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https://doi.org/10.1002/job.1963

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Multiple Goals: A Review and Derivation of General Principles

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A great deal of literature has examined the factors involved in single goal pursuit. However, there is a burgeoning realization that employees hold multiple goals at any one point in time and that findings from the single goal literature do not necessarily apply to multiple goal situations. Research is now being conducted on multiple goals, but it is being conducted across a broad range of disciplines, examining different levels of the goal hierarchy. Consequently, researchers are using the same label to refer to distinct concepts (the "jangle" fallacy) or different labels to refer to similar concepts (the "jingle" fallacy), and some aspects of the multiple goal space are yet to be examined. We derive seven general principles of the multiple goal process from a broad review of the literature. In doing so, we provide a common architecture and an overarching perspective of the theory for ongoing research as well as highlighting a number of areas for future research.

INTRODUCTION

It is well established that goals are core motivational constructs that influence behavior (Locke & Latham, 2013). To date, research has primarily focused on single-goal situations, but it is increasingly recognized that managing multiple goals is the norm rather than the exception (Ashforth, Harrison, & Corley, 2008; Sun & Frese, 2013; Vancouver, Weinhardt, & Schmidt, 2010). Importantly though, given the complexities involved in the pursuit of multiple goals, it is unlikely that findings from single goal research can be directly translated to the multiple goal contexts. For example, consider research regarding implementation intentions: Diverse evidence from single goal contexts indicates that these conscious acts of planning in pursuit of a particular goal predict goal attainment (e.g., Diefendorff & Lord, 2003; Gollwitzer & Brandstatter, 1997). However, recent research suggests they are not beneficial in multiple goal contexts because the associated planning highlights the difficulties that are involved in managing multiple goals and thus reduces goal commitment (Dalton and Spiller (2012).

Fortunately, research on multiple goals has begun to emerge across a wide variety of disciplines. These include Developmental (e.g., Hofer, 2010) and Educational Psychology (e.g., Berger, 2012), Experimental Social Psychology (e.g., Koo & Fishbach, 2008), Industrial/Organizational Psychology (I/O psychology: e.g., Vancouver et al., 2010), Management (e.g., Ethiraj & Levinthal, 2009), Marketing (e.g., Dalton & Spiller, 2012), Organizational Behaviour (OB: e.g., Bateman, O'Neill, & Kenworthy-U'Ren, 2002), Social Psychology (e.g., Sheldon & Elliot, 1999), and Sports Psychology (e.g., Carr, 2006). Researchers generally agree that goals are hierarchically

structured (see Austin & Vancouver, 1996) and research varies from a focus on long-term goals such as "values" and "identities" at higher levels of the hierarchy to "project goals" and day-to-day "tasks" at lower levels.

This diversity in multiple goal research efforts has great potential to advance knowledge. Indeed, the divergence in approaches has yielded a variety of unique findings and theoretical insights. However, this diversity has also resulted in a dilemma, which we refer to as the "elephant problem." Specifically, we see a parallel between the current state of the multiple goal literature and an Indian parable in which several blind men strive to learn about an elephant. One man touches the tail and reaches the conclusion that the elephant is like a rope; another touches the trunk and concludes the elephant is like a tree; and so forth. By examining only one aspect of the elephant in isolation, each man draws conclusions that, although true for some aspects of the elephant, do not represent the elephant as a whole.

Similarly, multiple goal research is characterized by separate streams that are examining different aspects of the multiple goal space in isolation of each other. We believe this situation is problematic for future advancement of multiple goal research. Two primary problems relate to the "jingle" and "jangle" fallacies (Kelley, 1927), which both concern impediments to the development of a common vocabulary and architecture. The "jingle" fallacy occurs when the same label is used for two distinct constructs or phenomena. For example, the broad concept of "multiple goals" has taken on different meanings depending upon whether the multiplicity occurs across levels of the hierarchy, such as studying how goals at one level of abstraction (e.g., college course goals) influence goals at another level (e.g., college exam goals; Campion & Lord, 1982), or within levels, such as studying how separate aspects of one goal (e.g., speed vs. accuracy) compete for attention and resources (e.g., Locke et al., 1994). Similarly, the concept of "multiple goal pursuit" has been used when considering both simultaneous (e.g., Schmidt & DeShon, 2007) and sequential (e.g., Leroy, 2009; Madjar & Shalley, 2008) goal pursuit. The "jangle" fallacy occurs when different labels are used to refer to the same construct or phenomenon. For example, the term "goal hierarchy" is used in OB, whereas "goal systems" is used in experimental social psychology, yet both refer to the overarching structure of goals. This example and others have resulted in the development of independent research "silos" and thus represent missed opportunities for knowledge integration. For instance, knowledge of goal hierarchies is likely to inform understanding of goal systems and vice versa; and likewise for our understanding of managing multiple identities versus multiple tasks. Fallacies such as the jingle and jangle impede the development of a common language and framework, making it difficult for multiple goal researchers to build on the work of others (see also Vancouver et al., 2010).

