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## Grit, Efficacy, Commitment and Career Planning


Mary Clare Newsham

Missouri State University, [mcn6801@live.missouristate.edu](mailto:mcn6801@live.missouristate.edu)

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# GRIT, EFFICACY, COMMITMENT, AND CAREER PLANNING

A Master's Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Psychology

By

Mary Clare Newsham

May 2023

# **GRIT, EFFICACY, COMMITMENT, AND CAREER PLANNING**

Psychology

Missouri State University, May 2023

Master of Science

Mary Clare Newsham

## **ABSTRACT**

This current study advanced understanding of the career goal-setting and relevant goal-related attitudes to the career planning process. Specifically, this study evaluated how career goal commitment, career goal self-efficacy and grit affect career goal structures and effort. A multi-dimensional career goal commitment scale was developed to differentiate intrinsic (affective) from rational types of commitments. Findings supported affective career goal commitment as consequential to the completeness of career goal structures and in career-relevant effort. Also, career goal self-efficacy was found to predict career planners' self-efficacy for shorter term performance.

**KEYWORDS:** career goals, affective commitment, goal commitment, self-efficacy, grit, career planning, self-regulation, goal hierarchies

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A Master's Thesis  
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May 2023

Approved:

Thomas Kane, Ph.D., Thesis Committee Chair

Jeffrey Foster, Ph.D., Committee Member

Amber Abernathy, Ph.D., Committee Member

Julie Masterson, Ph.D., Dean of the Graduate College

In the interest of academic freedom and the principle of free speech, approval of this thesis indicates the format is acceptable and meets the academic criteria for the discipline as determined by the faculty that constitute the thesis committee. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

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## INTRODUCTION

Career planning and career development have been popular topics within occupational research. Yet, little research has explored the role of multiple goals set in the career planning process. This current project adds to the career planning and career motivation literature by examining attitudes and traits that specifically connect to goals set in the career planning process. Central to this investigation were goal structures conceptualized by career planners to define and navigate their career-relevant efforts. Factors hypothesized to influence goal structures and career motivation were career goal self-efficacy, career goal commitment, and grit. *Career goal self-efficacy* refers to individuals' beliefs in their capabilities to achieve their peak career goals. *Goal commitment* refers to individuals' attachment to goals (Locke & Latham, 2002), while *career goal commitment* represents a person's attachment to their peak career goal. Unique to this study was the examination of intrinsic and extrinsic forms of commitment. The personality trait of *grit* was selected because of its relevance to long-term commitment and energy for goals set far into the future (Duckworth, 2016). Together, grit, career goal self-efficacy, and different forms of career goal commitment are predicted to influence the generation of goals in goals structures, the completeness of goal structures, and the efforts of career planners in pursuit of career goals. Given that career progress is a goal-driven pursuit, the results generated by this research should help academic advisors and career counselors better understand the career planning process and help career planners better navigate the construction and pursuit of important career goals.

The pursuit of career goals can be described as a process of self-regulation. *Self-regulation* describes a person's thoughts, actions, and reactions that occur as they strive to attain personal goals (Wood & Bandura, 1989). Career progress involves the pursuit of many goals, set across a time span, that help to direct a person's attention and channel their efforts in relevant ways (Lent, Brown, &

Hackett, 1994). Longer-term goals supply meaning and structure to shorter-term goals; whereby, attaining short-term goals can supply goal-setters with a sense of progress toward their higher-order career aspirations (Bandura, 1997). To understand one's career goal (CG) regulation, both short-term and long-term processes must be understood.

### **Task Goal Self-Regulation**

Self-regulation pertains to thoughts and actions relevant to an individual's pursuit of goals and has been well-studied at the task level. Most prior self-regulation research targeted task goal accomplishment: whereby, task goals are the short-term goals that drive immediate self-regulated thoughts and efforts (Masuda, Kane, Shoptaugh, & Minor, 2010). Goal-setters work to eliminate the discrepancy between their current state and future desired level of accomplishment by regulating efforts and strategies (Bandura, 1997). Self-evaluative and affective reactions to feedback motivate subsequent adjustments to planning and effort over time (Wood, Bandura, & Bailey, 1990). Research has indicated that specific, difficult, yet realistic goals effectively direct goal-setter efforts, simulate planning, and frame clear and relevant feedback. Goal difficulty is determined by the amount of effort and ability that is necessary for goal attainment (Locke & Latham, 1990). Difficult goals enhance effort, strategic thinking, and persistence toward goal attainment (Wood et al., 1990). Goal difficulty best leads to high performance when goals are specific. Specific task goals clarify the goal-to-performance discrepancies and enable a performer to interpret the feedback necessary to regulate goal-directed thoughts and efforts (Locke, Chah, Harrison, & Lustgarten, 1989). Specific and challenging goals facilitate self-regulation; however, if goals are not perceived as attainable, then goal-setters are not likely to commit to their goals (Locke & Latham, 1990).

High levels of self-efficacy and goal commitment support effective self-regulation and goal pursuits (Locke & Latham, 2002; Locke, Frederick, Lee, & Bobko, 1984). Self-efficacy, one's

perceived capability to succeed in a task domain, positively influences the difficulty of goals individuals set and their commitment to those goals (Lent et al., 1994). Goal commitment, one's willingness to invest effort toward and maintain a goal, stimulates goal-relevant effort, persistence in the face of hardship, and goal maintenance (Locke & Latham, 2002; Brickman, 1987; Brown, 1996).

### **Career Goal Self-Regulation**

Compared to self-regulation for task goal pursuits, less research has explored self-regulation to attain long-term goals. Long-term self-regulation, such as the pursuit of career goals, logically involves efforts to carry out multiple goals, hierarchically arranged, such that the accomplishment of task goals helps goal-setters progress toward longer-term goals. These *goal structures* play a fundamental role in human motivation (Bandura, 1997; Locke & Latham, 1990) and are particularly relevant to individuals' regulation toward career goals, which might require the accomplishment of multiple significant shorter-term goals. Therefore, understanding CG regulation requires: 1) understanding how goal-setters conceptualize goal structures, 2) the qualities of goal structures that support or undermine effective self-regulation, and 3) the attitudes connected to goal structures that facilitate effective self-regulation.

