TEMPORAL CHANGES IN UNDERGRADUATE STUDENTS’ SELF-REPORTED PERCEPTIONS OF MOTIVATION FOR LEARNING, GRADE ANXIETY AND INSTRUCTOR EFFECTIVENESS IN AN INTRODUCTORY ANIMAL SCIENCE COURSE

A THESIS PRESENTED TO THE DEPARTMENT OF AGRICULTURAL SCIENCES IN CANDIDACY FOR THE DEGREE OF MASTER OF SCIENCE

By GRACE A. BECKER

NORTHWEST MISSOURI STATE UNIVERSITY MARYVILLE, MISSOURI MARCH 2013
TEMPORAL CHANGES IN UNDERGRADUATE STUDENTS’ SELF-REPORTED

Temporal Changes in Undergraduate Students’ Self-Reported
Perceptions of Motivation for Learning, Grade Anxiety and Instructor
Effectiveness in an Introductory Animal Science Course

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Northwest Missouri State University

THESIS APPROVED

Thesis Advisor

Date

Dean of Graduate School

Date
ABSTRACT

Educator and student evaluations are not new in academia. With such weighty faculty employment decisions as tenure and promotion being based upon student opinions, a better understanding of the impact of student motivation and grade anxiety on the temporal variability of student perceptions of instructors is warranted. A Likert-type survey was administered to an introductory undergraduate animal science course to gain an understanding of students’ perceptions regarding their motivation to learn, their grade anxiety, and the instructor’s teaching effectiveness. Seventy-four students enrolled in the course completed the survey anonymously each week for ten weeks. Students’ mean perceptions of their motivation to learn were consistently moderate (6 to 7), as was their grade anxiety (5.5 to 6.5), and instructor’s teaching effectiveness (6.7 to 7.7) when rated on a scale from 1 to 10, with 1 = low and 10 = high. Students’ motivation to learn was statistically and temporarily lower after the first exam, but was otherwise consistent throughout the survey period. Student perceptions of teaching effectiveness were lowest amongst Agronomy students, but similar among the other Agriculture majors. Further research is needed to identify the factors influencing student perceptions of their educational motivations, grade anxiety and instructor effectiveness.
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CHAPTER ONE
INTRODUCTION

Educator and student evaluations are not new in academia. Evaluation goals vary and could include documenting students’ motivation to learn (Marshall 1987, Ames 1990, Lepper 1988, Murry and Downs 1998), grade anxiety (Chapell and others 2005), and student perceptions of an instructor’s teaching effectiveness (Collins 1990). In many institutions, student ratings of instructors and perceived learning have become increasingly important and often “the main source of information about the accomplishment of important educational goals” (Aleamoni 1981, 111). In so much, that the potential for tenure and promotion of university faculty has been tied to students’ response on teaching evaluations (Becker and Watts 1999). With such weighty decisions being based upon student opinions, a better understanding of the impact of student motivation and grade anxiety on the temporal variability of student perceptions of instructors is warranted.

**Student Motivation to Learn**

Students’ motivation to learn is often associated with and defined by the perceived value and benefit of an academic task by the learner, which is independent of the task’s intrinsic interest level (Marshall 1987). Ames (1990) further characterized the concept as the continued student involvement in and commitment to his/her learning process. The importance of students’ motivation to learn was explored by Lepper (1988) who determined that motivated students will be more engaged in the learning process and will utilize strategies to more fully process the presented information. In addition, Lepper (1988) found that internally motivated students often gravitate to more challenging educational opportunities, particularly if the information is relevant to the student and/or he/she can apply the information to real-world situations.
In a study of undergraduate students’ course success in relation to their opinion of the information’s practicality, Murry and Downs (1998) found a strong correlation between students’ perception of the usefulness of information and student success in the course.

**Impact of Student Anxiety on Course Performance**

Grade anxiety is used to describe a student’s concern about his/her academic performance in regards to grades or grade point average. This anxiety can lead to a student’s inability to concentrate potentially leading to loss of interest in learning and poor performance (Santos). Through an extensive survey of undergraduate students, Chapell and others (2005) found that female undergraduates were more likely to report higher test anxiety than their male counterparts. In addition, undergraduates who reported low test anxiety achieved higher GPAs than those reporting a propensity for high test anxiety.