The multiple-goal space is large and complex, so it makes sense that the literature has progressed in the manner described above. Yet, we see this as a potential watershed moment for the goal pursuit literature. If the status quo is maintained, multiple goal research may continue to evolve along distinct pathways, hindering us from ever "seeing the whole elephant." However, we believe that enough knowledge about multiple goals has accumulated such that general principles of the multiple goal process can be extracted. Doing so requires

a broad review and organization of the multiple goal literature, which is the approach taken in the current manuscript. Specifically, we reviewed the research across multiple disciplines and identified a broad range of articles that collectively address a broad spectrum of the goal hierarchy. Keywords were based on the heuristic levels mentioned above (multiple tasks, goals, identities, values) and terminology used within these literatures (e.g., dual tasks, goal systems, goal hierarchy, dual identities, identity integration). We derived a set of multiple goal principles from this literature, which we define as general rules that characterize how the given aspect of the goal process operates. In the following sections, we present the multiple goal principles that we have generated from our review and discuss our interpretation of this holistic perspective of multiple goal research in terms of implications for current knowledge and future research.

Multiple Goal Principles

We derived seven general principles from the multiple-goal literature that summarize the evidence and associated conclusions accumulated from research to date (see Table 1). To begin, we discuss the basic framework of multiple goals within the hierarchy. The first principle contains two sub-principles; one refers to the structure of multiple goals within the hierarchy and the other outlines how they are activated (Principles 1a and 1b). The remaining principles can be roughly mapped onto various stages of the goal process; namely, how goal conflict is managed via goal alignment (Principle 2) or prioritization (as a function of the mechanisms of goal-based informational and affective value, goal-performance discrepancies and expectancy; Principles 3-6) and the goal shielding consequences of prioritization (Principle 7). As indicated in Table 1, the evidence used to support each of these general principles varies according to the discipline/s from which it originated and the level of the goal hierarchy that was the focus when generating the evidence. We highlight these differences in our review, and refer to them in our discussion of what we know and where we need to go.

Principle 1: Goal Structure & Activation

The issues of goal structure (i.e., how the goals exist in relation to each other) and activation (i.e., when a goal is triggered) are addressed across a wide range of disciplines and there is broad consensus across these areas (e.g., Austin & Vancouver, 1996; Cropanzano, James, & Citera, 1993; DeShon & Gillespie, 2005). With regard to structure, researchers agree that goals can be categorized, albeit crudely, into a hierarchical structure of levels ranging from more concrete goals at lower levels to more abstract goals at higher levels (e.g., DeShon & Gillespie, 2005). Indeed, such a goal structure was also proposed to reflect an individual's personality (Cropanzano et al., 1993).

However, within this broad consensus there are a variety of terms which are used. Therefore, in order to establish a common vocabulary, we now introduce the terms we use for each level and their definitions. We define *tasks* to be specific behaviors such as teaching a class, catching the bus to work, and so on. These tasks are at the bottom of the goal hierarchy, thus they correspond to the notion of 'means' in goal systems theory (Kruglanski et al., 2002), the 'task goals' in goal hierarchy models (Cropanzano et al., 1993), the 'goals' in multiple goal pursuit theory (Vancouver et al., 2010), and the 'achievement tasks' in the self-regulation multiple goal model (Lord, Diefendorff,

Schmidt, & Hall, 2010). At the next highest level are the long-term *project goals* that an individual might have, also called personal projects (Little, 1983, 1989), personal goals (Winell, 1987) or achievement goals (DeShon & Gillespie, 2005). These goals could include performance goals (such as a journal paper), collegiality and citizenship goals (such as maintain a supportive team), non-work goals (such as keep the house clean, spend time with the family), and so on. At the next level of goal abstraction are a person's *identities* (Cropanzano et al., 1993), possible selves (Lord et al., 2010; Strauss, Griffin, & Parker, 2012) or principle goals (DeShon & Gillespie, 2005); and at the top of the goal system hierarchy sits a person's *values* (Cropanzano et al., 1993) and self-goals (DeShon & Gillespie, 2005). These higher-level goals are the most abstract and exist for longer periods of time than the lower-level goals (Bateman et al., 2002).

We acknowledge that these differentiations are only heuristics and that the complexity of this domain is such that neat categorizations are not always possible. For example, the hierarchy is likely to consist of levels within levels (e.g., collective identity versus personal identity) and overlap across levels (e.g., longer-term tasks acting as project goals, or self-defining identities acting as values). Nonetheless, we adopt the proposed hierarchy as an organizing architecture because it is conceptually important to contrast the relative position of various goals in the hierarchy (i.e., higher- vs lower-level goals).

