Seize the Day: Executive Thought Self-leadership and Heterogeneity Among Dynamic Managerial Capability Underpinning Cognitive Capabilities

Christopher B. Neck[1] & Christopher P. Neck[2]

[1] Department of Management, West Virginia University, Morgantown, USA

[2] Department of Management and Entrepreneurship, Arizona State University, Tempe, USA

Correspondence: Christopher B. Neck, Department of Management, West Virginia University, Morgantown, WV 26506, USA.

Received: May 25, 2022 Accepted: July 4, 2022 Online Published: October 3, 2022

doi:10.5430/jms.v13n2p12 URL: https://doi.org/10.5430/jms.v13n2p12

Abstract

Extant literature has established the importance of individual dynamic managerial capabilities to the enterprise level sensing, seizing, and reconfiguring capacities of an organization. Despite theorization that heterogeneity in executive thought processes and thinking disposition stands causal for the oft observed differences in managerial capability between executives, little is known about the individual level antecedents of this cognitive heterogeneity which ultimately influences the direction of the entire firm. In response to calls for future investigation into this critical gap, the present paper draws upon a micro-level theory heretofore underutilized in the strategic realm – self-leadership – to examine how executives' cognitive processes impact their entire firm. In pursuit of this goal, the cognitive-based thought self-leadership theory is utilized to more thoroughly explain the drivers of heterogeneity among the underlying cognitive capabilities of managers' crucial dynamic managerial capabilities. In this way, the present study theorizes how specific individual executive cognitive processes (thought self-leadership strategies – e.g., self-talk, mental imagery) can influence the firm-level strategic decisions of innovation and expansion and thus impact overall organizational performance, through the bolstering of individual cognitive capacities and resulting managerial capabilities.

Keywords: self-leadership, dynamic managerial capabilities, sensing, seizing, reconfiguring, performance

1. Introduction

Adner and Helfat (2003) poignantly posited that managers possess certain "dynamic managerial capabilities" which can be used to build, integrate, reconfigure, and competitively reposition organizational resources and capabilities (p. 1011). Teece (2007) explicated these capabilities, grouping their microfoundational elements to parallel the enterprise level sensing, seizing, and reconfiguring capacities. Of these three dynamic managerial capabilities, sensing – the ability to explore the firm's environment in order to identify opportunities – and seizing – the capture of opportunities and response to emerging threats – are of particular note. In an uncertain and complex competitive business environment, sensing represents the capacity to sense opportunities before they fully materialize (Denrell et al., 2003) and is a critical component of dynamic capabilities (Helfat &Peteraf, 2015). The sensing capability is often carried out through the behavior of environmental scanning, or the probing of the environment in order to recognize opportunities and anticipate competitive threats as they arise (Teece, 2007). Similarly, in a competitive setting, seizing represents the capability to actually take advantage of opportunities or respond to foreboding threats. This often behaviorally manifests in the ability of managers to make large and sometimes irreversible investments (Helfat & Peteraf, 2015) or to design an appropriate business model for a new venture (Teece, 2007). As such, the dynamic managerial capabilities of sensing and seizing represent two key abilities that executives must develop in order to strategically capitalize on new opportunities and ensure continued firm performance in dynamic environments.

Helfat & Peteraf (2015) build upon this managerial stream of research by identifying the cognitive underpinnings of Teece's identified dynamic managerial capabilities (2007). Theorizing on the drivers of the seizing managerial capability, the authors proposed two important underpinning cognitive capabilities: problem solving and reasoning. Drawing from the psychology literature, Gazzaniga et al. (2010) define problem solving as "finding a way around an

obstacle to reach a goal" (p. 342) and Colman (2006) holds reasoning to consist of the mental activities utilized to find solutions to problems through the application of formal rules of logic or other rational cognitive processes. Accordingly, decisions involving "seizing" will likely invoke strain on both problem solving and reasoning abilities as managers seek to logically guide their organizations through dynamic environments and exploit nascent opportunities through strategic investments and adapting business models. Helfat and Peteraf's cognitive capability study (2015) additionally starts an investigation into why certain executives are more effective than others in utilizing the seizing dynamic managerial capability, briefly identifying heterogeneity in thought process and thinking disposition as causal. However, in accordance with the authors' call for future research into the antecedents leading to the heterogeneity of underpinning cognitive capabilities and resulting dynamic managerial capabilities, this brief assessment of heterogeneity within the seizing managerial capability's underpinning cognitive competences does not fully uncover the important seizing antecedents.

The aforementioned authors continued this investigation into the cognitive underpinnings of dynamic managerial capabilities through theorizing on the drivers of the sensing capability. To this end, the authors identified two main sensing cognitive capabilities, perception and attention. Again building from a psychological foundation, perception is defined as the mental activities or processes "that organize information (in the sensory image) and interpret it as having been produced by properties of events in the external (three-dimensional) world" (Vandenbos, 2007, p. *P*). Similarly, attention is explained as "a state of focused awareness on a subset of available perceptual information" (Vandenbos, 2007, p. *A*). As such, "sensing" behavior at the executive level is marked by the intricacies in how executives attend to external information and the processes by which they use this information to construct useful and meaningful decisions within a particular environment (Posner & Petersen, 1990; Helfat & Peteraf, 2015). The differences involved in executive cognition leading to various proficiencies of sensing abilities will ultimately be of great consequence to the broader organization as these individual differences influence how accurately and effectively the firm can uncover new opportunities and discover pertinent threats. In this way, the sensing capability feeds into the seizing capability thus further evidencing the impact of individual underpinning sensing capability heterogeneity. Once again, Helfat and Peteraf's (2015) study on underlying cognitive capabilities prompts future research to further uncover the antecedents of this sensing cognitive capability heterogeneity.

