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The Operationalization of Task Goal Difficulty: An Exploration of Qualitative and Quantitative Methods

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THE OPERATIONALIZATION OF TASK GOAL DIFFICULTY: AN EXPLORATION OF QUALITATIVE AND QUANTITATIVE METHODS

A Master's Thesis

Presented to

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In Partial Fulfillment

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Master of Science, Psychology

By

Sidonia Christine Grozav

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Psychology

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ABSTRACT

This study contributed to an understanding of the goal setting process by investigating a variety of ways to evaluate the difficulty of short-term goals, including requested quantitative goals, different methods to rate the difficulty of self-defined goals, and the difficulty perceptions of the goal-setters themselves. To examine the validity of different goal-difficulty assessment strategies, I collected short-term academic goals from 116 freshman college students at the beginning of their first semester in college. I also collected antecedents of goal difficulty, such as prior performance and self-efficacy, and collected academic achievement at the conclusion of that semester. The validity of eight different measures of goal difficulty was examined through the examination of goal-difficulty measures with antecedents and academic performance. Correlations among goal-difficulty measures ranged from weak to strong. Patterns of correlations should encourage the future use of both quantitative goal measures and ratings of self-reported goals. Criterion GPA correlated most strongly with the GPA based assessments of goal difficulty. Goal-setters' perceived difficulty of goals was not associated with predictors and criteria as goal-theory suggested. Applications, future research directions, and study limitations were discussed.

KEYWORDS: self-set goals, task goal difficulty, perceived goal difficulty, breadth, commitment, self-efficacy

This abstract is approved as to form and content

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INTRODUCTION

Goal theory describes factors and underlying processes that drive motivation (Locke & Latham, 2002; Zimmerman, Bandura, & Martinez-Pons, 1992). Central to goal theory is the challenge inherent to the goals that people set. This challenge, or goal difficulty, when present in goals, has been associated with improved performance across a variety of settings, including organizations (Mento, Steel, & Karren, 1987). Positive effects of goal difficulty on performance have been found whether goals are assigned to performers, participatively set, or self-set by performers. Goal difficulty directly determines the physical and strategic effort put forth by performers, which in turn positively influences goal attainment (Locke & Latham, 1990; Wood, Bandura, & Bailey, 1990).

Goal difficulty has been integrated into broader models of self-regulation to explain human motivation and achievement; whereby, the goals people naturally set have been proposed to drive and sustain intentional motivational processes (Bandura, 1997; Locke & Latham, 1990). Tests of goal-based self-regulation processes have been conducted across settings and have shown goal-difficulty to occupy a central role in human motivation (e.g., Early & Lituchy, 1991; Kane, Marks, Zaccaro, & Blair, 1996; Masuda et al., 2010; Wood, Bandura, & Bailey, 1990). Such research has raised the importance of understanding the types of goals that performers naturally set. For instance, what is the role of multiple short and long-term self-set goals constructed for guiding self-regulation over time (Kane, Redhead, & McKenna, 2017)? Goals naturally set, especially in complex task settings, might vary broadly across goal-setters and can vary in both content and level. That is, both quantitative and qualitative goals can

potentially be set by goal-setters. In representation of quantitative goals reported in self-set goal studies, different measurement strategies have also been applied (e.g., Locke & Latham, 1990; Wright, 1990).

Naturally constructed goals might also be qualitative in content in domains where performance is not easily translated into quantitative task outcomes. The study of self-set goals poses measurement challenges to researchers because they have to develop strategies for evaluating the content of qualitative goals along dimensions known to support goal-to-performance relationships (e.g., specificity and difficulty) (Kane, Moss, & Baltes, 2001; Masuda, Kane, Shoptaugh, & Minor, 2010). Because the difficulty of self-set goals can be operationalized in many ways, it is important to test the validity of various methods used to measure it.

Goal difficulty is one's perception of how hard a goal is to achieve (Locke, 1996). Goal difficulty specifies a certain level of task proficiency and defines a standard against which people gage goal progress (Locke, 1990). Harder goals require more knowledge, skill, ability, and effort than easier goals. The difficulty of a goal is generally depicted as the motivating component within goal theory, and positive performance outcomes have been well supported as flowing from the possession of difficult task goals, whether assigned or self-set (for review, see Locke & Latham, 1990). In this current study, the difficulty of students' self-set semester goals for academic achievement were evaluated in eight (seven? Align this statement with abstract) ways. The purpose of this study was to assess the validity of both quantitative and self-reported goals set by students.

Literature Review

Role of Goal Difficulty for Motivation. Self-regulation is initiated when people set goals to create a discrepancy between their current performance state and what they hope to accomplish. That discrepancy might involve distal goals set far into the future or more proximal goals set for the specific task. The difficulty of goals is influenced by one's perceptions of prior experiences, task-relevant feedback, and self-evaluated capability (i.e., self-efficacy) (Locke & Latham, 1990). The content and difficulty of self-set goals impacts how individuals regulate their behaviors and emotions. In order to stay motivated to accomplish a goal, the goal must be realistic to that person (Kluger & Denisi, 1996). If a person is committed to a goal, then he or she will respond to negative feedback with increased effort or changes in strategies.

Goal Setting Theory has generated countless studies to describe goal-based human motivational processes. From this theory, people are described as being driven by the goals they set for both longer and shorter-term accomplishment. Extremely long-term goals, or peak goals, provide meaning to the shorter-term goals that people set (Masuda, Kane, & Shoptaugh, 2010). Those peak goals, sitting atop of a goal structure, generally lead to the setting of subordinate goals that, in the goal-setter's mind, will lead them to peak goal accomplishment. At the bottom of goal structures are task goals, which drive immediate self-regulation processes, including the generation of effort and development of strategies.

Difficult task goals drive short-term self-regulation by directing and sustaining thoughts and actions as performers actively engage their tasks. Concepts studied in

connection to the role that task goals play in human motivation include task goal content, specificity, and commitment.

Goal specificity refers to the range and clarity of outcome levels that satisfy goal attainment (Kane et al., 2001). Specific goals clarify the relationship between goals and performance while enabling the performer to interpret the feedback necessary to regulate goal-directed thoughts and efforts (Locke, Shaw, & Saari, 1981). Further, Locke and Latham (1990) noted, in their review of goal difficulty research, that challenging goals generate more motivation and effort compared to vague, do-your-best goals.

Goal commitment is one's attachment to or determination to reach a goal, regardless of where the goal came from; self-set, participatively set, or assigned (Locke & Latham, 1990). Wright and colleagues assessed goal commitment through self-report as well as the discrepancy between an individual's personal goal and their assigned goal (Wright, O'Leary, Cortina, Klein, & Hollenbeck, 1994). When an individual is strongly committed to a challenging goal, performance is at its highest potential as the goal to performance relationship is at its strongest (Locke & Latham, 2002). Coming from Latham and Locke (1991), if goal difficulty is held constant, then goal commitment moderates the goal to performance relationship.

Goal content refers to the object or result being sought by the performer. Content involves some aspect of the external world and can vary qualitatively or quantitatively depending on the type of goal, (e.g. career goal, financial goal, task goal) (Locke & Latham, 1990). These different types of goals then vary in terms of "what" is to be obtained.

Goal Content Theory refers to the need for satisfaction and well-being in terms of intrinsic and extrinsic goals (Ryan & Deci, 2000). The content of a goal greatly influences an individual's motivation and well-being. For example, goals that convey personal growth are known as intrinsic (Kasser & Ryan, 2000). Intrinsic goals promote autonomy and competence. As an individual relates to the goal, attaining it becomes enjoyable, challenging, and motivating. In contrast, some goals that individuals pursue can be seen as extrinsic, involving the increase of wealth and reputation. Extrinsic goals hinder autonomy, competence, and relatedness, which in turn impairs learning (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

Antecedents of Goal Difficulty. Prior success is a leading factor in determining goal difficulty level (Campbell, 1982) and goal choice (Locke, Fredrick, Lee, & Bobko, 1984). Cummings, Schwab, and Rosen (1971), Wilsted and Hand (1974), and Lopes (1976), all discovered that an individual's goal level was significantly related to previous performance.