**CG Structures.** Bandura (1997) proposed that schemas, in which goals are hierarchically arranged, guide and motivate human action (see Figure 1). He suggested proximal (short-term) goals tend to guide more immediate action and are often accomplished in the service of meaningful longer-term goals. Three levels of goals described to comprise CG structures are peak goals, task goals, and connecting goals (Masuda, Kane, Shoptaugh, & Minor, 2010; Kane, Mckenna, & Redhead, 2017). The motivational functions of goals within goal structures have been proposed in research and theory. Peak goals are theorized to be set according to goal-setters values and personality qualities (Masuda et al., 2010; Carver & Scheier, 1998).

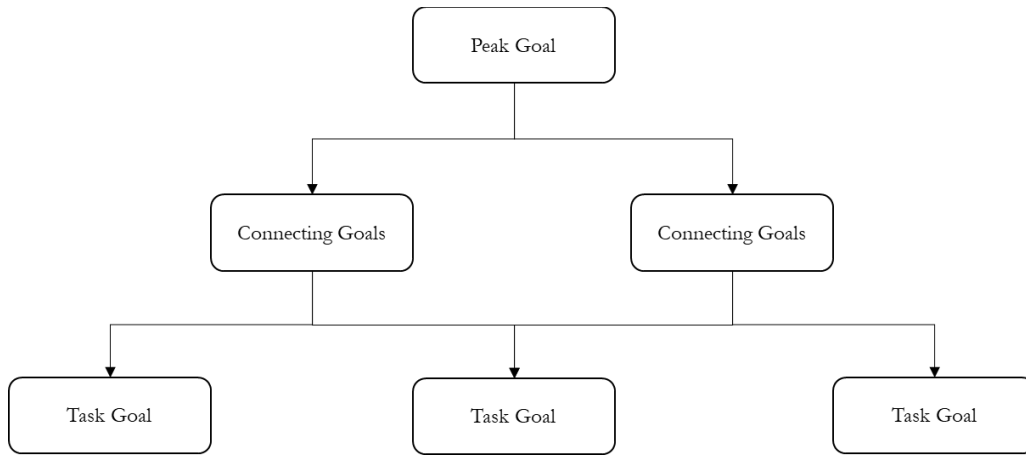


Figure 1. Illustration of goals that comprise goal hierarchies (Bandura, 1997).

These goals, positioned atop goal structures, provide meaning and structure to subordinate goals (Bandura, 1997). The challenge and specificity of peak goals and long-term goals have been found to predict the challenge and specificity inherent to goals positioned more proximally in goal structures (Kane, Baltes, & Moss, 2001; Masuda et al., 2010). Masuda et al. (2010) found the degree of challenge in one’s personal vision is positively associated with the goal-setters commitment to subordinate goals. This suggests that goal clarity and goal difficulty may be relevant to the *quality* goal structures for the regulation of career pursuits.

Connecting goals are a collection of goals that connect task goals to peak goals. Connecting goals may comprise the bulk of the goal-setter's career plan and depict the mental map a person conceptualizes to accomplish their desired careers (i.e., peak goal) (Mervis & Rosch, 1981). Peak goals may vary in difficulty because of variation in efforts and strategies required for attainment. Quality connecting goals should be set to a level that leads to the accomplishment of peak goals. Appropriate task goals, likewise, should be challenging enough so that, when accomplished, they secure the attainment of connecting goals.

Evaluating the difficulty of peak goals is complex. For this study, peak goal difficulty assessment aligned with the criteria collected in this study. That is, peak goal challenge reflected the

degree of academic achievement required for peak goal accomplishment, because study criteria reflected academic motivation and success. Challenge inherent to goal structures was represented by: 1) the number of components in goal-setters' goal structures and 2) the number of goal paths (i.e. categories of goals) contained in goal structures. It was assumed that more effort is typically required to attain a greater number of qualitatively different goals than is required for attaining fewer similar goals. The number of goals reported should also pertain to the completeness of goal structures. Granted that more complete goal structures imply more effort for full goal attainment than less complete structures, completeness should be an important consideration for determining the quality of goal structures.

Goal structures may also vary in the number of goal paths, or different categories of goals, defined by career planners (Masuda et al., 2010). For instance, CG structures might not contain one or more important categories of goals relevant to peak goal attainment. The grad-bound student who fails to consider GPA or aptitude test goals, reasonably, possesses less complete goal structures than one who does. For this study, the count of goal categories within goal structures is deemed goal structure breadth. Therefore, goal structure components and breadth represent elements of challenge and completeness in goal structures.

**CG Commitment.** Commitment implies an attachment to some object. Meyer and Allen (1991) proposed that the reason people attach to objects can vary, while one might be committed for emotional reasons and another for rational reasons. *Affective commitment* refers to an emotional or intrinsic attachment, which is typically based on an alignment of values and identity to the attachment. Rational attachments derive from anticipated or received rewards, investments made, and feelings of obligation that are associated with one's attachment to an object (Klein, 1991).

Goal commitment implies the intention to extend effort toward goal attainment, persist in pursuing goals over time, and an unwillingness to lower or abandon that goal (Hollenbeck & Klein,

1987). Using an expectancy theory framework, Hollenbeck and Klein (1987) found that the attractiveness of goal attainment and the expectancy of goal attainment predict goal commitment. Goal commitment is influenced by several goal factors, including specificity, challenge, acceptance, and importance. In addition, self-efficacy and feedback sign are positively related to goal commitment (Locke & Latham, 2002). Goal commitment moderates the goal-to-performance relationship; whereby, that relationship strengthens as goal commitment increases (Locke, Latham, & Erez, 1988). The uncrossed interaction (Stone & Hollenbeck, 1984) clarifies this relationship. Difficult goals do not lead to high performance when commitment is low, while high levels of commitment to easy goals also fail to generate high performance (see Figure 2).

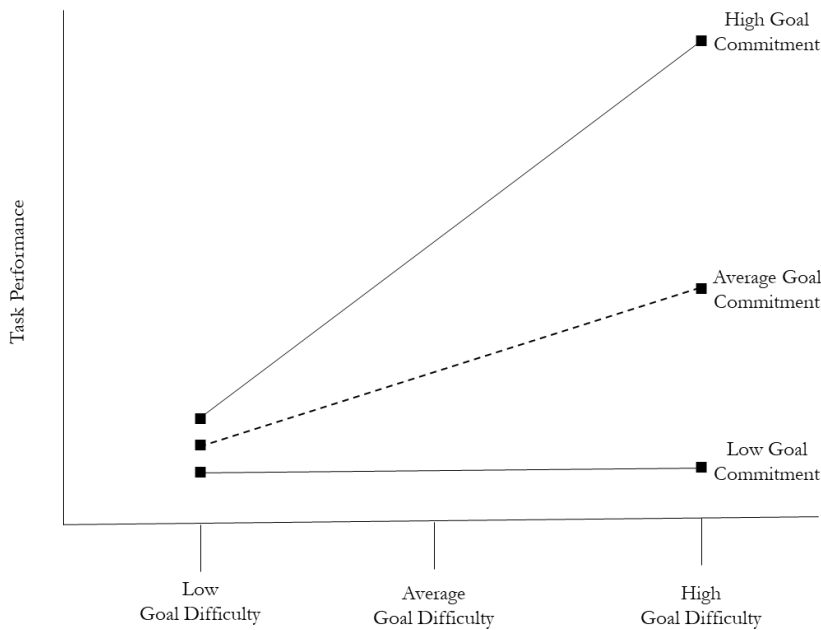


Figure 2. Illustration of the uncrossed interaction (Stone and Hollenbeck, 1984).

