

# Academic Behaviors as a Function of Academic Achievement, Locus of Control & Motivational Orientation

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## Abstract

Investigated the academic behaviors, locus of control, and motivational orientation of students ( $n = 161$ ) majoring in agriculture at a mid-southern university. The instruments used were the Study Habits Inventory (Jones & Slate, 1992), the Academic Locus of Control Scale (Trice, 1985), and the Educational Participation Scale (Boshier, 1971). Students responded appropriately to only 50.8% of the questions measuring academic behaviors, and demonstrated several characteristic weaknesses in note-taking, studying, and reading. Grade point average was positively correlated with students' academic behavior ( $r = .43$ ), and negatively related to students' locus of control score ( $r = -.45$ ). Grades were also negatively correlated with motivational orientations focusing on social relationships ( $r = -.16$ ) and external expectations ( $r = -.17$ ), but these relationships were weak. Implications for intervention programs are addressed.

Agriculture and related industries comprise a major source of jobs for Americans, and jobs in these fields will continue to increase (Arkansas Department, 1990). In spite of this promising job market, the Arkansas Department of Higher Education (ADHE) found that colleges of agriculture in Arkansas have difficulty retaining students. Thus, ADHE has projected a deficit in the future supply of agri-

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the tutors with whom they work are much better prepared and qualified to offer the necessary assistance. Students have also benefitted in that the Writing Lab schedule has not been curtailed in spite of budgetary cutbacks. In addition, faculty and the college have benefitted in that students continue to have available outside the classroom the substantial writing support which is so critical to writing intensive courses and student retention. The tutor effectiveness course has truly been a winning combination for all involved.

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cultural scientists, technicians, and business professionals needed by industries and government agencies in Arkansas. If such shortages are to be reduced, research must identify factors that contribute to the low retention rate among agriculture students. Because academic difficulties cause many college students to fail to complete their degree programs (Tinto, 1985), research that identifies variables related to the academic achievement among agriculture students needs to be conducted.

Students' basic academic skills is one variable that affects the persistence of college students through its effect on academic achievement (Kowalski, 1982; Brozo, Schmelzer, & Thurber, 1982). Researchers have found that many college students lack necessary academic skills. For example, Hart and Keller (1980) found that college students with less than a C average their first semester reported that the major reasons for their low achievement were poor time management skills, poor study skills, and poor test-taking skills. More recently, Jones, Slate, and their colleagues have found large academic skill deficiencies among students in a general education course (Slate, Jones, & Stone, 1990) and graduating seniors in a teacher education program (Jones, Slate, & Kyle, 1992; Lawler-Prince, Slate, & Jones, in press). Thus, if agriculture students are similar to other college student populations, a lack of adequate academic skills is contributing to the poor retention rate for agriculture students.

Researchers have also found that noncognitive variables affect college students' academic achievement and persis-

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tence (Munro, 1981). One such variable is locus of control, that is, a person's belief in the extent to which success or failure is controlled by one's actions or by outside forces (Rotter, 1966). People with an internal locus of control believe their outcomes are primarily a result of their own behavior; whereas people with an external locus of control believe that outcomes are due mostly to chance or actions of other individuals. Studies of the relationship between locus of control and academic achievement have produced inconsistent results across various populations (Phares, 1976), although Munro (1981) found that internals were more likely to persist in college than were externals. Given high variability across populations, however, the relationship of locus of control to academic achievement needs to be investigated with this specific population.

Motivation to succeed in academic undertakings is another noncognitive variable affecting students' academic achievement and persistence in college (Anderson, 1985). Boshier (1971) defined motivational orientation as the extent to which students' reasons for entering college emphasize a need to have social relationships, meet external expectations, advance social welfare, obtain professional advancement, find escape or stimulation, or satisfy cognitive interests. Although motivational orientations has been examined in several studies, previous research has been directed toward describing differences in students' motivation orientation as a function of their age and/or gender (Morstain & Smart, 1974; Wolfgang & Dowling, 1981), and changes in motivational orientation during the first year of college (Stage & Williams, 1990). Relationships between motivational orientations and academic achievement has yet to be investigated.

This study was designed to explore the relationship of academic skills, locus of control, and motivation orientation to the academic achievement of agriculture students. Three specific research questions were addressed. (a) Are the academic skills of agriculture students related to their academic achievement, and, if so, what are the academic strengths and weaknesses that characterize these students? (b) How is locus of control related to agriculture students' academic achievement and to their academic skills? and, (c) How are the motivational orientations of agriculture students related to their academic achievement and skills?

### Method

The population from which this sample was drawn consisted of students enrolled in agriculture courses at a university in the Mid-South. A nonprobability cluster sample was employed to insure that the sample included all majors within the college. As a result students enrolled in 12 courses were surveyed. Because some students were enrolled in more than one course included in the sample, duplicate students were asked to complete only one survey.