Goal difficulty has also been linked to perceived ability. Self-efficacy is one's perceived ability to successfully accomplish a task (Bandura, 1982). Self-efficacy, often studied in the context of goal theory, has been found to directly influence effort (Zimmerman et al., 1992), strategic thinking (Locke et al., 1984), and goal commitment. In models of goal-based self-regulation, self-efficacy has been revealed as a mediator in the effects of prior performance on goal difficulty (Early & Lituchy, 1991; Kane et al., 1996; Wood & Bandura, 1989). Hence, individuals with high self-efficacy are more likely to challenge themselves and commit to their challenging goals (Locke & Latham, 2002).

The challenge inherent to higher order goals in goal structures also predicts goal difficulty. In a study of students' career goals, Masuda, Kane, and Shoptaugh (2010) found that challenging career goals were associated with the difficulty of subordinate academic goals set by college students. They further proposed that short-term goals reflect aspirations, drawing individuals toward their anticipated destination (Masuda et al., 2010). These findings make sense from the perspective that goal structures contain logical arrangements of goals that connect a performer's short-term task goals to long-term aspirations. Both Bandura (1997) and Locke and Latham (1985) proposed that setting meaningful distal goals can cause stronger commitment to proximal goals. The stronger the commitment, the harder individuals will try to close the discrepancy between their task and career goals.

Outcomes of Goal Difficulty. Goal difficulty leads to efforts, strategies, and sustained effort over time (Dweck, 1992). Past research has shown that these mediators directly predict performance. Locke, Frederick, Buckner, and Bobko (1984) compared the effects of assigned and self-set goals on an individuals' performance in a university setting. They learned that students chose more difficult goals, if the assigned goals had been easy, and easier goals, if the assigned goals had been difficult. Students were also heavily influenced in their self-set goals by their previously assigned goals.

Wright, Hollenbeck, Wolf, and McMahan (1995) placed participants in one of two conditions; "absolute goal level" or "performance improvement." They then assigned goals, ranging from easy, moderately difficult, or very difficult for both conditions. The results of this study indicated the strongest relationship between goal difficulty and performance occurred when goals were operationalized in terms of

absolute level. These findings signify that the way assigned goals are derived and the way that they are communicated to subjects impacts goal setting outcomes (Wright et al., 1995).

In another setting, Eden (1988) studied effort-to-performance expectancy in relation to achievement. Within this study, the motivation to choose a task and the motivation to exert effort were proposed to be two separate entities. Forming effort-to-performance expectancies begins with the goal setter first defining their goals within a specific task domain. Also, relevant to this process is setting a purpose, or higher order vision and goal level that may vary in difficulty. A degree of expectancy is then calculated based on the difficulty of the goal, which in turn impacts effort and ultimately performance (Eden, 1988). Hence, performance expectancy in conjunction with stable aspects of personality is influenced by goal difficulty.

Operationalization of goal difficulty for self-set goals. An abundance of research has examined the difficulty of goals that are assigned to task performers. Often, especially in laboratory research, the effects of specific and challenging assigned goals have been compared to instructions for performers to *do their best* or set no goals at all. For that research, goal difficulty has been operationalized in different ways (Wright, 1990). More specifically, Wright distinguished goal difficulty as assigned, self-set, or perceived. Assigned goals included the goals that were objectively set for the individuals. Self-set goals were reported by the individuals, but within certain constraints. These goals were qualitative (numeric value) and quantitative (narrative). Perceived goal difficulty then reflected an individual's self-evaluation, which referred to how difficult an individual perceived both the goals they set, and the goals set for them.

Studies of self-set goals, often using correlational designs, have also found performance advantages of performer's setting specific and challenging goals. In some cases, self-set goals were quantitative (e.g., Wood, Bandura, & Bailey, 1990), referring to the quantity (i.e., number of wins, GPA, test scores, etc.), and in other cases, goal content was qualitative, referring to the quality (i.e., personal vision, observation). Kane, Baltes, and Moss (2001) used the term "free-set goals" to define goals naturally set by athletes. More specifically, free-set goals were self-reported, free to vary within the performance domain and reported in the form of a goal statement. Self-referenced ratings consider the individuals' current goals to their past performance when evaluating goals.

In another study, Masuda, Kane, Shoptaugh, and Minor (2010) operationalized self-set goals as academic free-set goals, having students qualitatively report their semester and academic goals while acting as their own reference points. Norm-referenced ratings include using a normative group as a standard for evaluating goal level.

For the purpose of this current research, I investigated the validity of different methods to evaluate the difficulty of self-set semester goals reported by college students. I evaluated quantitative grade-point goals reported by students as well as qualitative goals reported when students were merely asked *to report their semester goals*.

Self-set goals are reported by goal-setters when they are asked to report their goals within a performance domain. The content of self-set goals can be controlled by the researcher who asks goal-setters to report a certain type of goal, such as the grade point average they hope to attain by the end of a semester. Self-set goal content might also be free to vary by simply asking performers to report their goals in the absence of

instructions that further control content. For example, free-set goal methodology, developed by Kane et al. (2001), involved requesting performers to report the goals they possessed in a particular performance domain. As noted by these researchers, goals reported using the free-set goal methods vary in content in that goal-setters could potentially report quantitative or qualitative goals. As well, free-set goal reports may reveal goals that are highly specific or vague, and goals that are long-term or short-term in regard to the time frame for accomplishment (Kane, Moss, & Baltes, 2001).

Goal difficulty measurement for constrained-content self-set goals. When researchers request goal-setters to report a certain type of goal, I deemed goal content to be *constrained*. For instance, a researcher may ask a student what grade they hope to attain, which will generally lead to the report of a grade goal. Constrained content goal difficulty is usually implied by the level of the quantitative goal selected by the goal-setter when asked to report their goal. To capture the constrained content goals of performers in a specific domain, goal-setters often respond to prompts such as, "What is the goal that you have set for (this task)?" These type of constrained goal instructions have been used to collect quantitative goals for matches won in sport contests (e.g., Kane et al., 1996), student grade goals (Zimmeraman et al., 1992), task goals in laboratory settings (e.g., Wood et al., 1990), as well as job performance goals (Judge et al., 2001).

When asking a performer to self-report goals in a specific setting, social desirability bias may be an issue. Locke and Latham (1990), therefore, recommended that those studying goals in academic settings request performers to report the minimum acceptable level of goal that they hope to achieve in their class. Locke and Bryan (1968) measured "hope", "expect", "try for", and "minimum" grade goals for various courses.

They found the four goals to be highly correlated with a sample of college students. Wood, Mento, and Locke (1987) replicated the Locke and Bryan methods and found the "minimum" goal measure correlated most strongly to the actual goal attained, while "hope" and "try for" goals correlated at the weakest level.

Goal difficulty measurement for free-set goals. The measurement of free-set goal difficulty has generally involved the use of external raters. In Kane et al.'s (2001) sports study, for example, three coaches evaluated the difficulty of free-set goals reported by wrestlers for pre-season, season, and long-term accomplishment. Raters included wrestling coaches from two high schools and one college. Coaches were given individual profiles on each wrestler, which included years of wrestling experience, the win/loss record from the prior season, level of competition, and tournament placements. Difficulty ratings were based on how difficult it would be for a particular wrestler to achieve his reported goal on a seven-alternative scale ranging from 1 (extremely easy) to 7 (extremely difficult). Because difficulty assessments were customized to the profile of each wrestler, these rater evaluations were *self-referenced assessments*. Masuda et al. (2010) used a norm-referenced approach to assess free-set goal difficulty for academic goals. They trained raters to assess goal difficulty on a 7-alternative scale ranging from 1 (not difficult) to 7 (very difficult). Judgments were referenced against the *average student* and are therefore norm-referenced assessments of goal difficulty.

Studies of free-set goals collected multiple goals from participant, which raises some measurement implications. Operationalizing goal difficulty when multiple goals are reported can be approached in different ways. When goals are reported by

participants, they prioritize some goals more than others. They may, for instance, report a *most important goal* among the many goals they report.