**Teaching Effectiveness**

Although many studies have explored the concept of teaching effectiveness, it remains a hypothetical concept (Marsh 1983) that cannot be attributed to a single teaching attribute or characteristic (Papanastasiou 1999). The difficulty lies in defining what makes an effective teacher. Clark (1993) believed the definition should involve an educators’ ability to increase student knowledge. Vogt (1984) suggested effective teaching includes an educators’ ability to instruct different students of different abilities and the ability to assess the effective learning of the students. Collins (1990) further defined an effective teacher by his/her: 1) commitment to students and their learning, 2) subject matter expertise, 3) ability to manage students, 4) ability to think systematically about their own teaching and 5) membership in the learning community. In contrast, Murray (1983) identified the five teaching behaviors with the greatest impact on teaching effectiveness as, the instructor: (1) speaks expressively or emphatically, (2) shows
strong interest in the subject, (3) moves about while lecturing, (4) uses humor, and (5) shows facial expressions.

Teven and McCroskey (1997) found that when students perceived their educator as high quality and/or highly effective their acquisition and understanding of course concepts increased.

**Research Objectives**

The objectives of this study are to:

1) Document changes in undergraduates’ self-reported perceptions of personal motivation for learning, personal grade anxiety and instructor’s teaching effectiveness over the course of a trimester in an introductory animal science course.

2) Determine if differences in students’ self-reported perceptions of learning, anxiety and teaching effectiveness exist between majors enrolled in the course.
CHAPTER TWO
MATERIALS AND METHODS

Methods
A four-question, Likert-type survey was administered during the fall 2011 trimester to students enrolled in an introductory, four-credit animal science course offered through the Department of Agricultural Sciences at a moderately sized, Midwestern university. Students enrolled in the course attended three, 50-minute lectures and an assigned two-hour lab each week. The survey was administered at the end of the last class period for the week for 10 weeks. The first of the ten weekly surveys was administered at the end of the second week of the trimester. Surveys were administered by a graduate student not affiliated with the course. To reduce instructional variability, all lectures and lab sections were taught by a single instructor.

Materials
Students who volunteered to participate in the study signed a university-approved consent form (Appendix A). Of the 76 students enrolled in the course, 74 consented to participate in the study. These 74 students represented all majors within the Department of Agricultural Sciences (Table 1). Each week, students completed the Likert-type research survey (Appendix B) which asked them to rank their motivation to learn, grade anxiety, and teacher effectiveness on a scale of 1 to 10 (1 = low, 10 = high) during all class periods that single week. As students were not required to attend class, the survey population varied from week to week (Table 2).
### Table 1. Number of study participants by major

<table>
<thead>
<tr>
<th>Major</th>
<th>Study Participants</th>
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<tbody>
<tr>
<td>Agricultural Business</td>
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<tr>
<td>Agricultural Education</td>
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<tr>
<td>Agricultural Science</td>
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<tr>
<td>Agronomy</td>
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<tr>
<td>Animal Science</td>
<td>8</td>
</tr>
<tr>
<td>Animal Science (Pre-Vet)</td>
<td>16</td>
</tr>
<tr>
<td>Horticulture</td>
<td>1</td>
</tr>
<tr>
<td>Bachelor of Technology – Ag</td>
<td>1</td>
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### Table 2. Number of student responses by week of study

<table>
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<tr>
<th>Week of Study</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74</td>
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<tr>
<td>2</td>
<td>64</td>
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<td>9</td>
<td>43</td>
</tr>
<tr>
<td>10</td>
<td>63</td>
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CHAPTER THREE
RESULTS AND DISCUSSION

Self-reported Motivation to Learn

Students' mean self-reported motivation to learn was not significantly different between consecutive weeks surveyed, with the exception of survey weeks five and six. Week five motivation to learn scores were significantly lower than those in week six (means of 6.2 versus 7.1, respectively; p-value = 0.01). As the first exam in the course was administered during week four and returned during week five, it is believed that students' exam scores may have potentially and temporarily hindered their perceived motivation to learn. Overall, however, students consistently ranked themselves to have a moderate motivation for learning (approximately 6 to 7 out of a scale of 10) throughout the trimester (Figure 1). In addition, there was no significant difference in the mean self-reported motivation to learn by major, with each major ranking themselves to have a moderate motivation for learning throughout the trimester (Figure 2).

Self-reported Perception of Grade Anxiety

Students' mean self-reported grade anxiety was not significantly different between consecutive weeks surveyed or amongst majors. Mean student grade anxiety for the trimester was moderate, with students consistently ranking their anxiety between 5.5 and 6.5 out of 10 (Figure 3). Interestingly, although student mean reported motivation to learn scores were statistically significant between weeks five and six, a corresponding response in grade anxiety was not observed.

