

**Exhibit Materials for Taylor W. Acee:
Funded Faculty Research Enhancement Grant**

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.

Summary: the funding of this internal grant has helped to support my theoretical research and manuscript preparation on student motivation and self-regulation in the context of developmental mathematics courses (see the acceptance letter and grant proposal below). With these funds, I was able to hire and train two graduate research assistants, Michelle Schrauth and Stephanie Daniels. They are currently co-authors on a manuscript that is in preparation (Acee, Daniels, Schrauth, Barry, and Holschuh, 2013). I am also preparing other manuscripts based on this research (Acee, 2013a; Acee, 2013b).

References

Acee, T. W., (2013a). *Differential prediction of college students' values and expectancies on their success in developmental mathematics*. Manuscript in preparation.

Acee, T. W., (2013b). *Evidence for working hard and working smart: Learning strategies by effort interaction effect on college students' performance in developmental mathematics*. 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.

TEXAS  STATE
UNIVERSITY
SAN MARCOS
The rising STAR of Texas

December 15, 2010

Dear Dr. Acee:

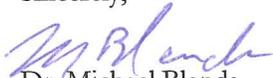
Congratulations! The University Research Committee and Faculty Senate have submitted their recommendations for funding Research Enhancement Program grants for fiscal year 2011. I am pleased to inform you that your proposal will be funded in the amount of \$7,946. Your account numbers are: fund (2000021000) and internal order (9000000628).

Enclosed are the Request New Operating Account form and the SAP Financial-Departmental Services Security Authorization form. Please complete the missing information in sections 2 and 4 of the Request New Operating Account form. This form will serve as the SAP security authorization for you and your department chair. We recommend that you grant your departmental administrative assistant access to your account by completing sections 1 and 3 (account manager name, signature and date) on the SAP Security Authorization Form. Return all forms by January 14, 2011 via campus mail or fax (5-3847) to the Office of the Associate VP for Research, JCK, Suite 489, attention Dr. Michael Blanda.

Once all forms are received, your funds will be deposited into the salary budget line and funds will have to be transferred into other budgetary lines such as M&O and travel. All faculty and graduate student salary (PCR) requests must be sent to Dr. Blanda in JCK 489 for final approval. Travel requests do not require prior approval. Your research account will be active at least twelve months from its inception date. Please direct all questions concerning administration of your REP grant to me (mb29@txstate.edu or 245-2314), in the Office of the Associate Vice President for Research.

Note that if your research involves human or animal subjects, you must obtain prior approval from the IRB or the IACUC before your account will be activated. Please refer to <http://www.txstate.edu/research/> and click on COMPLIANCE for more information. If you have further questions contact Becky Northcut, Director of Research Compliance (sn10@txstate.edu or 245-2314) for assistance.

Sincerely,



Dr. Michael Blanda
Assistant VP for Research

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Motivational Influences on DE Math Student Achievement and Continued Interest in Math

The number of students entering post-secondary institutions who are underprepared for college-level work is on the rise (Greene & Forster, 2003). A recent national report on the high school graduating class of 2008 suggested that, based on ACT score benchmarks, only 43% of students were prepared to take college algebra, and only 68% were prepared to take college English composition (ACT, 2008). In order to help underprepared students develop basic skills necessary to succeed in college, institutions often require them to take developmental education (DE) courses in reading, writing, and/or mathematics before they can enroll in credit-bearing college courses. National data indicate that 28% of entering college students enroll in at least one DE course, and the passing rates in these courses, especially in math, are dismal (Parsad, Lewis, & Greene, 2003). Consequently, policymakers in Washington have identified the improvement of DE as a major national challenge, particularly in the area of math (Russell, 2008).

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 affective and motivational factors that may be influencing students' success in DE math courses, and researchers have called for more work in this area (Gerlaugh, Thompson, Boylan, & Davis, 2007).

Despite the lack of motivation research on DE math students, 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.

Purpose

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.

Data collected as part of the current project will also be used to help evaluate and inform modifications to the Fundamentals of Conceptual Understanding and Success (FOCUS) project at Texas State. Two major goals of the FOCUS project are to provide FOCUS DE math students with additional learning supports (e.g., tutoring, various forms of supplemental instruction and mentoring) and accelerated DE course options (e.g., blended and 8-week courses). It is hypothesized that students enrolled in the FOCUS program will make stronger improvements in motivation over the course of the semester compared to students who are not in the FOCUS program.