Among various goals set for an academic semester, goal difficulty might best be evaluated by the most difficult goal reported among goals set. This "most difficult" goal may represent the ceiling of the goal-setter's aspirations, and thus, is best relevant to the amount of effort the goal setter is willing to put forth. In addition, the goal difficulty of multiple goals set might be evaluated by the average difficulty of all goals set. A student who tends to challenge herself might be identified by the level of goals set across a variety of academic tasks.

When using free-set goal techniques, goal-setters may also report more as opposed to fewer goals. Logically, the possession of more goals implies a willingness to expend a greater amount of effort in a particular domain. Hence, a student who wishes to study for graduate school admissions, attain a strong grade point average, make connections in his/her desired profession, and present a paper at a conference is challenging herself more than a student who possesses only a grade point goal. The qualitatively different goals set is also associated with difficulty. For example, a student may have several goals that all pertain to performance in the classroom. Another student may have goals set for the classroom, gaining professional experience, and developing professional relationships. Breadth pertains to the different categories of goals set within a domain.

Self-assessments of goal difficulty. Goal setters may provide their own assessments of goal difficulty in terms of ability and effort. Wright (1990) included self-reports of intentions to perform well and perceptions of difficulty for both self-set and

assigned goals. Participants were asked to rate how challenging they perceived each of their goals to be (self-set and assigned) compared to the average person (Wright).

In contrast, raters can be trained to measure and evaluate goal difficulty. Rater training can be done using two methods, norm-referenced and self-referenced. Norm-referenced ratings include using a normative group as a standard for evaluating goal level. For norm-reference, an individual's goal difficulty is compared to how well an average person would perform on the task. On the other hand, self-referenced ratings consider the individuals' current goals to their past performance when evaluating goals. Because the rater's ability is being controlled, self-referenced evaluations consider how much effort is required of that specific goal setter.

Subjective ratings of goal difficulty. Goal setters can also evaluate their own goal difficulty. Difficulty perceptions were included in Wright's (1990) meta-analysis regarding the validity of different measures of goal difficulty. Here, participants were asked to report their intentions to perform well as well as their perceptions of the difficulty of the goal (Wright).

PURPOSE

The purpose of this study was to test the validities of various approaches to measure goal difficulty. Eight different measures of goal difficulty were compared and displayed in Table 1. Antecedents selected to test the validity of goal difficulty measures were prior success, self-efficacy, and challenging career goals. In addition, the effects of goal difficulty on performance were evaluated on all measures.

METHODS

Participants

One hundred and sixteen college students, recruited from various psychology courses, completed this study for course credit at a large Midwestern university. After screening for missing data, eighty-nine students were included in the final data analysis. Students consisted of 30 men and 58 women with ages ranging from 18 to 64 (M = 20, SD = 6.30). Descriptive statistics computed for all variables appear in Table 2.

Measures

Demographics. Students' gender, age, and parents' education were described on the study questionnaire. Undergraduates were also asked to recollect ACT scores and high school GPA. Participants also reported university ID numbers so that end of semester performance could be collected from University databases. Academic data accessed from University databases were obtained after gaining students' permission.

Goal Difficulty. Students' short-term goal difficulty was assessed through the following measures.

Most important goal difficulty. All ratings of free-set goal difficulty (i.e., most important goal, average goal difficulty, and most difficult goal) involved the following goal training process. Three raters met three times for training to rate the difficulty of semester free-set goals. They used a norm-reference approach, meaning that goal difficulty was evaluated against the 'average student.' Raters applied a 7-point rating scale that was developed in a prior study (Kane, Redhead, & McKenna, 2018) ranging from 1) "This goal is easily attained by anyone; even those who have below average ability" to 7) "This goal is extremely difficult to achieve even for a student who possess

high ability and works hard" (see Appendix A). In this initial meeting, trainers practiced rating goals from a prior study and discussed ratings and disagreements in order to develop a common perspective of the rating scale. Throughout the second meeting, raters rated a practice set of 116 goals on their own and discussed agreement. During the third and final meeting, raters evaluated the goals reported by participants of this current study. Rating non-specific goals proved challenging, and raters were instructed to evaluate vague goals according to the guidelines established by Kane, Baltes, and Moss, 2001. That is, raters were instructed to rate effort and ability by the minimum level necessary for attainment implied by a nonspecific goal. For example, if the reported goal was 'to pass,' then the minimum standard for passing classes was applied when evaluating goal difficulty.

To report their most important goal each participant responded to the question, "List your MOST IMPORTANT short-term goal that you set to accomplish by the end of the semester (One goal)." Three raters evaluated the difficulty of the most important goal reported. Most important goal difficulty was computed by taking the average of those ratings. Rater reliability was $\propto = .97$.

Average goal difficulty. In addition to reporting their most important goal, students also reported multiple goals by responding to the question, "List other important academic or professional goals you want to accomplish this semester." Students responded a range of one to eight goals. Raters separately rated each goal reported, and rater reliability was $\propto = .90$. Then the average of the averaged rater evaluations was combined into a single score representing the average semester goal difficulty.

Level of most difficult goal. Among all semester goals evaluated by raters, the goal with the highest mean goal difficulty rating represented the participant's most difficult semester goal. Rater reliability was $\propto = .93$ for the most difficult semester goal reported.

Number of goals. The total number of semester goals listed by students (most important and other important semester goals) was summed to compute the total number of goals.

Goal breadth. Raters classified all goals reported by participants into categories. Three raters met to discuss and define goals, with the objective of constructing categories in which all relevant semester goals could be classified into only one category (i.e., mutually exclusive and collectively exhaustive categories). Eight goal categories resulted, and the goal categories are defined in Table 3. Raters individually classified all goals reported by participants by marking whether a certain type of goal was present or absent for the goal-setter (i.e., "1" for present and "0" for absent). If all three raters agreed on the category, no further discussion was made. When two out of three raters agreed, it went into the category that majority ruled. In the instance that none of the three raters agreed on a category, raters reviewed the goal and re-evaluated their decisions in order to reach a consensus. All raters agreed on 36% of goals classified, and two of three raters agreed on 45%. No rater agreement occurred for 19% of goals reported. The number of categories represented by the participants goal-set represented breadth. Rater reliability was $\propto = .92$.

Maximum GPA goal. Students wrote the numeric GPA value in response to the question, "My GPA goal this semester (between 1.0 and 4.0) is."

Minimum GPA goal. Students wrote the numeric GPA value in response to the question, "The MINIMUM GPA that I will accept achieving this semester is."

Self-evaluated goal difficulty. Students responded to two questions about the perceived difficulty of their free-set semester goals as a collective set (i.e., difficulty of all reported goals): 1) "In terms of natural ability, how difficult do you think your goals will be to attain compared to the average college student?" and 2) "In terms of effort, how difficult do you think your goals will be to attain compared to the average college student?" Responses to this question were reported on a 5-point Likert scale, ranging from (1) "Require much less ability/effort" to (5) "Require much more ability/effort." Then, answers to the two questions were combined and averaged to obtain a single score representing one's self-evaluated goal difficulty. Reliability for self-evaluated goal difficulty was $\propto = .68$.

Goal commitment. After students reported their most important semester goal, students responded to the following prompt: "Answer the following questions with respect to your most important semester goal." A modified version of Hollenbeck, Williams, and Klein's (1989) goal commitment scale was used to assess student goal commitment to their most important semester goal. Sample items included "Quite frankly, I don't care deeply if I achieve this goal or not," and "I am extremely committed to pursuing this goal." Response options were reported on a 5-point Likert scale, ranging from "Strongly disagree" to "Strongly agree." Reliability for goal commitment was $\propto = .83$.

Self-efficacy. Wood and Locke's (1987) seven-item scale was used to measure academic self-efficacy. Scale items included, "How well do you concentrate and stay

fully focused on the materials being presented?" and "How able are you to make understandable course notes which emphasize, clarify, and relate key facts, concepts, and arguments as they are presented in lectures, tutorials, or course materials?" Response options were distributed on a 5-point Likert scale, ranging from "Extremely below average" to "Extremely above average." Reliability for self-efficacy was $\propto = .75$.

Self-assessed career goal difficulty. Goal setters reported the extent to which their career goal was relevant to academic achievement on a 7-point Likert scale with response options ranging from "Strongly disagree" to "Strongly agree." Scale items included, "Reaching my career goal requires a high level of academic achievement in college," and "I will have to do exceptionally well in college to have any chance of attaining my career goal." Scale reliability was $\propto = .71$.

