Motivational Factors that Facilitate Student-Athlete Academic Achievement

Thomas D. Kane and Logan R. Dale
Missouri State University

ABSTRACT

Contemporary theories of academic and work motivation offer alternative techniques for effectively advising student-athletes. Understanding which motivating factors most strongly relate to academic achievement provides athletic/academic advisors with meaningful information for constructively assisting the performance of their advisees. This study tested the degree to which the content of academic goals, self-efficacy, and goal-orientation predicted the academic achievement of 220 student-athletes. Results indicated that motivation variables predicted student semester academic achievement above and beyond what was predicted by student ACT score and high school class rank. Also, the motivation variables as a group were as strongly related to academic achievement as ACT and class rank. Among all variables studied, the difficulty of the student's semester goal most strongly contribution to student achievement. Results encourage optimism among academic advisors who wish to integrate goal-setting techniques into advisement protocols. Discussion focused on strategies to help student-athletes set quality academic goals.

Historically, academic support units have been housed in higher learning institutions to provide academic assistance to student-athletes. Such units have offered an array of useful academic programs for both high and low achieving student-athletes. These programs often aim to improve the academic performance of poorly performing or "at risk" student-athletes. Student-athletes may be considered "at risk" for a variety of reasons including: being a first-generation college student, having parents of low socioeconomic level, being of minority status, having career-goal indecision, possessing low motivation, demonstrating inadequate study skills, or attaining poor prior academic success (Grimes, 1995).

Collegiate institutions widely use the student-athlete's prior academic performance and achievement on standardized tests such as the SAT or ACT as selection criteria. Such tests generally do not tap into the student-athlete's motivation; but instead, assess a one-time performance

episode that reflects the student's potential to achieve. Aptitude measures such as these, in conjunction with high school academic achievement, are generally used to select students to colleges and universities. Athletic-academic support units may also use these measures to classify student-athletes as at risk.

While aptitude measures were not designed to predict student effort or motivation for college academic achievement, tools that measure academic motivation have been extensively applied to study student achievement that is attributable to effort. The result of subsequent research has led to the emergence of self-regulation theories that have effectively predicted classroom achievement. From these theories effective practices for motivating student-athletes in their pursuit of academic goals can be extracted, and understanding the motivational processes that underlie the academic effort can help athletic advisors devise motivational strategies for enhancing the performance of student-advisees. Unfortunately, research has rarely examined motivational factors drawn from alternative theories to explore the relative predictive power of those different factors. Such research has also not been conducted, specifically, to examine the performance of student-athletes in the classroom.

This research examined the predictive power of measures drawn from current motivational models, specifically, for the academic achievement of student-athletes. The selected variables are relevant to a process called self-regulation; a current perspective used to guide contemporary motivation research. Self-regulation refers to self-generated thoughts, actions, and feelings that are planned and adapted as needed to affect one's learning, motivation, and personal goal attainment (Bandura, 1997; Zimmerman & Kitsantas, 1996; Zimmerman, 2000).

Addressed by this current study was the extent to which factors associated with quality self-regulation predicted the academic achievement of student-athletes. Study results should help athletic/academic support units better consider the use and content of motivational strategies for enhancing the academic achievement of student-athletes.

FACTORS ASSOCIATED WITH QUALITY SELF-REGULATION

Goal theory, self-efficacy theory, and goal orientation theories have identified factors associated with quality self-regulation and academic achievement. Based on volumes of research generated from tests of these three theories, personal goals, self-efficacy, and possessing a

learning orientation provide potential leverage points that advisors can use to improve the self-regulation of student-athletes in the classroom.

Personal goals. Goals are guiding principles that individuals intentionally set to effectively direct their behavior (Austin & Vancouver, 1996). Goals are vital for self-regulation because they provide standards that help performers gauge appropriate effort needed to succeed, how to focus attention to what is most important for success, and what performance strategies might be needed to succeed. Specific and challenging goals work best to support success (Locke & Latham, 1990; Wright, 1990). According to Locke and Latham, the attainment of challenging goals provides meaning and purpose to achievement and, thus, drives effective self-regulation. In contrast to vague or easy goals, challenging goals raise effort levels, stimulate strategic thought, and sustain efforts over long periods of time.

