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A Meta-Analytic Examination of the Goal Orientation Nomological Net

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The authors present an empirical review of the literature concerning trait and state goal orientation (GO). Three dimensions of GO were examined: learning, prove performance, and avoid performance along with presumed antecedents and proximal and distal consequences of these dimensions. Antecedent variables included cognitive ability, implicit theory of intelligence, need for achievement, self-esteem, general self-efficacy, and the Big Five personality characteristics. Proximal consequences included state GO, task-specific self-efficacy, self-set goal level, learning strategies, feedback seeking, and state anxiety. Distal consequences included learning, academic performance, task performance, and job performance. Generally speaking, learning GO was positively correlated, avoid performance GO was negatively correlated, and prove performance GO was uncorrelated with these variables. Consistent with theory, state GO tended to have stronger relationships with the distal consequences than did trait GO. Finally, using a meta-correlation matrix, the authors found that trait GO predicted job performance above and beyond cognitive ability and personality. These results demonstrate the value of GO to organizational researchers.

Keywords: trait goal orientation, state goal orientation, meta-analysis, self-regulation, job performance

Recent years have witnessed a substantial body of research concerning relationships among traitlike motivational characteristics and measures of performance. One variable that has received a great deal of attention in organizational research is goal orientation (GO). GO refers to one's dispositional or situational goal preferences in achievement situations. Originating in the educational psychology literature, organizational psychology researchers have proposed that GO plays an important role in a variety of human resources decisions, such as recruitment (e.g., Rynes & Gerhart, 1990), selection (e.g., L. Roberson & Alsua, 2002), training (e.g., K. G. Brown, 2001), and performance appraisal (e.g., VandeWalle & Cummings, 1997). GO also appears to play an important role in other work-related topics such as organizational climate and culture (e.g., Potosky & Ramakrishna, 2002), organizational change (e.g., Gully & Phillips, 2005), leadership (e.g., Janssen & Van Yperen, 2004), and team building (e.g., Bunderson & Sutcliffe, 2003).

As organizational researchers have incorporated GO into their work, several questions have emerged (DeShon & Gillespie, 2005). The purpose of this study was to answer the following questions: What is the stability of trait GO over time? To what extent are the dimensions of trait and state GO interrelated? How similar is GO to other individual differences? How well do GO dimensions predict various self-regulatory constructs? Does GO predict job performance above and beyond well-established predictors? We addressed these questions by meta-analyzing the relationships among GO dimensions and key variables of interest. By answering these questions, we believe this quantitative review provides the groundwork for future theoretical advancement.

GO

History

The concept of GO was independently conceived by educational psychologists during the 1970s and 1980s. In an attempt to apply Atkinson's (1964) theory of achievement motivation to the classroom, Eison (1979) described students as possessing either learning or grade orientations. According to Eison, a *learning orientation* was the predominant attitude held by students who approached college as an opportunity to acquire knowledge and obtain personal and educational enlightenment. Conversely, a *grade orientation* was the predominant attitude held by students who viewed obtaining a high course grade as an end in itself (Eison, 1979). Eison (1979) developed the Learning Orientation–Grade Orientation Scale to assess these orientations. These two orientations were originally conceptualized as opposite ends of an underlying continuum. However, Eison later reconceptualized them as being independent and revised his measure accordingly (Learning Orientation–Grade Orientation Scale II; Eison, Pollio, & Milton, 1982).

Around the same time, Nicholls (1975, 1976, 1978) was studying achievement motivation to identify the conditions under which grade school children would set excessively high or low task-

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related goals as well as developmental issues related to demonstrating competence. According to Nicholls (1975), the most important factor was how individuals choose to define success. He hypothesized there were two conceptions of success: *task involvement*, in which individuals compare themselves with their past performance (self-referent), or *ego involvement*, in which individuals compare their performance with others (external referent).

Independent of Eison (1979) and Nicholls (1975), Dweck (1975, 1986, 1989) and her colleagues (Dweck & Elliott, 1983; Dweck & Leggett, 1988) were researching achievement motivation from a developmental perspective, focusing on how children develop and demonstrate their ability in achievement settings. They noticed that when several high-ability children encountered difficulty, they would make negative comments about the task and/or their ability, use maladaptive strategies, and eventually develop feelings of helplessness. Taking a social–cognitive approach in which individuals use beliefs, values, and goals to define themselves (Markus, 1977), Dweck (1986) postulated that children tend to hold either learning or performance goals. Dweck (1986) proposed individuals with learning goals approach a task with the goal of learning for its own sake, whereas individuals with performance goals attempt to gain favorable judgments or avoid negative judgments from others. Further, Dweck hypothesized these goals were based on one's individual theory of intelligence (M. Bandura & Dweck, 1985; Elliott & Dweck, 1988). Individuals who adopt an incremental theory of intelligence are likely to believe intelligence and performance can be improved through increased effort and therefore adopt learning goals. On the other hand, individuals who adopt an entity theory of intelligence are likely to believe intelligence and performance are fixed and therefore adopt performance goals. Because it is impossible for an individual to simultaneously adopt both beliefs, the two goals and subsequent GOs were initially hypothesized to exist at opposite ends of an underlying continuum (Dweck, 1986, 1989).

It is important to note that whereas there are some similarities between Nicholls's (1975) and Dweck's (1986) conceptualizations of GO, the underlying theory as to why individuals have such orientations is quite different. Nicholls (1975) attributed GO to an internal versus external referent, whereas Dweck (1986) attributed it to an incremental versus entity theory of intelligence. Although some support for each theory has been demonstrated in research examining each theory independently, no research to our knowledge has pitted one GO theory against the other in an effort to determine which theory is better or more accurate. We attempt to contrast the empirical evidence supporting each theory through the variables we examined.[1]

Over the years, other researchers also contributed to the early theorizing about GO (cf. Ames, 1984; Maehr, 1983). Nearly a decade after conception, GO was introduced into the organizational literature (Farr, Hoffman, & Ringenbach, 1993). Building on Dweck's (1986) early work, Farr et al. (1993) described GO as a mental framework that determines how individuals interpret and respond to achievement situations. They compared and contrasted learning GO (LGO) and performance GO (PGO) on a number of organizational issues, such as task interest, goal setting, feedback seeking, and trainee motivation. They also provided practical guidance for a number of organizational topics, such as training and feedback.

Although there were some minor differences among these early theorists, they were in near universal agreement that learning goals were correlated with positive behaviors, such as setting realistic goals and persisting in the face of failure. By comparison, performance goals were associated with negative behaviors, such as maladaptive performance strategies and feelings of helplessness. On the basis of these early results, many researchers have come to believe learning goals are always correlated with positive outcomes, and performance goals are always correlated with negative ones (Brophy, 2004; see Midgley, Kaplan, & Middleton, 2001, for an exception). For some researchers, this belief has become so widespread that it is no longer questioned. Therefore, one of our goals was to test the veracity of this claim.

To our knowledge, only three other GO meta-analyses have been conducted. In 1997, Utman meta-analyzed 24 studies that manipulated participants' GO prior to completing an experimental task. He demonstrated that learning goals lead to better performance than do performance goals, but this advantage appeared to be limited to more complex tasks. Rawsthorne and Elliot (1999) meta-analyzed 30 studies and found experimentally induced performance goals undermined intrinsic motivation compared with experimentally induced learning goals, particularly when performance-avoidance goals were induced and combined with positive competence-confirming feedback. Day, Yeo, and Radosevich (2003) meta-analyzed 127 studies and found a three-factor model bifurcating performance goals into separate prove and avoid dimensions (described later) explained 7% more variance in academic performance than a two-factor model.

Our meta-analysis differs from the previous meta-analyses in five important ways. Using a much larger sample of 197 independent samples from 157 studies conducted between 1979 and 2002, we conducted meta-analytic examinations of (a) the temporal stability of trait GO; (b) the relationships between and among the dimensions of trait and state GO; (c) the relationships between trait GO and 10 antecedents, 8 proximal outcomes, and 4 distal outcomes; (d) the relationships between state GO and 4 distal outcomes; and (e) the incremental validity of trait GO over and above established predictors of job performance.

The Nature of the GO Construct

The psychological nature of the GO construct has been a topic of debate. GO has been treated by organizational researchers as a stable, traitlike, individual-difference characteristic (e.g., Colquitt & Simmering, 1998); a situationally specific state yoked to the task or context at hand (e.g., Stevens & Gist, 1997); or an experimentally induced state (e.g., Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000). Initial theoretical formulations of GO described it as dispositional (e.g., Nicholls, 1989), varying as a function of one's stable (Robins & Pals, 1998) implicit theory of intelligence (Dweck, 1986, 1989). However, some of those same researchers manipulated participants' theories of intelligence in laboratory settings (Dweck & Leggett, 1988). It seems logical GO could exist as both a trait and a state, with trait GO having a direct effect on state GO. Indeed, a number of psychological variables are believed to operate accordingly (e.g., self-efficacy, self-esteem, anxiety).

[1] We thank an anonymous reviewer for pointing this out.

However, what is not clear is which conceptualization of GO is most relevant and of most importance to organizational researchers. By examining both trait and state GO, we intended to demonstrate from a predictive validity standpoint which operationalization of GO explains more variance in important outcomes.

Temporal Stability of Dispositional GO

Across organizational studies, GO is most often conceptualized as a disposition and measured as a traitlike individual-difference variable. However, the stability of dispositional GO over time has yet to be determined. In initial efforts to examine its stability, Button, Mathieu, and Zajac (1996) described GO as a "somewhat stable individual difference factor that may be influenced by situational characteristics" (p. 28). Personality researchers have found other dispositional variables to be quite stable over time. For example, mean coefficients of stability for the Big Five personality variables ranged from .69 to .76 over a 1- to 2-year time period (Viswesvaran & Ones, 2000). Thus, trait GO was expected to be relatively stable over time as well.