Of the majors enrolled in the course, the agronomy majors tended to report lower anxiety about their grades than their fellow classmates (Figure 4).

However, with the low sample number (two agronomy students out of a total of 74 students in the study) the difference was not statistically significant.
Figure 1. Mean Self-Reported Motivation to Learn by Week of Survey. Bars represent $\pm 1$ standard deviation.
Figure 2. Mean Self-Reported Motivation to Learn by Student Major Bars represent ± 1 standard deviation.
Figure 3. Mean Self-Reported Perception of Grade Anxiety by Week of Survey. Bars represent ± 1 standard deviation.
Figure 4. Mean Self-Reported Perception of Grade Anxiety by Student Major. Bars represent ± 1 standard deviation.
**Evaluation of Teaching Effectiveness**

Students’ mean teaching effectiveness rating for the instructor was not significantly different between consecutive weeks surveyed. Mean teaching effectiveness ratings for the trimester were moderate, with students consistently rating the instructor’s effectiveness between 6.7 and 7.7 out of 10 (Figure 5). Of the majors enrolled in the course, the agronomy majors ranked the instructor’s teaching effectiveness lower than the rest of the majors (Figure 6). Agronomy majors’ effectiveness ratings were statistically lower than those of Agricultural Science majors (6.1 versus 7.4, respectively; p-value = 0.03), Animal Science majors (6.1 versus 7.7, respectively; p-value = 0.02) and Animal Science (Pre-Vet) majors (6.1 versus 7.5, respectively; p-value = 0.03). This difference in perceived teaching effectiveness may be potentially tied to student interest in the course. It could be assumed students interested in animal production and health, such as those that typically major in Animal Science, Animal Science (Pre-Vet), as well as many students who major in Agricultural Science, would have greater interest in the course than students studying plant production (agronomy majors) and therefore, would perceive the course and its instructor in a more positive manner. This agrees with Marsh (1983), who found a strong positive correlation between student achievement and reported interest in the subject studied.
Figure 5. Mean Student Evaluation of Teaching Effectiveness by Week of Survey. Bars represent ± 1 standard deviation.
Figure 6. Mean Student Evaluation of Teaching Effectiveness by Student Major  
*Bars represent ± 1 standard deviation.*
CHAPTER FOUR
CONCLUSIONS

Student perceptions regarding their motivation to learn, grade anxiety and teaching effectiveness were consistently moderate (approximately 6 to 7 on a 10 point scale) throughout the weeks surveyed. No statistical significance was found for temporal changes in student perceptions with the exception of a slight decline in reported student motivation for learning in the week following the first exam. No difference in motivation for learning and grade anxiety existed amongst the eight groups of undergraduate majors enrolled in the course. There were no differences in perceived teaching effectiveness amongst majors, with the exception of the Agronomy majors. The Agronomy students ranked the instructor’s teaching effectiveness lower than the three majors typically tied to students interested in animal production (Animal Science, Animal Science (Pre-Vet) and Agricultural Science). It is believed this perceived lower teaching effectiveness may be linked to overall student disinterest in the course subject.
CHAPTER FIVE
POTENTIAL FOR FUTURE RESEARCH

This study has significant potential for expansion. Student demographic data (age, year in school, gender, transfer/native student, supersede or not, etc) could have been used to further explain the data collected. As grade data was not collected, it cannot be determined if student course success played any role in the evaluations. The comparison of results from more than one faculty member teaching the same course would have provided insight into the effect of a first-time college teacher on students’ perceptions of effectiveness. Comparison of results between introductory courses from other departments (i.e. Sciences, Mathematics, and English) could have been used to further explore the effect of major and perceived interest in the course on ratings of teaching effectiveness. By evaluating both male and female faculty, the research could have explored if instructor gender influences student perceptions of effectiveness. Use of a previously developed, established student perception survey would have improved the survey instruments reliability and validity. The use of open-ended questions, along with Likert-type questions, would have provided additional data about the students’ thought processes, feelings and perceptions of their ability to learn, their grade anxiety, and overall teaching effectiveness.
APPENDIX A – Institutional Review Board Application and Approval
DATE: August 20, 2012