Self-efficacy. Self-efficacy is one's perceived self-capability to achieve in a specific task setting (Bandura, 1997). Possessing strong self-efficacy beliefs helps performers achieve success for a variety of reasons. Across settings, those with strong self-efficacy beliefs set more challenging personal goals (Early & Lituchy, 1991; Kane, Marks, Zaccaro, & Blair, 1996; Wood, Bandura, & Bailey, 1990), they maintain their challenging goals when it is difficult to do so (Kane, Zaccaro, Tremble, & Masuda, 2002). Those with strong self-efficacy beliefs try harder, persist longer (Bandura & Schunk, 1981), more strategically-oriented (Bandura & Wood, 1989; Kane et al., 2002), unwilling to quit, and achieve more than those who doubt their self-capability. Also, strong self-efficacy promotes intrinsic interest for academics (Pintrich & Degroot, 1990).

Learning orientation. Students can approach performance situations by adopting either learning goals or performance goals (Dweck, 1986). Being learning oriented, or adopting learning goals, is deemed most conducive to academic achievement. Learning goals focus performers on mastery, self-improvement, and learning for learning's sake. Learning goals enhance achievement by focusing a student's attention on processes and strategies to acquire competencies (Ames, 1992) and on the development of positive motivational beliefs (Wolters, Yu, & Pintrich, 1996), rather than on personal limitations or factors outside of their control.

Alternatively, performance goals stimulate students to use external standards, or the performance of others, to evaluate their own competence (Elliot & Thrash, 2001). Performance oriented students try to outperform others to enhance their own status at the expense of their peers (Covington, 2000). Performance orientation can take two forms, charac-

terized by approach performance orientation and avoid performance orientation. Performance-approach students can approach success, invest considerable effort in complex study strategies (Wolters et al., 1996), and strive to do better than others (Elliot & Thrash, 2001). In contrast, performance-avoid students try to avoid failure, tend to reduce effort and task persistence (Bouffard, Boisvert, Vezeau, & Larouche, 1995) and strive to not do worse than others (Elliot & Thrash, 2001). Both types of students are driven by the fear of being viewed as incompetent (Covington, 2000).

HYPOTHESES

This study examined motivational factors associated with the academic success of freshmen and upperclassmen student-athletes. For freshmen, goal-difficulty, self-efficacy, and goal orientation were hypothesized to predict first semester academic achievement after controlling for prior high-school academic performance and scores on an academic aptitude test used for admissions criteria. For upperclassmen, goal-difficulty, self-efficacy, and goal orientation were hypothesized to predict academic achievement after controlling for prior college GPA.

METHOD

Participants

Participants were 220 undergraduate student-athletes who responded to an online questionnaire at the beginning of a fall academic semester. As an incentive to complete the questionnaire, participants were told that 100 movie tickets would be randomly allocated to those who completed their questionnaires.

MEASURES

Demographics

Participants reported gender, race, age, high school GPA, high school class rank, and ACT scores.

Goal difficulty

Goal difficulty was assessed by using free-set goal methodology to collect and code qualitative goal statements (Kane, Baltes, & Moss, 2001; Kane, Nelson, Shoptaugh, & Reichard, 2005). As such, students

responded to three questions asking them to list goals they have set for themselves to accomplish by the end of three goal attainment time frames: 1) by the end of the semester, 2) by college graduation, and 3) for career achievement. Students were asked to only list goals they had set prior to completing the survey and to check a box if they possessed no goals for any of the goal-attainment time frames. Students reported a total of 588 goals, of which 211 were semester goals, 184 were college goals, and 193 were career goals. Reporting that they possessed no semester, college, or career goals were, respectively, 9, 36, and 27 students. Three students reported possessing no goals for any goal attainment time frame.

Two university instructors and one graduate student with knowledge of goal theory and with advisement responsibilities rated the difficulty of student goals on a 7-point scale. Raters anchored their goal-difficulty judgments according to how hard the goal would be for the "average" college student to attain. This approach also has been successfully applied to assess goal difficulty in other settings (Kane et al., 2001).