This incomplete investigation into the cognitive underpinnings of dynamic managerial capabilities, especially in terms of the seizing and sensing capabilities, represents a crucial gap in current knowledge as executive decisions based on sensing and seizing behavior, such as those entailing resource commitment to investments and business model creation, have repercussions for long-term organizational performance (Ghemawat, 1991). Therefore, understanding why certain managers employ more proficient utilization of the underlying cognitive capabilities (problem solving, reasoning, perception, attention) of the seizing and sensing dynamic managerial capabilities is of the upmost importance for a vital reason. Simply put, heterogeneity in the cognitive capabilities fundamental to sensing and seizing will lead to heterogeneity in a firm's long term investment horizons and emerging business models, which will lead to marked performance differentials between organizations (Helfat & Peteraf, 2015). With this gap in mind, a key tool to further uncover the antecedents of cognitive capability heterogeneity lies within a heretofore unutilized theory in the field of strategic management, self-leadership.

More specifically, we will use the self-leadership theory (Manz, 1986) derived thought-self leadership framework (Neck & Manz, 1992) to better explain the existence of heterogeneity in the underlying cognitive capabilities of executives' seizing and sensing dynamic managerial capabilities. Self-leadership is defined as the process of influencing oneself to establish the self-direction and self-motivation needed to perform (Goldsby et al., 2021). The theory of self-leadership originated from the social learning literature (Bandura, 1977, 1986) and related work in self-control (Bandura, 1969; Cautela, 1969; Goldfried & Merbaum, 1973; Kanfer, 1970; Mahoney & Arnkoff, 1979; Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974). In the organizational literature, self-leadership has generally been examined through the related process of self-management. (Andrasik & Heimberg, 1982; Manz & Sims, 1980; Marx, 1982; Mills, 1983; Hackman, 1986). Thought-self leadership (TSL) specifically represents the cognitive component of the larger self-leadership theory, proposing that employees in organizations can influence or lead themselves through the utilization of specific cognitive strategies (Neck & Manz, 1992). Focusing on the cognitive side of self-leadership is especially salient, as past self-leadership studies have identified that cognitive self-leadership strategies have value "over and above" basic behavioral-focused self-leadership (Knotts et al., 2021, p. 5). For instance, two recent studies on sales performance found that TSL increases self-efficacy among salespeople, resulting in increased sales performance and evidence as to the role of TSL as a distal predictor of performance (Panagopoulos & Ogilvie, 2015; Singh et al. 2017).

Through using thought self-leadership to more thougourly explain the drivers of heterogeneity among the underlying cognitive capabilities of managers' crucial dynamic managerial capabilities, this study contributes to the strategic management, dynamic capability, and self-leadership literature by bringing an underutilized theory into the realm of strategic management. *First*, it applies the theory of self-leadership within the domain of strategic management, taking an initial important step to making self-leadership, a previously behavior locked theory, strategically salient. *Second*, it enhances strategic management and dynamic capability literature through clarifying the existing heterogeneity among the cognitive capabilities of essential dynamic managerial capabilities, answering a call to future research from past authors.

2. Theoretical Basis

2.1 Thought Self-Leadership

Thought self-leadership is based on the assumption that one's own cognition can be controlled by the individual (Neck & Manz, 1992). Flowing from this assumption, the theory holds that one's behavior can be purposefully influenced through the manipulation of individual cognitive processes. With this in mind, TSL theorizies that employees in organizations can influence and otherwise lead themselves through the use of specific cognitive strategies (Neck & Manz, 1996). As depicted in Figure 1, two salient of such TSL strategies involve mental imagery and self-leadership of individual self-dialogue (self-talk). Through the use of these constructive cognitive strategies (e.g., self-verbalization and mental imagery) an individual's thoughts can be modified, changed, and adapted to better achieve one's goals (e.g., desired performance).

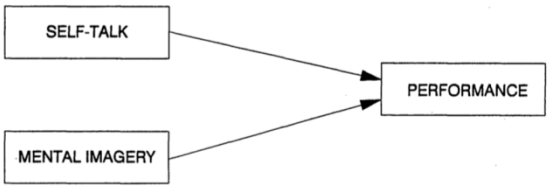

Figure 1. Simplified thought self-leadership model

Figure 1. Simplified Thought Self-Leadership Model (Neck & Manz, 1992, p. 684)

Mental imagery consists of creating a symbolic experience of the imagined results of our behavior before one actually performs (Neck & Manz, 2010) while self-talk is what one covertly tells themselves in their own mind (Ellis, 1962). Extant TSL research has suggested TSL training (i.e., usage of self-talk and mental imagery strategies) can increase mental performance, positive affect (enthusiasm), and job satisfaction, while decreasing negative affect (nervousness) in individuals, relative to non-trained persons (Neck & Manz, 1996). In terms of an organizational sense, this TSL training literature proposed that employees receiving the training experienced more optimistic perceptions of negative organizational factors, such as bankruptcy conditions, as well as enhanced feelings of self-efficacy.

