

**Exhibit Materials for Taylor W. Acee:
Mentoring Graduate Students and Generating a Community of Scholars**

I have been working on scholarly activities with masters-level and doctoral-level graduate students as well as post-doctoral researchers within the Department of Curriculum and Instruction and the Department of Mathematics at Texas State University – San Marcos. In the spring of 2011, I received a Research Enhancement grant (Acee, 2010) and with those funds I hired two graduate research assistants: Stephanie Daniels (a masters-level student in the Department of Curriculum and Instruction) and Michelle Schrauth (a doctoral student in the Department of Mathematics). I provided research training to these two students and they helped me run my research study and analyze data. Although my funding has since ended, we have continued to work together on preparing a manuscript for submission (Acee, Daniels, Schrauth, Barry, & Holschuh, 2013).

Since our Graduate Program in Developmental Education began enrolling students in fall 2011, I served as Research Mentor to three students: William (Bill) Barry, Cristella Diaz, and Dustin Thompson. Bill started working with me as a research mentee in spring of 2012, and since fall of 2012 he has served as a paid Graduate Assistant on my teaching and research projects. As part of his work with me, he was co-author on a grant-funded technical research report (Paulson, Payne, Acee, Caverly, Hodges, Holschuh, Mireles, Summers, Barry, Granger, & Lampi, 2012). He has also made substantial contributions to my research and is helping prepare three manuscripts for submission (Acee, Cho, Kim, & Barry, 2013; Acee, Daniels, Schrauth, Barry, & Holschuh, 2013; Acee, Weinstein, Barry, Dacy, & Jung, 2013). Cristella and Dustin just started working with my in the spring of 2013 and have become actively involved in my research on student motivation in developmental mathematics courses.

As part of our grant-funded research projects (Mireles, Paulson, & Acee, 2011-2013; Paulson, Mireles, & Acee, 2011-2013), we have hired a full-time post-doctoral researcher, Dr. Jae Hak Jung, and partially funded another full-time post-doctoral researcher, Dr. Terri Westbrook. Our post-doctoral researchers have helped to build an even stronger research environment at Texas State University – San Marcos. Overall, my colleagues and I have helped to generate a highly-active community of scholars in which our master's and doctoral students work collaboratively with post-doctoral researchers and professors on a number of different research projects, many of which are interdisciplinary and involve collaborations across the College of Education and College of Science.

See the reference list below for the citations included in this summary. After the reference list, I included evidence of my official role as research mentor to three of our doctoral students.

References

- Acee, T.W. (2010). *Motivational Influences on DE Math Student Achievement and Continued Interest in Math*. Research Enhancement Grant, Texas State University – San Marcos, San Marcos, TX. \$7,946.
- Acee, T. W., Cho, Y. J., Kim, J. I., & Barry, W. J. (2013). *Task difficulty and task value as antecedents to students' boredom*. Manuscript in preparation.
- Acee, T. W., Daniels, S., Schrauth, M., Barry, W. J., & Holschuh, J. P. (2013). *Student identified interferences to succeeding in college and developmental mathematics: Categories, antecedents, and consequences*. Manuscript in preparation.
- Acee, T. W., Weinstein, C. E., Barry, W. J., Dacy, B. S., & Jung, J. H. (2013). *Motivational and demographic predictors of achievement and retention in a diverse group of community college students*. Manuscript in preparation.
- Mireles, S., Paulson, E., & Acee, T. W. (2011-2013). *Evaluation of the Comprehensive Student Success Program* (THECB Contract No. 06726 and THECB Contract Number BMS10473). Texas Higher Education Coordinating Board, Austin, Texas, \$532,304 [Taylor W. Acee is listed as a Co-Investigator on this project.]
- Paulson, E. J., Payne, E. M., Acee, T. W., Caverly, D. C., Hodges, R., Holschuh, J. P., Mireles, S. V., Summers, E. J., Barry, W. J.; Granger, S., & Lampi, J. (2012). *Principles of a professional development approach to credentialing in developmental education*. Austin, TX: Texas Higher Education Coordinating Board.
- Paulson, E., Mireles, S., & Acee, T. W. (2011-2013). *Evaluation of the Adult Basic Education Innovation Grant Program* (THECB Contract No. BMS7154 and Amendment No. BMS 7896). Texas Higher Education Coordinating Board, Austin, Texas, \$299,895 [Taylor W. Acee is listed as a Co-Investigator on this project.]

PLAN OF ACTION
Research Apprenticeship
CI 7101: Introduction to the Research Experience

The following is a description of a plan of action that will serve as a contract between William J. Barry, doctoral student, and Dr. Taylor Acee, professor. This plan of action will partially satisfy requirements for CI 7101: Introduction to the Research Experience.