For situations in which goals are self-set, goal commitment is generally high and invariant (Hollenbeck & Brief, 1987). Even when goals are assigned, situational demands often result in uniformly high levels of commitment (Locke & Latham, 1990). Under such circumstances, the main effect of goal difficulty on performance should be evident and goal commitment should have

negligible effects, main or interactive (e.g., Klein, 1991; Matsui, Kakuyama & Onglatco, 1987). However, the arguments made by these theorists apply to a unidimensional investigation of task goals. The impact of commitment on effort, potentially, could depend on the form of commitment, especially if the goal for which commitment is reported is higher as opposed to lower in goal structures. For this reason, affective and rational forms of commitment to career goals may relate to goal difficulty differently. Given stronger impact on motivation, persistence, and achievement for intrinsic versus extrinsic motivation across settings (e.g., Ryan & Deci, 2017); affective commitment, compared to rational forms of commitment should strengthen the relationship of CG difficulty on the difficulty in subordinate goals.

### **Proposed Attributes Relevant to Career Planning**

**CG Commitment.** While affective and rational commitment were first studied for attachment to organizations, these forms of commitment may also apply to how people connect to career goals. Occupational commitment, which is an individual's affective attachment and identification with one's profession or occupation (Meyer, Allen, & Smith, 1993), is a construct that is conceptually most like CG commitment. *CG commitment*, unlike occupational commitment, is held for one's own imagined career destination or peak CG. Therefore, CG commitment connects to a person's future desired self, rather than a current occupation to which they belong. Hence, CG commitment should be a more appropriate focal construct for studying goals, thoughts, and efforts relevant to career plan construction and execution than occupational commitment.

Goal-commitment theorists have debated the potential function and dysfunction of goal commitment for self-regulation. Some researchers argued that commitment may foster a *whatever-it-takes* mentality, which can lead to stress, anxiety, and health risks (Brown, 1990; Britt, 2003; Jex, Adams, & Bachrach, 2003; Teger, 1980). The dysfunctional view of commitment asserts that people

can justify and rationalize poor decisions when they are highly committed. Thus, negative feedback does not reduce commitment and seldom leads to developing alternative plans (Staw & Fox, 1977; Teger, 1980). Instead, people work harder, which results in overload and difficulties fulfilling expectations. This might be especially prevalent if high commitment exists for unrealistically challenging goals, which can lead to cycles of escalation of commitment despite insufficient progress goal-setters make (Reeve, 2005).

Researchers also touted potential functional effects of commitment; whereby, goal commitment binds people to relevant course of actions, directs behavior (i.e., cognition and attention), and stimulates persistence through difficulties (Brickman, 1987; Brown, 1996; Locke & Latham, 2006). This view of commitment centers on positive effects of commitment on-task-directed effort, cognition, and attention. Locke and Latham (2006) argued that goal commitment directly and positively affects individual performance, which leads to satisfaction and enjoyment in the task domain. Supporting the functional role of commitment Parish, Cadwallader, & Busch (2008) argued that high commitment provides the needed focus to perform effectively, and Lindbergh and Wincent (2011) found strongly committed individuals perform better and report greater role clarity than weakly committed people. Because clear and accurate role expectations facilitate effective self-regulation (Jackson & Schuler, 1985), individuals with strong, as opposed to weak, CG commitment may produce greater clarity in career plans and engage in higher levels of goal-directed effort. Most studies that analyzed the dysfunctional and functional side of commitment focused on occupational commitment, which does not pertain to one's attachment to specific career goals. Rarely have researchers examined *CG* commitment. Also, affective commitment and rational commitment to career goals have not been delineated in prior research. The current study hypothesized that strong affective commitment to career goals is instrumental to career goal setting and planning.



**CG Self Efficacy (CGSE).** At the broadest level, self-efficacy involves “people’s beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives” (Wood & Bandura, 1989, pg. 364). Like commitment, self-efficacy has an object and is task-specific (Bandura, 1997). Therefore, one might feel strong or weak efficacy attached to any tasks connected to goals in one’s goal structure. One might feel very capable of attaining some goals required for career progress, but less efficacy for others. Both self-efficacy and feedback are necessary for goal setting to be effective (Latham & Locke, 1991; Locke & Latham, 2006).

Researchers have measured and studied efficacy for career pursuits and success. For instance, *self-efficacy for career planning* refers to an individual’s belief in their ability to implement the right actions needed to effectively manage occupational roles and career issues (Dimakakou, Argyropoulou, Drosos, Kaliris & Mikedaki, 2015). *Career decision self-efficacy*, or an individual’s perceived confidence to make career decisions, has also been researched (Taylor & Betz, 1983). If both career decision self-efficacy and career planning self-efficacy are high, then it is likely that an individual would also believe that they can attain their career goal. The focal construct in this current study was *career goal self-efficacy (CGSE)*. *CGSE* pertains to an individual’s perceived capability to attain their peak career goal. If *CGSE* functions for individuals the way that task self-efficacy has been found to, then possessing strong *CGSE* should produce several benefits. Self-efficacy beliefs are positively associate with an individual’s effort, persistence, commitment, and goal difficulty (Bandura, 1997; Locke et al., 1989; Smith, 2010). Self-efficacy stimulates the effective generation of strategies for attaining task goals. Also, self-efficacy generalizes across similar tasks; whereby, success on a specific task can increase efficacy on related tasks, depending on the similarity of the skills and resources needed to meet the goal’s task demands (Bandura, 1997; Maddux & Volkman, 2011). If self-efficacy beliefs generalized in goal pursuits, then self-efficacy will boost short-term goal

attainment and generalize to CG relevant pursuits. Thus, progress toward one's peak CG might boost efficacy beliefs for goals in the CG structure.