The Dimensionality of GO and the Relationships Among the Dimensions

As noted, initially GO researchers believed GO was a bipolar construct. Thus, individuals could be high on one orientation or the other but not simultaneously high (or low) on both. Over time, researchers began to question this assumption and subsequently developed separate scales for measuring LGO and PGO (Button et al., 1996; Eison, Pollio, & Milton, 1986). This position was best advocated by Button et al. (1996), who argued individuals often have multiple, competing goals. Using the example of competitive divers, they noted individuals often strive to outperform their competition, while simultaneously improving on their own prior performance. This finding suggests that individuals can have simultaneously high levels of LGO and PGO.

More recently, VandeWalle (1993, 1996, 1997) argued PGO is, in fact, multidimensional. Noting PGO was originally defined as the desire to gain favorable judgments and avoid unfavorable judgments about one's ability (Heyman & Dweck, 1992), VandeWalle (1996) argued for partitioning PGO into two dimensions: prove and avoid. He defined prove performance GO (PPGO) as "the desire to prove one's competence and to gain favorable judgments about it" and avoid performance GO (APGO) as "the desire to avoid the disproving of one's competence and to avoid negative judgments about it." He subsequently demonstrated a three-factor model was superior to a two-factor model.

Elliot and his colleagues have forwarded similar arguments proposing a trichotomous, approach–avoidance–achievement goal framework (Elliot, 1994; Elliot & Harackiewicz, 1996). Building on the classic approach to achievement motivation (Atkinson, 1957), Elliot (1994) distinguished between approach and avoidance motivation by partitioning PGO into separate approach and avoidance components. He described performance-approach goals as focusing on the attainment of competence relative to others, whereas performance-avoidance goals focus on avoiding the perception of incompetence relative to others. Elliot and his colleagues have shown that approach and avoidance components have different antecedents (Elliot & Church, 1997) and outcomes (Elliot & Harackiewicz, 1996). In fact, whereas researchers have tended to associate PGO with negative outcomes, when considering the dimensionality of PGO, some researchers have noted it is really the avoidance dimension that is dysfunctional (e.g., Brophy, 2004). Because the approach–avoidance distinction appears both conceptually and empirically meaningful, several researchers (Conroy, Elliot, & Hofer, 2003; Linnenbrink & Pintrich, 2000; Pintrich, 2000) have proposed LGO should also be divided into approach and avoidance components in order to focus more on the influence of these aspects. However, because the 2×2 framework is relatively new and little empirical research has been conducted using it, we examined the three-component conceptualization of GO.

In addition to questions about the dimensionality of GO, the relationships among the dimensions are not clear, as the various GO theorists propose competing perspectives. Dweck's (1986, 1989) initial work treated LGO and PGO as two ends of the same continuum, suggesting the relationship between them is negative. On the other hand, Nicholls (1984, 1989) proposed task and ego GOs were orthogonal (unrelated). Elliot (1994) and VandeWalle (1993) have argued that APGO is to some degree the opposite of LGO, because the two orientations foster perceptions of errors and difficult tasks quite differently, suggesting a negative relationship between these dimensions. Most theorists expect the PGO dimensions to be positively related to one another, perhaps because they both contain an "other" referent (Elliot, 1994). Thus, identifying the interrelationships among the dimensions is one way to compare empirical support for the different GO theories.

We attempt to further define the nomological network for the GO dimensions by exploring their relationships with a wide range of variables we label as antecedents and proximal and distal consequences. We use the framework depicted in Figure 1 to organize the variables examined in this study. This framework is based on A. Bandura's (1989, 1991) social–cognitive theory of self-regulation and previous GO research (e.g., Chen, Gully, Whiteman, & Kilcullen, 2000; Phillips & Gully, 1997; Porath & Bateman, 2006), in that self-regulatory constructs and processes mediate the relationship between individual-difference variables and various outcomes.

Antecedents of GO

In this section, we explore several variables believed to contribute to the development of GO. These variables include cognitive ability, implicit theory of intelligence, need for achievement, the Big Five personality characteristics, self-esteem, and general self-efficacy.

Cognitive Ability

Eison and his colleagues (Eison, 1979, 1981) found that, in comparison with grade-oriented students, learning-oriented students possessed higher levels of cognitive ability. However, Dweck and her colleagues found no such relationship (M. Bandura & Dweck, 1985; Dweck, 1986). Over time, researchers have found mixed results concerning the relationship between GO and cognitive ability. However, a substantial body of theory and research suggests motivational and ability traits are generally uncorrelated

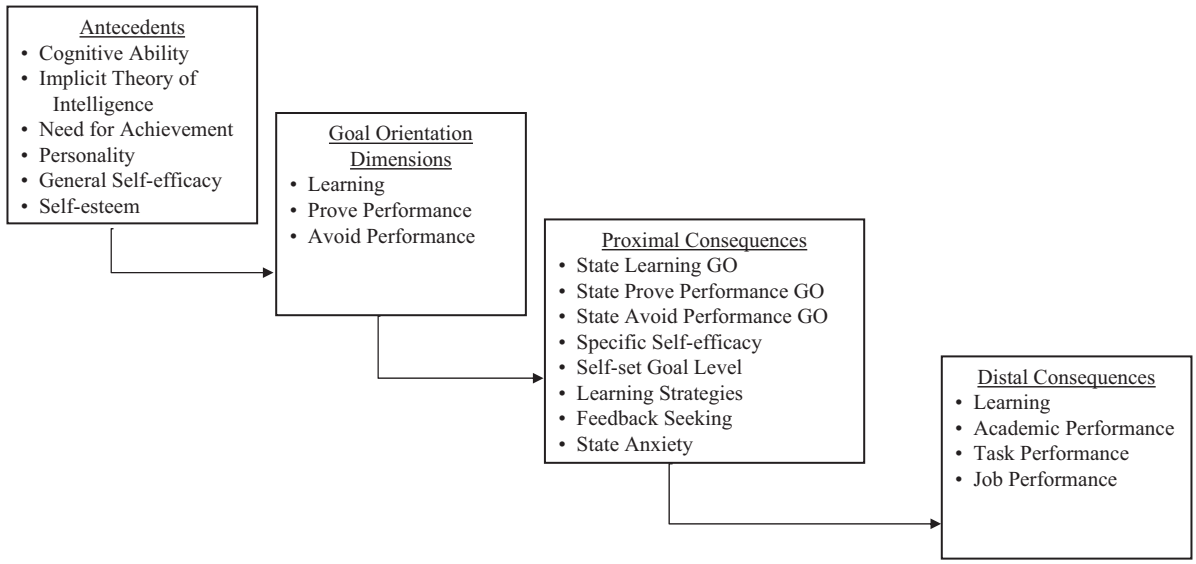

Figure 1. Organizing framework for the variables examined. GO = goal orientation.

(Ackerman & Heggested, 1997; Kanfer, Dugdale, & McDonald, 1994; Kuhl & Fuhrmann, 1999).

Implicit Theory of Intelligence

Dweck (1986) theorized that implicit beliefs about the stability of intelligence determine the types of goals people adopt. Individuals who believe intelligence is malleable are more likely to adopt learning goals, whereas individuals who believe intelligence is fixed are more likely to adopt performance goals. Consistent with Dweck's (1986) theory, we expected measures of implicit theory of ability to correlate strongly with the GO dimensions. Most scales of implicit beliefs are bipolar, with higher numbers representing an entity theory of intelligence. Therefore, we expected implicit theory of intelligence to relate positively to the PGO dimensions and negatively to LGO.

Need for Achievement

GO dimensions have been conceptualized as concrete manifestations of Atkinson's (1957) competence-relevant motives: need for achievement and need to avoid failure (fear of failure). Accordingly, Elliot and Church (1997) proposed that each of the GO dimensions has a unique antecedent profile composed of achievement motivation, competence expectancies, and fear of failure. Given the theoretical link to competence-relevant motives, we expected need for achievement to relate positively to LGO and PPGO and negatively to APGO.

Personality Characteristics

Years of research have led to the identification of five robust personality traits frequently referred to as the "Big Five." These include agreeableness, conscientiousness, extraversion, emotional stability, and openness to experience (Digman, 1990; Goldberg, 1990). Research documenting the underlying physiological components, heritability, and stability of the Big Five implies they can be considered source traits, which invoke an explanatory mechanism that can be used for prediction (Eysenck, 1990; McCrae & Costa, 1994).

GO appears to be a "compound" trait made up of various aspects of the Big Five (Hough & Schneider, 1996). For example, Hough (1992) argued that both extraversion and conscientiousness encompass aspects of achievement, which suggests both variables will correlate positively with LGO and PPGO. Similarly, Elliot and Church (1997) hypothesized that LGO and APGO are grounded in achievement motivation, a component of conscientiousness. Finally, emotional stability might also be expected to correlate negatively with APGO as both describe anxiety-related dispositional tendencies.

Self-Esteem

Self-esteem refers to an overall affective assessment of one's worth, value, or importance as an individual (Rosenberg, 1965). In general, self-esteem is believed to be a generalized, yet relatively enduring, traitlike characteristic. Despite the inclusion of self-esteem in many studies, there does not appear to be a compelling theoretical rationale for a direct relationship between self-esteem and GO. Nevertheless, it is well-known that goal fulfillment contributes to one's self-esteem (e.g., Parrott & Hewitt, 1978). Thus, the relationship between self-esteem and GO may depend on whether corresponding goals are fulfilled. Therefore, the relationship between self-esteem and GO may be moderated by goal fulfillment.

General Self-Efficacy

General self-efficacy is a relatively enduring belief in one's capacity to perform across a wide range of situations and tasks (Chen, Gully, & Eden, 2001). The relationship between GO and general self-efficacy may vary as a function of their mutual relationships with the theory of intelligence. Kanfer (1990) suggested

individuals who view their intelligence as fixed have lower levels of general self-efficacy than individuals who view their intelligence as malleable. If an entity theory of intelligence leads to low levels of general self-efficacy and a PGO, then the PGO dimensions will relate negatively to general self-efficacy. In addition, Dweck (1989) argued that individuals with a strong LGO tend to believe performance can be improved through effort. These beliefs are facilitated by higher levels of self-efficacy, suggesting a positive relationship between self-efficacy and LGO. In contrast, self-efficacy is likely to negatively relate to APGO, as low levels of self-efficacy are positively related to intrusive thoughts.