Only agriculture majors ( $n = 149$ ) were included in the final data analyses. The majority of students were single (127 single, and 21 married), White (135 White, 8 Native American, 1 African American, and 5 other), and male (120 male, and 28 female). With regard to age, 133 were 25 years of age or below and 16 reported being above age 25. The mean cumulative grade point average (GPA) was 2.68 ( $SD = .56$ ) with 63% of the sample having GPAs of 2.00 to 2.99. Most of the students (64%) reported being first generation college students.

### Instruments

Students completed a four-part survey comprised of a demographic information sheet, the Study Habits Inventory (Jones & Slate, 1992), the Academic Locus of Control Scale (Trice, 1985), and the Educational Participation

Scale (Boshier, 1971).

The Study Habits Inventory (SHI) consists of 63 true-false items describing appropriate (30 items) and inappropriate (33 items) academic behaviors (Jones & Slate, 1992). Reverse scoring items indicating inappropriate behaviors and summing a student's responses provides a score indicating students' level of academic skill. Scores can range from 0 to 63 with higher scores indicating better study behaviors than lower scores.

Jones and Slate (1992) reported high reliability for the SHI with an average coefficient alpha of  $+ .85$  and a two week test-retest reliability of  $+ .82$ . The coefficient alpha was  $+ .85$  in this study. The validity of the SHI has been shown in several ways. On average, SHI scores have accounted for 15.2% of the variance in college students' grades, with  $r$ s ranging from  $+ .16$  to  $+ .54$  in individual studies. Also, SHI scores have correlated significantly with measures of procrastination ( $r = -.46$ ), and dualistic thinking ( $r = -.33$ ). In other words, students with high SHI scores typically procrastinate less, and are less dualistic in their thinking than are students with low SHI scores.

The Academic Locus of Control Scale for College Students (ALC) is composed of 28 true-false items related to personal control over academic outcomes (Trice, 1985). In this study, the ALC had a coefficient alpha of  $+ .68$ , comparable to previous research in which the ALC was found to have a coefficient alpha of  $+ .70$  (Trice, 1985). A total academic locus of control score was computed for each student by summing the number of questions for which each student chose the externally oriented response. Thus, the higher the total locus of control score, the more externally-oriented a student's responses.

The Educational Participation Scale (EPS) consists of 48 items related to the reasons for enrolling in adult education classes (Boshier, 1971). The original 48-item instrument was selected because it had been used successfully in previous research on college students (Morstain & Smart, 1974; Wolfgang & Dowling, 1981). The six motivational factors identified by this scale are: 1) Social Relationships, 2) Ex-

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ternal Expectations, 3) Social Welfare, 4) Professional Advancement, 5) Escape/Stimulation, and 6) Cognitive Interest. A 5-point Likert-type format was used to conform to the optical scanning sheet available for computer scoring of the data. A total score for each motivational orientation was derived for each student by adding his/her responses to items representing each motivational orientation. The EPS had a coefficient alpha of +.92 in the present study. This level of internal consistency is unexpectedly high for a scale that is supposed to measure six different motivational orientations.

## Results

### Academic Skills

The first research question asked whether the academic skills of agriculture students were related to their academic achievement, and, if so, what academic strengths and weaknesses characterized these students. The mean SHI score was 32 ( $SD = 8.9$ ; range = 12 to 61) indicating that, on average, students responded to only 50.8% of the items appropriately. These scores were positively correlated with GPA,  $r(133) = +.43$ ,  $p < .01$ . Specific academic strengths and weaknesses that characterized the students as a group were identified through an analysis of their responses to individual SHI items. An academic strength was operationally defined as an item on which 75% or more of the students indicated appropriate behavior. An academic weakness was operationally defined as an item on which 75% or more of the students indicated inappropriate behavior. There were eight items that met the definition of a strength (see Table 1) and six items that met the definition of a weakness (see Table 2). Content analysis of these items revealed three general themes: note-taking, study techniques, and reading skills.

**Note-taking.** Students reported several positive note-taking behaviors, including the use of abbreviations and phrases rather than recording complete sentences. They also used a notebook in which to keep notes and, if they used a tape recorder, took handwritten notes as well. On the other hand, few students had a system for recording new words and their meanings.

Table 1. SHI Items Indicating Overall Academic Strengths.

SHI Item (Correct Response)	Percent Appropriate
I tape record lectures instead of taking notes. (False)	96.6
I take notes on odd, loose slips of paper instead of in a notebook. (False)	93.3
I often do not have reports ready on time, or they are done poorly if I am forced to have them in on time. (False)	87.8
I use the facts learned in school to help me understand events outside of school. (True)	86.6
I use the facts I learned in one course to help me understand the material in another course. (True)	86.6
In studying a textbook, I try to memorize the exact words in the text. (False)	75.2
I often try to make school work more enjoyable by having a beer while I study. (False)	75.2
When taking notes in class, I abbreviate words and jot down phrases rather than complete sentences. (True)	75.2

Table 2. SHI Items Indicating Overall Academic Weaknesses.