Self-efficacy has been found to predict positive entrepreneurial intentions, which then lead to relevant action (Bird, 1988). This implies that individuals with high self-efficacy may visualize success in their actions and are more likely to generate strong resilience and follow through in goal pursuits. If true, then those with higher levels of CGSE may plan and engage in more career goal-relevant efforts than those with low CGSE. A more in-depth look at the relationship between entrepreneurial self-efficacy and sustained action (including adherence to goals), shows that this relationship is mediated by a *passion* for the business an individual possesses (Cardon & Kirk, 2015). Also, self-efficacy has direct positive effects on effort and strategic thinking (Bandura, 1997; Kane, Zaccaro, Tremble, & Masuda, 2002). As defined, affective CG commitment implies passion for one's peak goal. Thus, higher levels affective CG commitment is expected to moderate the relationship between CGSE and career-relevant effort. That is, CGSE relationships should strengthen as affective CG commitment increases.

**Grit.** Grit is a noncognitive trait defined as *perseverance and passion* for long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Gritty individuals work energetically towards challenges and support effort and interest toward goals, despite facing adversity. A gritty person has been described as a tortoise - slow, yet with the strength to achieve completion (Eskreis-Winkler, Shulman, Beal & Duckworth, 2014). When disappointment or boredom signals to some that it is time to change trajectory, the gritty individual stays the course.

Grit distinguishes itself from other correlated measures, like self-control and conscientiousness. For instance, grit predicted scores of U.S. Military Academy Cadets during rigorous summer training, while self-control and conscientiousness did not (Duckworth et al., 2007). Duckworth argued self-control is related to short-term regulation, instead of long-term pursuits.

Further, conscientiousness was viewed as relevant to an individual's ability to be reliable and organized, but it is dependent on the type of achievement. Meanwhile, gritty individuals maintain effort and interest over years, despite failure, adversity, and plateaus in progress (Duckworth et al., 2007).

Grit should be related to career-relevant effort. In the context of goal-directed behavior, both grit and self-regulation highlight the importance of regulating behavior under challenging circumstances to achieve long-term goals (Duckworth & Gross, 2014). The presence of dominant superordinate goals distinguishes grit from other self-regulatory constructs. Previous research has indicated that grit is positively associated with post-secondary aspirations (Gorman, 2015). Relevant to CG hierarchies, grit entails working assiduously towards one superordinate, challenging goal over extremely long stretches of time (Duckworth et al., 2007). Additionally, due to the functional benefits of grit for attaining long-term goals, grit might positively influence career goal plans developed to accomplish peak career goals.

Grit should relate to CG commitment. College students high in grit exhibited a low tendency to switch majors or careers, due to their focus and continued hard work (Bowman, Hill, Denson, & Bronkema, 2015). Also, gritty adults tend to make fewer career changes (Duckworth et al., 2007). This tendency should strengthen as a person's commitment to career goals also strengthens. Grit is associated with a stronger orientation toward eudemonic than hedonic happiness (Von Culin, Tsukayama, & Duckworth, 2014). Without meaningful goals, individuals might be left without clear targets toward which to persevere, and fewer contexts and environments in which to inculcate a gritty disposition. Although grit has been approached as a stable construct, some argue that it is malleable (Park, Yu, Baelen, Tsukayama, & Duckworth, 2018; Duckworth, 2016). Thus, different factors are theorized to contribute to grit (interest, purpose, hope, deliberate practice, etc.)

(Duckworth, 2016). Hill, Burrow & Bronk (2014) indicated life-purpose commitment as an antecedent to grit.

Grit should produce more complete and well-thought-out goal structures and should positively influence key attitudes related to career goal pursuits such as CGSE, CG commitment, and CG difficulty. Using the triarchic model of grit, Ting and Datu (2020) found that an individual's consistency of interests and disposition to persist in challenging times is positively related to an individual's capability to create career goals. Additionally, gritty students self-regulate well; value learned materials (Wigfield & Eccles, 2000), and act in ways that bolster self-efficacy (Wolters and Hussain, 2015). Strong self-efficacy helps people persist through difficulties and hardships. It also plays a supportive role by generating positive affect and the setting of mastery and performance-approach goals, while reducing the setting of avoidance goals that are detrimental to academic performance. Further research found that the effects of grit on academic performance flows through achievement-orientated goals and self-efficacy. Self-efficacy and grit are similar in that they allow individuals to cope and persist through difficulty (Miller & Kass, 2019). High self-efficacy individuals perceive assignments with courage and efficiency, which reduces stress and anxiety (Malureanu, Panisoara, & Lazar, 2021). Research and theory imply that grit benefits the construction of functional long-term goals and plans, as well as attitudes that help individuals attain their long-term goals.

## **Hypotheses**

**Hypothesis 1a.** Affective CG commitment and CG difficulty are positively associated with the difficulty of subordinate goals in goal structures.

**Hypothesis 1b.** Affective CG commitment moderates the relationship between CG difficulty on the difficulty of subordinate goals; whereby, stronger levels of affective CG commitment strengthen that relationship.

**Hypothesis 2.** Affective CG commitment and grit are positively associated with the CG structure breadth and the total number of goals reported.

**Hypothesis 3.** CGSE is positively associated with self-efficacy for more proximal levels of achievement.

**Hypothesis 4.** CG commitment mediates the effects of grit and semester goal commitment.

**Hypothesis 5.** CGSE, CG difficulty, and affective CG commitment mediate the effects of grit on career-relevant effort.

## METHODS

### Participants

Two hundred and nine college students, recruited from various psychology courses, completed this study for course credit during the beginning of a fall semester at a large Midwest university. The study included 49 men, 151 women, 8 non-binary individuals, and 1 not reporting gender identification. The breakdown of the class year included: 62.2% freshmen, 17.2% sophomores, 11% juniors, and 9.1% seniors.

### Measures

**Demographics.** Students reported age, gender, and class year. With students' permission, student identification numbers were used to collect aptitude test scores, prior high school performance, declared major (including the status of pre-admission to their major), and end-of-semester performance from university databases.

**Semester Goal Difficulty.** Students responded to two questions about their semester GPA goal: 1) *My GPA GOAL this semester is* and 2) *The Minimum GPA that I will accept achieving this semester is*. Responses to the two questions were correlated ( $r = .73, p < .100$ ); however, the second question was used as the semester goal difficulty measure because it was designed to reduce ceiling effects and self-presentation bias.