Proximal Consequences of GO

In this section, we explore several variables believed to be proximal outcomes of GO. We include state GO and the self-regulatory constructs: task-specific self-efficacy, self-set goal level, learning strategies, feedback seeking, and state anxiety. These variables are believed to play key roles in directing and sustaining task-related effort, so conceptually they serve as explanatory mechanisms for the GO–distal consequences relationships.

State GO

State GO describes the goal one has for a given situation (Ames & Archer, 1988). It is conceptually similar to trait GO as it represents one's goal preferences in an achievement situation; however, state GO is specific to the task and context at hand. Accordingly, many researchers have experimentally induced a certain GO for a specific task over a short time period (e.g., Stevens & Gist, 1997). Therefore, state GO is expected to be less stable than trait GO and influenced by environmental conditions. Like trait GO, state GO is believed to be multidimensional, consisting of at least three dimensions: state LGO (SLGO), state PPGO (SPPGO), and state APGO (SAPGO). Also consistent with the idea that traits underlie states (Mischel & Shoda, 1995), each state GO dimension is expected to relate to its corresponding trait GO dimension.

Specific Self-Efficacy

Task-specific self-efficacy is an individual's belief in his or her capability to perform well on a task, given a specific set of situational demands (A. Bandura, 1982). Unlike general self-efficacy, task-specific self-efficacy is task and context specific. Therefore, we conceptualized general self-efficacy as an antecedent of GO and specific self-efficacy as an outcome of GO. We expected trait GO to be more strongly related to general self-efficacy than to specific self-efficacy, as the level of specificity and stability are more consistent across these constructs. However, we expected the pattern of relationships with the GO dimensions to be the same.

Self-Set Goal Level

Both GO and self-set goal level involve the allocation of effort in achievement-related situations. However, they are not synonymous constructs. Whereas GO research focuses on goal content, goal-setting research focuses primarily on goal difficulty and specificity (Locke & Latham, 2002). Goal level refers to the difficulty of the performance standard. In this study, we focus specifically on self-set goals, because we are interested in self-regulatory processes. We also focus on performance goals (e.g., to earn an A in the class) as opposed to learning goals (e.g., to master the material), because this is what is most often examined in the literature (e.g., Chen et al., 2000; VandeWalle, Brown, Cron, & Slocum, 1999). Individuals with a strong LGO tend to be interested in learning for its own sake and often view achievement situations as a challenge. Therefore, they may be inclined to set more difficult goals. Individuals with a strong PPGO wish to demonstrate their competence to others (VandeWalle, 1996); thus, they are likely to set high goals for themselves as they want to ensure they perform well so they can look good to others. Conversely, individuals with strong APGO tend to view achievement situations as threatening to perceptions of their competence. They are concerned about not letting others see them fail. Therefore, LGO and PPGO were expected to positively correlate with self-set goal level, and APGO was expected to negatively correlate with self-set goal level.

Learning Strategies

Another important outcome of GO is the learning strategies, such as rehearsal, people use to enhance their own performance. Research has shown that such strategies enhance the learning process (Pintrich & de Groot, 1990; Volet, 1991). Research has also shown students with learning goals engage in more effective learning strategies than individuals with high levels of the PGO dimensions (e.g., Ames & Archer, 1988; Dweck & Elliott, 1983; Meece, Blumenfeld, & Hoyle, 1988; Miller, Behrens, Greene, & Newman, 1993; Nolen, 1988). Moreover, researchers have speculated that high levels of the PGO dimensions are negatively associated with learning strategies, because individuals with high PGO are likely to take a more shallow approach to learning (Ford, Smith, Weissbein, Gully, & Salas, 1998). However, the empirical data have not always supported these propositions (Ford et al., 1998).

Feedback Seeking

An important outcome in any organizational setting is the extent to which people actively seek feedback to improve their performance. VandeWalle and Cummings (1997) hypothesized that GO influences individuals' perceptions about the relative costs and benefits associated with feedback seeking, which in turn relates to actual feedback-seeking behaviors. For example, the costs associated with seeking feedback could potentially include a blow to one's ego (if the feedback is negative) as well as being perceived by others as weak. The value of feedback is that the feedback content will be useful for improving one's subsequent performance. VandeWalle and Cummings proposed that individuals with high levels of LGO have a propensity to seek feedback, whereas individuals with strong PPGO or APGO would be less inclined to seek feedback. We speculated LGO would have a stronger positive relationship with feedback seeking than PPGO, and APGO would have a negative relationship with feedback seeking.

State Anxiety

An affective outcome of GO is state anxiety, or an aversive emotional state of distress and uneasiness. In academic settings,

state anxiety is frequently operationalized as "test anxiety" or evaluation apprehension during an exam (Spielberger & Vagg, 1995). Both state anxiety (Covington, 1985) and APGO (Elliot & Church, 1997) are grounded in the generalized need to avoid failure or fear of failure and APGO. Thus, we expected APGO to be positively related to state anxiety.

Distal Consequences of GO

In addition to the proximal consequences of GO, we also examined the more distal outcomes: learning, academic performance, task performance, and job performance. Consistent with our organizing framework depicted in Figure 1, we expected trait GO to be a distal antecedent of these outcomes working through more proximal self-regulatory constructs. Therefore, we expected the relationships between trait GO and distal consequences to be weaker than the relationships between trait GO and more proximal consequences. We also examined how the state GO dimensions relate to these same four outcomes. We expected the same pattern of relationships predicted for trait GO to emerge for state GO; however, consistent with trait–state theory, we expected relationships with state GO to be stronger than relationships with trait GO.

Learning and Academic Performance

GO describes behavioral tendencies when faced with achievement-oriented tasks. We examined learning and academic performance as separate outcomes, as academic performance is broader than learning. Learning is the acquisition of declarative and procedural knowledge typically assessed through performance on a test or exam. Academic performance reflects how well an individual performs on various academic-related tasks over a period of time. It is an indicator of learning but can also be an indicator of motivation, time management, and written communication skills, among other things. Academic performance is most frequently operationalized as a final course grade or an overall grade point average.

LGO is associated with a variety of adaptive thoughts and behaviors. These include viewing failure as a learning experience, persisting in the face of adversity, maintaining high levels of self-efficacy, and setting high goals. LGO is also positively associated with other self-regulatory behaviors such as planning and goal setting (Sujan, Weitz, & Kumar, 1994), which facilitate performance in academic domains. Given this pattern of relationships, individuals with high levels of LGO are expected to perform well on academic tasks. In contrast, individuals with high levels of the PGO dimensions report experiencing thoughts unrelated to the task (Diener & Dweck, 1978) or thoughts about escaping from the task when they are engaging in task performance (Button et al., 1996), which can inhibit effective performance (Kanfer & Ackerman, 1996). Given that academic performance is a broader construct determined by multiple predictors, we expected GO to relate more strongly to learning than to academic performance.

Task and Job Performance

Two final outcomes of interest are task and job performance. These constitute behavior in experimental tasks performed as a part of a study conducted in the laboratory as well as performance in the workplace. The pattern of relationships between GO and task performance was expected to be similar to the pattern of relationships hypothesized between GO and learning–academic performance. For example, LGO is positively associated with self-regulatory processes like goal setting and task persistence that facilitate learning and performance in nonacademic domains as well (Locke, Shaw, Saari, & Latham, 1981; Wood & Bandura, 1989). Thus, LGO was expected to have a positive relationship with task performance, because acquiring the necessary knowledge and skills to perform the task would facilitate performance. Likewise, because the PGO dimensions are associated with intrusive thoughts that inhibit performance, they were expected to relate negatively to task and job performance.

Similar to learning and academic performance, task performance is conceptualized as a part of job performance. In other words, job performance is determined by more than just task performance. Further, task performance is primarily operationalized as performance on an experimental task in a laboratory setting, whereas job performance can be conceived as task performance in the field. Previous meta-analytic investigations have found stronger effects on performance in the lab than in the field (e.g., Stajkovic & Luthans, 1998). For these reasons, GO was expected to have stronger relationships with task performance than with job performance.

Incremental Validity

One way to assess the value of GO is to examine the extent to which it predicts important outcomes above and beyond well-established predictors of these outcomes. For example, cognitive ability is arguably the best predictor of job performance (Hunter & Hunter, 1984). At the same time, nonability predictors (e.g., personality variables) have been shown to predict incremental validity above and beyond cognitive ability (F. L. Schmidt & Hunter, 1998). Thus, trait GO is even more valuable to organizational researchers and practitioners if it demonstrates incremental validity. Accordingly, we tested the extent to which trait GO predicts distal consequences above and beyond cognitive ability and the Big Five.

Method

Identification of Studies

We conducted a comprehensive literature review to identify published and unpublished studies containing trait or state measures of the learning, prove, and avoid dimensions of GO. First, we conducted a computerized search of the PsycINFO, PsycFIRST, Dissertation Abstracts, and ABI Inform databases using keywords such as *GO*, *mastery GO*, *LGO*, *PGO*, *ego GO*, *achievement goals*, and their variants. Second, we conducted a manual search of journals that routinely publish GO research between 1993 and 2002. Third, we scanned Society for Industrial and Organizational Psychology and the Academy of Management conference programs for unpublished papers between 1996 and 2002. Fourth, we contacted key researchers in the field to solicit unpublished data and manuscripts. Finally, we used a "snowballing" technique to identify source studies that were cited in the reference section of each study. This search process yielded 469 manuscripts.

Inclusion Criteria

We developed several decision rules to aid in deciding which studies to include in the final data set. First, because the focus of this meta-analysis concerned the value of trait or state measures of GO to organizational researchers, we limited the samples to studies of adults in educational and occupational settings, deliberately excluding child or adolescent samples and studies examining sports-related tasks. Second, we excluded studies that experimentally manipulated or induced state GO as opposed to measuring it.[2] Third, we excluded studies that measured GO at the group level of analysis. Fourth, studies had to report sample sizes along with correlations or sufficient information to compute a correlation (cf. Arthur, Bennett, & Huffcutt, 2001; Wolfe, 1986).