The thought-self leadership theory breaks away from traditional reinforcement theories of leadership which view external environmental factors as chief molders (i.e., reinforcers) of behavior (Luthans & Kreitner, 1975; Sims, 1977). Rather, TSL draws from Bandura's social learning theory (1977, 1986) which explains behavior as the function a three-way interaction between the individual, the environment, and the behavior (Davis & Luthans, 1980). Thus, the social learning theory departs from the external focus of classical leadership theories in order to emphasize the role of the individual in directing their own actions. Saliently to thought self-leadership, this social learning theory provides the fundamental logic to this cognitive framework. That is, the individual's internal thoughts become paramount in shaping their behavior, according one agency in determining how an external event shapes their actions and resulting outcomes. In other words, one's behavior and resulting performance is not shaped from any outside factors when viewed with a TSL/social learning perspective, rather it is how one controls their own cognition in reaction to external pressures that determines one's actions and performance. As a result, based on a social learning theory logic, the purposeful control of one's cognition (thought self-leadership) becomes critical in shaping individual behavior and directly responsible for its resulting outcomes, such as performance.

Figure 2 proposes a conceptual model proposing the pathway through which an executive's use of thought-self leadership strategies (i.e., controlling their cognition to manipulate their behavior) will rise above the individual and

influence collective organizational outcomes. In other words, the sequence through which the thought self-leadership strategies of self-talk and mental imagery will move beyond an influence on individual executive behavior to shape overall firm performance.

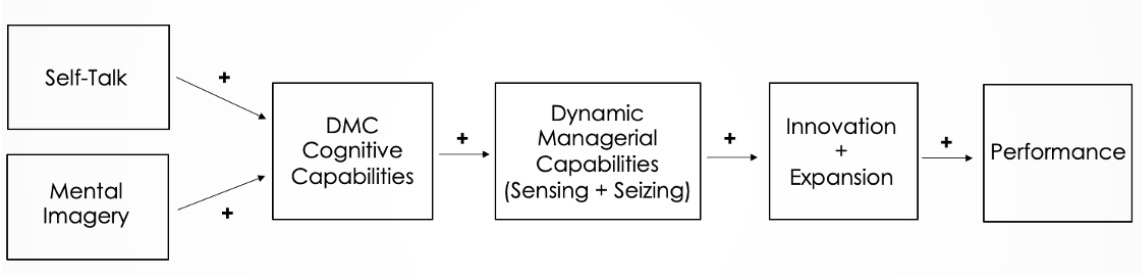

Figure 2. Conceptual Model

3. Proposition Development

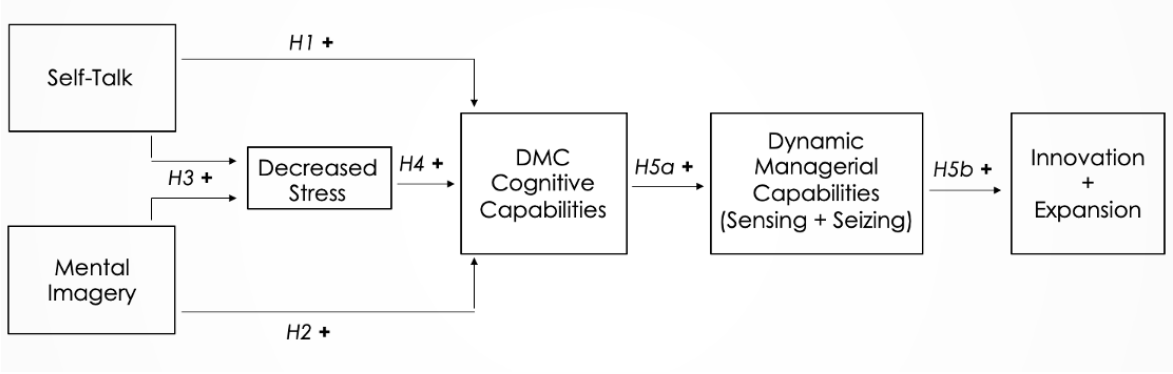

Figure 3. Proposed Empirical Model

Figure 3 above presents our proposed empirical model. With this model in mind, consider that in 396 BC, the great Greek philosopher Plato affirmed thinking through a self-talk lens, defining our cognition as "the conversation which the soul holds with herself in considering of anything. […] The soul when thinking appears to me to be just talking — asking questions of herself and answering them, affirming and denying" (Theaetetus 190a, translation by Jowett 1871, from Geurts, 2018, p. 272). In the following millennia, as the time of philosophers waned and the age of psychologists waxed, self-talk found a home in the field of psychology, more precisely being defined in a way reminiscent of Plato as "the inner voice…combining conscious thoughts and unconscious beliefs and biases, [to] provide a way for the brain to interpret and process daily experiences" (Psychology Today, 2021). Through research within the psychology literature, self-talk has been found to be associated with a litany of psychological functions, many of which are vital for managerial performance, including reasoning, problem solving, planning and plan execution, attention, and motivation (Geurts, 2018). In two related studies, researchers found that problem solving scenarios, such as taking exams, copying origami paper figures, and computer data-wrangling tasks directly elicited self-talk (Duncan & Cheyne, 2002; Duncan & Tarulli, 2009). In these studies, self-talk was found to be more frequently used in more difficult tasks and a comparatively greater use of self-talk resulted in comparatively greater performance. In support of these findings, Fernyhough and Fradley (2005) found that when children were given varyingly complex puzzles, higher levels of self-talk were positively related to task performance and that as the puzzles became more difficult, the children engaged in higher levels of self-talk (up until a certain threshold of difficulty which caused the children to quit entirely).