To code goal statements, raters were asked to consider goal difficulty with respect to both effort and ability. Students who reported having no goals received a (0) rating for goal difficulty because no established goal implies a minimal amount of required effort or ability. A goal rating of (1) reflected a goal attained by a student of low ability with little effort, and a goal was rated (7) if attained by a high ability student with a great deal of effort. Raters first applied the rating system to a sample of goals, discussed goal ratings that varied most, and then proceeded to code all goal statements. Raters assessed all students' semester goals, followed by college goals, and coded long-term/professional goals last. This procedure was used to ensure that assessing goals for one goal attainment time frame did not bias assessments made for other goal attainment time frames. Only goal-difficulty for semester goals were used for this study because the purpose of the study was to predict semester achievement. Rater reliability for semester goals was very strong ($\alpha = .95$).

Academic self-efficacy. Two self-efficacy measures were combined to form the self-efficacy scale. One scale focused on students' confidence to attain progressively more challenging grade point averages, while the other scale assessed confidence to employ strategies associated with successful academic achievement. The GPA-based assessment was modeled after Locke and Latham's (1990) guidelines. For this measure, students assessed their confidence to achieve semester GPA outcomes ranging from 2.0 to 4.0 with each option increasing by a half-point increment

(i.e., 5 items) on a 7-point scale ranging from 1 = not confident to 7 = 100% confident. The academic self-efficacy measure, developed by Wood and Locke (1987), assessed students' confidence to perform various academic activities on a 7-point scale with response options ranging from 1 (very much below average) to 7 (very much above average). A sample scale item was, "How well do you concentrate and stay fully focused on the materials being presented?" The reliability for the self-efficacy measure was $\alpha = .86$.

Academic performance. Student GPA at the end of the semester, accessed from the university database, served as the study criteria for student academic achievement. All students provided consent for acquiring academic achievement information from the university database.

PROCEDURE

Procedures were approved through the university internal review board for the protection of human participants. A 130-item questionnaire was electronically mailed to all student-athletes (N = 388) at a Midwestern university. The survey was sent at the beginning of the semester, and instructions informed students that 100 movie tickets would be randomly allocated to those who completed the questionnaire. One hundred forty-nine students completed the survey within three weeks. After a follow-up reminder was issued in the beginning of the third week, 21 more students responded. A final reminder was e-mailed approximately six weeks into the semester, which yielded 50 more respondents. The total response rate was 57% (N = 220). Among respondents, 43% were men and 57% were women, and respondents by class year were 79 freshmen, 52 sophomore, 49 junior, and 40 senior respondents.

RESULTS

Analyses for this study were calculated using SPSS 11.0. Descriptive statistics among study variables are presented in Table 1. Correlations among the study variables appear in Table 2. As seen in Table 2, ACT score and class rank correlated significantly with student GPA. In addition, all motivational variables except performance orientation correlated positively and significantly with GPA. It should be noted that performance orientation was not expected to contribute positively to student GPA.

To examine the impact of study variables on student GPA, regression analyses were run. In regression analyses, the multiple-

correlation provides an index of the joint relationship that several variables have in predicting student GPA. Two multiple correlation coefficients were computed and appear in Table 3. The first computed the joint effects of ACT together with high school class rank on student GPA. The second computed the effects of all motivation variables in predicting student GPA. As shown in Table 3, when compared to the student aptitude measures, motivational variables correlated slightly stronger with GPA for the entire sample and for the upperclassmen sample. The reverse was true for freshmen.

Table 4 reports the results of regression analyses in which gender, student-aptitude variables and motivation variables were entered to predict student GPA. As shown, being a female athlete, ACT score, class rank, and the difficulty of the student's goal uniquely and positively contributed to student GPA. As shown in Table 4, the difficulty of the student's goal was the strongest predictor of student GPA.

DISCUSSION

Summary of findings

Results of this study support the importance of motivational factors, drawn from theories of self-regulation, for predicting the academic achievement of student-athletes. Motivational variables predicted student-athlete success in the classroom above and beyond traditional admissions criteria such as high school class rank and ACT score. Among motivational variables, the difficulty of the student's semester goals, as rated by academic advisors, turned out to most strongly influence semester GPA. Taken together, these results should induce optimism among academic advisors for developing programs that boost academic achievement through the use of motivational techniques.

The lack of direct effects for learning orientation, performance orientation, and self-efficacy on GPA should not be assumed to mean that these factors are unimportant for academic achievement. Note also that self-efficacy correlated more strongly with goal-difficulty than either ACT or high school class rank. Particularly, a moderate correlation with academic achievement suggests that the effects of self-efficacy worked through the setting of challenging goals. That means that students with stronger self-efficacy tend to set more challenging goals. The indirect effects of self-efficacy on achievement are consistent with current theoretical descriptions (Bandura, 1997; Locke & Latham, 1990).