This agreement will provide opportunities for the doctoral student to shadow a Research Mentor on that faculty's research project. The contract assumes an understanding that the Research Apprenticeship is not an opportunity for the student to undertake his/her own research, and nor is it to act as a "hired hand" for the faculty member's project. Instead, it is meant to be an aspect of an apprenticeship into the research community through shadowing the researcher in his/her research activities and taking part, in a mutually beneficial way, in the faculty member's current research project.

Project Title (working title):

Under- and Over-challenging Tasks as Antecedents to Students' Boredom

Project Description (brief):

Research on antecedents of boredom in educational settings is scarce despite the many students who cite boredom as a major reason for dropping out of school (Bridgeland, DiIulio, & Morison, 2006). The purpose of this study was to examine the impact of task difficulty on boredom. We investigated students' perceptions of boredom during two experimentally-manipulated puzzle tasks designed to be too easy or too difficult. Using the 10-item Academic Boredom Scale (ABS-10; Acee et al., 2010), we investigated two types of boredom: self-focused boredom (ennui) and task-focused boredom (tedium). We were interested in which type of boredom was more salient for students during the under- and over-challenging tasks. Also, of concern was the dimensionality of the ABS-10 for each task.

Research Approach:

Research on boredom has suggested that task difficulty is an important antecedent of boredom. Csikszentmihalyi (1990) posited that boredom is experienced when a person's skills exceed task difficulty, yet Pekrun et al. (2002) found that students reported experiencing boredom both when task demands were too low and when they were too high. Acee et al. (2010) investigated students' retrospective reports of under- and over-challenging academic situations. They found that the dimensionality of boredom varied depending on the situation, and that self-focused boredom was more salient in over-challenging situations.

The present study helps to continue this line of inquiry using experimentally-manipulated puzzle tasks. Students (38 men and 128 women) were asked to complete two puzzle tasks as part of the subject pool requirements of an undergraduate educational psychology course. The first task was to solve an extremely challenging maze. The second task was designed to be very easy; students were given the answer to the first task and asked to draw the solution repeatedly. After each task, students were asked to complete the ABS-10.

Using confirmatory factor analysis (CFA), we will examine the dimensionality of the ABS-10 for under- and over-challenging tasks. We will also use paired t-tests to examine which type of boredom (self-focuses versus task-focused) is more salient in the under-challenging versus over-challenging task. We will also examine exploratory questions that have not yet been posed.

Specific Tasks and Expectations for STUDENT:

- Review background literature on boredom and emotions (e.g., Ace et al., Pekrun, Goetz)
- Pose and help to investigate exploratory research questions
- Help to interpret results of findings
- Participate in research conference calls with research group
- Help to conduct preliminary analyses
- Potentially help to write and edit manuscript(s) (other authors must agree first)
- Other miscellaneous tasks to be determined as needed

Communication and Meeting Schedule:

William Barry and Dr. Acee will meet regularly, at times to be negotiated, throughout the academic year. In addition to meeting, email communication and conference calls will be used.

We accept the terms of this plan of action:

(STUDENT NAME)

Date

(PROFESSOR NAME)

Date

PLAN OF ACTION
Research Apprenticeship
CI 7101: Introduction to the Research Experience

The following is a description of a plan of action that will serve as a contract between Cristella Diaz, doctoral student, and Dr. Taylor Acee, professor. This plan of action will partially satisfy requirements for CI 7101: Introduction to the Research Experience.

This agreement will provide opportunities for the doctoral student to shadow a Research Mentor on that faculty's research project. The contract assumes an understanding that the Research Apprenticeship is not an opportunity for the student to undertake his/her own research, and nor is it to act as a "hired hand" for the faculty member's project. Instead, it is meant to be an aspect of an apprenticeship into the research community through shadowing the researcher in his/her research activities and taking part, in a mutually beneficial way, in the faculty member's current research project.

Project Title (working title):

Motivation in Developmental Mathematics Project (MDM)

Project Description (brief):

Despite the lack of motivation research on DE math students (Gerlaugh, Thompson, Boylan, & Davis, 2007), a great deal of motivation research has been conducted on math students in K-12 and post-secondary settings (Schunk, Pintrich, and Meece, 2007). Findings from research in this area have suggested that students often struggle in math because they lack confidence in their capabilities to perform math tasks (self-efficacy), do not value learning math, and/or have high anxiety about performing math tasks (Wigfield & Eccles, 2000). While students' self-efficacy beliefs, value perceptions, and anxiety have been found to influence math achievement, findings have also suggested that self-efficacy beliefs tend to be stronger predictors of math achievement whereas value perceptions tend to be stronger predictors of students' continued interest in math. Therefore, self-efficacy beliefs and value perceptions may differentially predict students' achievement and continued interest in math. However, the differential prediction hypothesis remains unexplored with DE math students.