SHI Item (Correct Response)	Percent Inappropriate
I do most of my reviewing for a test the night before the examination. (False)	80.4
I use the headings to make an outline of a chapter before I begin to read it. (True)	75.2
Before reading a chapter, I jot down a few questions and a list of key terms to focus my attention while reading. (True)	81.2
Sometimes I discover that I have "read" several pages without knowing what was on them. (False)	79.9
Sometimes I make simple charts or diagrams to show how the facts I am learning are related to each other. (True)	75.4
I keep a special indexed notebook or card system for recording new words and their meanings. (True)	89.9

**Study techniques.** With regard to strengths, students indicated they did not try to memorize texts verbatim, and they tried to use facts learned in one course to help them understand both material in other courses and events outside of school. Students, however, were weak in using charts or diagrams to show how facts related to one another. Also, students tended to postpone most of their studying until the night before a test.

**Reading skills.** Reading was the students' weakest area of academic skill, with no strengths but three weaknesses identified. Students indicated that they did not preview chapters before reading them by developing outlines, writing questions, or listing terms. Given this lack of active engagement in reading, the fact that 79.9% reported that they often "read" several pages without knowing what was on them is not surprising.

### Locus of Control

The second research question asked how locus of control is related to agriculture students' academic achievement and to their academic skills. The mean academic locus of control score for the sample was 12.48 ( $SD = 4.06$ , range = 1 to 23). These locus of control scores were negatively related to GPA,  $r(134) = -.45$ ,  $p < .01$ . Locus of control scores were also negatively correlated with SHI scores,  $r(136) = -.62$ ,  $p < .01$ . Thus, the more external students' locus of control, the lower their GPAs and the weaker their academic skills tended to be.

### Motivational Orientation

The third research question asked how agriculture students' motivational orientations relate to their academic achievement and academic skills. Table 3 displays the correlations of the six scales of the EPS with GPA and with SHI scores. Only Social Relationships,  $r(139) = -.16$ ,  $p < .05$ ,

Table 3. Correlations of Motivational Orientations with GPA and SHI Scores

Motivational Orientation	GPA		SHI Scores	
	r	N'	r	N'
Social relations	-.15*	139	-.12	140
External expectations	-.16*	137	-.19*	139
Social welfare	-.04	137	+.12	138
Professional advancement	+.10	139	+.12	140
Escape	-.04	136	-.06	138
Cognitive interest	+.04	137	+.13	137

\*Ns vary because of failures to respond to individual items.  
\* $p < .05$ .

and External Expectations,  $r(137) = -.17$ ,  $p < .05$  were significantly correlated with GPA. External expectations was also negatively correlated with SHI scores,  $r(139) = -.19$ ,  $p < .05$ . Thus, entering college in order to meet external demands was associated with both low academic achievement and poor academic skills. Entering college in order to establish social relationships was associated only with low academic achievement.

## Discussion/Recommendations

### Academic Skills

On average, the agriculture students in this study reported appropriate behavior on only half of the items on the SHI. This is disturbing because of the positive correlation ( $r^2 = .18$ ) found between SHI scores and GPAs. The characteristic weaknesses of these students included a lack of an organized system for learning new terminology, waiting until the night before an exam to study, and not using charts or diagrams to understand the organizational structure of information. Most importantly, these students read textbooks in a very passive way which resulted in a tendency to read several pages without knowing what was on them. Although these academic skills are modifiable, interventions to improve these skills are typically unsuccessful unless domain-specific skills are taught in conjunction with the courses that students are currently taking (Langer & Neal, 1987). Thus, faculty teaching in agriculture programs must become directly involved in efforts to increase retention by improving students' academic skills.

### Locus of Control

Locus of control was related to both GPA ( $r^2 = .20$ ) and academic skills ( $r^2 = .38$ ). The more students believed they could control their academic outcomes, the more appropriate their academic behavior and the higher their academic achievement. Thus, retention programs should incorporate a means of identifying students who have an external locus of control and provide interventions to increase the extent to which they believe they can control their academic outcomes.

### Motivational Orientation

Only two of the motivations for attending college were related to academic achievement, Social Relationships and External Expectations. The more students emphasize social relationships and meeting external demands, the lower their academic achievement. Both of these relationships, however, were very weak ( $r^2 = .03$ ). External Expectations was also negatively related to academic skills, but this relationship was also very weak ( $r^2 = .04$ ). Because these relationships are so weak, including interventions to modify motivational orientation in a retention program would probably not be cost effective.

## Conclusion

If projected shortages in agricultural scientists, technicians, and business professionals are to be reduced or eliminated, colleges of agriculture must increase their retention rates. Although the results of this study are correlational, they are at least consistent with the conclusion that retention

efforts directed at improving student's academic skills, as well as efforts to increase the extent to which they attribute successful outcomes to their own behavior, should improve their academic achievement. Such increases in achievement can be expected to have a positive effect on retention rates.

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