Although learning orientation was not effectively linked to GPA, in other research learning orientation has been shown to support other desirable student outcomes including heightened effort and persistence, involvement, retention of materials, seeking feedback, and satisfaction (Covington, 2000; VandeWalle & Cummings, 1997). Applied to the student-athlete's classroom activity, for instance, learning orientation might influence hours dedicated to study, visits with professors, seeking academic assistance, academic integrity, satisfaction with classes, and decisions to remain in college. Additional research might test these propositions with student-athlete populations.

Significance and implications of findings

The most important finding in this research was that the joint effects of motivational variables influenced student-achievement as strongly as high school class rank and ACT score. This is particularly important because motivational techniques can be used by advisors to improve students' academic relevant efforts. In contrast, advisors can do nothing to amend prior academic credentials such as past high school performance or scores on academic aptitude tests.

Semester goal difficulty emerged as a particularly strong predictor of student GPA. This was encouraging because the difficulty of the student's goals was evaluated by academic advisors. This means that academic advisors, with a knowledge of goal-setting principles, should be able to make reasonable judgments about the challenge inherent to the student-athlete's academic goals. Those evaluating the challenge of academic goals set by student-athletes should keep in mind that advisors trained in our study used minimal goal attainment criteria when assessing goal difficulty. For instance, vague goals such as "to pass my classes" were judged by the minimal outcome necessary to pass classes (i.e., earning D's). Goals such as, "I want to get by," "stay eligible," or "keep my scholarship" may be warning signs that students are not optimally framing what they want to achieve at the beginning of the semester.

Our findings suggest that academic advisors should benefit from using motivational strategies with all students in advisement sessions. Ideally, such sessions should be held at the beginning of academic semesters. Sessions held earlier as opposed to later in a semester provide advisors an opportunity to work with student-athletes early in their motivational cycle. Self-efficacy and personal goals, particularly, are part of a recurring motivational cycle that changes as student-athletes gain feedback. As time progresses in a semester, students tend to match their performance perceptions and goals to actual prior performance and poor

performance can be debilitating to efficacy beliefs, chosen goals, and commitment to such goals (Bandura, 1997; Locke & Latham, 1990). Hence, motivational strategies used to help student-athletes start their semester well should, theoretically, perpetuate an upward performance spiral. Sessions held later in semesters can be used to help student-athletes discuss goal progress and feedback, boost optimism and self-efficacy, and guide athletes to appropriate resources should their performance level fall below their targeted goals.

Goal-setting techniques that have been widely and effectively used across settings to enhance motivation and performance (see Locke & Latham, 2002, for review). Goals tend to work best if they are specific, challenging, and realistic (Locke & Latham, 1990). Time taken to discuss personal academic goals might prove to be a technique for helping student-athletes set more specific personal goals. For instance, student-athletes who set the goal "to do well" might be encouraged to more fully describe what "doing well" actually means and even describe to their advisor what support they will seek out if they are not on track to attain their goal by midterm or earlier. Specific goals work better than vague goals because progress made to attain specific goals is easier to track. When students receive feedback that they are falling short of a specific goal, then they know that attaining their goal will require more effort or improved strategies (Kane, et al., 2001).

Advisors might also use tested strategies for helping student-athletes set more challenging academic goals. For instance, using Bandura's (1997) suggestions for building self-efficacy can help students set more challenging goals. One efficacy-building strategy is to help students focus on prior academic successes. Prior success is the most powerful source of self-efficacy. Reminding students of prior successes achieved in particular courses might help to elevate self-efficacy beliefs among student advisees. Similarly, paying attention to individual successes in the classroom on exams or writing assignments might help advisors raise student expectations for future successes in similar classes. Students who underachieve might be directed to reflect on factors under their control that led them to do well on other assignments, papers, or exams. Such a strategy might balance the intuitive tendency to problem solve with student- athletes based on what's going wrong in their academic semester. Follow-up discussions between advisor and students might also focus on specific skills that led to successes in the classroom. Such discussion might help students focus better on self-capability than discussions focused on "what went wrong."