Participants

During the spring 2011 semester, all students enrolled in DE courses (MATH 1300, Math 1311) and FOCUS DE courses (1300/1311 Blended, 1300/1316 Paired 8-Week) will be targeted to participate in the study. Dr. Selina Mireles has administrative control over DE math courses at Texas State and has agreed to provide access to students. Approximately, 700 students will be enrolled in DE math courses during the spring 2011 semester and a participation rate of approximately 70% ($N=490$) is expected. Approximately 40 will be FOCUS students.

Study Design and Procedures

A research assistant will attend each course section, once near the beginning of the semester and once near the end of the semester. The research assistant will invite students to: 1) participate in the study, 2) sign a consent form, 3) complete a 10-15 minute pre-test motivation survey, 4) give permission to the researcher to obtain their final course score from their instructor, and 5) give permission to the researcher to collect additional data from Texas State (e.g., age, sex, ethnicity, math placement test scores, and course enrollment data). The researcher will visit each class again near the end of the semester to administer the post-test motivation

survey. The pre-test and post-test motivation surveys will include self-report measures of self-efficacy beliefs, value perceptions, anxiety, and intentions to continue learning math. Student data will be kept confidential and anonymous.

Data analysis

Since students will be nested within different classes, hierarchical linear modeling will be used to analyze the data. Motivational variables collected at the beginning of the semester will be used to predict students' final score in their DE course, intentions to continue learning mathematics, and math course enrollment decisions. Explanatory motivational variables, interaction terms, and demographic and prior achievement covariates will be entered at the student level (level 1). Class-level variation will be controlled for at level 2 of the model.

Repeated measures analysis of variance will be used to examine differences between FOCUS and non-FOCUS students in the degree to which their motivation changed from the beginning (pre-test) to the end of the semester (post-test).

Importance of the Project and Relation to Applicant's Field of Research

A major focus of my current program of research is on understanding how motivational variables impact students' success in college and what educators can do to help motivate students in their courses. Thus far, my research has primarily been conducted with modest numbers of undergraduate students enrolled in introductory statistics courses. Funding for this project will allow me to extend my work to DE math students and collect data on approximately 490 students. Given recent calls to examine motivational and affective factors affecting DE students, this project has a strong potential to be of interest to scholars and practitioners in DE and higher education. Premier journals in DE and higher education will be targeted for publications. In addition, findings from this project could help DE instructors at Texas State identify and target

variables that may help students' increase their motivation and success in DE math.

Budget Justification

The budget for this project is anticipated to be \$7,946. A total of \$7,500 is budgeted for graduate research assistants (GRA). Two GRAs will be hired at 25% time in the spring 2011 semester to help with data collection, cleaning, transformation, and preliminary analyses. One GRA will be hired at 25% time during the summer 2011 semester to help with data analysis and presentation. Materials necessary for this project include pencils (\$50), questionnaire booklets (50\$), and Scantron forms (\$216). The Scantron forms will also need to be scanned (\$130). Cost estimates are based on pre-testing and post-testing 700 students.

References

- ACT. (2008). ACT high school profile: The graduating class of 2008; National. Washington, DC: Author. Retrieved April 15, 2009, from <http://www.act.org/news/data/08/index.html>
- Adelman, C. 2004. *Principal Indicators of Student Academic Histories in Postsecondary Education Sciences*. Education, 1972-2000. Washington, DC: U.S. Department of Education, Institute of Gerlaugh, K., Thompson, L., Boylan, H., & Davis, H. (2007). National study of developmental education II: Baseline data for community colleges. *Research in Developmental Education*, 20(4), 1-4.
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- Noel-Levitz (2006). *Student Success in Developmental Math: Strategies to Overcome a Primary Barrier to Retention*. Denver, CO: Author. Retrieved September 4, 2010 from https://www.noellevitz.com/NR/rdonlyres/B4148B72-C135-4AD4-A04C-2F66821C872C/0/ENABLEMATH_paper_0706indd.pdf
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- Russell, A. (2008). Enhancing college student success through developmental education. *American Association of State Colleges and Universities - Policy Matters: A Higher Education Policy Brief*. Retrieved September 20, 2010 from <http://www.aascu.org/media/pm/pdf/pmaug08.pdf>
- Schunk, D.H., Pintrich, P.R., & Meece, J. (2007). *Motivation in education: Theory, research, and applications (3rd ed.)*. Upper Saddle River, NJ: Prentice Hall.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy--value theory of achievement motivation. *Contemporary Educational Psychology*, 25 (1), 68-81.