End of semester GPA. After attaining permission via informed consent forms, student's GPA attained at the end of the semester was recorded from the University database. Students who did not complete the semester were dropped from analysis and their GPA was not gathered.

Participants were randomly assigned into one of three conditions. Group one received the goal training, wrote down their goals, and completed a questionnaire; group two wrote down their goals and completed the questionnaire; and the control group only completed a questionnaire. Random block assignment was used. After a group was selected (i.e. by rolling a die) the other groups were run in succession. A single condition was run consecutively until the total participants equaled or surpassed the prior group that was run.

Procedures

Procedures for this study were approved by the Institutional Review Board at Missouri State University (study #: IRB-FY2017-431). This project was conducted in conjunction with an evaluation of goal-based training (Redhead, 2018). In that study, participants were assigned to one of three conditions: 1) Trained plus goals; 2) Goals only; 3) Control. Because this study relied on reports of goals set by participants, the control group was eliminated. All participants were run within the first seven weeks of spring semester, 2017. The training condition took a duration of 50 minutes. The group that only set goals and was not trained took approximately 35 minutes.

During the study, 20 sessions were run with the participants in groups of 1-28. Students signed up for a particular study time using an online research participation system. If participants arrived after a study had commenced, they were run immediately after the previous group (which accounts for the small group size continuum). For all groups, participants first read and signed informed consent forms (Appendix B). After consent forms were signed, the experimental groups received training. Aside from this training, both the experimental groups completed a goal setting form where they reported peak, connecting and task goals, followed by a questionnaire to report goal related attitudes (Appendix C).

At the end of the students' semester, researchers extracted performance data from university databases. Permission had been attained by students to access their academic records.

RESULTS

Descriptive statistics for study variables appear in Table 2. Analyses were conducted to evaluate the validity of the different operationalizations of goal difficulty. First, correlations among goal difficulty variables, predictors, and criteria were reviewed. These correlations appear in Tables 4-6. Correlations among goal-difficulty measures ranged from moderate to strong. Notably, most difficult goal was correlated strongly with the most important goal (.76**), goal breadth was correlated strongly with the number of goals reported (.65**), and minimum GPA goal was correlated strongly with maximum GPA goal (.59**).

Predictors of goal difficulty, supported by theory, were academic aptitude, pre-college GPA, and semester self-efficacy. Correlations of these antecedents with goal difficulty variables appear in Table 6. As shown, pre-college GPA, self-efficacy, and semester goal difficulty were all significantly and positively correlated with three of the eight goal difficulty measures; most difficult goal, semester GPA goal, and minimum semester GPA goal. None of the antecedent variables were significantly correlated with average semester goal difficulty, goal breadth, or self-evaluated goal difficulty. Only pre-college GPA correlated significantly with the number of goals reported ($r = .24$, $p < .05$), and both academic aptitude and pre-college GPA correlated significantly with the most important semester goal difficulty.

Table 7 reports regression analyses for which each goal difficulty measure was regressed on antecedent variables of academic aptitude, pre-college GPA, and self-efficacy. As shown, antecedents accounted for significant variance in predicting all goal difficulty variables except self-reported goal difficulty, goal breadth, and goal number.

In these analyses, self-efficacy was only uniquely predictive of minimum goal difficulty (β = .29**), which is an important observation in examining the validity of goal difficulty variables. That is, self-efficacy, theoretically, mediates the relationship of prior performance on goal difficulty.

To test the predictive validity of the goal difficulty variables, end of semester GPA served as the dependent variable in regression analyses. Eight analyses were run with each one entering a different goal-difficulty variable in conjunction with covariates. Covariates were, again, pre-college GPA, academic aptitude, and self-efficacy. These analyses appear in Table 8. To be consistent with theory, the predictive validity of goal difficulty is supported by direct effects of goal difficulty on performance, revealed by a significant beta-weight. As shown, significant beta weights for goal-difficulty on performance were found for most important goal (β = .32, $F(4,73) = 9.78$**), most difficult goal (β = .27, $F(4,73) = 8.21$**), maximum GPA goal (β = .33, $F(4,72) = 11.87$**), and minimum GPA goal (β = .37, $F(4,73) = 9.01$**), and were all significant covariates in the prediction of end of semester GPA.

DISCUSSION

Key Findings

Recent findings deliver advances to what has been previously found in goal difficulty studies (e.g., Wright, 1990). Several of the eight goal difficulty measures related to predictors and outcomes as suggested by goal theory (Locke & Latham, 2002). In terms of quantitative goals, most consistent predictors of GPA were GPA goals, with the better prediction coming from a goal that was reported as the minimum level acceptable to the goal-setter, rather than merely the maximum or hoped-for goal. GPA goals were likely good predictors in this study because GPA goals matched best with the criteria that was measured, which was end of semester GPA. However, there was a discrepancy between the validities of minimum and maximum GPA goals, in that the minimum GPA goal reported was more predictive of end of semester GPA. This may have occurred as the minimum GPA reflected a more realistic view of what the student felt he or she was capable of obtaining, while the maximum goal may have been characterized as a "hoped for" goal. The maximum goal might have even been exaggerated by a social desirability effect, as students might have wanted to please the researcher.

This study potentially provides refinements for those who wish to employ free-set goal methodology (Kane et al., 2001). For qualitative, free-set goals, the most difficult goal and the most important goal showed the largest correlations with criteria, compared to the average difficulty of all goals set and self-rated difficulty. It should be noted that 72% of the time students' most challenging goal was also their most prioritized goal, which explains why both measures correlated so highly with criteria. When individuals

possess multiple goals in a performance domain, it may be that cumulatively the goals form a plan, and the prioritized goal represents the ultimate purpose of that plan. For instance, in this study, almost all *most important goals* reported were GPA goals. Space provided for self-reports of *other semester goals* may have focused participants to set strategic, process, or behavioral goals.

The number of goals set, and the number of qualitatively different goals set was predicted to represent goal difficulty. However, goal breadth and total number of goals reported were not significantly correlated with criteria. Perhaps breadth was not measured in a way that was congruent with the criteria that was used to validate the breadth construct. It may have been that students who reported goals over a broader array of categories were indeed putting in more effort, just not in striving for GPA. For example, a student who prioritized a GPA goal as most important, might have reported *other goals* not logically translated into GPA, such as involvement in a professional organization or making professional contacts. These other goals likely have little to do with academic achievement as measured in this study. In addition, the breadth of a student's goals could have had a negative effect on their performance, as the more effort put into extracurricular activities, working outside of school, or even preparing for graduate school entrance exams, can potentially take away from the time and effort directed toward achieving academic goals. In the future, researchers should use broader criteria when testing the breadth-as-goal-difficulty hypothesis.

Current research corroborates Wright's (1990) findings about the questionable validity of using self-reported assessments of goal difficulty, compared to other methods. In addition, goal difficulty perceived by the goal-setters themselves was correlated

strongly with other measures of goal difficulty, and was negatively, though not significantly, correlated with prior performance. It should be noted that perceived goal difficulty was asked in regard to all semester goals set, rather than the most challenging or prioritized goal. In general, the average difficulty of all goals set did not fare well with regard to predicting GPA or relating strongly to antecedents.

Applications

As this study strived to expand goal setting research in practice, it contributed to goal theory research by testing the validity of a variety of goal difficulty measures. This study incorporated qualitative and quantitative measures, as using qualitative measures may prove feasible in certain settings where outcomes cannot be quantified. Above all, both rater-evaluated and quantitative self-reported goal methods revealed validity.

As mentioned previously, it was interesting how when students were asked to report their most important goals, they reported quantitative goals (mainly GPA). Might this phenomenon have been due to structure? In that, the most prioritized was set as a quantifiable outcome, while "other goals" were more narrative descriptions of how such outcomes would be attained. It seems as if individuals perceive their most important goal as something they could measure (e.g., I want a 3.7 GPA) while their *other goals* were broken down into specific behaviors for attaining the quantitative outcome (e.g., study, practice, etc.). Perhaps other ways to approach the evaluation of non-qualitative goals might prove helpful. For example, goals may specify strategies or outcomes. They may also be behaviorally vague or specific. Other rating schemes might be applied to evaluate the full array of goal types reported in goal structures.