Principle 1a: Goals exist in a hierarchy from long-term abstract multiple values at the top of the hierarchy, through multiple identities, multiple project goals, and multiple tasks.

Now we turn to a discussion of goal activation. Goal activation is thought to be a function of the connections between goals (Kruglanski et al., 2002). Theorizing and empirical research have shown that goals can be cognitively linked to each other between and within goal hierarchy levels forming a connectionist architecture similar to a neural network (Hanges, Lord, & Dickson, 2000). *Connections* refer to the linkages between the mental representations of the goals. A connection between two goals is described as *facilitative* if achieving one goal helps achievement of the other; this connection then triggers goal activation. A connection is described as *inhibitory* if achieving one goal impedes achievement of the other; this type of connection blocks activation (Kruglanski et al., 2002). Thus, when a particular goal is activated, all other goals which are connected to that goal will either be activated (if connected through a facilitative link) or inhibited from activating (if connected through an inhibiting link) (see e.g., Lord & Brown, 2001; Lord, Brown, & Freiberg, 1999). If goals are unrelated to each other then there is no connection and no corresponding activation pattern. For example, if your identity as a researcher is activated, then the project goals that have facilitative connections to that identity (e.g., write papers, analyze data) are activated, those that have inhibitive connections (e.g., do paperwork, answer emails) are dampened from activating, and those which are unrelated (e.g., eat healthy food, walk the dog) are not affected. To date, empirical research has identified the existence of such connections at the lowest two levels of the hierarchy (e.g., Manneti et al., 2009) but only inferred their existence at the higher levels through correlations (e.g., Oishi, Schimmack, Diener, & Suh, 1998; Sosik, Jung, & Dinger, 2009) or theorizing (e.g., DeShon & Gillespie, 2005).

Principle 1b: When a goal is activated, a pattern of activation occurs such that goals with facilitative connections are also activated and goals with inhibitive connections are not.

If the pattern of goal activation is such that multiple competing goals are activated at the same time, then goal conflict ensues as the person must resolve incompatible action tendencies (see e.g., Stroebe, Mensink, Aarts, Schut, & Kruglanski, 2008). If left unresolved, research shows that detrimental effects ensue – whether that be increased stress (e.g., Dickson & Moberly, 2010; Emsley, 2003; Sheldon & Emmons, 1995) or decreased goal attainment (e.g., Hofer, 2007, 2010; Li & Chan, 2008; Soman & Min, 2011). Thus, employees are driven to resolve this goal conflict (Laran & Janiszewski, 2008). In Principle 2, we discuss the notion of goal alignment as one strategy for managing goal conflict. Then in Principles 3-6, we discuss the more traditional notion of goal prioritization as a way to deal with conflicting goals.

Principle 2: Goal Alignment

The notion of goal alignment has been investigated in the social psychology and management literatures and has primarily focussed on the project goal and identity levels of the goal hierarchy (see e.g., Sluss & Ashforth, 2008). Though not explicitly labelled as such in this literature, we propose that goal alignment reflects a strategy for resolving goal conflict. We define *goal alignment* as the act of cognitively reframing the representation of goals to highlight their commonalities and reduce their differences.

Two types of goal alignment strategies have emerged. The first type relates to aligning the conflicting goals themselves either through integrating goals into a compound goal (e.g., Karoly et al., 2005; Kreiner, Hollensbe, & Sheep, 2006) or nesting conflicting goals by conceiving one as a higher-level goal (e.g., Ashforth, Rogers, & Corley, 2010; Brewer, 1999). For example, within the identity literature a number of studies have looked at how employees deal with holding organizational, professional and/or personal identities by creating a compound or focusing on the overlap of the identities (e.g., George & Chattopadhyay, 2005; Sundaramurthy & Kreiner, 2008; van Dick, Van Knippenberg, Kerschreiter, Hertel, & Wieseke, 2008). Similarly, research has looked at managing multiple identities by nesting one within a superordinate identity such as having a cultural identity nested within the national identity (Hopkins, 2011; Simon, Reichert, & Grabow, 2013; Simon & Ruhs, 2008), a discipline identity within the university identity (Hornsey & Hogg, 2002; Wenzel, Mummendey, & Waldzus, 2007), or a departmental identity within an organizational identity (e.g., Edwards & Peccei, 2010; Ishii, 2012; Reade, 2001).

The second approach to goal alignment is through finding commonality in the tasks connected to the conflicting goals. Kopetz, Faber, Fishbach, and Kruglanski (2011) found that goal conflict could be avoided through identifying a lower-order goal that satisfies all the activated higher-order goals. Nonetheless, they also found that this was moderated by the extent to which such commonality was feasible – if there were no tasks that were connected to the conflicting project goals then goal alignment was not possible.