These self-regulatory and performance predictive characteristics of self-talk are especially salient for executives within the organization seeking to seize new opportunities and engage emerging threats. As identified by Teece (2007), the dynamic managerial capability of seizing often entails managers making strategic investments and designing new business models for nascent opportunities/ventures. Martian (2001) cautions that these strategic investments often require executives to exert both substantial monetary- and effort-based commitments under conditions of complexity and uncertainty. Similarly, Shepherd et al. (2021) proposes that the underlying mental operations of individual executives may affect opportunities for starting up a new venture through clouding identification of potential opportunities due to the complex nature of entrepreneurial action. As a result, these convoluted and often multifaceted actions involved in the seizing dynamic managerial capability will inevitably illicit self-talk among executives. This self-talk will allow decision makers to direct attentional focus, enhance confidence, regulate effort, control emotional and cognitive reactions, and facilitate more automatic execution of desired goals under the "seizing umbrella" of action (Theodorakis et al., 2008). Resultingly, executive performance within the seizing capability seems to be predicated on the usage of managerial self-talk at the individual level due to the high levels of complexity (Duncan & Tarulli, 2009) involved in the underlying cognitive capabilities of problem solving and reasoning ability, as identified by Helfat & Petaraf, 2015. Accordingly, we propose:

P1: Use of positive self-talk will increase executive performance within the dynamic managerial capability of sensing through its positive influence on the underlying managerial cognitive capabilities of problem solving and reasoning.

Once again drawing from the psychology literature, mental imagery is defined as "the phenomenon in which someone imagines an object or a visual scene in their 'mind's eye' in order to retrieve information from that mental image or to transform it so as to generate needed information" (Shepard & Cooper, 1986 from Yoon & Narayanan, 2004, p. 78). From a thought self-leadership perspective, Manz describes mental imagery as, "[a process by which] we can create and, in essence, symbolically experience imagined results of our behavior before we actually perform" (1992, p. 75). As such, the process of mental imagery allows an individual to create a simplified representation of the content of a cognitive task (Antonietti, 1991) in order to self-direct their actions to a desired outcome.

A multitude of psychological research has examined direct relationships between this mental imagery process and cognitive capabilities such as problem solving and reasoning. In Antonietti's (1991) investigation into mental images in human cognition, it was found that the anticipatory role of reasoning is instrumental to the solution of problems which require a final solution point be reached from a problematic starting state. Therefore, the simplified information one may derive from a cognitively created representation is fundamental to providing the logic and information necessary for cognitive reasoning. When a problem is encountered, mental images simulate the situation and the pathways to solution, providing strategies of reasoning which can lead to successful problem solving (Antonietti, 1991).

Drawing from educational psychology, Patricia (2004) similarly discovered that utilizing a mental imagery process allowed students to create a cognitive bridge between the abstract problem (mathematics) and their prior knowledge in order to create a path to a solution. In a managerial context, this mental imagery derived link between the abstract problem and a path to a concrete solution is practically important to the individual executive. In their review of the construct of uncertainty in an entrepreneurial setting Townsend et al. (2018) proposed that all new business ventures will operate under conditions of ambiguity, complexity, equivocality, and uncertainty. Therefore, executives practicing the dynamic managerial capability of seizing will encounter issues of an abstract, ambiguous, and highly complex nature as they seek to take advantage of new opportunities within their given business ecosystem. Resultingly, managers will benefit from cognitive strategies that allow the synthesis of intricate information surrounding ambiguous problems, such as mental imagery, while engaging in seizing related activities.

In the realm of physics, extant research analyzing the process of breakthrough discoveries such as Einstein's theory of relativity and Galileo's laws of motion has identified the vital role of visual/spatial image utilization in the discovery process (Miler, 1986; Nersessian, 1995; Shepard, 1996; Kozhevnikov et al., 2002). Kozhevinkov et al. built upon this stream of research, finding that mental imagery also plays an important role in physics students' problem solving success and overall ability to discover new knowledge (1999). Once more in a managerial context, this mental imagery driven ability to discover new avenues leading to potential problem solving is additionally salient in the context of the seizing dynamic managerial capability as executives seek to exploit organizational opportunities. As Martian (2001) explains, investment decision making is an individual decision-level rather than a firm-level construct, and often times multiple processes are used simultaneously in the same firm to make capital

investments. As such, the individual ability to uncover new knowledge to use in a problem solving capacity (investment decision) has great relevance in the seizing context.

