59th Percentile | 69th Percentile |

F=8.23, DF=3/156, p=.000

Study 3-Table 4

Average Test Performance in Percent as a Function of Affect State

| MAF>MS | MS>MAF |
|---|---|
| 70% | 78% |
| **Depressed** | **Calm** |
| 66% | 74% |

Average test performance=72%
F=2.21, DF=3/129, p=.09

Study 3-Table 5

Percentage of Non-completers as a Function of Affect State

| MAF>MS | MS>MAF |
|---|---|
| 22% | 9% |
| **Depressed** | **Calm** |
| 0% | 8% |

Base rate of non-completers = 16%

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