Principle 2: Goal alignment occurs through merging or nesting goals, or identifying a lower-order goal that satisfies all activated goals.

When multiple conflicting goals are not aligned, one goal must be prioritized to resolve conflict around the allocation of resources. Most of the multiple goal literature in the I/O, OB and experimental social psychology disciplines focuses on *goal prioritization*, which refers to the act of directing resources to one of the activated goals and not to the others. Next we discuss four principles regarding factors that influence which goal is prioritized.

Principle 3: Prioritization – Goal-Based Informational Value

The OB and experimental social psychology disciplines argue that the connectionist pattern associated with a given goal provides informational value that influences goal prioritization (see also Forster, Liberman, & Friedman, 2007). *Goal-based informational value* refers to information regarding the degree to which the goal is valuable for, or helps to achieve, goals at other levels as indicated by the goal's pattern of connections. Although this literature is not explicit regarding the underlying mechanisms, the arguments proposed align with expectancy theories – namely, the greater the informational value of the goal, the more likely it is to be prioritized as it will have a greater subjective expected utility (Klein, 1989). Research has primarily considered the informational value indicated by the intersection between the task and project goal levels of the hierarchy. Interestingly, to our knowledge, no research has directly measured the informational value of goals, instead they measure indicators of value, namely multifinality, equifinality and self-concordance. A goal's *multifinality* (Kruglanski et al., 2013) refers to the number of higher-order goals it has facilitative connections with and can be considered colloquially as "bang for the buck". A goal's *equifinality* (Kruglanski, Pierro, & Sheveland, 2011; Winell, 1987), on the other hand, is the number of lower-order goals that a goal has facilitative connections with; in other words, the number of different ways there are for achieving a goal. The term *self-concordance* focuses on the task level (likely a function of the focus of research to date) and refers to the degree to which a particular task is more or less densely interconnected through facilitative connections with higher-order project goals, identities and values (Adriasola & Unsworth, 2011; Ford, 1992; Little, 1989; Sheldon & Kasser, 1995). Thus, high levels of multifinality, equifinality and self-concordance for a given goal are associated with higher informational value.

Multifinality and self-concordance therefore relate to "upward" connections. Theoretically, then, the more a task or project goal has upward facilitative connections, the more informational value it has because it helps to achieve more higher-order goals (Kruglanski et al., 2002). Consequently, multifinality and self-concordance should be positively associated with indicators of prioritization. Indeed, empirical research in experimental social psychology finds that tasks with higher multifinality are the ones which are chosen and pursued (Chun, Kruglanski, Sleeth-Keppler, & Friedman, 2011; Kruglanski et al., 2013; Kruglanski & Orehek, 2009) and empirical OB research shows that higher self-concordance is related to greater motivation and more effort allocation (Adriasola, Steele, Day, & Unsworth, 2011; Adriasola, Unsworth, & Day, 2012; Bono & Judge, 2003; Molina, Unsworth, Hodkiewicz, & Adriasola, 2013; Sheldon & Elliot, 1999).

Equifinality relates to "downward" connections. Based on the availability heuristic (Tversky & Kahneman, 1974),

theoretical and empirical research suggest that the more tasks that are attached to a goal, i.e., equifinality, the more likely an individual is to be committed to that goal (Kruglanski et al., 2011). It is worth noting, however, that recent studies suggest that the increased motivation produced by equifinality occurs only at the early stages of the goal attainment process (Huang & Zhang, 2013).

Principle 3: Goals with the greatest goal-based informational value, as reflected by multifinality, equifinality and self-concordance are more likely to be prioritized.

Principle 4: Prioritization - Goal-Based Affective Value

Another factor that can influence prioritization is the degree of positive affect associated with a goal (Custers, 2009). Following Zajonc (1980), we define goal-based affective value as the degree to which the goal is associated with positive feelings. In comparison to goal-based informational value which is a more rational construction of value ("what goal should I pursue?"), goal-based affective value is the emotional construction of value ("what goal do I want to pursue?").

When considering the role of affect in multiple goal pursuit, work has primarily been conducted within the experimental social psychology discipline and has focused on the task and project goal levels of the hierarchy. This work has shown that goals associated with positive affect are more likely to be prioritized because they represent a highly desired state (e.g., Custers & Aarts, 2007). This positive affective value may be created externally through the co-activation of positive affect with the goal (e.g., through the subliminal presentation of positive words before the goal presentation; Custers, 2009; Custers & Aarts, 2005). Alternatively, the affective value may come from connected goals. Similar to the process of cognitive activation described earlier, empirical research has shown that both positive and negative affect are transferred from the higher-level goal with which it was originally associated to lower-level goals through their connections (Fishbach, Shah, & Kruglanski, 2004). That is, a goal that has positive affect will transfer that affect to any other goals with a facilitative connection to it. For example, imagine a person who has a goal of "attending a conference." This goal has high positive affective value for him or her (i.e., they feel very positive about the anticipated experience) and can be achieved by working on a particular paper; therefore, the task of working on that paper is also imbued with high positive affective value and thus is more likely to be prioritized.