The minimum acceptable goal reported seemed more valid than the students' goal reported to the question, "My GPA goal this semester is _____ GPA." These findings suggest that "hoped for" goals may produce different information than one's minimally acceptable goals. As this sample of first-semester students was new to the college setting, it was unlikely that they had an accurate understanding of what a realistic goal was in terms of GPA. Perhaps, individuals who do not set accurate goals depending on themselves and their environment, are potentially less committed to their goals because they do not have strong expectations. Alternatively, measuring the discrepancy between minimum and maximum goals set in different settings may reveal different levels of commitment.

As stated before, quantitative goals are not always possible to measure. Therefore, in settings where qualitative goals are likely (i.e., developing a creative product, or leading groups), practitioners may need to be creative with how principles such as goal difficulty and goal specificity are applied. For example, perhaps, in leadership training, *building cohesion* is a desired leadership goal. This goal is not quantitative; therefore, how do concepts of goal difficulty and specificity apply? Qualitative goals might become more specific if described in specific behavioral terms. For instance, what do cohesive teams look like and what team behaviors occur on cohesive teams? Developing specific mental representations of a goal might foster more effective self-regulation, self-evaluation, and effectiveness. Further, such goals may also become more specific and challenging if goal-attainment strategies are fully developed and trained. These ideas, of course, require research.

In an attempt to apply these findings further, one could incorporate concepts from achievement goal theory (Dweck, 1986) (i.e., learning and performance orientation). Performance-orientation involves the attainment of positive judgments in regard to one's competence (Dweck, 1992). Alternatively, learning-orientation refer to the increase of competence and the desire to master new tasks (Dweck, 1992). Several performance and developmental benefits have been linked to performance goal orientation (Campbell & Pritchard, 1976). Individuals pursuing learning goals are more likely to choose difficult tasks as they are inspired by upward comparisons. They view uncertainty as a challenge and persist in the face of obstacles. Learning goals foster a belief that failure reflects insufficient effort or poor strategy selection (Cianci, Schaubroeck & McGill, 2010). Therefore, individuals pursuing learning goals tend to increase effort and concentration when difficulties occur rather than becoming discouraged about their abilities and likelihood of improvement (Cianci et al., 2010). Qualitative goal methods may be used to diagnose performers' goal-orientation. Perhaps learning oriented individuals tend to report a higher number of process, learning, and improvement goals, compared to performance-oriented individuals.

Recommended Future Research

This study potentially advances goal research because it offered methods for researchers to study goals as naturally construed by the goal-setters themselves—whether those goals are qualitative or quantitative. The free-set goal methodology (Kane et al., 2001), used in this study to evaluate short-term task goals, proved useful for studying the content and difficulty of students' self-reported semester goals. Self-reported goals provide opportunities to learn more about how the goal-setting habits differ among goal-

setters. For example, what are the goal-setting tendencies, both long-term and short-term, of learning-oriented and performance-oriented performers, and do those who progress rapidly and successfully toward their goals set more process or outcome-oriented goals? Another question possibly addressed by applying free set goal methods is whether high performers approach goal-setting with greater specificity at different levels of the goal structure. There may be functional value to goal specificity at higher levels of the structure that have not been addressed by research.

Further research can incorporate feedback intervention theories to assess individual's responses as they pursue their goals. That is, methods to evaluate self-reported goals, even qualitative goals set, can examine how performers alter goals to feedback over time. For example, perhaps students could self-report goals at the beginning of a semester and then end of semester evaluations of goal attainment might be collected. Participants' future goals, after such feedback, might then be evaluated for change and commitment might be assessed as well. FS goal methods allow for these kinds of studies to be conducted in settings where goal-setters pursue important goals over long periods of time. Any interventions occurring during such a semester might be examined in terms of goal-attainment, self-efficacy for subsequent performance, or goal revision. Free-set methods offer an avenue to examine changes in higher order goals in goal structures as well; this area of upward goal-revision is not subject to much investigation.

Goals are often set in many setting for outcomes that are varied or qualitative. FS goals methods provide an avenue for examining the effects of qualitative goals set for a variety of outcomes such as, creativity, leadership, being a good teammate, or mastering

or learning certain techniques or concepts. Hence, an avenue to study a broader array of goals, including qualitative goals, provides opportunities to study goal-setting against a variety of different outcomes and across different settings.

Data Limitations

Among limitations associated with this study was the use of a correlational design. By using a correlational design, statistical controls were incorporated by partialing out student's prior achievement and academic aptitude in the analyses.

As this study spanned over a full college semester, a number of students dropped out of the study or simply did not complete the follow-up survey. Hence, range restriction might have influenced effect sizes that were reported in this study. In addition, students who did not answer/provide all the information needed were removed from the study. This subtraction of subjects could have further created range restriction by removing some of the less motivated participants from the study. Additionally, students were recruited from psychology courses, and though the psychology class is a general education class, the type of students enrolled may not have been representative of the full student population.

Self-perceived difficulty may not have been fairly evaluated in this study. While raters evaluated most important goals, most difficult goals, and all goals set; goal-setters were asked to make the complex judgment of evaluating a complete collection of all semester goals set. Perhaps requiring self-perceived goal difficulty evaluations to mirror the external rating evaluations would produce different results.

While college students, rather than employees, were the subject of study in this research, the findings may not realistically apply to any person who sets goals for

themselves. Extending goal-difficulty research to all levels of employees as well as those in management levels will be needed to better generalize the findings to the workplace and employees who participate in the goal-setting process.

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Table 1

Operationalizations of Short-term Goal Difficulty

Measure	Operational Definition	Conceptual Significance
Most Important Goal	Participants responded to: "List your MOST IMPORTANT short-term goal that you set to accomplish by the end of the semester." Three raters evaluated goal difficulty of reported goal.	Represents the single most prioritized goal.
Most Difficult Goal	Most difficult qualitative goal set among all semester goals reported as determined by the averaged evaluation of three raters.	Represents the single most challenging goal.
Average Difficulty of all Goals	Averaged rated difficulty across all qualitative goals reported by goal-setters.	Represents the collective challenge across all goals and domains.
Maximum Goal	Participants responded to "My GPA goal this semester (between 1.0 and 4.0) is:"	Represents the highest outcome that is desired to be accomplished.
Minimum Goal	After reporting maximum goal, participants responded to: "The MINIMUM GPA that I will accept achieving this semester is:"	Represents the lowest goal accomplishment that is satisfactory to the student.
Perceived Goal Difficulty	Participants reported amount of effort and ability, compared to the average college student, required for attaining all semester goals on a two-item scale.	Students' subjective appraisal of attaining all goals in the semester goal set.
Breadth	Raters constructed a table of possible goal categories to classify the different types of goals reported by goal-setters. Breadth represented the number of categories represented by goal-setter's reported goals.	Challenge implied by students defining a higher number of qualitatively different tasks to complete or goals to accomplish.
Total Number of Goals Reported	The total number of semester goals reported by goal setters.	Challenge implied by students defining a higher number of tasks to complete or goals to accomplish.