Coding of Studies

Stephanie C. Payne and Satoris S. Youngcourt or J. Matthew Beaubien independently coded each study for sample size, effect sizes, and measurement reliability. Meetings were held to review each article and discuss discrepancies, all of which were resolved by consensus. When a two-dimensional measure (e.g., Button et al.'s, 1996, measure) of GO was used, the correlations with PGO were coded as PPGO, as the items tended to reflect this dimension more so than APGO.

Final Data Set

Nonindependence. The data were examined for nonindependence, which occurs when multiple data points come from the same sample of participants. However, decisions about nonindependence are not solely based on whether the same sample is used but must also take into account whether the same variable or construct is being assessed (Arthur et al., 2001). For example, data points based on multiple measures of the same criterion (e.g., two measures of state anxiety; Chen et al., 2000) for the same sample were considered to be nonindependent and were formed into a single data point using calculations set forth by Hunter and Schmidt (1990). Data points based on multiple time periods of the same or similar criterion for the same sample were also considered to be nonindependent and were combined into a single composite data point. Taken together, these decision rules yielded 178 independent samples derived from 141 studies examining trait GO. Further, these decision rules resulted in 19 independent samples derived from 16 studies examining state GO. All references that included codable data are marked in the reference section with an asterisk.

Outliers. We computed the sample-adjusted meta-analytic deviancy statistic to identify potential outliers in each predictor–criterion relationship (Arthur et al. 2001; Huffcutt & Arthur, 1995). Following Cortina's (2003) recommendation to discard outliers only if there is overwhelming empirical or methodological justification, we reviewed the flagged studies on a case-by-case basis. We identified outliers for the relationships between GO and implicit theory of intelligence, specific self-efficacy, learning strategies, and the intercorrelations between the GO dimensions.[3] We report all analyses with the outliers removed.

Analytical Techniques

Preliminary analyses. Data analysis was performed using Arthur et al.'s (2001) SAS PROC MEANS meta-analysis program, an implementation of Hunter and Schmidt's (1990) psychometric meta-analysis technique, to compute sample-weighted correlations. In addition to correcting for sampling error, we corrected for both predictor and criterion unreliability. Because reliability information was not always available for every variable in every study, we used an artifact distribution based on the available study information (see the Appendix). Corrections for range restriction were not made because of insufficient information.

Incremental validity. We examined the incremental validity of trait GO on job performance over and above cognitive ability and the Big Five. We chose this outcome because there were meta-analytic estimates of the relationships between cognitive ability and the Big Five for this outcome, and these values are necessary to perform the analyses. Specifically, we conducted a series of regressions using data from meta-correlation matrices composed of rho values from multiple meta-analyses (Viswesvaran & Ones, 1995). The values for the relationships between cognitive ability and the Big Five were obtained from Ackerman and Heggested (1997). The relationship between cognitive ability and job performance came from Hunter and Hunter (1984). The relationships between the Big Five and job performance came from Barrick and Mount (1991). The interrelationships among the Big Five variables came from Ones (1994). All other values were from our meta-

[2] We chose not to include studies that manipulated state GO, because most of the studies that induce GO pit LGO against a global PGO using a between-subjects design and they do not integrate conceptually or empirically into our study. First, conceptually pitting LGO against PGO implies GO is a bipolar construct in which individuals can only be high on one. This conceptualization was questioned by Button et al. (1996) over 10 years ago on the basis of the idea that an individual can have multiple goals. Second, empirical research supports the multidimensionality of GO (e.g., VandeWalle, 1996, 1997). Third, the data and results of studies inducing GO are quite different from data included in the present meta-analysis. Most frequently, means are generated for each experimental group (LGO and PGO) and the effect size available is one *d* value (e.g., the mean for the LGO group subtracted from the mean for the PGO group, divided by the pooled standard deviation). This value is interpreted as the advantage (or disadvantage) of one inducement over the other on a given outcome variable (e.g., task performance). These data are not easily integrated with our meta-analytic results reported as rho values for each dimension with each variable of interest. Finally, the only variable consistently examined across these studies that has not been previously meta-analyzed is task performance.

[3] The outliers for temporal stability was Amabile, Hill, Hennessey, and Tighe (1994; student and adult samples). Outliers for the intercorrelations between the different GO dimensions were Amabile et al. (1994; student and adult samples); Tuckey, Brewer, and Williamson (2002; student sample); Dykeman (1994); Mangos, Steele-Johnson, and Heintz (2001); and Tan (2002; Midgley scale). Outliers for implicit theory of intelligence were Button et al. (1996; Studies 2, 3, and 4) and Hofmann (1993b; Studies 1 and 2). Outliers for specific self-efficacy were Pintrich, Smith, Garcia, and McKeachie (1993); Brink and Thomas (2001); Pintrich, Zusho, Schiefele, and Pekrun (2001; German and U.S. samples); and Hoover, Steele-Johnson, Beauregard, and Schmidt (1999). The outlier for learning strategies was Simmons (1997). Analyses with outliers are available from Satoris S. Youngcourt.

analytic data. Consistent with Viswesvaran and Ones's (1995) recommendation, we used the harmonic mean for each pair of relationships within the meta-correlation matrix.

Results

Tables 1–5 display the number of effect sizes included in the analysis (k), total sample size across studies (N), sample-weighted mean correlations (mean r), estimated true mean correlations (ρ), and estimated standard deviations for the true mean correlations ($SD\rho$). Also included is the percentage of variance attributable to sampling error (% variance SE), the percentage of variance explained by artifacts, 95% confidence intervals (CIs), and 95% credibility intervals. CIs are used to assess the accuracy of the estimate of the mean effect size (Whitener, 1990). CIs estimate the extent to which sampling error remains in the sample-size-weighted mean effect size, whereas the variance explained by statistical artifacts, the credibility interval, and the $SD\rho$ were used as indicators of the presence of moderators or to determine whether a given effect is dependent on the situation (i.e., Hunter & Schmidt, 1990; Whitener, 1990). We used Cohen's (1988) conventions of .1, .3, and .5 when interpreting effect sizes as small, medium, and large, respectively.

Temporal Stability

Consistent with other reliability generalization studies (e.g., Yin & Fan, 2000), we did not correct mean coefficients of stability for internal consistency unreliability. Instead, we simply examined the sample-weighted mean correlations for each dimension. Overall, the coefficient of stability estimates for trait GO were high, indicating a moderate degree of stability over time. The sample-weighted mean r was .66 (k = 20) for LGO, .70 (k = 16) for PPGO, and .73 (k = 4) for APGO. These results indicate all three GO dimensions are stable at time intervals ranging from 1 to 14 weeks (M = 7.01, SD = 3.89). We examined the length of time between administrations as a continuous moderator of the test–retest relationships. The relationships between the time interval and coefficients of stability were negative for LGO (r = –.20), PPGO (r = –.29), and APGO (r = –.74). In other words, the longer the time frames between administrations, the smaller the coefficients of stability.

Relationships Among the GO Dimensions

We examined the interrelationships among the trait dimensions as well as the state dimensions (see Table 1). PPGO was positively correlated with LGO (ρ = .15 for trait and .30 for state). Consistent with previous speculation, LGO was negatively related to APGO (ρ = –.23 for trait and –.09 for state), and the two performance dimensions were positively related to one another (ρ = .40 for trait and .78 for state).

Antecedents of GO

We examined 10 potential antecedents of GO. These results are depicted in Table 2.

Cognitive ability. We found negligible relationships between cognitive ability and LGO (ρ = .04), PPGO (ρ = –.02), and APGO (ρ = –.09). Although only the CI for PPGO contained zero, given the extremely low effect sizes, GO and cognitive ability appear to be independent.

Implicit theory of intelligence. All studies examining the implicit theory of intelligence were coded such that entity theory was scored higher on the bipolar measure. Consistent with Dweck's (1986) theory, entity theory of intelligence had a small negative true mean correlation with LGO (ρ = –.12) and a small positive true mean correlation with PPGO (ρ = .10), with neither CI containing zero. There was also a small positive relationship between APGO and entity theory of intelligence (ρ = .09), but only two studies reported this relationship.

Need for achievement. Consistent with our expectation, need for achievement correlated positively with LGO (ρ = .48) and negatively with APGO (ρ = –.15). Contrary to expectation, need for achievement had virtually no relationship with PPGO (ρ = .03), as the CI included zero.

Personality characteristics. Next, we examined the relationships among the three GO dimensions and the Big Five. By far, conscientiousness was the most studied personality characteristic in relation to GO. As expected, conscientiousness was positively related to LGO (ρ = .32) and negatively related to APGO (ρ = –.18). Conscientiousness was unrelated to PPGO (ρ = .03), with a CI containing zero.

The results for the other four personality characteristics were quite similar to those for conscientiousness. LGO related posi-

Table 1
Intercorrelations Among the Goal Orientation Dimensions

Examined relationship	k	N	Sample-weighted mean r	ρ	$SD\rho$	% variance SE	% variance artifacts	95% CI	95% credibility interval
TLGO–PPGO	148	34,039	.12	.15	.17	18.08	18.31	.11:.13	−.19:.49
TLGO–TAPGO	48	10,636	−.19	−.23	.23	10.72	10.95	−.20:−.17	−.69:.23
TPPGO–TAPGO	48	10,643	.31	.40	.15	20.04	21.89	.30:.33	.10:.70
SLGO–SPPGO	10	1,091	.24	.30	.23	20.11	20.68	.18:.29	−.15:.74
SLGO–SAPGO	2	185	−.07	−.09	.51	5.60	5.61	−.22:.07	−1.00:.92
SPPGO–SAPGO	2	185	.65	.78	.42	2.80	4.72	.57:.73	−.04:1.00

Note. TLGO = trait learning goal orientation; PPGO = prove performance goal orientation; TAPGO = trait avoid performance goal orientation; TPPGO = trait prove performance goal orientation; SLGO = state learning goal orientation; SPPGO = state prove performance goal orientation; SAPGO = state avoid performance goal orientation; k = total number of effect sizes included in the analysis; N = total sample size across studies; % variance SE = percentage of variance attributable to sampling error; % variance artifacts = percentage of variance attributable to unreliability in the measures; CI = confidence interval.