Vita of Selected Scholarly and Creative Activities for Taylor W. Acee

Education

Ph.D.	2009	University of Texas at Austin	Educational Psychology
M.A.	2007	University of Texas at Austin	Program Evaluation
B.S.	2001	University of Pittsburgh	Psychology

University Experience

2009-present Texas State University-San Marcos Assistant Professor

Scholarly monographs

Weinstein, C.E., King, C.A., Hsieh, P.H., Acee, T.W., & Palmer, D.R. (2004). What students expect may not be what they get: The PEEK (Perceptions, Expectations, Emotions, and Knowledge about College). In R. L. Swing (Ed.), *Tools and techniques for assessing the first college year* (the First Year Experience Monograph Series No. 37) (pp. 79-82). University of South Carolina: National Resource Center for the First-year Experience & Students in Transition.

Chapters in books

Weinstein, C.E., Acee, T.W., & Jung, J. (2010). Learning strategies. In B. McGaw, P.L. Peterson, & E. Baker (Eds.) *International Encyclopedia of Education* (3rd ed., pp. 323-329). New York, NY: Elsevier.

Weinstein, C.E., & Acee, T.W. (2008). Cognitive view of learning. In N.J. Salkind, & K. Rasmussen (Eds.) *Encyclopedia of Educational Psychology* (Vol. 1, pp. 164-165). Thousand Oaks, CA: Sage Publications.

Selected Refereed Journal Articles

Acee, T.W., & Weinstein, C.E., (2010). Effects of a value reappraisal intervention on statistics students' motivation and performance. *Journal of Experimental Education*, 78, 487-512. doi:10.1080/00220970903352753

Acee, T.W., et al. (2010). Academic boredom in under- and over-challenging situations. *Contemporary Educational Psychology*, 35, 17-27. doi:10.1016/j.cedpsych.2009.08.002

Walls, S.M., Kucsera, J.V., Walker, J.D., Acee, T.W., McVaugh, N.K., Robinson, D.H. (2010). Podcasting in education: Are students as ready and eager as we think they are? *Computers & Education*, 54(2), 371-378. doi:10.1016/j.compedu.2009.08.018

McDougall, G.J., Becker, H., Pituch, K., Acee, T.W., Vaughan, P., & Delville, C. (2010). Differential benefits of memory training for minority older adults in the SeniorWISE study. *The Gerontologist*, 50(5), 632-645. doi:10.1093/geront/gnq017

McDougall, G.J., Becker, H., Pituch, K., Acee, T.W., Vaughan, P., & Delville, C. (2010). The SeniorWISE study: Improving everyday memory in older adults. *Archives of Psychiatric*

Nursing, 24(5), 291-306. doi:10.1016/j.apnu.2009.11.001

McDougall, G.J., Vaughan, P.W., Acee, T.W., & Becker, H. (2007). Memory performance and mild cognitive impairment in black and white community elders. *Ethnicity & Disease*, 17(2), 381-388.

Hsieh, P.H., Acee, T.W., Chung, W.H., Hsieh, Y.P., Kim, H., Thomas, G.D., You, J.I., Levin, J.R. & Robinson, D.H. (2005). Is Educational Intervention Research on the Decline?: Analysis of the Published Literature. *Journal of Educational Psychology*, 97(4), 523-529. doi:10.1037/0022-0663.97.4.523

Hsieh, P.H., Acee, T.W., Chung, W.H., Hsieh, Y.P., Kim, H., Thomas, G.D., You, J.I., & Robinson, D.H. (2004). An Alternate Look at Educational Psychologist's Productivity from 1991-2002. *Contemporary Educational Psychology*, 29(3), 333-343. doi:10.1016/j.cedpsych.2004.03.002

Selected Papers Presented at Professional Meetings

Acee, T.W., & Weinstein, C.E. (May, 2010). *Effects of a Value Reappraisal Intervention on Statistics Students' Motivation and Performance*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Acee, T.W., Weinstein, C.E., Sylvester Dacy, B., & the CCLR Research Group (February, 2010). *Motivational Influences on Achievement/Retention in the CCLR Study*. Paper presented at the annual meeting of the National Association of Developmental Education, Cleveland, OH.

Weinstein, C.E., Acee, T.W., and Kraus, J. (October, 2009). *Relationships Among First-Generation Status, SES, Strategic Learning, Achievement and Retention*. Paper presented at the annual meeting of the College Reading and Learning Association, Richmond, VA.

Acee, T.W., & Weinstein, C.E. (March, 2008). *Interrelationships among self-efficacy, values, and goal orientations and their differential relationships with achievement and effort*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Acee, T.W., Kim, H., Kim, H.J., Chu, H.R., Daniel, S.R., Kim, J., Kim, M., Riekenberg, J.J., Bierer, L., & Wicker, F.W. (March, 2008). *Do students always mean the same thing when they talk about boredom?* Paper presented at the annual meeting of the American Educational Research Association, New York, NY.