NAME(S) OF INVESTIGATOR(S): Grace Becker, Jamison Allen, PhD

ADDRESS: Valk 106

E-MAIL ADDRESS: s504192@mail.nwmissouri.edu, allenjd@nwmissouri.edu

PHONE: 660-562-1159

UNIVERSITY DEPARTMENT: Agricultural Sciences

PROJECT TITLE: Evaluation of student perception of the teaching effectiveness of new animal science faculty

SUMMARY OF PROJECT:
Objectives: a) Evaluate student perception of the teaching effectiveness of new animal science faculty over a semester as it pertains to student learning capacity and grade anxiety.

b) Evaluate student perception of the teaching effectiveness of new animal science faculty teaching multiple courses in one semester.

c) Evaluate student perception of the teaching effectiveness of new animal science faculty teaching an introductory animal science course with students from different agriculture majors.

Methods: Consent for gathering survey information will be obtained prior to initiation of the research trial. The new faculty member will be Dr. Jamison Allen, Agricultural Sciences, NWMSU. Once weekly during the class period, participating students in 6 animal science courses will be asked by a graduate student not affiliated with the course (Ms. Grace Becker) to answer 3 to 4 questions (dependent on class designation). Completed surveys will contain a randomly assigned identification number and student answers.
Surveys containing information traceable to the survey taker will not be included in the data collection. The graduate student will collect and store all surveys and consent forms in a locked cabinet in Valk 103 until after final grades have been recorded.

**EXEMPTION CATEGORY:**

Consult the document *INSTRUCTIONS FOR EXEMPT RESEARCH* for full descriptions of exempt categories. Using categories under *Section II: Exempt Research Categories*, list the category of exempt research activity that applies to your project. Read each category carefully, if your research does not fit under a category listed, you must submit your proposal to the expedited or full review process of the Institutional Review Board.

Remember that:

- Studies that involve minors and utilize survey or interview procedures are **not** eligible for exemption.
- Studies that involve the observation of minors are eligible for exemption **only** if the researcher does not participate in or manipulate the activity being observed.

**CATEGORY: 2. Using EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, or OBSERVATION OF PUBLIC BEHAVIOR.**

**EXEMPTION CRITERIA:**

1. If your project uses a questionnaire or structured interview, attach a copy of the forms to this application. Have you attached documents? **YES**

2. Are all questionnaires prefaced with voluntariness and confidentiality issues written into questionnaire or verbally given to participants? (See section III of the document *INSTRUCTIONS FOR EXEMPT RESEARCH*) **YES**

3. Are privacy concerns and confidentiality procedures outlined for participants in a written or verbal form (as evidenced by attached documentation). If verbal, enclose a copy of the script. **YES**

4. If students or other vulnerable parties have a relationship with the researcher (e.g. professor/student), are steps taken by the researcher to avoid coercion (e.g. primary researcher has an assistant gather data)? **YES**
5. Age and number of participants (See section III of the document INSTRUCTIONS FOR EXEMPT RESEARCH)

(NOTE: If participants are children under age 18 and the researcher is an agent outside the education system, research cannot be considered exempt and either expedited or full review is mandated by law).

Adults (age 18 and over): YES  Number: **500**

Minors (under age 18): NO  Number: **0**

6. If minors are involved, are you functioning in the role of teacher for these participants?  Choose an item.

Describe the nature of involvement of human participants (personal Interview, questionnaire, educational tests, etc.) AND the reason you believe this is an exempt project (Consult the document INSTRUCTIONS FOR EXEMPT RESEARCH).

- If using Category 1, be sure to explain how your project relates to instructional techniques, curricula, or classroom management methods.
- If using Category 4, be sure to explain how you have access to a preexisting data base and how the data will be managed throughout the project.

**HUMAN PARTICIPANT INVOLVEMENT**: All data collected from this research is on a weekly voluntary and anonymous basis. This research is survey-based and will make no attempt to link survey answers to individual identity, fitting into Category 2.

I affirm that all materials submitted are accurate and that the statements I have made herein are truthful, to the best of my knowledge:

Signature of the Principal Investigator/Date___________________________________________

Advisor/Supervisor (if applicable)/Date___________________________________________

Department Chair/Date___________________________________________

Dean of College/Date___________________________________________

Prepared by/Date_____________________________________________
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Send an electronic copy of this form and necessary documentation to the Institutional Review Board Chair at IRBNWMS@nwmissouri.edu.

Prior to IRB approval, a printed copy of this application (containing all signatures) and necessary documentation should be sent to the IRB Chair. View the Faculty Senate list of committee members to find the current chair of the committee (find chair).