The dynamic managerial capability of sensing, or the capacity to sense opportunities before they fully materialize (Denrell et al., 2003), is a key component of dynamic capabilities and entrepreneurial activity (Helfat & Peteraf, 2015). In respect to this sensing aptitude, executives must actively take in information from their external environment in order to both recognize opportunities and anticipate competitive threats (Kaplan et al., 2003; Peteraf & Bergen, 2003). The TSL strategy of mental imagery is additionally paramount in allowing greater information collection and synthesis from the larger business environment through its influence on the sensing underlying cognitive capabilities of perception and attention. Gazzaniga et al. (2010, p. 180) define the essence of perception as, "the construction of useful and meaningful information about a particular environment". To this end, perception involves multiple cognitive functions typically centered around pattern recognition and the interpretation of (often patterned) data (Helfat & Peteraf, 2015). Through the use of mental imagery, executives are afforded a "top-down" style of data interpretation which allows them to better untangle complex information and identify broader patterns beyond a single data point/event (Libby & Eibach, 2011). Through this "top-down" interpretation, the executive is able to examine the imagined/mentally simulated scenario within the broader context of the factors surrounding the event. This allows the individual to derive meaning of the specific event based on its relation to external information, such as antecedents and outcomes. In other words, mental imagery allows one to interpret an event based on its place in the external environment, providing greater recognition and synthesis of relevant patterns, opportunities, and potential threats that arise as a result of or an antecedent to a given event. Through providing an enhanced ability to recognize budding patterns in an environment, mental imagery's influence on the cognitive capability of perception will increase proficiency in the overall dynamic managerial capability of sensing, as this pattern recognition lies at the heart of all sensing activities (Baron, 2006). Additionally, through allowing an executive to make decisions on a given event based on its broader contextual factors, the mental imagery cognitive strategy will allow a more robust interpretation of data with fewer omissions of pertinent information (Williams & Moulds, 2007; Holmes & Mathews, 2010). As a result, executives using mental imagery strategies will exhibit greater performance in sensing related behaviors, as this "correct" data interpretation is critical for both accurate opportunity recognition and creation (Helfat & Peteraf, 2015).

Furthermore, through this influence on pattern recognition, mental imagery allows the earlier recognition of environmental threats which allows for more effective responses, an additional key component to the sensing capability (Helfat & Peteraf, 2015). According to the APA dictionary of psychology, attention represents "a state of focused awareness on a subset of available perceptual information" (Vandenbos, 2007, p. *A*). As Kosslyn & Rosenberg (2006) confirm, attention is critical for perception as attention determines which stimuli are recognized and identified, through the act of focusing on particular information. Further, according to Helfat and Peteraf (2015), attention facilitates the key sensing behavior of environmental scanning, through this focusing on relevant external stimuli. Once again, mental imagery further enhances this attentional focus, as this cognitive technique can help to filter out unnecessary "noise" by allowing the individual to pre-filter out extraneous details in the simulation of an event (Fink, 1989). Therefore through the use of mental imagery, an individual may pre-focus their cognition, essentially priming their mind to pay attention to key information as the actual event occurs (Shepard & Cooper, 1986 from Yoon & Narayanan, 2004). As a result, mental imagery strategies may block the sensing mitigating "inattentional blindness" (Helfat & Peteraf, 2015, p. 839) that prevents executives from attending to an event that occurs during the performance of another task (i.e., sensing external information while directing internal strategic operations), by cognitively priming their minds to take in certain external stimuli. In sum, through the use of mental imagery, executives are afforded greater ability to both perceive and attend to relevant external information, opportunities, and threats, thus enhancing their dynamic sensing capabilities. Following from this, we propose:

P2: *Use of mental imagery will increase executive performance within the dynamic managerial capabilities of sensing and seizing through its positive influence on the underlying managerial cognitive capabilities of problem solving, reasoning, perception, and attention.*

Through a thought self-leadership lens, the two cognitive processes of self-talk and mental imagery place particular emphasis on an individual's ability to develop and maintain constructive thought patterns (Goldsby et al., 2020). When an individual fails to utilize positive self-talk and effective mental imagery, they are at risk of developing dysfunctional thinking patterns. These engrained mindsets/developed thinking patterns influence many aspects of our cognition, including the way we process information, how we perceive this information, and the choices we make with this information in a nearly automatic way (Neck & Barnard, 1996).

When an individual fails to develop positive self-talk and effectual mental imagery processes, they are at risk of developing many harmful cognitions, including negative affect (nervousness/anxiety) and maladaptive stress coping (Neck & Manz, 1992; Thompson et al., 2010; Houghton et al., 2012; Maykrantz & Houghton, 2020). Alternatively, extant research has also proposed many vital benefits associated with developing functional thinking patterns through the use of positive self-talk and effective mental imagery. For instance, positive self-talk has been found to decrease perceived stress level and the absence of negative self-talk has been found to be related to a lack of increased perceived stress and lower cortisol (stress causing chemical in the brain) production (Chen, 2012). Resultingly, positive self-talk both decreases cognitive anxiety across the board and enhances self-confidence due to the ensuing absence of negative cognitive factors such as perceived anxiety and cortisol production (Hatzigeorgiadis et al., 2009).

Linked to this stress reducing factor, scholars have also connected self-talk to performance, explaining that constructive self-talk is positively related to effective leadership of others and increased creativity/originality in leadership activities such as problem solving (Rogelberg et al., 2013). Additionally, prior literature has proposed many benefits of mental imagery on positive cognition and stress/anxiety mitigation. For instance, clinical psychology research has suggested that promoting stronger deliberate positive imagery may decrease feelings of anxiety/depression especially in those with anxiety and depressive disorders (Morina et al., 2011). Additionally, Bigham et al. (2014) found that a guided imagery exercise (essentially training individuals to utilize effective mental imagery processes) decreased perceived cognitive and emotional stress which led to more coherent cognition. As a result, we predict:

P3: Positive self-talk and effective mental imagery utilization will decrease stress within relevant executives in the dynamic managerial capability context.