Principle 4: Goals associated with positive affective value are more likely to be prioritized.

Principle 5: Prioritization - Goal-Performance Discrepancies

Researchers within the I/O and social psychology disciplines have drawn on control theories to propose that goal-performance discrepancies (GPD; i.e., the discrepancy between the current and desired state) influence which goal is prioritized (e.g., Carver & Scheier, 1982; Klein, 1989). GPDs are proposed to represent an error signal that alerts the individual of the need to reduce the discrepancy. Thus, in general, the goal with the largest GPD is expected to be prioritized. This work has typically been conducted at the level of tasks and, in support of the arguments, studies have shown that GPDs are related to the amount of effort directed toward a task (Johnson,

Chang, & Long, 2006; Kernan & Lord, 1990).

It should be noted that some authors have questioned the centrality of GPD's role in self-regulation (e.g., Bandura, 2013; Bandura, & Locke, 2003; Locke, 1991). Specifically, these authors argue that the desire to reduce GPDs is unlikely to be adaptive, as individuals could abandon their goals to reduce GPDs. Rather, the authors argue that discrepancy *production* – in other words, setting new goals – is likely the key to successful behavior. However, using both computational models and empirical data collected from lab and field sources, it has been demonstrated that discrepancy *production* arises as a result of discrepancy *reduction* at higher levels of the goal hierarchy (e.g., Campion & Lord, 1982; Donovan & Williams, 2003; Scherbaum & Vancouver, 2010). Furthermore, goal abandonment has disadvantages that likely outweigh the benefit of eliminating its GPD, such as the creation of discrepancies at higher levels of the hierarchy (e.g., identities, values). Thus, we view discrepancy reduction as a fundamental driver of multiple-goal prioritization.

Principle 5: Goals with the largest GPDs are more likely to be prioritized.

Principle 6: Prioritization - Expectancy

Our final prioritization principle relates to expectancy. Expectancy is defined as the belief that effort will result in desired outcomes, such as a specific level of task performance (Vroom, 1964). Individuals use expectancy to prioritize multiple goals, often allocating resources towards goals with the highest expectancy (Van Eerde & Thierry, 1996). Yet, the relationship between expectancy and goal prioritization is likely more complex than a simple positive linear relationship (Vancouver, More, & Yoder, 2008). Rather, a variety of work has shown that the relationship between expectancy and goal prioritization is variable, such that positive and negative linear effects have been observed, as well as non-monotonic curvilinear effects. Much of this work and surrounding debate has been conducted with regard to self-efficacy (e.g., Bandura, 2012; Vancouver, More, & Yoder, 2008; Yeo & Neal, 2013), a form of expectancy described as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3).

For instance, in a study of dual-goal prioritization, Schmidt and Dolis (2009) showed that when participants thought they could accomplish *both* goals, time was allocated approximately equally between the goals. Yet, when participants did *not* think they could accomplish both goals, the goal with the higher expectancy was prioritized. In another multiple goal study, Louro, Pieters, & Zeelenberg (2007) showed expectancy for one goal had an inverse-U relationship with the effort allocated to that goal, such that moderate levels of expectancy resulted in the highest amount of effort, compared to very low (when there is little chance of success) and very high (when success is virtually assured) levels of expectancy. Similarly, Beck and Schmidt (2012) demonstrated a non-monotonic relationship between self-efficacy and resource allocation. Specifically, increases in self-efficacy were positively related to resource allocation for people starting from a generally low level of self-efficacy, yet people who are already very confident reduced their resource allocation as they become even more efficacious.

Principle 6: A goal's expectancy will affect its likelihood of prioritization depending upon the expectancy of other goals.

Principle 7: Goal Shielding

The final principle relates to the goal shielding consequences of goal prioritization. This research has primarily been conducted within the experimental social psychology discipline from a goal systems theoretical perspective. Goal shielding is the process whereby non-prioritized goals are inhibited (i.e., "shielded") as a consequence of prioritization. Further, just as the non-prioritized goals are forgotten, any lower-order goals that have connections to the non-prioritized higher-order goals are also thought to be forgotten (Shah, Friedman, & Kruglanski, 2002). This shielding is proposed to occur due to the inhibitory connections between them (Shah et al., 2002) and to the memory process of retrieval-based forgetting (McCullough, Aarts, Fujita, & Bargh, 2008).