Questions to be asked during the survey:

1) On a scale of 1 (low) to 10 (high), rate your capacity for learning today.
2) On a scale of 1 (low) to 10 (high), rate your anxiety toward your anticipated grade for this course.
3) On a scale of 1 (low) to 10 (high), rate the teaching effectiveness of the teacher for this course.
4) (For the introductory animal science course only)
   Your major is:
   a) Agriculture Business
   b) Agriculture Education
   c) Agriculture Science
   d) Agronomy
   e) Animal Science
   f) Animal Science (Pre-Vet)
   g) Horticulture
   h) Bachelors of Technology-Agriculture
   h) None of the above

Script read prior to each survey initiation:

This survey will ask you to rate your teacher’s effectiveness as well as your perceptions regarding your anticipated grade and capacity for learning. This survey is voluntary and all answers are held confidential. The teacher will not have access to the surveys until after final grades have been recorded.
INFORMED CONSENT FORM

Dr. Jamison Allen is interested in studying student perception of teaching effectiveness and factors that may be affected by this perception.

This study will look at certain items that may be affected by student perception of the teaching effectiveness of a new animal science faculty member. It will also look at how student perception changes throughout the entire course. The goal is to better describe how student perception of the teaching ability of the new faculty affects these items.

You are invited to participate in this study by answering a short survey once weekly in class. You will be assigned a random code number by the graduate assistant giving the surveys; you must use this number for all surveys during the trimester. Only you will know the number; the assistant will not record them. The project will finish one week prior to finals week.

Surveys will be given once weekly during class time by a graduate assistant and while the professor is not in the room. Each survey will contain 3 to 4 questions and take no longer than 5 minutes to complete.

Although you will not benefit directly from participating in this study, you will make a major contribution to the information known about student perception. In the future, others may benefit because new higher education faculty will know the factors that could affect student learning.

A graduate assistant will proctor and keep survey papers in a locked cabinet. Because the assigned code number will not be recorded, surveys will not be traceable to an individual. Only the assistant will have access to the surveys during the semester. Dr. Allen will not see the survey results until after final grades have been recorded.

Your signature on this form means that you understand the information presented, and that you want to participate in the study. You understand that participation is voluntary, and you may withdraw from the study at any time.

_________________________________________                           _________________
Signature of Participant       Date

Contact information for Dr. Allen: Email: allenjd@nwmissouri.edu; Phone: 660-562-1159

Alternatively, you may contact Dr. Rebecca Hendrix, Chair of the Northwest Missouri State University Institutional Review Board, at (660) 562-1564, hendrix@nwmissouri.edu
Proposal # 1213-08-02  
Date: August 30, 2012
Proposal Author(s): Grace Becker, Jamison Allen
Proposal Title: Evaluation of student perception of the teaching effectiveness of new animal science faculty

☑ The Institutional Review Board has accepted your request for exemption of your proposal.

You are now officially ready to start collecting data.
- Your project is approved for a period of one year from the date noted above. If your project requires additional time, please contact the current IRB chair.
- If you have any changes to methodology throughout the course of your project or any unforeseen negative incidents pertaining to human participants, please contact the current IRB chair to file a Status Report within 10 days.

Thank you for your interest in research at Northwest Missouri State University,

Rebecca Hendrix, PhD

Rebecca Hendrix, Chair
Assistant Professor of Psychology/Sociology/Counseling
NIH Office of Extramural Research Certificate # 247520
APPENDIX B – Survey Instrument
Questions to be asked during the survey:

1) On a scale of 1 (low) to 10 (high), rate your capacity for learning today.
2) On a scale of 1 (low) to 10 (high), rate your anxiety toward your anticipated grade for this course.
3) On a scale of 1 (low) to 10 (high), rate the teaching effectiveness of the teacher for this course.
4) (For the introductory animal science course only)
   Your major is:
   a) Agriculture Business
   b) Agriculture Education
   c) Agriculture Science
   d) Agronomy
   e) Animal Science
   f) Animal Science (Pre-Vet)
   g) Horticulture
   h) Bachelors of Technology-Agriculture
   h) None of the above

Script read prior to each survey initiation:

This survey will ask you to rate your teacher’s effectiveness as well as your perceptions regarding your anticipated grade and capacity for learning. This survey is voluntary and all answers are held confidential. The teacher will not have access to the surveys until after final grades have been recorded.
REFERENCES