Table 2

Descriptive Statistics for Study Variables

	Range	Mean	Standard Deviation	Reliability
Predictors				
Age	18.00-64.00	20.490	6.30	N/A
Academic aptitude	17.00-32.00	24.440	3.71	N/A
Pre-college GPA	2.00-4.67	3.620	0.46	N/A
Goal variables				
Most important goal	1.00-7.00	5.105	1.735	.970
Most difficult goal	2.67-7.00	5.698	1.208	.933
Avg. goal difficulty	1.75-6.04	3.482	0.792	.904
Number of goals	1.50-8.50	4.096	1.505	.967
Goal breadth	1.00-6.00	2.769	1.071	.921
Maximum GPA goal	2.70-4.00	3.562	0.358	N/A
Minimum GPA goal	1.90-4.00	3.295	0.450	N/A
Self-evaluated goal difficulty	2.00-5.00	3.824	0.670	.681
Correlates				
Goal commitment	2.89-5.00	4.245	0.513	.833
Self-efficacy	1.71-4.71	3.472	0.508	.751
Career goal difficulty (rated)	2.00-7.00	4.980	1.168	.930
Career goal difficulty (self-assessed) –	0.00-5.00	3.190	2.572	.706
Criteria (GPA)				
End of semester GPA	0.00-4.00	3.061	0.920	N/A

Table 3

Breadth Categories

Categories	Examples	
GPA/Grades	"No grades lower than a B" "Make the Dean's list"	"Remain eligible" "Get off academic probation"
Doing School Work	"No missing assignments" "Do all extra credit"	"Turn all assignments in on time" "Do assigned readings"
Preparing for Class	"Read textbook before class" "Arrive on time"	"Print out PowerPoint slides" "Come with questions"
Preparing for Exams	"Study before exams" "Go to tutoring center/Bearclaw"	"Attend study sessions" "Rewrite notes"
Participating in Class	"Attend every class" "Don't skip"	"Take notes" "Ask questions"
Career Planning	"Declare major/minor" "Register for classes next semester"	"Apply for graduate school" "Look into study abroad programs"
Extracurricular (academically relevant)	"Volunteer/internship" "Join psych (psi-chi) club"	"Get into pre-med society" "Network"
Extracurricular (non-academically relevant)	"Get/keep job" "Join a club/fraternity/sorority"	"Go to gym everyday" "Make healthy eating habits"

Note: Categories were used in relation to "Other important academic/professional goals to accomplish this semester." Each category received one checkmark per set of goals.

Table 4

Correlations among Different Goal Difficulty Variables with Criteria

	Operationalization of Semester Goal Difficulty							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Most important goal	1							
Most difficult goal	.761**	1						
Avg. goal difficulty	.438**	.543**	1					
Number of goals	.180	.293**	-.059	1				
Goal breadth	.060	.113	-.119	.645**	1			
Maximum GPA goal	.340**	.516**	.157	.187	.130	1		
Minimum GPA goal	.369**	.453**	.145	.222*	.113	.592**	1	
Self-evaluated goal difficulty	.039	.079	.251*	-.092	-.012	.294**	.252*	1

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

Table 5

Correlations among Goal Difficulty Predictors and Correlates

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Gender	1							
Academic aptitude	.148	1						
Pre-college GPA	-.126	.299**	1					
Semester self-efficacy	.079	.269*	.354**	1				
Semester goal Commitment	-.096	.035	.121	.297**	1			
Career goal difficulty (self-assessed)	-.182	.015	.333**	.218*	.217*	1		
Career goal difficulty (rated)	-.160	.180	.210	.087	.085	.116	1	
End of semester GPA	-.256*	.423**	.367**	.073	.047	-.041	.312**	1

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

Table 6

Correlations among Different Goal Difficulty Variables with Predictors, Correlates, and Criteria

	Operationalization of Semester Goal Difficulty							
	Most important	Most difficult	Average difficulty	Number	Breadth	Maximum GPA goal	Minimum GPA goal	Self-evaluated
Gender	-.235*	-.218*	-.177	-.384**	-.194	-.131	-.216*	-.134
	(88)	(88)	(88)	(88)	(88)	(87)	(88)	(88)
Academic aptitude	.230*	.348**	.019	.091	.057	.341**	.338**	-.096
	(78)	(78)	(78)	(78)	(78)	(77)	(78)	(78)
Pre-college GPA	.337**	.471**	.181	.242*	.116	.528**	.615**	.083
	(84)	(84)	(84)	(84)	(84)	(83)	(84)	(84)
Semester self-efficacy	.175	.331**	.199	.075	-.078	.270*	.424**	.111
	(89)	(89)	(89)	(89)	(89)	(88)	(89)	(89)
Semester goal Commitment	.278**	.349**	.360**	-.041	.010	.109	.239*	.105
	(89)	(89)	(89)	(89)	(89)	(88)	(89)	(89)
Career goal difficulty (self-assessed)	.232*	.283**	.218*	.070	.070	.286**	.339**	.374**
	(89)	(89)	(89)	(89)	(89)	(88)	(89)	(89)
Career goal difficulty (rated)	.090	.113	.121	.030	.000	.297**	.371**	.606**
	(89)	(89)	(89)	(89)	(89)	(88)	(89)	(89)
End of semester GPA	.477**	.426**	.153	.245*	.147	.575**	.462**	.170
	(88)	(88)	(88)	(88)	(88)	(87)	(88)	(88)

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

Note: n-size in parenthesis; for gender male was coded as 1 and female was coded as 2

Table 7

Regression Analysis with Predictors

		Predictors		
Criteria	**R^2**	**β Academic aptitude**	**β Pre-college GPA**	**β Self-efficacy**
Most important free set goal	.126 .090 (adjusted) $F(3,74) = 3.544$ *	.134	.253*	.075
Most difficult free set goal	.282 .252 (adjusted) $F(3,74) = 9.668$ **	.198	.308**	.212
Average difficulty of free set goals	.064 .026 (adjusted) $F(3,74) = 1.687$	-.071	.110	.211
Number of free set goals	.040 .001 (adjusted) $F(3,74) = 1.021$	.029	.170	.041
Breadth of free set goals	.013 -.027 (adjusted) $F(3,74) = 0.328$	.047	.098	-.071
Maximum goal difficulty	.336 .309 (adjusted) $F(3,74) = 12.310$ **	.168	.425**	.181
Minimum goal difficulty	.480 .459 (adjusted) $F(3,74) = 22.753$ **	.114	.488**	.289**
Self-evaluated goal difficulty	.064 .026 (adjusted) $F(3,74) = 1.687$	-.182	.134	.171

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

Table 8

Simultaneous Regression Analysis Predicting GPA

			End of Semester GPA	
Variables	**Beta**	**SE**	**β**	**p-value**
Pre-college GPA	.450	.211	.226	.036*
Academic aptitude	.071	.024	.307	.004**
Self-efficacy	-.147	.166	-.091	.376
Most important goal	.162	.051	.321	.002**
R^2 = .349, F(4,73) = 9.782 **				
Pre-college GPA	.448	.222	.225	.048
Academic aptitude	.069	.025	.297	.007**
Self-efficacy	-.200	.174	-.123	.255
Most difficult goal	.201	.086	.267	.023*
R^2 = .310, F(4,73) = 8.205 **				
Pre-college GPA	.598	.219	.300	.008**
Academic aptitude	.082	.025	.354	.002**
Self-efficacy	-.130	.179	-.080	.470
Avg. goal difficulty	.070	.115	.063	.545
R^2 = .263, F(4,73) = 6.504 **				
Pre-college GPA	.555	.217	.279	.013*
Academic aptitude	.080	.025	.345	.002**
Self-efficacy	-.119	.173	-.074	.492
Number of goals	.093	.057	.165	.107
R^2 = .285, F(4,73) = 7.278 **				
Pre-college GPA	.600	.219	.301	.008**
Academic aptitude	.081	.025	.347	.002**
Self-efficacy	-.102	.176	-.063	.565
Goal breadth	.049	.082	.060	.555
R^2 = .263, F(4,73) = 6.498 **				

Pre-college GPA	.543	.239	.246	.026*
Academic aptitude	.062	.023	.266	.009**
Self-efficacy	-.124	.166	-.073	.458
Maximum GPA goal	.880	.296	.334	.004**
R^2 = .397, F(4,72) = 11.872**				
Pre-college GPA	.251	.244	.126	.308
Academic aptitude	.072	.024	.307	.004**
Self-efficacy	-.282	.179	-.174	.118
Minimum GPA goal	.716	.257	.371	.007**
R^2 = .330, F(4,73) = 9.008 **				
Pre-college GPA	.571	.217	.287	.010*
Academic aptitude	.088	.025	.377	.001
Self-efficacy	-.151	.176	-.093	.394
Self-evaluated goal difficulty	.198	.133	.153	.141
R^2 = .281, F(4,73) = 7.128 **				