Empirical research regarding goal shielding has primarily focused on the project goal level of the goal hierarchy and evidence supports the proposed arguments. For example, when individuals have an activated goal, they have been shown to report fewer distractions and less cognitive interference suggesting the shielding from other goals (Strickland & Galimba, 2001).

Principle 7: When one goal is prioritized, non-prioritized goals (and lower-level goals associated with the non-prioritized goals) are shielded.

Dynamics & Integration of Principles

In this section we review past work related to the integration of principles and the dynamic process of multiple goal pursuit. We have derived seven general multiple-goal principles from the literature. We presented them separately to highlight the core concepts that have arisen from theory; however, we are not arguing that they operate statically or in isolation of each other. Instead, consistent with the view that the multiple goal process is dynamic and governed by a complex set of interrelated factors (e.g., Sun & Frese, 2013; Vancouver et al., 2010), our review suggests that these general principles operate in concert with each other and that the factors incorporated in the principles change over time.

Unfortunately, there has been limited work to date around the integration of the principles. Given the complexity of the processes involved and the difficulties in collecting appropriate field data it is perhaps not surprising that little empirical work has examined the integration of the principles. Two notable exceptions are the works of Schmidt and Vancouver (see also Forster et al., 2007; Steel & Konig, 2006 for integration in single-goal contexts).

A number of studies by Schmidt and colleagues (Schmidt & DeShon, 2007; Schmidt & Dolis, 2009; Schmidt, Dolis, & Tolli, 2009) have looked at the interaction between GPD, expectancy and error sensitivity (i.e., the degree to which a person is sensitive to GPD – what we consider to be an alternative conceptualization of value because a goal that is highly valued will have higher error sensitivity than a goal that is not valued). Vancouver and colleagues (Ballard, Yeo, Loft, Vancouver, & Neal, 2014; Vancouver et al., 2010; Vancouver, Weinhardt, & Vigo, 2014) have developed computational models that integrate these same principles of GPD (called "valence"), expectancy and a broad conceptualisation of goal importance or value (called "gain") to provide a more precise explanation of the process by which multiple goals are prioritized. Furthermore, this work also examines the changing nature of the process by presenting a computational model that

specifies GPDs, expectancy, and value as dynamic variables (Vancouver et al., 2010). This model recognizes, for example, that decisions to act on a prioritized goal can change the GPDs of one or more goals, and these changes (weighted by the value of the goal), as well as the passage of time, can affect expectancies; further, the nature of these changes should influence subsequent prioritization decisions (e.g., Ballard et al., 2014; Fishbach, Friedman, & Kruglanski, 2003; Fishbach & Zhang, 2008). This model has been shown to account for existing empirical findings such as the effect of incentives on prioritization and the tendency to switch priority from the goal that has the least likelihood of attainment to the goal that has the greatest likelihood of attainment as a deadline approaches.

In addition to work from I/O psychology, experimental social psychology research has also examined the dynamics of multiple goal processing; it has been demonstrated that situational or non-conscious cues may activate higher-order goals (termed "bottom-up activation") provoking a reassessment of the perceived value of goals and subsequent resource allocation (e.g., Aarts & Dijksterhuis, 2000; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001; Lord & Brown, 2001). For example, if you decide to take the bus home but then see a sign on the bus about being healthy, that might activate your health project goal and prompt you to get off a stop or two early to walk the rest of the way.

Finally, both I/O psychology and experimental social psychology literature agree that, over time, momentary decisions are thought to collectively emerge as dynamic prioritization patterns (Ballard et al., 2014; Vancouver et al., 2014) and habits (Aarts & Dijksterhuis, 2000). Individuals may strive for multiple goals sequentially, alternate between the two, or emphasize one over the other, and these patterns can depend on environmental and individual difference variables (e.g., Fishbach & Zhang, 2008; Louro, Pieters, & Zeelenberg, 2007; Schmidt et al., 2009).

Discussion

We started our paper with the premise that the research on multiple goals was an exemplar "elephant problem" – that different literatures were covering different aspects of the phenomenon. Examination of Table 1 shows this to be the case. The principles can be likened to the body parts of the elephant and the disciplines are undergoing the investigation separately. Although multiple goal researchers individually may be aware of others' research, our review has attempted to address this problem more broadly by helping everyone to see all the parts of the elephant together. Our broad, principle-based approach allows a critique of multiple goal research within a common architecture. That is, consideration of multiple goal pursuit requires acknowledgement that goals exist in a hierarchical structure and are activated according to their pattern of connections; activated goals can either be aligned or prioritized; and prioritization is influenced by value (informational and affective), GPDs and expectancies and also has goal shielding consequences. As shown below, using this broad lens to consider what we know about multiple goal pursuit uncovers some jangle and jingle fallacies as well as research gaps that provide an opportunity for theory building.