This relationship between the TSL derived strategies of self-talk and mental imagery with stress/anxiety is of great consequence within the context of executives and the underpinning cognitive capabilities of managerial dynamic capabilities. For instance, in Caplan's (1994) examination of stress, anxiety, and depression among healthcare managers, nearly 60% of the studied executives reported experiencing high levels of stress and anxiety while Bernin's (2002) study of managerial stress and health found that managers reported higher psychological demands and intellectual discretion than other professional groups, leading to high levels of stress and harmful health consequences. This managerial stress is especially concerning in the context of the sensing and seizing dynamic managerial capabilities as past research has indicated that entrepreneurial focused managers/entrepreneurs experience greater stress than typical employees (Cardon & Patel, 2015).

Resultingly, considering the entrepreneurial nature of the sensing and seizing executive working in a dynamic environment to capture new opportunities and respond to ever changing threats (Teece, 2007), a failure to practice proper self-talk and mental imagery may be especially consequential to managers within this context. Further, in their 2016 investigation of job anxiety and executive decision making, Mannor et al. uncovered the troubling prospect that anxiety causes executives to pursue lower-risk firm strategies overall. This stress induced risk-aversion is catastrophic to effective seizing capabilities, as executives must make many high-risk decisions to best increase firm performance as a result of these actions such as committing to large and sometimes irreversible (i.e., risky) investments (Helfat & Peteraf, 2015) or designing a novel business model for new, unpredictable ventures (Teece, 2007). Likewise, Rosin and Nelson's (1983) study on stress and problem solving found that subjects with increased anxiety performed poorer on problem puzzles. Paralleling this logic, it would seem that stress' problematic combination of mitigating both risk-tolerance and problem-solving ability means that the presence of stress greatly negates both the problem solving and reasoning underlying capabilities of seizing.

Furthermore, LeBlanc's (2009) review of stress/performance literature within the medical field found the existence of a strong relation between anxiety and decreased performance, discovering that increased levels of stress attenuate performance on tasks that require divided attention, working memory, retrieval of information from memory, and decision making. As such, stress is likely to play havoc on the underpinning cognitive capabilities of sensing. More specifically, stress will attenuate perceptual ability through preventing the clear interpretation of data to untangle hidden patterns, as these "perception tasks" often require the divided attention that stress prohibits (Helfat & Peteraf, 2015). Moreover, in a review for the United States Military Defense Technical Information Center (2005), Kavanagh discovered that stressors negatively affect performance on complex tasks due to their attention soaking nature. In other words, stress takes attention away from the task at hand, causing focus to be on the anxiety the scenario is creating rather than the scenario itself. As a result, in an executive context, stress will bring attention and focus away

from external stimuli relevant to environmental scanning and thus diminish overall sensing behavior. As such, we posit:

P4. A decrease in stress enhances the underlying dynamic managerial cognitive capabilities of problem solving, reasoning, perception, and attention.

As detailed throughout this paper, the TSL strategies of self-talk and mental imagery have a profound effect on dynamic managerial capabilities through an influence on their underpinning cognitive abilities. Notably, the self-talk strategy allows decision makers to direct attentional focus, enhance confidence, regulate effort, control emotional and cognitive reactions, and facilitate more automatic execution of desired goals (Theodorakis et al., 2008) which enhances the problem solving and reasoning ability of executives. As a result of more effective problem solving and reasoning, executives will be more confident in their decision making and thus better perform the often high-risk behavior (Mannor et al, 2016) demanded from proper seizing activities, such as investing large amounts of resources into new ventures (Teece, 2007).

Of further note, the mental imagery strategy enhances executives' ability to recognize budding patterns in an environment and provides a method by which individuals can focus their attention on key stimuli, thus facilitating their environmental scanning ability (Helfat & Peteraf, 2015). This occurs as the mental imagery strategy manipulates the amount and type of information available to make decisions off of as well as influences how one perceives this information (Williams & Moulds, 2007; Holmes & Mathews, 2010). As a result, mental imagery will facilitate perception and attention capabilities, allowing the executive to better perceive emerging opportunities and nascent threats and thus enhance the overall sensing dynamic managerial capability.

This influence of confidence, problem solving, reasoning, and information search and synthesis relates to the core of the self-leadership theory. Specifically, self-leadership, and especially TSL, seeks to examine how various factors such as these can be controlled and directed to achieve a desired outcome. Following this logic, extant research has suggested a relationship between individual self-leadership and subsequent levels of individual independence and creativity (Houghton & Yoho, 2005; DiLiello & Houghton, 2006). Paralleling this at the macro level, my comprehensive model suggests that self-leadership (self-talk and mental imagery TSL strategies) leads to greater organizational innovation via the dynamic capabilities of sensing and seizing. The significance of this self-leadership link to overall organizational innovation is emphasized by Banerjee (2021) which states, "in the knowledge economy, innovation capability plays the central role to create the (VRIO) resources required for the competitive advantage (of firms), self-leadership of strategic leaders is positively related to innovation performance of the firm" (p. 2-3).