**CG Difficulty.** CG difficulty was operationalized by responses to capture the extent to which participants believed career goal attainment required high levels of academic achievement. After participants reported career goals, they responded to 3-items (i.e., *Reaching my career goal requires a high level of academic achievement in college; I will have to do exceptionally well in college to have a chance to attain*

*my career goal; Whether I do well or not in college; I can still reach my career goal*). Response options ranged from 1 (strongly disagree) to 7 (strongly agree). Scale reliability was  $\alpha = .713$ .

**Academic Self-Efficacy.** Participants reported academic self-efficacy on 5 items about their confidence to achieve specific grade point averages. The item prompt was, *For THIS SEMESTER, how confident are you in your ability to achieve the following grade point averages?* Options allowed students to slide a response bar from 0% (not at all confident) to 100% (completely confident) for responses to GPA averages of varying difficulty (i.e. 4.0, 3.5 or better, 3.0 or better, 2.5 or better, and 2.0 or better). Scale reliability was  $\alpha = .750$ .

**CG Self Efficacy (CGSE).** After reporting their most important career goal, students reported CGSE. Pertaining to that career goal, students responded to seven questions about attaining their career goals on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items are: *Sometimes I wonder if I have what it takes to attain my career goal; I will make progress toward attaining my career goal this semester*. Negatively worded items were reversed coded for scale construction. Scale reliability was  $\alpha = .824$ .

**Semester Goal Commitment.** Williams and Klein's (1989) goal commitment scale was modified to assess student goal commitment. After reporting their semester goals, students responded to nine questions (e.g., *It is somewhat hard to take my semester goal seriously; I am willing to put forth a great deal of effort beyond what typical college students do to achieve this goal*). Response options ranged from 1 (strongly disagree) to 7 (strongly agree). Removing one item significantly improved scale reliability. The reliability of the remaining eight items was  $\alpha = .705$ .

**CG Commitment.** CG commitment was assessed on a 30-item scale designed to evaluate affective (8-items), calculative (8-items), continuance (7-items), and normative (7) forms of commitment. Participants were asked to evaluate the importance of various reasons pertinent to their decision to pursue their career goals. Response options ranged from 1 (not at all important) to

5 (extremely important). To examine the factor structure of the scale, items were factor analyzed using principal components analysis with Varimax rotation with Kaiser Normalization. The number of factors was fixed to 4. Scale items grouped by subscale and that include factor loadings appear in Appendix A. As shown, the eigenvalues of four factors exceeded 1.0 and the variance explained by each factor ranged from 10.9% to 15.7%, totaling 49.5%. Items loaded as expected on the affective, calculative, and continuance commitment constructs. Five of the seven normative commitment items loaded together; however, two normative items loaded on the continuance commitment factor. Those items were dropped in the final computation of scales. Reliabilities for commitment factors were acceptable ( $\alpha = .884$  for affective commitment;  $\alpha = .788$  for calculative commitment;  $\alpha = .774$  for continuance commitment;  $\alpha = .805$  for normative commitment).

**CG Breadth and Components.** Measurement of goal breadth was derived from Masuda et al., 2010. Students reported connecting goals in responses to two questions: 1) *List all the major goals you currently possess that are relevant to you progressing to your career goal*, and 2) *What goals do you intend to accomplish this semester that is relevant to you progressing to your career goal?* Categories were developed to classify all reported goals (see Appendix B). Three raters were trained to identify statements that qualified as discrete goals set and to apply category definitions to goals reported by participants. Each reported goal counted and classified. CG breadth represented the number of categories for which at least one goal was reported. CG components were operationalized as the total number of goals reported. Raters met twice to assess a subset of goals, and discuss applications of goal definitions, and sources of disagreement. Adjustments to CG categories and definitions were made to provide clearer distinctions among reported goals. After training and practice, raters evaluated the 30 common goal sets to test reliability. Rater judgments of total goal breadth were moderately to highly correlated ( $r = .651$  to  $r = .848$ ), while judgments of goal number were highly correlated ( $r = .811$  to  $r = .883$ ).



**Grit.** Grit was measured with the 8-item Grit-S. The Grit-S contains two 4-item subscales, consistency of interest (e.g., *I often set a goal but later choose to pursue a different one; I become interested in new pursuits every few months*) and perseverance of effort (e.g., *I have overcome setbacks to conquer an important challenge; I have achieved a goal that took years of work.*). Response options ranged from 1 (not like me at all) to 5 (extremely like me). The total grit score, computed by averaging the eight items, was reliable  $\alpha = .817$ .

**Career-Relevant Effort.** To report career-relevant effort, students checked one of four options attached to 16 career goal-relevant resources: *Will not do; Plan to do; Have already done; and Not applicable*. Students were also asked to list out-of-class activities that they had done to reach their career goals in the past semester. Three indices of career effort were computed; 1) use of university resources (i.e., have already done); 2) effort/intentions (i.e., plan to do + use of university resources); and 3) total effort (out of class activities + use of university resources).

**Semester Performance.** Semester performance was operationalized by the GPA students attained at the end of the semester. GPA was extracted from the University database.

## Procedures

Procedures were approved by Missouri State's Institutional Review Board (Study# IRB-FY2022-556, August 15, 2022) and modifications were approved Board (Study# IRB-FY2022-556, September 11, 2022). Approval letters appear in Appendix C. Participants completed an online questionnaire via SONA, which included demographic information, scales to measure semester goal commitment, semester goal difficulty, cumulative GPA difficulty, minimum accepted GPA for the current semester, career-relevant effort from the past semester, the Grit-S scale, and the CGSE scale. Additionally, students reported their peak career goal and connecting goals to provide a comprehensive understanding of their career plans.

## RESULTS

Analyses were computed using the Statistical Package for the Social Sciences (SPSS) version 28.0.1. Table 1 shows the descriptive information of all variables used in analyses, along with relevant Cronbach's alpha reliability estimates for scales and intra-class correlation coefficients for ratings of goals.