The "Jangle" Fallacy and Its Implications

The "jangle" fallacy occurs when different names are used to describe the same phenomenon. Assessing current

understanding of multiple goal pursuit within the common architecture presented here highlights at least two examples of the jangle fallacy. First, we argue that the terms multifinality and incentives from the experimental social psychology and I/O psychology literatures respectively, are used to describe similar underlying processes. The I/O psychology literature has demonstrated that incentivized goals are more likely to be prioritized (e.g., Schmidt & DeShon, 2007). We propose that incentives are indicators of goal-based informational value, specifically, multifinality. An incentivized goal should enhance multifinality by creating a connection between that goal and a higher-order goal related to rewards. Monetary incentives are often used in this literature—we suggest that this reward creates a facilitative connection between the incentivized goal and the higher-order goal of financial gain. Furthermore, other research finds that self-set tasks produce more motivation than tasks which have monetary rewards (e.g., Erez, Gopher, & Arzi, 1990), and these findings can also be explained via multfinality—namely, self-set tasks are likely to be connected to other higher-order goals (e.g., achievement) beyond monetary incentives. Future research could employ a hierarchical approach to determine whether the influence of incentives on prioritization is indeed explained by the multifinality of incentivized goals.

Second, the integrative models described earlier by Schmidt and Vancouver incorporated a construct of value referring to the importance of the goal. We propose that Principles 3 and 4 (goal-based informational and affective value) are more specific conceptualizations of goal value achieved by creating a common architecture of a goal hierarchy. We therefore believe that this represents an example of the "jangle" fallacy and that informational and affective value are the source of the importance and value identified in Vancouver et al.'s (2010) conception of "gain" and Schmidt and DeShon's (2007) "error sensitivity."

This latter example also has wider implications. The I/O psychology literature predominantly draws on control theories to situate gain/error sensitivity as a moderator of the effect of GPD (e.g., Schmidt & DeShon, 2007; Vancouver et al., 2010) such that GPDs are weighted more strongly and their subsequent effect on prioritization is strengthened when the goal is of high value. On the other hand, research in OB and management has treated value constructs as direct causal predictors of goal prioritization (e.g., Bateman et al., 2002; Molina et al., 2013; Sosik et al., 2009). As the two concepts have been presented in different literatures under different labels, this inconsistency has not been identified in the past. We hope that our common architecture promotes researchers to examine whether goal-based informational and affective values operate as direct influences on prioritization or whether they moderate the effects of other factors such as GPD.

The "Jingle" Fallacy and Its Implications

The "jingle" fallacy occurs when the same term is used to define different concepts. In Principle 1, we proposed a set of definitions for the wide range of phenomena encountered within the field of multiple goals and we hope this will help to reduce the linguistic jingle fallacies. Nevertheless, jingle fallacies remain, one of which we describe here.

The phenomenon of connected goals exists in both the experimental social psychology and the OB literatures. However, the

research assumes different underlying mechanisms of the connectionist framework. The experimental social psychology literature draws on goal systems theory to posit that the downward connections from a given goal to multiple lower-order goals are equally weighted – for example, if there is one downward connection from a project goal of healthy teeth to the task of cleaning teeth, that connection would have a weighting of '1'; however if there was an additional downward connection, such as flossing, then these two connections would each have a weighting of '.50' (Kruglanski et al., 2002). Further, this literature argues that each goal has the same degree of "weight" to spread across its downward connections. For example, the weightings of downward connections from a second project goal of "keep fit" (e.g., do exercise and stretches) would also add up to 1 (.50 each). Empirical evidence in the OB literature, on the other hand, suggests that multiple connections with a common goal can be differentially weighted and that goals can have different amounts to spread across the lower-level goals. For example, Oishi et al. (1998) showed that there are different degrees of connectedness between certain values and certain identities; Sosik et al. (2009) also demonstrated different connection strengths between values and identities and between identities and behaviour; and Adriasola and colleagues have shown that employees are able to distinguish the strength of the connection between the lower-order goals and their associated higher-order goals which are then differentially related to lower-level behavior choice (Adriasola et al., 2011; Adriasola & Unsworth, 2011; Adriasola et al., 2012; Molina et al., 2013). Once again, prior to this review, these inconsistencies existed in different literatures and therefore went undiscovered. It could be that the different methodologies used by the different disciplines may account for the findings (experimental methods using students compared to self-report survey data using employees) or that a complex combination of the two perspectives can account for the different results. This is, yet again, another question which needs to be answered by future research.