Another strategy proposed by Bandura (1997) to build self-efficacy is modeling. Applied to student-athletes, advisors might raise the student's awareness of similar athletes who performed well with hard work and support. Successful models can boost the efficacy beliefs of student-athletes as long as they view themselves as similar to those models. A third technique for building self-efficacy is persuasion (Bandura, 1997). Academic advisors who convey high academic expectations, sell student-athletes on an optimistic future of goal attainment, and communicate faith in the student-athlete's ability to do well will likely have a positive effect on student self-efficacy.

Those who coordinate academic programs for student-athletes might benefit from employing motivational techniques early in the student's academic career. Early successes tend to create positive performance cycles as the performance benefits of setting challenging academic goals tends to cycle back to boost self-efficacy and perpetuate the student's tendency to challenge themselves in the future (Bandura, 1997).

Another leverage point for promoting the setting of challenging goals is working with students on career objectives. Challenging and specific longer-term goals are associated with challenging and specific shorter-term goals (Kane, et al., 2001). Once specific career objectives are set, academic advisors can boost the student-athlete's commitment to short term goals by touting the importance or meaning of their education for professional development that is relevant to their career goals. For those who are solidly undecided, it might benefit advisors to convince students that high levels of academic achievement will produce greater flexibility in career paths when students do eventually choose what they want to do. Academic advisors might also challenge such students to use campus resources to find a career track that they find personally engaging. The point is that an important advisement strategy is to help student-athletes understand more fully the relevance of academic achievement to their own career and long-term goals. Commitment to challenging goals tends to escalate when student's see the relevance or meaning linked to goal attainment (Locke & Latham, 2002).

A side benefit of integrating goal-based advisement protocols into the advisement of student-athletes is a closer relationship between academic advisors with all student-athletes—the high achieving and at-risk students alike. Motivation is relevant to students who are academically gifted as well as those who are not, and goal-setting is also important for those who achieve high grades and those who do not. Challenging the A+ student to study and prepare for graduate school entrance exams is important just like successfully challenging a C- student to take

the right steps to get a B in a semester course. Goal-based advisement and understanding the goals that students aspire to achieve can help academic advisors know their students better, support the efforts of a broader range of students, and target customized advisement to all. As

Table 1. Study Descriptives

Variable	Range	Mean	St.Dev.	Reliabilities
Class Rank	5-99	72.06	20.07	n/a
ACT Score	13-34	22.86	3.60	n/a
Performance Orientation	1-7	4.84	.80	.85
Learning Orientation	1-7	5.24	.767	.91
Self-Efficacy	2.58-6.83	5.16	.703	.86
Goal Difficulty	1-6	4.39	1.19	.96
Fall 03 GPA	.00-4.0	2.93	.866	n/a

athletic-academic advisors become more familiar with the career and short term aspirations of their student-athletes, they will, in the process, know student-athletes and relate to their student-athletes better.

Table 2. Correlations Among Study Variables

	1	2	3	4	5	6	7
Gender	-						
Class Rank	.24**	-					
ACT Score	.19**	.39**	-				
Performance Orientation	.14*	.00	.18**	-			
Learning Orientation	.10	.04	.17*	.36**	-		
Self-Efficacy	.08	.33**	.38**	.10	.42**	-	
Goal Difficulty	.20**	.22**	.36**	.08	.31**	.52**	-
Semester GPA	.31**	.43**	.45**	.01	.17*	.39**	.50**

Note: High school GPA was self-report and the mean 7.15 represents the category choice of 3.01 to 3.50.
Note: Mean replacement was used for missing data for HS class rank and ACT score
@ Data not applicable to freshmen sample

* $p < .05$; ** $p < .01$

REFERENCES

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. Journal of Educational Psychology, 84, 261-271.

Austin, J.T., & Vancouver, J.B., (1996). Goal constructs in psychology: Structure, process, and content. Psychological Bulletin, 120, 338-375.

Bandura, A. (1997). Self-efficacy: The Exercise of Control. New York: W.H. Freeman & Company.

Bandura, A., & Schunk, D.H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. Journal of Personality and Social Psychology, 41, 586-598.

Bandura, A., & Wood, R. (1989). Effect of perceived controllability and performance standards on self-regulation of complex decision-making. Journal of Personality and Social Psychology, 56, 805-814.