Table 1. Descriptive Statistics

Variable	<i>N</i>	Range	<i>M</i>	<i>SD</i>	$\alpha$
Academic Aptitude	153	13.00-33.00	23.39	4.73	
HS GPA	184	2.00-5.00	3.86	0.47	
SG Difficulty	208	2.00-4.00	3.25	0.38	
CG Difficulty	209	2.33-7.00	5.44	1.09	.713 <sup>b</sup>
Academic SE	208	2.00-4.00	3.25	0.38	.750 <sup>b</sup>
CGSE	209	1.43-7.00	4.02	1.07	.824 <sup>b</sup>
SG Commitment	209	3.50-7.00	5.53	0.80	.705 <sup>b</sup>
Affective CGC	209	2.75-5.00	4.42	0.57	.884 <sup>b</sup>
Calculative CGC	209	1.75-5.00	3.72	0.73	.788 <sup>b</sup>
Continuance CGC	209	1.00-5.00	3.06	0.75	.774 <sup>b</sup>
Normative CGC	209	1.00-4.86	2.40	0.77	.805 <sup>b</sup>
Goal Breadth	209	.00-6.00	3.09	1.20	.651-.848 <sup>a</sup>
Goal Components	209	1.00-13.00	6.17	2.30	.811-.883 <sup>a</sup>
Grit	209	2.00-4.92	3.65	0.62	.817 <sup>b</sup>
Use of University Resources	209	.00-14.00	4.88	3.18	
Effort/Intentions	209	6.00-15.00	13.28	1.94	
Total effort	209	6.00-20.00	14.57	2.30	
Semester Performance	201	.00-6.00	3.38	0.86	

Note: *N* = sample size. *M* = mean. *SD* = standard deviation.  $\alpha$  = reliability estimate

<sup>a</sup> Interrater correlations based on 3 raters <sup>b</sup> Cronbach's Alpha

## Bivariate Correlations

Correlations among study variables appear in Table 2. Correlations with gender indicated that women reported higher affective CG commitment ( $r = .22$ ) but lower CGSE ( $r = -.14$ ) than men.

Those who declared their major had slightly more difficult semester goals ( $r = .14$ ), semester goal commitment ( $r = .16$ ), and affective CG commitment ( $r = .15$ ). Another interesting finding indicates that the higher one's academic aptitude, the lower calculative ( $r = -.25$ ), continuance ( $r = -.27$ ), and normative commitment ( $r = -.16$ ).

The extrinsic forms of CG commitment were moderately correlated (range from  $r = .50$  to  $r = .55$ ), whereby affective CG commitment was weakly or unrelated to other forms of commitment ( $r = -.19$  to  $r = -.07$ ).

Calculative CG commitment was most strongly related to the CG difficulty ( $r = .26$ ). This relationship implies that individuals who believe that their career will lead to tangible rewards (e.g., financial gain, prestige, status, etc.) perceive their career goals require more academic effort and ability to attain.

Aptitude variables (i.e., HS GPA and ACT) related positively with the breadth (respectively,  $r = .21$ ,  $r = .23$ ) and components (respectively,  $r = .15$  and  $r = .30$ ) of one's CG structure. This may mean that the completeness and specificity of one's career plans are partially determined by the academic capacities of individuals.

Semester variables (i.e., SG difficulty, semester self-efficacy, and SG commitment) best predicted semester performance (range  $r = .23$  to  $r = .45$ ). The only CG factors that predicted semester performance were CG breadth ( $r = .18$ ) and components ( $r = .17$ ). Furthermore, this indicates that students who reported more complete plans tended to perform better academically.

Table 2. Correlation Table

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. HS GPA	1														
2. Academic Aptitude	.43**	1													
3. SG Difficulty	.26**	.43**	1												
4. CG Difficulty	-.01	-.13	.14*	1											
5. Semester Self-Efficacy	.44**	.44**	.59**	.10	1										
6. CGSE	-.01	-.03	.04	-.06	.21**	1									
7. SG Commitment	.01	.11	.26**	.13	.27**	.34**	1								
8. Affective CG Comm.	.06	.07	.06	.14*	.18**	.10	.21**	1							
9. Calculative CG Comm.	-.06	-.25**	.07	.26**	.03	.04	.01	.07	1						
10. Continuance CG Comm.	-.05	-.27**	-.05	.17*	-.12	-.19**	-.06	-.08	.54**	1					
11. Normative CG Comm.	-.01	-.16*	.11	.17*	-.07	-.14*	-.11	-.19**	.50**	.55**	1				
12. Goal Breadth	.23**	.21**	.12	-.01	.20**	.08	.11	.16*	-.05	-.10	-.11	1			
13. Goal Components	.15**	.30**	.21**	.14**	.24**	-.03	.07	.22**	-.03	-.11	-.10	.60**	1		
14. Grit	.00	-.06	.08	.21**	.14*	.32**	.44**	.18**	-.02	-.10	-.17*	.11	.00	1	
15. Total Effort	.05	.10	.16*	.18**	.09	.00	.04	.16*	.02	.04	.05	.20*	.15*	.00	1
16. Semester Performance	.47**	.35**	.40**	.11	.45**	.10	.23**	.07	.08	.04	-.01	.18**	.17*	.04	.11

## Hypothesis Testing

**Hypothesis 1:** Hypothesis 1a stated that affective CG commitment and CG difficulty are positively associated with the difficulty of subordinate goals in goal hierarchies. A regression analyses was conducted to test Hypothesis 1a. GPA minimum goal was regressed on affective CG commitment and CG difficulty. Analyses revealed main effects for CG difficulty ( $\beta = .142, p = .043$ ), but not for affective CG commitment ( $\beta = .041, p = .556$ ). Hypothesis 1a was partially supported.

Hypothesis 1b predicted that affective CG commitment moderates the relationship between CG difficulty on the difficulty of subordinate goals in goal hierarchies. The relationship between CG difficulty and subordinate goal difficulty should strengthen as levels of affective commitment increase. Cohen and Cohen's (1983) regression techniques were applied to test for moderation to test Hypothesis 1b. The interaction term, formed by the product of CG difficulty and affective CG commitment, did not contribute significant additional variance in the prediction of the difficulty of subordinate goals ( $\Delta R^2 = .015, F(3,207) = 2.06, p = .106$ ). Hypothesis 1b was not supported.

**Hypothesis 2.** Hypothesis 2 stated that affective CG commitment and grit are positively associated with the breadth and components of career goals. Two regression analyses were conducted to test Hypothesis 2. In the first analysis, CG breadth was regressed on affective CG commitment and grit. The dependent variables contributed 3.2% of the variance in predicting CG breadth,  $R^2 = .032, F(2,208) = 3.44, p = .034$ . Affective CG commitment contributed uniquely to the prediction ( $\beta = .142, p = .043$ ), while grit did not ( $\beta = .134, p = .209$ ). In the second analysis, CG components were regressed on affective CG commitment and grit. The dependent variables contributed 5.1% of the variance in the prediction of CG components,  $R^2 = .051, F(2, 208) = 5.55, p = .004$ . Affective CG commitment contributed direct effects in prediction ( $\beta = .230, p = .001$ ); whereby, grit did not ( $\beta = -.039, p > .05$ ). Hypothesis 2 was partially supported.