Table 2
Antecedents of Goal Orientation

Examined relationship	*k*	*N*	Sample-weighted mean *r*	ρ	*SD*ρ	% variance SE	% variance artifacts	95% CI	95% credibility interval
Cognitive ability									
LGO	51	10,873	.04	.04	.04	58.63	81.25	.02:.06	−.03:.12
PPGO	49	10,616	−.02	−.02	.03	73.74	81.67	−.04:−.00	−.09:.04
APGO	16	3,497	−.09	−.09	0	36.16	113.13	−.13:−.06	−.09:−.09
Implicit theory of intelligence									
LGO	11	2,861	−.10	−.12	.06	56.49	57.00	−.14:−.07	−.25:.00
PPGO	12	2,967	.08	.10	.10	37.17	37.56	.05:.12	−.10:.30
APGO	2	494	.07	.09	.23	9.97	10.01	−.01:.16	−.37:.55
Need for achievement									
LGO	20	4,709	.38	.48	.16	16.12	17.95	.36:.41	.17:.80
PPGO	19	4,567	.02	.03	.16	21.92	21.93	−.01:.05	−.28:.33
APGO	5	974	−.12	−.15	.15	28.21	28.37	−.18:−.06	−.44:.13
Agreeableness									
LGO	9	2,448	.15	.19	.03	81.95	83.07	.11:.19	.12:.25
PPGO	9	2,448	−.06	−.07	.10	37.27	37.40	−.10:−.02	−.27:.13
APGO	5	1,405	−.15	−.19	.04	75.89	76.74	−.20:−.09	−.27:−.11
Conscientiousness									
LGO	12	3,066	.26	.32	.11	31.63	33.07	.22:.29	.11:.53
PPGO	12	3,066	.04	.06	.03	87.80	87.97	.01:.08	−.00:.11
APGO	6	1,732	−.14	−.18	.04	72.38	73.26	−.19:−.10	−.27:−.09
Emotional stability									
LGO	11	3,042	.14	.18	.04	78.66	79.64	.11:.17	.10:.25
PPGO	10	2,946	−.26	−.32	0	122.44	134.05	−.29:−.22	−.32:−.32
APGO	5	1,416	−.29	−.37	0	26.23	273.72	−.32:−.24	−.37:−.37
Extraversion									
LGO	12	3,215	.24	.29	.10	33.27	33.82	.21:.27	.10:.48
PPGO	11	2,776	.03	−.03	.04	78.58	78.62	−.01:.06	−.05:.11
APGO	5	1,404	−.24	−.30	0	635.13	640.88	−.29:−.19	−.30:−.30
Openness to experience									
LGO	16	4,359	.34	.44	.09	36.59	42.51	.31:.37	.27:.61
PPGO	16	4,359	−.05	−.06	.12	30.43	30.51	−.08:−.02	−.30:.17
APGO	7	2,098	−.19	−.25	.05	63.58	66.19	−.23:−.14	−.35:−.14
Self-esteem									
LGO	11	2,908	.32	.38	.18	11.94	12.25	.29:.36	.03:.73
PPGO	11	2,908	−.09	−.11	.07	54.92	55.13	−.13:−.05	−.24:.02
APGO	3	945	−.31	−.39	.18	10.55	10.60	−.37:−.26	−.75:−.03
General self-efficacy									
LGO	9	2,366	.56	.71	.06	42.48	51.74	.53:.59	.60:.82
PPGO	9	2,366	−.06	−.08	.11	33.36	33.48	−.10:−.02	−.30:.14
APGO	3	944	−.47	−.61	0	100.52	117.38	−.52:−.42	−.61:−.61

Note. LGO = learning goal orientation; PPGO = prove performance goal orientation; APGO = avoid performance goal orientation; *k* = total number of effect sizes included in the analysis; *N* = total sample size across studies; % variance SE = percentage of variance attributable to sampling error; % variance artifacts = percentage of variance attributable to unreliability in the measures; CI = confidence interval.

tively to extraversion (ρ = .29), openness to experience (ρ = .44), agreeableness (ρ = .19), and emotional stability (ρ = .18). APGO related negatively to extraversion (ρ = –.30), openness to experience (ρ = −.25), agreeableness (ρ = –.19), and emotional stability (ρ = –.37). PPGO was unrelated to extraversion (ρ = –.03, with a CI containing zero), openness to experience (ρ = –.06), and agreeableness (ρ = –.07). Emotional stability, however, yielded a negative relationship with PPGO (ρ = –.32).

Self-esteem. Self-esteem related positively to LGO (ρ = .38) and negatively to PPGO (ρ = –.11) and APGO (ρ = –.39). It should be noted that both of the PGO CIs contained zero.

General self-efficacy. Consistent with our expectations, we found general self-efficacy to have a strong positive relationship with LGO (ρ = .71) and a strong negative relationship with APGO (ρ = –.61). Whereas general self-efficacy was also negatively related to PPGO (ρ = –.08), the effect size was much smaller and the CI approached zero.

Proximal Consequences of GO

We examined eight proximal consequences of trait GO. The results are shown in Table 3.

State GO. Consistent with expectations, corresponding trait and state GO dimensions exhibited strong positive relationships with one another (LGO–SLGO, ρ = .55; PPGO–SPPGO, ρ = .58; APGO–SAPGO, ρ = .55). Relationships between the mismatched trait and state GO dimensions were smaller, ranging from –.07 to .45. Of note, SLGO had a relatively strong positive relationship with PPGO (.45). This is much stronger than the relationship

Table 3
Proximal Consequences of Goal Orientation

Examined relationship	*k*	*N*	Sample-weighted mean *r*	ρ	*SD*ρ	% variance SE	% variance artifacts	95% CI	95% credibility interval
State LGO									
LGO	19	3,373	.45	.55	.13	22.78	28.61	.43:.48	.30:.81
PPGO	17	2,777	.36	.45	.15	30.78	30.81	−.00:.07	−.24:.33
APGO	7	1,218	−.05	−.07	.13	33.40	33.48	−.11:.00	−.33:.20
State PPGO									
LGO	17	2,777	.11	.13	.11	42.92	43.20	.07:.15	−.08:.34
PPGO	18	2,887	.47	.58	.13	23.32	28.16	.44:.50	.32:.85
APGO	7	918	.14	.17	0	281.02	283.49	.07:.20	.17:.17
State APGO									
LGO	7	918	−.16	−.19	.11	48.14	48.64	−.22:−.10	−.40:.02
PPGO	7	918	.17	.22	0	99.30	101.05	.11:.24	.22:.22
APGO	7	918	.45	.55	.15	23.90	27.46	.39:.50	.25:.85
Specific self-efficacy									
LGO	49	10,649	.31	.37	.10	34.56	37.24	.29:.33	.17:.56
PPGO	44	9,266	.03	.03	.12	31.10	31.12	.01:.05	−.21:.28
APGO	8	1,882	−.21	−.26	0	127.51	130.23	−.25:−.16	−.26:−.26
Self-set goals									
LGO	21	4,751	.16	.19	.11	33.08	33.28	.13:.19	−.02:.40
PPGO	20	4,265	−.03	−.04	.10	38.90	38.92	−.06:−.00	−.24:.16
APGO	7	1,227	−.14	−.17	0	363.25	363.95	−.19:−.08	−.17:−.17
Learning strategies									
LGO	32	6,859	.39	.49	.14	20.13	23.88	.37:.41	.21:.77
PPGO	23	4,994	.13	.16	.10	41.58	42.87	.10:.16	−.03:.36
APGO	5	1,106	.02	.03	.31	6.53	6.53	−.03:.08	−.59:.65
Feedback seeking									
LGO	12	2,381	.20	.24	.14	26.32	28.76	.16:.24	−.02:.51
PPGO	10	1,847	−.01	−.01	.16	24.67	24.68	−.05:.04	−.32:.30
APGO	6	987	−.22	−.27	.23	13.57	14.98	−.28:−.16	−.72:.18
State anxiety									
LGO	16	3,254	−.09	−.10	.06	66.34	66.77	−.12:−.05	−.22:.01
PPGO	15	2,915	.16	.19	.06	61.44	61.45	.13:.20	.07:.32
APGO	7	1,241	.31	.36	.15	21.70	22.56	.26:.36	.07:.66

Note. LGO = learning goal orientation; PPGO = prove performance goal orientation; APGO = avoid performance goal orientation; *k* = total number of effect sizes included in the analysis; *N* = total sample size across studies; % variance SE = percentage of variance attributable to sampling error; % variance artifacts = percentage of variance attributable to unreliability in the measures; CI = confidence interval.

between LGO and PPGO (.15) or the relationship between SLGO and SPPGO (.30).

Specific self-efficacy. Consistent with expectations, task-specific self-efficacy was positively correlated with LGO (ρ = .37) and negatively correlated with APGO (ρ = –.26). Contrary to our expectation, PPGO was virtually unrelated to task-specific self-efficacy (ρ = .03).

Self-set goal level. As expected, we found a positive relationship between self-set goal level and LGO (ρ = .19) and a negative relationship of approximately the same magnitude with APGO (ρ = –.17). PPGO yielded a trivial negative relationship with self-set goal (ρ = –.04), with a CI containing zero.

Learning strategies. Results reveal positive true mean correlations between learning strategies and LGO (ρ = .49) and PPGO (ρ = .16) and a near zero relationship with APGO (ρ = .03, with a CI including zero).

Feedback seeking. The relationships between GO and feedback seeking were markedly different for the three GO dimensions. Specifically, feedback seeking was positively related to LGO (ρ = .20), negatively related to APGO (ρ = –.22), and unrelated to PPGO (ρ = –.01).

State anxiety. For state anxiety, results reveal a negative true mean correlation with LGO (ρ = –.10) and positive true mean correlations with PPGO (ρ = .19) and APGO (ρ = .36), with none of the CIs containing zero.