Bouffard, T., Boisvert, J., Vezeau, C., & Larouche, C. (1995). The impact of goal orientation on self-regulation and performance among college students. British Journal of Educational Psychology, 65, 317-329.

Covington, M. (2000). Goal theory, motivation, and school achievement: An integrative review. Annual Review of Psychology, 51, 171-200.

Dweck, C.S., (1986). Motivational processes affecting learning. American Psychologist, 41(10), 1040-1048.

Early, P.C., Lituchy, T.R. (1991). Delineating goal and efficacy effects: A test of three models. Journal of Applied Psychology, 76, 81-98.

Elliot, J.A., & Thrash, T.M., (2001). Achievement goals and the hierarchical model of achievement motivation. Educational Psychology Review, 13, 139-156.

Grimes, S. (1995). Targeting academic programs to student diversity utilizing learning styles and learning-study strategies. Journal of College Student Development, 36, 422-430.

Kane, T.D., Marks, M.A., Zaccaro, S.J., & Blair, V., (1996). Self-efficacy, personal goals, and wrestlers' self-regulation. Journal of Sport & Psychology, 18(1), 36-48.

Kane, T.D., Baltes, T.R., & Moss, M.C. (2001). Causes and consequences of free-set goals: An investigation of athletic self-regulation. Journal of Sport & Exercise Psychology, 23, 55-75.

Kane, T.D., Zaccaro, S.J., Tremble, T.R., & Masuda, A. (2002). An examination of the leader's regulation of groups. Small Group Research. 33(1), 65-120.

Kane, T., Nelson, A., Shoptaugh, C.F., & Reichard, B. (2005). Free set goals and academic performance. Unpublished manuscript.

Locke, E.A., & Latham, G.P. (1990). A theory of goal setting and task performance. New Jersey: Prentice Hall.

Locke, E.A. & Latham, G.P. (2002). Building a practically useful theory of goal setting and task motivation. American Psychologist, 57, 705-717.

Pintrich, P.R., & DeGroot, E.V., (1990). Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology, 82, 33-40.

VandeWalle, D. & Cummings, L.L. (1997). A test of the influence of goal orientation on the feedback-seeking process. Journal of Applied Psychology, 82, 390-400.

Wood, R.E. & Locke, E.A. (1987). The relation of self-efficacy and grade goals to academic performance. Educational and Psychological Measurement, 47, 1013-1024.

Wood, R.E., Bandura, A., & Bailey, T. (1990). Mechanisms governing organizational performance in complex decision-making environments. Organizational Behavior and Human Decision Processes, 46, 181-201.

Wolters, C.A., Yu, S.L., & Pintrich, P.R., (1996). The relation between goal orientation and students' motivational beliefs and self-regulated beliefs and self-regulated learning. Learning and Individual Differences, 8, 211-238.

Wright, P.M., (1990). Operationalization of goal difficulty as a moderator of the goal difficulty-performance relationship. Journal of Applied Psychology, 3, 227-234.

Zimmerman, B.J., (2000). Attaining self-regulation. Handbook of Self-Regulation. In: Boekaerts, Monique (Ed);, Paul R. (Ed); 2000.Diego, CA, US: Academic Press, 13-37.

Zimmerman, B.J., & Kitsantas, A, (1996). Self-regulated learning of a motoric skill: The role of goal setting and self-monitoring. Journal of Applied Sport Psychology, 8, 60-75.

AUTHOR BIOGRAPHY

Thomas D. Kane received his Ph.D. from George Mason University and is an Associate Professor of Psychology at Missouri State University. He worked for two years as an Assistant Academi Coordinator at George Mason University's Academic Support Services in the Department of Intercollegiate Athletics. He has published articles on the topics of leadership, group processes and sport motivation. Correspondence regarding this article can be directed to: tomkane@missouristate.edu.

Logan Dale received his Masters of Science in Industrial/Organizational Psychology at Missouri State University. He worked two years at Missouri State University's Achievement Center for Intercollegiate Athletics. The data collected for this article were part of Logan Dale's Masters thesis. He now works at Centex Corporation as a Manager of Assessment Services.

The authors would like to thank Wayne Mitchell and Donald Fischer for their assistance at various stages of this project, and Philip Walmsley for his detailed evaluation of earlier drafts of t his manuscript. Also we thank JoBelle Hopper, Director of Missouri State's Center for Intercollegiate Athletics, for assisting with project logistics.