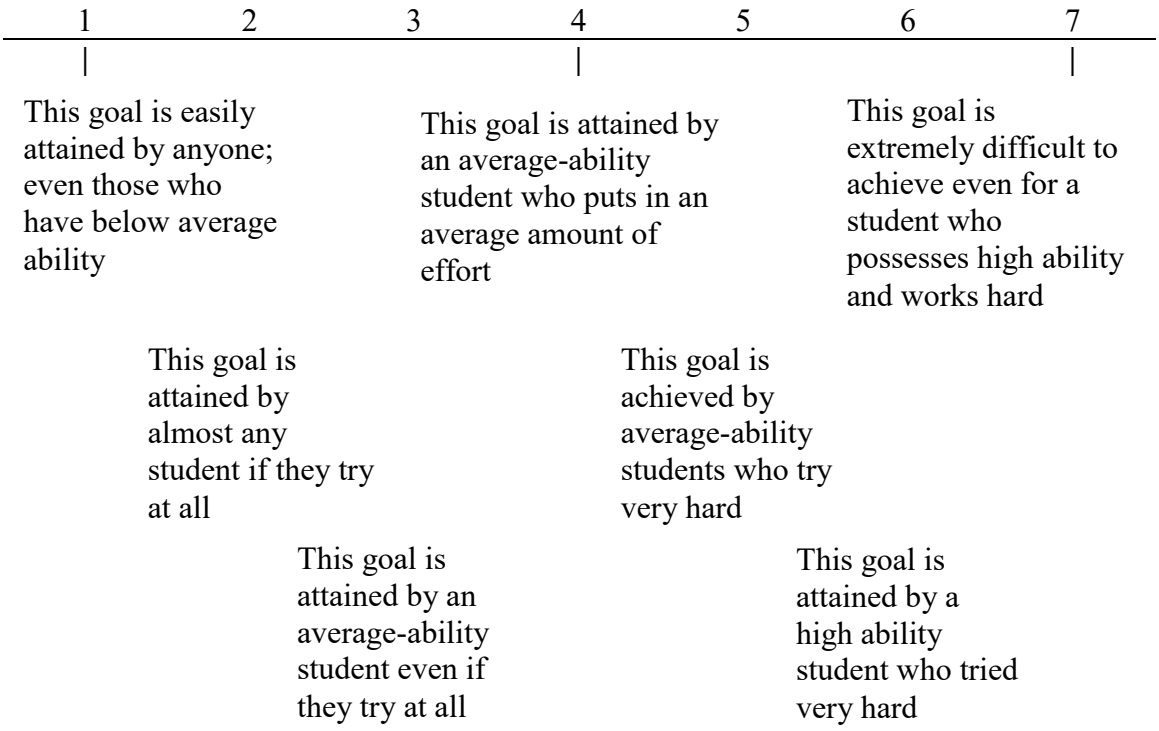
*p < .05; ** p < .01

APPENDICES

Appendix A
Norm-reference Scale

Goal Difficulty (Norm Reference Scale)

You will be asked to rate the difficulty of a series of goal statements reported by college students. To make these ratings of goal difficulty, please think about the goals that a typical college student might set. This "average" goal should be rated a "4" on the scale below. When rating, be sure to assume the lowest level of difficulty.



Appendix B
Informed Consent Form

Informed Consent Form

Title of Research: Assessing the Academic Motivation of College Students.
Supervising Professor: Thomas Kane, PhD, Psychology Department, Hill Hall 127
Phone: 836-4901
E-mail: TomKane@missouristate.edu
Project Leader: Charlie Redhead, Graduate Student, Industrial Organizational Psychology
E-mail: redhead123@live.missouristate.edu

Thank you for taking time to participate in this study. The information that you give today will provide us with a better understanding of the academic motivation of college students. Studies like this can help educators improve advisement programs and career development programs here at MSU and at other academic institutions. For this reason, it is very important that you answer all of the questions completely and honestly. In total you will receive 3 units of credit for this study. Today, during Session I, you will receive 2 units of credit. An additional 1 unit of credit will be awarded for the completion of Session II. Session II is a survey administered online near the end of the semester. The total time for completing Session I and Session II will not exceed 2 hours.

On your survey, we ask you to provide your student ID. We do this for two reasons. First, it will help us gather additional information about you from the University computer data banks during your stay here as a student at MSU. Second, we will be able to contact you to complete Session II of this project near the end of the semester. You can be assured that no one except those who are directly involved in this research project will have access to any data that you provide and that your survey responses will be kept confidential.

Your participation is voluntary, and you may choose not to participate in this research (or Session of our research) at any time. We thank you very much for your time.

I VERIFY THAT I HAVE READ AND FULLY UNDERSTAND THE STATEMENT OF PROCEDURE AND THAT I MAY TERMINATE MY PARTICPATION IN THIS STUDY AT ANY TIME WITHOUT PENALIZATION. I FURTHER VERIFY THAT I AM AT LEAST EIGHTEEN YEARS OF AGE.

By signing my name, I hereby grant my consent to participate in this study and for the researchers to verify my personal information (GPA and ACT) from academic records on the MSU database which will be held strictly protected and confidential.

Name: _____

Email Address: _____

Appendix C
Questionnaire

Student Survey

M Number #: ___ ___ ___ - ___ ___ - ___ ___ ___ ___

Intended major? _____ **Check here if you are undeclared**: ☐

What is your gender?

- ☐ Female
- ☐ Male
- ☐ Non-binary
- ☐ Prefer to self-describe_____
- ☐ Prefer not to say

ACT score: _____ **High School GPA: _____**
(best recollection)

Age: _____years

Class year:

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior

Highest level of education reached by a parent or guardian: (check one)

- ☐ High School Graduate
- ☐ Some College
- ☐ Masters
- ☐ Ph.D. Degree
- ☐ Other_____
- ☐ Prefer not to say

Do not turn the page until told to do so

A) List your most important career goal(s) below. If you have not settled on a particular occupation at this time, think about aspects of a future career that you desire to attain e.g. working in a team or individually.

_____

_____

_____

_____

_____

_____

B) List the three most important reasons that you wish to attain this career goal.

1.)_____

_____

2.)_____

_____

3.)_____

_____

C) How difficult will this Career Goal be for you to attain compared to the average college student? (check a box ☑.)

Extremely Easy 1 ▼	Easy 2 ▼	Somewhat easy 3 ▼	Neither easy or hard 4 ▼	Somewhat hard 5 ▼	Hard 6 ▼	Extremely Hard 7 ▼
☐	☐	☐	☐	☐	☐	☐

Do not turn the page until told to do so

A) List all the goals that you need to accomplish in order to achieve your career goal.

Do not turn the page until told to do so

A) List your MOST IMPORTANT short-term goal that you set to accomplish by the end of the semester. **(One goal).**

_____

_____

B) List other important academic or professional goals you want to accomplish this semester

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Do not turn the page until told to do so

Answer the following questions with respect to your goals.
Respond to each item by checking one box ☑.

In terms of natural ability, how difficult do you think your goals will be to attain compared to the average college student?

- ☐ Require much less talent or ability
- ☐ Require less talent or ability
- ☐ Require about the same amount of talent or ability
- ☐ Require more talent or ability
- ☐ Require much more talent or ability

In terms of effort, how difficult do you think your goals will be to attain compared to the average college student?

- ☐ Require much less effort to attain
- ☐ Require less effort to attain
- ☐ Require about the same amount of effort to attain
- ☐ Require more effort to attain
- ☐ Require much more effort to attain

My GPA goal this semester (between 1.0 and 4.0) is: _____

The <u>MINIMUM</u> GPA that I will accept achieving this semester is: _____

Please continue on the next page.

Answer the following questions with respect to your **most important career goal.**
Please tell us the extent you agree or disagree with each item by checking the box ☑.