This effect on overall innovation/expansion activities occurs directly out of the TSL strategies' influence on the cognitive underpinnings of dynamic managerial capabilities. Through enhancing the individual executive's cognitive capabilities allowing greater perception of outside information, attention to pertinent details, and more effective problem solving and reasoning ability, mental imagery and self-talk directly influence the firm's innovation related activities. This occurs as the enhancement of each of these cognitive capabilities augments the efficacy of executives' dynamic managerial capability related behavior (Helfat & Peteraf, 2015). As a result, the executive will carry out more effective sensing and seizing activities, which will result in organizational behavior such as making new investments to develop internal capabilities (Maritan, 2001) and modify the firm's existing resource base (Wilden et al., 2009), investing in external opportunities such as infant technology (Teece, 2017), or committing resources to new business ventures (Teece, 2007). Through this eventual effect on organizational behavior driven by dynamic managerial capabilities and born out of influence on individual managerial cognitive capabilities, the thought-self leadership strategies of self-talk and mental imagery rise beyond the individual to affect broader organizational outcomes. Following, we propose:

P5a: The thought self-leadership driven increase in dynamic managerial underlying cognitive capabilities will lead to enhanced utilization of the dynamic managerial capabilities of sensing and seizing among TSL using executives.

P5b: Enhanced utilization of the dynamic managerial capabilities of sensing and seizing will lead to greater organizational innovation and expansion activities.

4. Conclusion

Through using thought self-leadership to more thoroughly explain the drivers of heterogeneity among the underlying cognitive capabilities of managers' crucial dynamic managerial capabilities, this study contributes to the strategic management, dynamic capability, and self-leadership literature by bringing an underutilized theory into the realm of strategic management. By providing a clear model linking the self-leadership strategies of self-talk and mental imagery

to the overall organizational outcomes of innovation and expansion behavior, this study takes an important step to making self-leadership strategic. Additionally, through answering a call to future research from Helfat & Peteraf (2015) through this thorough examination of the heterogeneity of underlying cognitive capabilities, this article provides a greater understanding of dynamic managerial capabilities and their influence on the organization. In doing so, the paper contributes to strategic management and dynamic capability literature while also providing a microfoundational investigation into individual executive cognition.

References

Adner, R., & Helfat, C. E. (2003). Corporate effects and dynamic managerial capabilities. *Strategic Management Journal, 24*(10), 1011-1025. https://doi.org/10.1002/smj.331

Andrasik, F., & Heimberg, J. S. (1982). Self-management procedures. In L. W. Frederikson (Ed.), *Handbook of organizational behavior management* (pp. 219-147). Wiley.

Antonietti, A. (1991). Why does mental visualization facilitate problem-solving?. In R. H. Logie, & M. Denis (Eds.), *Mental images in human cognition* (pp. 211-227). Advances in Psychology. https://doi.org/10.1016/S0166-4115(08)60515-4

Bandura, A. (1969). *Principles of behavior modification*. Holt, Rinehart, and Winston.

Bandura, A. (1977). *Social learning theory*. Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Banerjee, S. (2021). Self-leadership, entrepreneurial orientation, and innovation performance of firms. *International Journal of Entrepreneurship, 25*(2), 1-4.

Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identity. *Academy of Management Perspectives*, *20*(1), 104-119. https://doi.org/10.5465/amp.2006.19873412

Bernin, P. (2002). *Managers working conditions: Stress and health*. Institutionen för folkhälsovetenskap/Department of Public Health Sciences.

Bigham, E., McDannel, L., Luciano, I., & Salgado-Lopez, G. (2014). Effect of a brief guided imagery on stress. *Biofeedback, 42*(1), 28-35. https://doi.org/10.5298/1081-5937-42.1.07

Caplan, R. P. (1994). Stress, anxiety, and depression in hospital consultants, general practitioners, and senior health service managers. *BMJ, 309*(6964), 1261-1263. https://doi.org/10.1136/bmj.309.6964.1261

Cardon, M. S., & Patel, P. C. (2015). Is stress worth it? Stress-related health and wealth trade-offs for entrepreneurs. *Applied Psychology, 64*(2), 379-420. https://doi.org/10.1111/apps.12021

Cautela, J. R. (1969). Behavior therapy and self-control: Techniques and implications. In C. M. Franks (Ed.), *Behavior therapy: Appraisal and status* (pp. 323-340). McGraw-Hill.

Chen, W. J. (2012). *Immediate effects of positive self-talk on stress and speech performance* (Publication No. 4191) [Master's Thesis, San Jose State University]. SJSU Scholar Works.

Colman, A. M. (2006). *A dictionary of psychology* (2nd ed.). Oxford University Press.

Davis, T. R. V., & Luthans, F. (1980). A social learning approach to organizational behavior. *Academy of Management Review*, *5*(2), 281-290. https://doi.org/10.2307/257438

Denrell, J. (2003). Vicarious learning, undersampling of failure, and the myths of management. *Organization Science, 14*(3), 227-243. https://doi.org/10.1287/orsc.14.2.227.15164

DiLiello, T. C., & Houghton, J. D. (2006). Maximizing organizational leadership capacity for the future: Toward a model of self-leadership, innovation and creativity. *Journal of Managerial Psychology, 21*(4), 319-337. https://doi.org/10.1108/02683940610663114

Duncan, R. M., & Cheyne, J. A. (2002). Private speech in young adults: Task difficulty, self-regulation, and psychological predication. *Cognitive Development*, *16*(4), 889-906. https://doi.org/10.1016/S0885-2014(01)00069-7

Duncan, R. M., & Tarulli, D. (2009). On the persistence of private speech: Empirical and theoretical considerations. In A. Winsler, C. Fernyhough, & I. Montero (Eds.), *Private speech, executive functioning, and the development of verbal self-regulation* (pp. 176-187). Cambridge University Press. https://doi.org/10.1017/CBO9780511581533.015

Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York.