Next Steps: Drawing the Elephant

By mapping out the principles that have emerged from different disciplines, we have highlighted a number of areas in the multiple goal space which need more research. To return to our metaphor, we have tried to draw a picture of the elephant using existing knowledge, but we have found that the picture is incomplete. There are two further interrelated areas where we see scope for future research. The first relates to addressing isolated research gaps; and the second relates to an integrative approach to research in this field.

Inspection of Table 1 indicates that existing theory and research has not been conducted across all combinations of principles and levels of the hierarchy. For example, we did not locate any research regarding multiple values. Research is required to determine how a person manages multiple values and whether the principles outlined in our review generalize to the values level of the hierarchy. Further, we proposed that goal alignment and goal prioritization are alternative strategies for dealing with conflicting goals. However, goal alignment research has primarily been conducted at the level of identities; whereas goal prioritization research has primarily been conducted at the lowest levels of the hierarchy. It is thus important to determine whether Principle 2 (goal alignment)

generalizes to lower levels of the hierarchy; and whether Principles 3-6 (prioritization) generalize to higher levels. For example, do GPDs influence prioritization of multiple identities and values? Perceptions of current and desired goal states may be less precise and more difficult to compare for these types of goals due to the higher levels of abstraction. Does this mean that GPDs will have a weaker influence on prioritization for identities and values, or possibly even be a meaningless construct in these contexts?

Another example relates to goal shielding research – this work has been carried out at the lowest two levels of the goal hierarchy and it seems sensible to assume that goal shielding also occurs at higher levels (e.g., when your work identity is activated then your home identity is shielded), but empirical evidence is lacking.

A critical challenge for future research is to conduct more integrative work that enhances understanding of how the principles operate together during multiple goal pursuit. We believe that the common architecture provided here—in the form of principles that relate to the basic framework of multiple goals, how goal conflict is managed via goal alignment or prioritization, and the goal shielding consequences of goal prioritization—should facilitate these efforts. For example, future work could clarify the relative weight of the various factors in predicting prioritization. Some researchers have argued that affective value is the most important factor for prioritization (Custers & Aarts, 2007), although others place GPD (Vancouver et al., 2010) or informational value (Unsworth, Adriasola, Johnston-Billings, Dmitrieva, & Hodkiewicz, 2011) as being most important. Further, future research should consider how these principles intersect – for example, what factors lead a person to align their goals rather than prioritizing them? Integrative work can also investigate whether the principles play out differently at different levels. For example, the amount of time remaining before the deadline has been shown to be crucial for the expectancy of lower-level goals (e.g., Vancouver et al., 2010)—presumably because time is a limited resource for tasks in this research; however, time to deadline may be less important for the expectancy of higher-level goals such as long-term projects or identities as deadlines are more vague at these levels. Finally, what are the implications for our understanding of multiple goal pursuit when goal prioritization is considered within a hierarchical, connectionist structure? Connections among goals may influence perceptions of GPDs and expectancy in addition to influencing informational and affective value.

Conclusion

In conclusion, this paper has turned a spotlight onto the "elephant" of multiple goals. There is a clear need to conduct more research into multiple goals both because of its prominent nature in employees' lives (we cannot keep ignoring the elephant in the room, so to speak) and because findings from single goal research may not apply directly. Our integrative review found that both the jingle and jangle fallacy exist in the multiple goal space. We incorporated research from different disciplines across different levels of goals (including tasks, project goals, identities and values) and derived seven general principles which we believe characterize the multiple goal space at a broad level. But the work is not yet complete. There are still many unanswered questions such as how we resolve inconsistences between different disciplines, whether the results at one level correspond with the findings from other levels, and

whether the factors operate in the same way across the different levels of abstraction. Importantly, much more research is required to understand how the principles operate together. We hope that this review acts both as a call to action and as a common architecture with which the field can compose an integrated theory. We are still left with many questions, but we hope that we have now begun to clarify what we know about the "elephant" and what we still need to discover.

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Table 1. Principles of Multiple Goal Pursuit

Principles	Focal level of hierarchy studied	Primary discipline/s	Example paper
1a. Goal structure	All	All	Cropanzano et al., 1993
1b. Goal activation	All	All	Kruglanski et al., 2002
2. Goal alignment	Project Goal; Identity	Social psychology; Management	Kreiner et al., 2006
3. Goal-based informational value	Task-Project Goal	Organizational behavior; Experimental social psychology	Sheldon & Houser-Marko, 2001
4. Goal-based affective value	Task-Project Goal	Experimental social psychology	Fishbach et al., 2004
5. Goal-performance discrepancies	Task	IO psychology	Schmidt & DeShon, 2007
6. Expectancy	Task; Project Goal	IO psychology; Organizational behavior	Louro et al., 2007
7. Goal shielding	Project Goal	Experimental social psychology	Shah et al., 2002