	Strongly disagree ▼	Disagree ▼	Neither agree nor disagree ▼	Agree ▼	Strongly agree ▼
1. Attaining my career goal is important to my self-image.	☐	☐	☐	☐	☐
2. Attaining my career goal will make me proud of myself.	☐	☐	☐	☐	☐
3. I feel unusually passionate about reaching my career goal.	☐	☐	☐	☐	☐
4. My career goal is perfect for me.	☐	☐	☐	☐	☐
5. I may regret my career goal choice.	☐	☐	☐	☐	☐
6. I can't imagine ever lowering my career goal.	☐	☐	☐	☐	☐
7. Compared to other students I know, I have a lot of passion for my career goal.	☐	☐	☐	☐	☐
8. It would be too costly for me to change my career goal at this point in my life.	☐	☐	☐	☐	☐
9. Attaining my career goal is financially important to me.	☐	☐	☐	☐	☐
10. I have invested too much time to change my career goal now.	☐	☐	☐	☐	☐
11. I want to reach this goal because it will allow me to get other things I value in life.	☐	☐	☐	☐	☐
12. Reaching my career goal will make other people who are important to me proud.	☐	☐	☐	☐	☐
13. I want to reach my career goal because it will show others that I am a successful person.	☐	☐	☐	☐	☐
14. I often have doubts about reaching my career goal.	☐	☐	☐	☐	☐
15. I'm not sure that I will excel in my chosen career.	☐	☐	☐	☐	☐
16. I may not be able to do all that it takes to attain my career goal.	☐	☐	☐	☐	☐
17. Reaching my career goal requires a high level of academic achievement in college.	☐	☐	☐	☐	☐
18. Whether I do well as an undergraduate in college or not, I can still reach my career goal.	☐	☐	☐	☐	☐
19. The goals that I achieve in my classes this semester are very important to my career pursuits.	☐	☐	☐	☐	☐
20. Just getting my degree will be enough for me to reach my career goal, regardless of GPA.	☐	☐	☐	☐	☐
21. I will have to do exceptionally well in college to have any chance of attaining my career goal.	☐	☐	☐	☐	☐

Please continue on the next page.

Answer the following questions with respect to your **most important career goal.**

Please indicate your Confidence with each item by checking a box ☑.

	No Confidence ▼	Very little Confidence ▼	Moderate amount of Confidence ▼	Much Confidence ▼	Very much Confidence ▼	Complete Confidence ▼
22. I will accomplish all that I need to accomplish to reach my career goal.	☐	☐	☐	☐	☐	☐
23. How much confidence do you have in your academic ability to reach this goal?	☐	☐	☐	☐	☐	☐
24. How much confidence do you have in your ability to work hard in relation to reaching this goal?	☐	☐	☐	☐	☐	☐
25. How much confidence do you have in your ability to overcome difficult obstacles to reach this goal?	☐	☐	☐	☐	☐	☐
26. How much confidence do you have that you can stand out in the career that you choose?	☐	☐	☐	☐	☐	☐
27. How much confidence do you have that you will be exceptionally good as a professional in the career defined by your goal?	☐	☐	☐	☐	☐	☐

Please continue on the back of the page.

Answer the following questions with respect to your **most important career goal.**

Please indicate your Confidence with each item by checking a box ☑.

	No Confidence ▼	Very little Confidence ▼	Moderate amount of Confidence ▼	Much Confidence ▼	Very much Confidence ▼	Complete Confidence ▼
28. I will make good progress toward attaining my career goal this semester.	☐	☐	☐	☐	☐	☐
29. I have enough natural ability to attain my career goal.	☐	☐	☐	☐	☐	☐
30. I can work hard enough to reach my career goal.	☐	☐	☐	☐	☐	☐
31. My accomplishments this semester will exceed what is necessary to assure progress toward my career goal.	☐	☐	☐	☐	☐	☐
32. I will be able to overcome any difficult obstacles that I encounter when pursuing my career goal.	☐	☐	☐	☐	☐	☐
33. I will attain my career goal in the time span that I envision attaining it.	☐	☐	☐	☐	☐	☐
34. I will not only attain my career goal, but I will excel as a top achiever in my chosen career.	☐	☐	☐	☐	☐	☐
35. If I don't end up in the career that I envision, then the career that I end up pursuing will be at least as challenging as my stated career goal.	☐	☐	☐	☐	☐	☐
36. I will perform at least as well as the average professional in my chosen career.	☐	☐	☐	☐	☐	☐
37. I will become well-known as 'exceptional at what I do' in my chosen career.	☐	☐	☐	☐	☐	☐

Please continue on the next page.

Answer the following questions about your **ability to perform in your classes this semester.**

Please tell us the extent of your ability from Extremely below average to Extremely above average of each item by checking the box ☑.

	Extremely below average ▼	Below average ▼	Average ▼	Above average ▼	Extremely above average ▼
38. How well do you concentrate and stay fully focused on the materials being presented?	☐	☐	☐	☐	☐
39. How well do you memorize facts and concepts covered in class?	☐	☐	☐	☐	☐
40. How well are you able to focus exclusively on understanding and answering questions and avoid breaks in your concentration?	☐	☐	☐	☐	☐
41. How well do you understand facts, concepts, and arguments presented in lectures, tutorials, or course materials (e.g. textbooks)?	☐	☐	☐	☐	☐
42. How well are you able to explain facts, concepts, and arguments covered in the course to others in your own words?	☐	☐	☐	☐	☐
43. How well are you able to discriminate between the more important and less important facts, concepts, and arguments covered in class?	☐	☐	☐	☐	☐
44. How able are you to make understandable course notes which emphasize, clarify, and relate key facts, concepts, and arguments as they are presented in lectures, tutorials, or course materials?	☐	☐	☐	☐	☐

Please continue on the back of the page.

Answer the following questions with respect to your **most important semester goal.**

Please tell us the extent you agree or disagree with each item by checking a box ☑.

	Strongly disagree ▼	Disagree ▼	Neither agree nor disagree ▼	Agree ▼	Strongly agree ▼
45. It's somewhat hard to take my semester goal seriously.	☐	☐	☐	☐	☐
46. It's unrealistic for me to completely reach this goal.	☐	☐	☐	☐	☐
47. It is quite likely that this goal may need to be revised, depending on how things go.	☐	☐	☐	☐	☐
48. Quite frankly, I don't care deeply if I achieve this goal or not.	☐	☐	☐	☐	☐
49. I am extremely committed to pursuing this goal.	☐	☐	☐	☐	☐
50. It wouldn't take much to make me abandon this goal.	☐	☐	☐	☐	☐
51. I am willing to put forth a great deal of effort beyond what typical college students do to achieve this goal.	☐	☐	☐	☐	☐
52. I think this is a great goal to shoot for.	☐	☐	☐	☐	☐
53. There is not much to be gained by trying to achieve this goal.	☐	☐	☐	☐	☐

Please continue on the next page.

Please indicate the degree to which you agree with the following statements from Not at all true of me to Very true of me by checking a box ☑.

	Not at all true of me 1 ▼	2 ▼	3 ▼	Moderately true of me 4 ▼	5 ▼	6 ▼	Very true of me 7 ▼
54. I am willing to pursue challenging assignments that I can learn a lot from on my own.	☐	☐	☐	☐	☐	☐	☐
55. I often look for opportunities to develop new skills and knowledge.	☐	☐	☐	☐	☐	☐	☐
56. I enjoy challenging and difficult tasks at school where I'll learn new skills.	☐	☐	☐	☐	☐	☐	☐
57. For me, the development of my ability at college is important enough to take risks.	☐	☐	☐	☐	☐	☐	☐
58. I prefer to be in situation that require a high level of ability and talent.	☐	☐	☐	☐	☐	☐	☐
59. I'm concerned with showing that I can perform better than other students.	☐	☐	☐	☐	☐	☐	☐
60. I consider what it takes to prove my ability to others at school.	☐	☐	☐	☐	☐	☐	☐
61. I enjoy it when others at college are aware of how well I am doing.	☐	☐	☐	☐	☐	☐	☐
62. I prefer to work on projects where I can prove my ability to others.	☐	☐	☐	☐	☐	☐	☐
63. I avoid taking on a new task if there is a chance that I would appear incompetent others.	☐	☐	☐	☐	☐	☐	☐
64. Avoiding a show of low ability is more important to me than learning a new skill.	☐	☐	☐	☐	☐	☐	☐
65. I'm concerned about taking on a task at college if my performance would reveal that I had low ability.	☐	☐	☐	☐	☐	☐	☐
66. I prefer to avoid situations at work where I might perform poorly.	☐	☐	☐	☐	☐	☐	☐

THANK YOU FOR FILLING OUT OUR QUESTIONNAIRE!
Give the questionnaire to the person who gave it to you.