Distal Consequences of Trait GO

We examined four distal consequences or outcomes of trait GO. Our results appear in Table 4. It is important to note that there are relatively equal number of studies examining learning and academic performance and far fewer studies looking at task performance—particularly task performance in the field of job performance. Thus, we are more confident about findings concerning learning and academic performance than findings for task and job performance.

Learning and academic performance. Consistent with expectations, learning was positively related to LGO (ρ = .16), not related to PPGO (ρ = –.01), and negatively related to APGO (ρ = –.17), with both the PPGO and APGO CIs containing zero. A relatively similar pattern emerged for academic performance: a positive relationship for LGO (ρ = .16) and no relationships for

Table 4
Distal Consequences of Trait Goal Orientation

Examined relationship	*k*	*N*	Sample-weighted mean *r*	ρ	*SD*ρ	% variance SE	% variance artifacts	95% CI	95% credibility interval
Learning									
LGO	43	8,676	.12	.16	.05	75.93	79.70	.09:.14	.06:.25
PPGO	38	7,598	−.01	−.01	.09	52.02	52.04	−.03:.01	−.19:.17
APGO	13	2,856	−.13	−.17	.14	28.45	30.30	−.16:−.09	−.45:.11
Academic performance									
LGO	47	10,296	.12	.16	.09	49.59	52.44	.10:.14	−.01:.33
PPGO	44	9,628	.01	.02	.07	64.68	64.73	−.01:.03	−.11:.15
APGO	12	2,320	−.05	−.06	.00	104.74	104.79	−.09:−.01	−.06:−.06
Task performance									
LGO	25	4,400	.04	.05	.08	54.92	54.96	.01:.07	.11:.21
PPGO	24	4,182	−.00	−.01	.08	60.25	60.25	−.03:.03	−.15:.14
APGO	4	703	−.11	−.13	.00	127.01	128.00	−.18:−.04	−.13:−.13
Job performance									
LGO	7	1,133	.15	.18	.10	46.51	46.96	.09:.21	−.01:.38
PPGO	7	1,133	.09	.11	.14	33.48	33.60	.03:.14	−.16:.37
APGO	1	—	—	—	—	—	—	—	—

Note. Dashes indicate that values could not be calculated. LGO = learning goal orientation; PPGO = prove performance goal orientation; APGO = avoid performance goal orientation; *k* = total number of effect sizes included in the analysis; *N* = total sample size across studies; % variance SE = percentage of variance attributable to sampling error; % variance artifacts = percentage of variance attributable to unreliability in the measures; CI = confidence interval.

PPGO (ρ = .02) or APGO (ρ = –.06), with all three dimension CIs containing zero. Contrary to our expectation, relationships with learning were not substantially larger than relationships with academic performance.[4]

Task and job performance. There were no meaningful relationships between task performance and LGO (ρ = .05) or PPGO (ρ = –.01), as both CIs contained zero. A small negative relationship emerged with APGO (ρ = –.13). Job performance related positively to LGO (ρ = .18) and PPGO (ρ = .11), but both CIs contained zero. No studies examined APGO and job performance.

Distal Consequences of State GO

The results for state GO with the same four distal consequences are depicted in Table 5.

Learning and academic performance. Only SLGO could be examined with learning, as no studies examined learning with SAPGO and only one study examined SPPGO. Like LGO, SLGO was positively related to learning (ρ = .31), but even these results should be interpreted with caution, as they are based on only two studies. For academic performance, results yielded no meaningful relationships with SLGO (ρ = –.01) and SPPGO (ρ = –.02). No studies examined academic performance and SAPGO. Consistent with our expectation, SLGO had a stronger relationship with learning than academic performance. Also, SLGO had a stronger relationship with learning (.31) than LGO (.16), but LGO had a stronger relationship with academic performance (.16) than SLGO (–.01).

Task and job performance. Contrary to expectation, SLGO yielded no relationship with task performance (ρ = .06), whereas PPGO yielded a small positive relationship (ρ = .16). Again, however, these results must be interpreted with caution, as only three studies contributed to each of these rho values. No studies examined SAPGO and task performance. Small positive relationships emerged between job performance and SLGO (ρ = .22) and SPPGO (ρ = .09). Only one study examined SAPGO and job performance. Consistent with expectation, SPPGO had a stronger relationship with task performance (ρ = .16) than did PPGO (ρ = –.01), and SLGO had a slightly stronger relationship with job performance (ρ = .22) than did LGO (ρ = .18). Contrary to expectation, both trait and state LGO had stronger relationships with job performance (ρ = .18 and ρ = .22, respectively) than task performance (ρ = .05 and ρ = .06, respectively). On the other hand, SPPGO had a slightly stronger relationship with task performance (ρ = .16) than with job performance (ρ = .09).

Incremental validity. Finally, we examined the incremental validity of trait GO on job performance over and above cognitive ability and the Big Five. The complete meta-correlation matrix is shown in Table 6. GO did predict a significant amount of incremental validity in job performance ($\Delta R^2 = .04$, $p < .01$; see Table 7) and LGO that is largely responsible for this variance (β = .23, $p < .05$).

Discussion

In this article, we meta-analytically examine the relationships among three GO dimensions, the temporal stability of the trait-based dimensions, and relationships between the dimensions and presumed antecedents and consequences of GO. Whereas some results confirm theory and previously established findings, others do not.

[4] We examined the academic performance measure as a potential moderator; however, the validities did not vary substantially for the two primary measures: grade and grade point average.

Table 5
Distal Consequences of State Goal Orientation

Examined relationship	*k*	*N*	Sample-weighted mean *r*	ρ	*SD*ρ	% variance SE	% variance artifacts	95% CI	95% credibility interval
Learning									
SLGO	2	567	.25	.31	.00	—	—	.17:.33	.31:.31
SPPGO	1	—	—	—	—	—	—	—	—
SAPGO	0	—	—	—	—	—	—	—	—
Academic performance									
SLGO	4	745	−.01	−.01	.00	644.48	644.50	−.08:.07	−.01:−.01
SPPGO	4	745	−.02	−.02	.00	164.18	164.18	−.09:.05	−.02:−.02
SAPGO	0	—	—	—	—	—	—	—	—
Task performance									
SLGO	3	308	.05	.06	.00	275.73	275.99	−.06:.16	.06:.06
SPPGO	3	308	.14	.16	.00	808.71	808.83	.03:.25	.16:.16
SAPGO	1	—	—	—	—	—	—	—	—
Job performance									
SLGO	3	511	.18	.22	.00	1,212.56	1,234.35	.10:.26	.22:.22
SPPGO	3	511	.07	.09	.00	337.36	338.04	−.02:.16	.09:.09
SAPGO	1	—	—	—	—	—	—	—	—

Note. Dashes indicate that values could not be calculated. SLGO = state learning goal orientation; SPPGO = state prove performance goal orientation; SAPGO = state avoid performance goal orientation; *k* = total number of effect sizes included in the analysis; *N* = total sample size across studies; % variance SE = percentage of variance attributable to sampling error; % variance artifacts = percentage of variance attributable to unreliability in the measures; CI = confidence interval.

Temporal Stability of Trait GO

Researchers have called for an examination of the temporal stability of trait GO to better understand its influence on organizational interventions such as training (e.g., Salas & Cannon-Bowers, 2001). We discovered the three dimensions were quite stable over the short term, as mean coefficients of stability were comparable with those calculated for the Big Five (Viswesvaran & Ones, 2000). However, the longer the time interval, the weaker the coefficient of stability, undermining the stability of trait GO. That said, few studies have examined the stability of trait GO beyond the length of one college semester, so the long-term stability of trait GO remains unclear. In addition, when the time period of a study coincides with the beginning and end of the semester, time

Table 6
Meta-Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10
1. Cognitive ability	—									
2. Openness	.33[a]	—								
	185									
3. Conscientiousness	.02[a]	−.06[b]	—							
	1,617	1,055								
4. Extraversion	.08[a]	.17[b]	.00[b]	—						
	455	603	1081							
5. Agreeableness	.01[a]	.11[b]	.27[b]	.17[b]	—					
	157	611	474	558						
6. Emotional stability	.15[a]	.16[b]	.26[b]	.19[b]	.25[b]	—				
	206	603	835	620	741					
7. Learning GO	.04	.44	.32	.29	.19	.18	—			
	213	272	256	268	272	277				
8. Prove performance GO	−.02	−.06	.06	−.03	−.07	−.32	.15	—		
	217	272	256	252	272	295	230			
9. Avoid performance GO	−.09	−.25	−.18	−.30	−.19	−.37	−.23	.40	—	
	219	300	289	281	281	283	222	222		
10. Job performance	.45[c]	−.03[d]	.23[d]	.10[d]	.06[d]	.07[d]	.18	.11	−.06	—
	515	172	140	139	144	134	162	162	124[e]	

Note. Values were obtained from the current meta-analytic data, unless otherwise noted. Values under each rho are the grand mean. $M = 0$, $SD = 1$. GO = goal orientation.
[a] Values obtained from Ackerman and Heggested (1997). [b] Values obtained from Ones (1994). [c] Values obtained from Hunter and Hunter (1984). [d] Values obtained from Barrick and Mount (1991). [e] $k = 1$.

Table 7
Incremental Validity of Trait GO on Job Performance

Variable	*B*	*SE B*	β	ΔR^2	R^2
Step 1				.29**	.29
Cognitive ability	0.51	0.06	.51**		
Openness to experience	−0.20	0.06	−.20**		
Conscientiousness	0.22	0.06	.22**		
Extraversion	0.10	0.06	.10		
Agreeableness	0.01	0.06	.01		
Emotional stability	−0.06	0.06	−.06		
Step 2				.04**	.33
Cognitive ability	0.54	0.05	.54**		
Openness to experience	−0.31	0.06	−.31**		
Conscientiousness	0.12	0.07	.12*		
Extraversion	0.04	0.06	.04		
Agreeableness	0.01	0.06	.01		
Emotional stability	−0.04	0.06	−.04		
LGO	0.23	0.07	.23**		
PPGO	0.07	0.06	.07		
APGO	−0.04	0.06	−.04		

Note. $N = 260$. LGO = learning goal orientation; PPGO = prove performance goal orientation; APGO = avoid performance goal orientation.
* $p < .05$. ** $p < .01$.

period is confounded with systematic changes in the learning environment. Thus, variability in GO may be due to situational changes (e.g., final exams, papers due, etc.), which may have created a strong PGO situation.