Research Approach:

The major purpose of this study is to examine the differential impacts of DE students' self-efficacy beliefs, value perceptions, and anxiety on their course performance and continued interest in learning mathematics. It is hypothesized that students' self-efficacy beliefs will have stronger relationships with their course performance, whereas their value perceptions will have stronger relationships with their continued interest in mathematics. The interaction between anxiety and self-efficacy on course performance will also be examined. It is hypothesized that the negative impact of anxiety on course performance will be mitigated for students with high self-efficacy and exacerbated for students with low self-efficacy. In addition, students' prior academic achievement, math performance, and demographic variables will be examined in conjunction with motivation variables.

How will this experience gradually move the student from *spectator* to limited participant?

After being welcomed and oriented to Dr. Acee’s research team and projects, Cristella will gradually move from an observational role (e.g., sitting in on conference calls and research meetings) to a limited participate role (e.g., reviewing literature, performing data analysis, and creating research questions).

Specific Tasks and Expectations for STUDENT:

- Review background literature on student motivation.
- Pose and help to investigate exploratory research questions.
- Help to interpret results of findings.
- Participate in research conference calls with research group.
- Help to conduct preliminary analyses.
- Potentially help to write and edit manuscript(s).
- Other miscellaneous tasks to be determined as needed.

Specific Roles and Expectations for FACULTY MEMBER:

- Participate in regularly scheduled meetings and maintain communication.
- Provide guidance in introduction to research process.
- Gradually increase students’ role and tasks in the research process.
- Introduce student to new or ongoing research projects that align with students’ research interest as they become apparent through regular meetings.

Communication and Meeting Schedule:

Cristella Diaz and Dr. Acee will meet regularly, at times to be negotiated, throughout the academic year. In addition to meeting, email communication and conference calls will be used.

We accept the terms of this plan of action:

(STUDENT NAME)



(PROFESSOR NAME)

Date

12-13-12

Date

PLAN OF ACTION
Research Apprenticeship
CI 7101: Introduction to the Research Experience

The following is a description of a plan of action that will serve as a contract between Dustin Thompson, doctoral student, and Dr. Taylor Acee, professor. This plan of action will partially satisfy requirements for CI 7101: Introduction to the Research Experience.

This agreement will provide opportunities for the doctoral student to shadow a Research Mentor on that faculty's research project. The contract assumes an understanding that the Research Apprenticeship is not an opportunity for the student to undertake his/her own research, and nor is it to act as a "hired hand" for the faculty member's project. Instead, it is meant to be an aspect of an apprenticeship into the research community through shadowing the researcher in his/her research activities and taking part, in a mutually beneficial way, in the faculty member's current research project.

Project Title (working title):

Motivation in Developmental Mathematics Project (MDM)

Project Description (brief):

DE math courses are a major stumbling block for many academically underprepared students. Nationally, DE math course failure rates range from 35-42% (Adelman, 2004). Not passing DE math can prevent students from advancing in their college coursework and may also negatively influence their first impressions of college and their beliefs and attitudes about themselves as learners (Noel-Levitz, 2006). Researchers have identified many student background characteristics and cognitive factors that are related to students' success in DE math courses such as: prior educational achievement, standardized test scores in math, use of learning strategies, first generation status, and socioeconomic status (Russell, 2008). However, there is a dearth of research focused on personal, familial, social, and economic factors that may be interfering with students' success in DE math courses.

Research Approach:

The major purpose of this study is to examine academic and non-academic factors that might interfere with students' success in college and DE mathematics in particular. We will examine open-ended responses from participants, generate a categorization system, and categorize students' responses according to the taxonomy we developed. We will also examine quantitative data indicating the degree to which academic, personal, familial, social, and economic factors are interfering with students' success in college and DE mathematics. We will examine relationships between qualitative and quantitative data with outcomes (e.g., grades and retention).

How will this experience gradually move the student from *spectator* to *limited participant*?

After being welcomed and oriented to Dr. Acee's research team and projects, Dustin will gradually move from an observational role (e.g., sitting in on conference calls and research

meetings) to a limited participate role (e.g., reviewing literature, performing data analysis, and creating research questions).

Specific Tasks and Expectations for STUDENT:

- Review background literature on personal, social, academic, and economic factors influencing student success.
- Pose and help to investigate exploratory research questions.
- Help to interpret results of findings.
- Participate in research conference calls with research group.
- Help to conduct preliminary analyses.
- Potentially help to write and edit manuscript(s).
- Other miscellaneous tasks to be determined as needed.

Specific Roles and Expectations for FACULTY MEMBER:

- Participate in regularly scheduled meetings and maintain communication.
- Provide guidance in introduction to research process.
- Gradually increase students' role and tasks in the research process.
- Introduce student to new or ongoing research projects that align with students' research interest as they become apparent through regular meetings.

Communication and Meeting Schedule:

Dustin Thompson and Dr. Acee will meet regularly, at times to be negotiated, throughout the academic year. In addition to meeting, email communication and conference calls will be used.

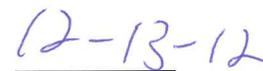
We accept the terms of this plan of action:

(STUDENT NAME)



(PROFESSOR NAME)

Date



Date