**Hypothesis 3.** Hypothesis 3 predicted that CGSE is positively associated with academic self-efficacy. A regression analysis was used to test hypothesis 3; whereby, academic self-efficacy was the dependent variable. The analyses included prior performance indicators as covariates (i.e., ACT score, high school GPA, and declaration of major). The first analysis indicated that CGSE and covariates were associated with academic self-efficacy, contributing 30% of the variance in the prediction,  $R^2 = .305$ ,  $F(4, 149) = 15.89$ ,  $p < .001$ . The resulting standardized beta weight indicated that CGSE ( $\beta = .193$ ,  $p = .006$ ) contributed uniquely to prediction. Hypothesis 3 was supported.

**Hypothesis 4.** Hypothesis 4 predicted that CG commitment mediates the effects of grit on semester goal commitment. Barron and Kenny's (1986) procedure for testing mediation were used to test hypothesis 4. First, semester goal commitment was regressed on the four types of CG commitment. Analyses revealed direct effects for affective commitment ( $\beta = .171$ ,  $p = .016$ ) and calculative commitment ( $\beta = .190$ ,  $p = .027$ ). Second, grit was positively associated with semester goal commitment ( $r = .444$ ,  $p < .001$ ). When grit was entered together with affective and calculative CG commitment significant direct effects were found for grit ( $\beta = .423$ ,  $p = .000$ ) and affective commitment ( $\beta = .131$ ,  $p = .038$ ). Third, grit was positively correlated with affective commitment ( $r = .183$ ,  $p = .01$ ). As such, effects of grit on semester goal commitment were both direct and mediated by affective commitment. Total effects of grit on semester goal commitment were ( $\tau = .483$ ). Hypothesis 4 was partially supported.

**Hypothesis 5.** Hypothesis 5 states that CGSE, CG difficulty, and affective CG commitment mediate the effects of grit on career-relevant effort. Barron and Kenny's procedure for testing mediation were used to test hypothesis 5. Use of university resources, effort/intentions, and total effort were regressed on each of the dependent variables. For use of university resources, direct effects were found for affective CG commitment ( $\beta = .237$ ,  $p = .037$ ), but not for CG difficulty ( $\beta = .003$ ,  $p = .966$ ) or CGSE ( $\beta = -.094$ ,  $p = .177$ ). For effort/intentions, analyses revealed direct effects

or CG difficulty ( $\beta = .140, p = .044$ ), but not for affective CG commitment ( $\beta = .125, p = .074$ ) or CGSE ( $\beta = -.010, p = .880$ ). For total effort, analyses revealed direct effects for CG difficulty ( $\beta = .162, p = .020$ ) and affective CG commitment ( $\beta = .138, p = .047$ ), but not for CGSE ( $\beta = -.005, p = .948$ ). Grit was not positively associated with total effort ( $r = .005, p > .001$ ), effort/intentions ( $r = -.027, p > .001$ ), or use of university resources ( $r = -.022, p > .001$ ). Hypothesis 5 was not supported.

## DISCUSSION

The findings in this research support the utility of exploring goal structures in the career planning process. Broadly, this study researched elements of goal structures and relevant attitudes linked to short-term motivation and achievement. An assumption that drove this study was that the difficulty and complexity of goal structures are important elements of career planning (Bandura, 1997). In addition, the inclusion of CG commitment and CGSE enabled the investigation into how CG attitudes relate to students' self-regulation and short-term motivation. Finally, grit was included because of its role in long-term goal attainment, such as the accomplishment of career goals (Duckworth, 2016).

Career commitment influenced career goal structures and short-term motivation. As reflected in key hypotheses, affective CG commitment was the most predictive of outcomes, when compared to extrinsic forms of commitment. Those more emotionally invested in their career goals had broader and more complex career goal structures, higher levels of academic self-efficacy, and greater commitment to their semester goals. Understanding the potency of affective attachment to career goals might benefit career counselors in building students' career-related efficacy beliefs, facilitating career planning, and working to align semester motivation and goals with career goal progress. For example, advisors might encourage students to connect possible career paths with their personal values, make sure they author their own career goals, build their beliefs that they are capable of attaining their career goals, and emphasize the positive and joyful aspects of their careers.

However, in some cases, extrinsic forms of commitment are associated positively with important short-term motivational factors. Although affective CG commitment was supported as functional to students' self-regulation, calculative CG commitment also benefited short-term goal commitment. It should be noted that semester goal commitment scale items are composed to reflect



extrinsic rewards for goal attainment rather than positive emotions connected to attainment. No negative consequences of calculative CG commitment were found; therefore, career counselors might also emphasize the tangible rewards attached to success in their future profession that is valued by the student. Results suggested that affective and calculative CG commitment play a role in student career goal setting and academic achievement.

This study advanced an understanding of mechanisms through which grit impacts long-term success. Findings suggest grit supports efforts engaged in career planning as well as career and academic motivation. Those with higher grit were more committed to and confident in attaining their short-term goals. Furthermore, grit was positively related to the amount of career-relevant effort and passion students reported for their career goals. It seemed that grit works through emotional channels of commitment rather than rational. In fact, grit was negatively related to students reported normative commitment. Building student passion attached to their career goal should also influence the perseverance of effort and consistency of interest in their career goal.

Another important finding was support for the cascading effects (McKenna, 2010) of CGSE in goal structures. That is, CGSE positively influenced students' academic self-efficacy, which may lead to greater success in academic pursuits. Hence, career counselors can build students' confidence in their future professional abilities to help with their academic performance. Alternatively, career planning might be considered after students have positive experiences in the classroom and feel particularly confident and in control of their futures. Research might address the causality of self-efficacy beliefs held at different levels of the goal structure.

Implications for academic and career advisement flow from study findings. If the finding generalizes, then academic advisors and career counselors can use interventions that increase students' emotional attachment and confidence toward their career goals to help influence their academic performance.

## **Limitations**

One limitation of this study was the small and homogeneous sample, which consisted solely of college students, mostly freshmen, from a single university. The sample may limit the generalizability of the results of this study to other populations. However, college freshmen are often in the early stages of career planning; therefore, findings might be most relevant to those who work with this population. Future research can focus on longitudinal studies to expand understanding of attitudes relevant to proximal achievement by following up on more semester performances. Also, further studies can include other populations (e.g., other majors, high school students, working adults, etc.) to test the generalizability of results.