Relationships Among the GO Dimensions

Despite the general belief that learning and prove dimensions are not significantly related to each other (e.g., Button et al., 1996; Heyman & Dweck, 1992; Roberts, Treasure, & Kavussanu, 1996), our findings reveal a small positive correlation between them, undermining Dweck's (1986) perspective. This means researchers should not always assume these two dimensions will relate differentially to various outcomes. Perhaps the recent bifurcation of LGO into approach and avoid dimensions will shed further light on these results.

The intercorrelations among the dimensions revealed a small positive relationship between LGO and PPGO and a negative relationship between LGO and APGO. Prove and avoid LGO scales may provide more interpretable relationships between the learning and performance dimensions. Also, individuals who are high in PPGO are also likely to be high in APGO. This pattern of relationships held for both trait and state GO.

Given the multidimensional nature of GO, it may be meaningful to examine how different combinations of these dimensions within as well as across trait and state operationalizations relate to relevant criterion variables. Our research shows that trait and state operationalizations of the GO dimensions tend to operate quite similarly; thus, a match between these operationalizations may be most beneficial (e.g., high LGO with high SLGO); however, empirical research is needed to confirm this speculation.

Antecedents of GO

Consistent with Dweck's (1986) work, there was virtually no relationship between cognitive ability and any of the three GO dimensions. Thus, highly intelligent individuals are equally likely to hold strong learning, prove, and avoid orientations. A lack of relationship between these variables has implications for selection, as it reduces any concerns about multicollinearity and suggests GO could predict performance above and beyond cognitive ability. In fact, after combining correlations from multiple meta-analyses, we showed that trait LGO predicted job performance above and beyond cognitive ability and the Big Five. Thus, trait LGO may be of particular interest to organizational researchers.

Consistent with Dweck's (1986) theorizing, entity theory of intelligence was negatively correlated with LGO and positively correlated with both PGO dimensions. Contrary to Dweck's (1986) perspective, the effect sizes were very small, providing little evidence for Dweck's (1986) view that implicit theories are the primary underlying antecedent of GO. One explanation is that our findings may reflect second-order sampling error in that the relationships we calculated are based on 12 studies or fewer. A second explanation concerns the measurement of implicit theory of intelligence. All of the studies included in our study measured this construct with a bipolar measure. Separate scales for each theory (e.g., Dweck, 1999) might yield stronger correlations with GO, as such measures are more consistent with GO measures; however, initial empirical results indicate otherwise (Elliot & McGregor, 2001).

Consistent with a hierarchical model of approach and avoidance achievement motivation (Elliot & Church, 1997), need for achievement related positively and strongly to LGO and negatively to APGO. It did not, however, relate to PPGO. Of note, need for achievement related more strongly to LGO than the broader construct conscientiousness. Although this relationship is strong, it demonstrates LGO is not synonymous with need for achievement.

The GO dimensions seem to be related to configural patterns of personality characteristics. LGO is associated with high openness, extraversion, and conscientiousness. PPGO is associated primarily with low emotional stability, and APGO is associated with low emotional stability and extraversion. This finding suggests profiles of the Big Five can be associated with each of the GO dimensions.

All together, these results reveal nontrivial relationships between GO and the Big Five, with the strongest positive relationships between LGO and openness to experience and conscientiousness. Yet our analyses confirm that the GO dimensions are not completely redundant with the Big Five. We noticed very few studies examining the relationship between GO and the Big Five have used a three-dimensional GO measure, making us less confident about the Big Five–PGO dimensions relationships. That said, the pattern of relationships with personality variables imply the GO dimensions are specific indicators of the motivational traits achievement and anxiety (Kanfer & Heggestad, 1997). LGO represents approach motivation, whereas the PGO dimensions represent avoidant motivation.

Self-esteem was positively related to LGO and negatively related to PPGO and APGO. We theorized that these relationships were likely to depend on the fulfillment of corresponding goals, such that the GO dimensions would positively relate to self-esteem to the extent that the individual attains corresponding (i.e., performance vs. learning) goals. Future research is needed to test this idea.

General self-efficacy was highly correlated with both the learning and avoid dimensions, which demonstrates the extent to which

LGO and general self-efficacy differ from one another (cf. Stevens & Gist, 1997; Zweig & Webster, 2004). These findings suggest that highly efficacious individuals are likely to have a strong LGO and a weak APGO. Unfortunately, these results were based on a relatively small number of studies. Given the magnitude of these preliminary findings, we urge researchers to replicate these findings with additional samples.

Proximal Consequences of GO

Consistent with our organizing framework, the GO dimensions were more strongly related to self-regulatory constructs than the performance constructs. However, contrary to popular belief, only APGO was negatively related to these outcomes. Our results support Brophy's (2004) suspicion that it is really the APGO dimension that is dysfunctional. PPGO was largely unrelated with the outcomes examined in this study (cf. Elliot & Moller, 2003).

Our results indicate individuals who are highly efficacious for a specific task tend to have a strong LGO and a weak APGO. A number of researchers have noted the inconsistent pattern of relationships between the performance dimensions and specific self-efficacy (e.g., Chen et al., 2000), suggesting the existence of moderator variables. Our results suggest the presence of a moderator for the LGO relationship. Specifically, there was substantially more variability in the correlation between specific self-efficacy and LGO than in the correlations between specific self-efficacy and the performance dimensions. It also appears that the distinction between PPGO and APGO is extremely important in understanding the PGO–specific self-efficacy relationship, as only APGO adversely affects specific self-efficacy.

Consistent with expectations, self-set goal level was positively related to LGO, negatively related to APGO, and unrelated to PPGO. In other words, individuals with high levels of LGO set higher goals for themselves than do individuals with low levels of LGO, and individuals with strong avoidance tendencies tend to set low goals for themselves. The content of these goals, however, is not always documented. Whereas the content is likely to be congruent with one's dominant GO, incongruency can occur and have important implications for self-regulation, learning, and performance (Kozlowski & Bell, 2006).

GO is frequently associated with self-regulatory constructs, such as learning strategies, or cognitively oriented behaviors used to influence learning. We found that both LGO and PPGO were positively related to learning strategies. LGO had a large effect, PPGO had a small effect, and APGO was virtually unrelated to learning strategies. These findings indicate individuals with high LGO and PPGO are more likely to engage in effective learning strategies.

Some researchers have speculated distinctions among learning strategies may be meaningful when examining relationships with GO. For example, deep cognitive strategies such as paraphrasing and summarizing have been associated with a high level of LGO, whereas surface strategies have been associated with high levels of the PGO dimensions (Elliot, McGregor, & Gable, 1999; Meece, 1994). However, we found the operationalization of learning strategies was extremely inconsistent. Numerous learning strategy measures have been used, and these distinctions have not always been uniformly applied. Once the measurement of learning strategies has been refined, further research examining GO–learning strategy relationships will reveal the importance of the nature of the learning strategy.

Consistent with VandeWalle and Cummings's (1997) theorizing, individuals high in LGO were more inclined to seek feedback, whereas individuals high in APGO were less inclined to do this. Perhaps individuals with a strong PPGO will be more inclined to seek feedback if they think they have performed well. Thus, knowledge of expectations may moderate the PPGO–feedback-seeking relationship.[5] It would also be interesting to examine whether the type of feedback sought is influenced by GO (Butler, 1992, 1993; VandeWalle, 2003).

We examined feedback seeking as a consequence of GO, but there are other feedback-related variables that may be associated with GO. For example, GO has been associated with how one interprets the purpose of feedback (Bobko & Colella, 1994; Farr et al., 1993; Kanfer, 1990; VandeWalle, Cron, & Slocum, 2001). GO has also been proposed as a moderator of the relationship between feedback and the reactions one has to the feedback (Brett & Atwater, 2001) as well as the relationship between initial and subsequent goals (Cron, Slocum, & VandeWalle, 2001). GO might also relate to the type and amount of feedback one gives to others (Farr et al., 1993) and how individuals interpret (particularly negative) feedback (Cron et al., 2001).

Individuals with high levels of APGO and PPGO were likely to have high levels of state anxiety, whereas high levels of LGO were associated with lower levels of state anxiety. This appears to be true regardless of whether one has experienced previous failure, suggesting prior failure is not a necessary condition for these relationships. However, longitudinal studies contrasting conditions with and without prior failure are needed to confirm this preliminary interpretation. Additionally, state anxiety was typically operationalized with a unidimensional measure of test anxiety; yet Elliot and McGregor (1999) found the worry component of test anxiety to be more relevant to GO than the emotionality component.

Distal Consequences of GO

Early GO studies indicated children with learning goals tended to outperform children with performance goals (e.g., Farrell & Dweck, 1985). Our results reveal that LGO has a small equally positive correlation with learning and academic performance, and APGO has a small negative relationship with learning. Further, state LGO has an even stronger positive relationship with learning, suggesting it is an even better predictor of learning than trait LGO. These findings indicate individuals with a high trait and state LGO and a low APGO are likely to learn more. These results further indicate that it is APGO, not PPGO, that is detrimentally related to learning. Contrary to the early belief that PPGO leads to negative outcomes (Brophy, 2004; DeShon & Gillespie, 2005), our research shows that it has virtually no relationship with learning or academic performance.

High levels of trait and state LGO appear to also be advantageous to task and job performance, and a high level of trait and/or state PPGO may also be beneficial. A high level of trait APGO was related to lower task and job performance levels. Across all four

[5] We thank an anonymous review for suggesting this possibility.

outcomes, a high trait and state LGO and a low trait APGO were related most favorably, and high trait and state PPGO did not relate adversely to performance. Given the negative relationship between APGO and state anxiety, it would be interesting to see whether the negative relationships between APGO and the performance outcomes are reduced when state anxiety is controlled.