Another limitation was the reliance on self-report measures, which are susceptible to social desirability bias and common method bias. But, study descriptives indicate adequate range and variation among study variables. In addition, different methods for collecting data included free goal responses and external rater evaluations of the information reported by students. Therefore, support for study hypotheses often reflected a variety of measurement methods/strategies beyond students' Likert scale responses. The use of correlations to make causal inferences, based on theory, poses another limitation. Future research can consider using experimental approaches to explore whether interventions targeting students' CG commitment, grit, and CGSE enhance the difficulty and complexity of their career goal structures.

While goal breadth and complexity are often related to focal variables as predicted by theory, strategies for operationalizing goal structures have not been widely applied in research. Further exploration of alternative methods to evaluate career goal setting is encouraged, including consideration of goal specificity, difficulty, and complexity. Subject matter experts could also be employed to assess the quality of goal structures.

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## APPENDICES

### Appendix A: CG Commitment Factor Analysis

	Factor 1	Factor 2	Factor 3	Factor 4
<b>Affective CG Commitment</b>				
The passion I feel for this career.	.836			
Doing work that has great personal meaning for me.	.787			
Loving what I do.	.772			
Being in a profession that aligns with who I want to be.	.758			
The day-to-day enjoyment I'll get working my job.	.756			
The joy I'll get building my knowledge/skills in this area	.685			
Feeling excited about this path.	.652			
Feeling like this career path is best for me.	.635			
<b>Continuance CG Commitment</b>				
Not wasting the emotion and energy I've invested in this path.		.711		
Avoid wasting the time I invested so far.		.684		
Not wasting financial investments, I made thus far in pursuit of this career goal.		.584	.399	
Not having to change my education plans should I change my mind about my career goal		.563	.322	
I've made too many sacrifices to date to change my career goals.		.552		
It will cost me too much to pursue alternative careers paths.		.508	.324	
<b>Calculative CG Commitment</b>				
The likely accumulation of wealth over time.			.812	
This career goal will give me stability in my life.			.693	
I will be able to live where I want to live.			.565	
Employment benefits I will gain in this position (e.g., healthcare, retirement, others).			.545	
Succeeding in this field will impress others who are important to me.			.505	.395
Admiration I will gain by succeeding in this career.			.468	.461
Not wasting the emotion and energy I've invested in this path.		.387	.464	
I've made too many sacrifices to date to change my career goals.			.373	
<b>Normative CG Commitment</b>				
I feel pressure from others to take this path.				.827
I feel pressure from my family to take this path.				.803
Society pushes people like me to pursue a career path like this.				.686
I feel like I should pursue this career whether I like it or not				.589
I will let others down if I do not obtain my career goal.				.581
I feel obligated to use my education.		.580		
My social network keeps me on this career path.		.507		

## Appendix B: CG Breadth Categories

Breadth Categories	Definitions	Examples
Course/Major Selection <sup>a</sup>	Selecting a major and/or aligning course schedule for career goal	Aligning coursework with career, finding/selecting major
Academics <sup>a</sup>	Reaching academic achievement goals	Grades, GPA, understanding courses
Career Resources <sup>a</sup>	Using campus resources	Advisor; faculty, career center resources, major fairs
Finance <sup>a</sup>	Financing career goal pursuits	Scholarships, making money for school, loans
Relevant Work Experiences <sup>b</sup>	Work experiences related to career goal	Building resumes, skill building, internships, certification tests
School Extracurricular <sup>b</sup>	Campus activities related to career goal	Club related activities, campus involvement
Planning Efforts <sup>b</sup>	Efforts to plan/prepare for one's career goal	Researching career, exam preparation, creating a plan, networking
Work-Life Balance <sup>b</sup>	Supporting person health (must be connected to career goal)	Fix sleep schedule to adapt to school schedule better
Other – Relevant <sup>b</sup>	Relevant activities that do not fit into other categories	Build relationship with classmates so I can create a study group
<sup>a</sup> School Related Activities: Activities <i>expected</i> in students' pursuit of education. <sup>b</sup> Extra Effort: Activities students reported outside the classroom.		



## Appendix C: Research Compliance

### Appendix C-1: Initial IRB Approval

**From:** do-not-reply@cayuse.com <do-not-reply@cayuse.com>  
**Sent:** Wednesday, August 17, 2022 11:11 AM  
**To:** Newsham, Mary C <Mary297@live.missouristate.edu>; Kane, Thomas D <TomKane@MissouriState.edu>  
**Subject:** IRB-FY2022-556 - Initial: Initial Approval



**To:**  
Thomas Kane  
Psychology  
Mary Newsham

**RE:** Notice of IRB Approval  
**Submission Type:** Initial  
**Study #:** IRB-FY2022-556  
**Study Title:** Grit, efficacy, and career planning  
**Decision:** Approved

**Approval Date:** August 15, 2022

This submission has been approved by the Missouri State University Institutional Review Board (IRB). You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

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This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:  
**PI:** Thomas Kane  
**Co-PI:** Mary Newsham  
**Primary Contact:** Thomas Kane  
**Other Investigators:**

## Appendix C-2: Modification Approval

**From:** [do-not-reply@cayuse.com](mailto:do-not-reply@cayuse.com) <[do-not-reply@cayuse.com](mailto:do-not-reply@cayuse.com)>  
**Sent:** Monday, September 12, 2022 9:43 AM  
**To:** Newsham, Mary C <[Mary297@live.missouristate.edu](mailto:Mary297@live.missouristate.edu)>; Kane, Thomas D <[TomKane@MissouriState.edu](mailto:TomKane@MissouriState.edu)>  
**Subject:** IRB-FY2022-556 - Modification: Modification Approval



**Missouri State.**  
U N I V E R S I T Y

**To:**  
Thomas Kane  
Psychology  
Mary Newsham

**RE:** Notice of IRB Approval  
**Submission Type:** Modification  
**Study #:** IRB-FY2022-556  
**Study Title:** Grit, efficacy, and career planning  
**Decision:** Approved

**Approval Date:** September 11, 2022

This submission has been approved by the Missouri State University Institutional Review Board (IRB). You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

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This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:  
**PI:** Thomas Kane  
**Co-PI:** Mary Newsham  
**Primary Contact:** Thomas Kane  
**Other Investigators:**