On the other hand, these bivariate relationships do not reveal potentially more interesting and complex relationships that may exist between GO and various outcomes. For example, Dweck (1986) described the relationship between PGO and performance as dependent on "confidence in present ability" (p. 1041), which GO researchers often overlook (see K. G. Brown, 2001, for an exception). Additionally, early research demonstrated PGO was related to decrements in performance after initial failure (Diener & Dweck, 1978, 1980), which in turn is related to self-efficacy. This is another layer of complexity in the PGO–performance relationship often overlooked. Thus, one possible reason no relationships were found between LGO or PPGO and task performance is because they are moderated by previous failure, confidence, or both.

LGO predicted job performance above and beyond cognitive ability and the Big Five. This finding suggests LGO may be a valuable predictor of job performance. Additional research is needed to determine whether this is true for all jobs. It seems it would be most valuable for jobs requiring employees to embrace new learning opportunities and adapt to change.

Limitations

Generalizations of our findings should take into consideration our inclusion criteria (e.g., adult samples, trait and state measures of GO). However, given the large number of studies included in several of the analyses (e.g., cognitive ability, task-specific self-efficacy, learning, and academic performance), we feel quite confident about some of our results.

We organized the variables into three categories: antecedents, proximal consequences, and distal consequences. When available, we used theory to place variables into their respective categories. However, meta-analyses do not permit drawing inferences about causality or reveal reciprocal relationships. Clearly, longitudinal studies that establish temporal precedence, contiguity, and constant conjunction (Cook & Campbell, 1979) are needed to better test the extent to which the proposed antecedents and consequences have been labeled appropriately.

It is unclear how much common method variance is contributing to relationships particularly with the proposed antecedents because most of these were also self-reported. Also, the relationships between the variables we examined are likely to be much more complex than how they are depicted in Figure 1 (e.g., we do not include feedback loops). Finally, the variables we examined were limited to those in which there were a sufficient number of studies to meaningfully aggregate. Similarly, we were only able to conduct the incremental validity analyses for job performance, because we were unable to locate all of the necessary rho values for the other distal consequences. Thus, the use of a meta-correlation matrix also has some limitations (Viswesvaran & Ones, 1995).

Directions for Future Research

Although we examined a large number of variables, there are other antecedents and consequences of GO that merit additional study. For example, beliefs about the causes of success (Duda & Nicholls, 1992), locus of control (Dweck & Leggett, 1988), fear of failure (Elliot & Church, 1997), the presence of off-task cognitions (Kanfer & Ackerman, 2000), and trait anxiety may be antecedents of GO. Perfectionism (McGregor & Elliot, 2002), procrastination (McGregor & Elliot, 2002), and positive affect (Jagacinski & Nicholls, 1984) may be outcomes of GO.

Meta-analytic results do not explain why relationships exist. Additional research is needed to identify the mechanisms facilitating the relationships identified (e.g., Elliot et al., 1999). For example, why is APGO negatively related to learning and task performance? One assumed explanation is that individuals with high levels of APGO experience intrusive thoughts while performing; however, this theory has not been extensively tested. Alternatively, or in addition, test anxiety has been proposed as a mediator of the APGO–performance relationship (Elliot & McGregor, 1999). Further, the extent to which self-regulatory constructs and processes mediate GO–distal outcome relationships needs to be tested. There may also be other mediators such as persistence or planning. The distal outcomes also vary in proximity to GO and could be modeled further (e.g., LGO relates to learning, which in turn relates to academic performance).

With additional rho values, the incremental validity of dispositional GO could be further examined for learning, academic performance, and task performance in the lab. Also, self-regulatory processes like goal setting (cf. Seijts, Latham, Tasa, & Latham, 2004) could be added to these analyses as control variables. Finally, the incremental validity of state GO above and beyond trait GO remains to be tested (cf. Dragoni, 2005).

Our research further illuminates the value of the distinction between the prove–approach and avoid conceptualizations of performance goals. APGO was negatively related to many more self-regulatory constructs and outcomes than PPGO. Thus, the bifurcation of LGO into approach and avoid components may also prove both theoretically and empirically meaningful.

Potential Moderators

We attempted to assess a number of theoretical and exploratory moderators in our study; however, the nature of the data available often prevented a true examination of these variables or the findings did not warrant journal space. For example, Nicholls's (1984) theory is largely focused on internal and external referents and the opportunity to compare one's performance with others. Thus, Rawsthorne and Elliot (1999) proposed the presence of others during task performance could make a situation feel "evaluative" because others are present to judge one's performance. The presence of others is likely to strengthen relationships between the PGO dimensions and performance and/or state anxiety, because both dimensions of PGO are associated with an external referent. The presence of others also provides a source of normative information (Utman, 1997) and could facilitate cognitive interference (Rawsthorne & Elliot, 1999). Indirect evidence for this argument was observed by Utman (1997), who noted that the effect of experimentally induced learning goals over performance goals was

stronger in group settings than when performance was measured alone. We were unable to test the presence of others as a moderator, because most primary studies do not provide sufficient information about the context in which participants performed. Although many studies indicated whether performance took place in a solitary or group context, the extent to which the other people were privy to the participants' performance and vice versa was rarely clear. Thus, we urge GO researchers to make contextual information more clear so this moderator and Nicholls's (1984) theory can be further tested.

Other potential moderators of the GO–performance relationships are task characteristics like task complexity, time on task, and task demands (e.g., task difficulty and task consistency; see Steele-Johnson et al., 2000). Utman (1997) found the comparative advantage of learning goals over performance goals was more pronounced for complex tasks. Unfortunately, details about task characteristics are not typically included in the primary studies or there is minimal variability on these characteristics across studies (e.g., task complexity of college exams). Future research might also explore moderators of the relationships between GO and its antecedents.

Although we do not provide the detailed results here, we also examined the measures used to assess GO as a potential moderator. In particular, we examined three frequently used measures of GO: Button et al. (1996), Elliot and his colleagues (Elliot & Church, 1997; Elliot & McGregor, 2001), and VandeWalle (1996, 1997). Whereas there were no substantial differences across the measures, examining the GO measure indirectly tests the influence of the idiosyncrasies of the various measures. For example, by comparing correlations with Button et al.'s PGO measure with VandeWalle's (1996, 1997) and Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) PPGO and APGO measures, we could see how appropriate it was for us to code unidimensional PGO scales as PPGO. The primary difference we observed with Button et al.'s PGO measure was that it had no relationship with learning strategies. Thus, the inclusion of unidimensional PGO measures in PPGO coding may have attenuated the positive relationship between PPGO and learning strategies.

Comparing GO measures also allows for an indirect test of the extent to which GO is domain specific, as the various measures vary in specificity (DeShon & Gillespie, 2005). For example, VandeWalle (1997) advocated using items at a midlevel of specificity (i.e., for major life domains: academics, work, and athletics) and has two measures of GO (one for work and one for academics: VandeWalle, 1996, 1997). Similarly, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) items are more academically oriented, referring to performance in "this class." Button et al.'s measure appears to be much broader. The primary difference observed for VandeWalle's (1996, 1997) scales was that his LGO measure produced relatively stronger relationships with self-set goal level, feedback seeking, and task performance.

Finally, examining the GO measure as a potential moderator also reveals the extent to which the inclusion of internal versus external referents (others) and normative information in the items influences relationships with the PGO dimensions. For example, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) APGO measure includes explicitly normative items. We observed a number of trends regarding Elliot and colleagues' measure (Elliot & Church, 1997; Elliot & McGregor, 2001). First, in general, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) scales produced stronger relationships than Button et al.'s (1996) or VandeWalle's (1996, 1997) measures with a number of variables (e.g., academic performance). Second, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) LGO and PPGO correlated slightly more positively with one another. Third, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) APGO generated the strongest negative relationships with cognitive ability, specific self-efficacy, and learning strategies compared with the other measures. However, caution is warranted, as many of these results are based only on two studies. Fourth, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) LGO produced the strongest relationship with specific self-efficacy and the weakest relationship with conscientiousness and learning strategies. Finally, Elliot's (Elliot & Church, 1997; Elliot & McGregor, 2001) PPGO generated the largest correlation with conscientiousness and a positive relationship with specific self-efficacy.

Given Kanfer and Ackerman's (2000) recent call for research on how demographic variables influence motivational processes and work outcomes and given propositions about the influence of age on work motivation (Kanfer & Ackerman, 2004), we also examined the relationships between GO and sex as well as age. Although results are not reported here, we found no substantial bivariate relationships between trait GO and sex and age. That said, it might be fruitful to examine interactions between GO dimensions and these demographic characteristics, as both sex and age have been proposed as moderators of the GO–performance relationship (Midgley et al., 2001). The relationship between GO and ethnicity might also be explored as more cross-cultural GO research is conducted (e.g., Gong & Fan, 2006; Gully, Phillips, & Tarique, 2003; Lee, Tinsley, & Bobko, 2003).

In summary, we examined how trait and state GO relate to a wide range of variables further defining the nomological network for the GO dimensions: LGO, PPGO, and APGO. Whereas this construct was initially examined in the developmental, educational, and school psychology literature, it appears also to play an important role in the workplace. Our research confirms meaningful and differential relationships between three dimensions of GO and various outcomes including job performance.

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Appendix

Artifact Distribution

Variable	*k*	Minimum	Maximum	*Mdn*	*SD*	*M*
TLGO	173	.48	.94	.81	.06	.81
TPPGO	166	.54	.97	.79	.08	.79
TAPGO	59	.64	.88	.78	.06	.78
SLGO	18	.61	.91	.80	.09	.79
SPPGO	17	.66	.95	.78	.07	.78
SAPGO	3	.73	.90	.81	.09	.81

Note. TLGO = trait learning goal orientation; TPPGO = trait prove performance goal orientation; TAPGO = trait avoid performance goal orientation; SLGO = state learning goal orientation; SPPGO = state prove performance goal orientation; SAPGO = state avoid performance goal orientation.

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