Fernyhough, C., & Fradley, E. (2005). Private speech on an executive task: Relations with task difficulty and task performance. *Cognitive Development, 20*(1), 103-120. https://doi.org/10.1016/j.cogdev.2004.11.002

Finke, R. A. (1989). *Principles of mental imagery*. The MIT Press.

Gazzaniga, M. S., Heatherton, T. F., & Halpern, D. F. (2010). *Psychological science*. WW Norton.

Gerrig, R. J., & Zimbardo, P. G. (2002). *American Psychological Association: Glossary of psychological terms*. Pearson Education.

Geurts, B. (2018). Making sense of self talk. *Review of Philosophy and Psychology, 9*(2), 271-285. https://doi.org/10.1007/s13164-017-0375-y

Ghemawat, P. (1991). *Commitment: The dynamic of strategy*. The Free Press.

Goldfried, M. R., & Merbaum, M. (Eds.). (1973). *Behavior change through self-control*. Holt, Rinehart, and Winston.

Goldsby, E. A., Goldsby, M. G., Neck, C. P., & Neck, C. B. (2020). Self-leadership in a hospital setting: A framework for addressing the demands of nurse managers. *Journal of Leadership and Management*, *1*(16).

Goldsby, M. G., Goldsby, E. A., Neck, C. B., Neck, C. P., & Mathews, R. (2021). Self-leadership: A four decade review of the literature and trainings. *Administrative Sciences, 11*(1), 1-25. https://doi.org/10.3390/admsci11010025

Hackman, J. R. (1986). The psychology of self-management in organizations. In M. S. Pollack, & R. Perlfof (Eds.), *Psychology and work: Productivity change and employment* (pp. 85-136). American Psychological Association.

Harari, M. B., Williams, E. A., Castro, S. L., & Brant, K. K. (2021). Self-leadership: A meta-analysis of over two decades of research. *Journal of Occupational and Organizational Psychology, 94*(4), 890-923. https://doi.org/10.1111/joop.12365

Hatzigeorgiadis, A., Zourbanos, N., Mpoumpaki, S., & Theodorakis, Y. (2009). Mechanisms underlying the self-talk–performance relationship: The effects of motivational self-talk on self-confidence and anxiety. *Psychology of Sport and Exercise, 10*(1), 186-192. https://doi.org/10.1016/j.psychsport.2008.07.009

Helfat, C. E., & Peteraf, M. A. (2015). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal, 36*(6), 831-850. https://doi.org/10.1002/smj.2247

Holmes, E. A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical Psychology Review, 30*(3), 349-362. https://doi.org/10.1016/j.cpr.2010.01.001

Houghton, J. D., & Neck, C. P. (2002). The revised self−leadership questionnaire: Testing a hierarchical factor structure for self−leadership. *Journal of Managerial Psychology*, *17*(8), 672-691. https://doi.org/10.1108/02683940210450484

Houghton, J. D., & Yoho, S. K. (2005). Toward a contingency model of leadership and psychological empowerment: When should self-leadership be encouraged?. *Journal of Leadership & Organizational Studies, 11*(4), 65-83. https://doi.org/10.1177/107179190501100406

Houghton, J. D., Wu, J., Godwin, J. L., Neck, C. P., & Manz, C. C. (2012). Effective stress management: A model of emotional intelligence, self-leadership, and student stress coping. *Journal of Management Education*, *36*(2), 220-238. https://doi.org/10.1177/1052562911430205

Jowett, B. (1871). *Dialogues of Plato, translated into English with analyses and introduction*. Cambridge University Press.

Kanfer, F. H. (1970). Self-regulation: Research, issues and speculations. In C. Neuringer, & J. L. Michael (Eds.), *Behavior modification in clinical psychology* (pp. 178-220). Appleton-Century-Crofts.

Kaplan, R. E., & Kaiser, R. B. (2003). Rethinking a classic distinction in leadership: Implications for the assessment and development of executives. *Consulting Psychology Journal: Practice and Research*, *55*(1), 15-25. https://doi.org/10.1037/1061-4087.55.1.15

Kavanagh, J. (2005). *Stress and performance: A review of the literature and its applicability to the military*. RAND Corporation.

Knotts, K. G., & Houghton, J. D. (2021). You can't make me! The role of self-leadership inenhancing organizational commitment and work engagement. *Leadership & Organization Development Journal, 42*(5), 748-762. https://doi.org/10.1108/LODJ-10-2020-0436

Kosslyn, S. M., & Rosenberg, R. S. (2006). *Psychology in context*. Allyn & Bacon.

Kozhevnikov, M., Hegarty, M., & Mayer, R. (1999). *Students' use of imagery in solving qualitative problems in kinematics.* U.S. Department of Education. https://doi.org/10.1007/978-1-4471-0109-3_9

Kozhevnikov, M., Hegarty, M., & Mayer, R. (2002). Spatial abilities in problem solving in kinematics. In *Diagrammatic representation and reasoning* (pp. 155-171). Springer.

Kross, E., Bruehlman-Senecal, E., Park, J., Burson, A., Dougherty, A., Shablack, H., … Ayduk, O. (2014). Self-talk as a regulatory mechanism: How you do it matters. *Journal of Personality and Social Psychology, 106*(2), 304-324. https://doi.org/10.1037/a0035173

LeBlanc, V. R. (2009). The effects of acute stress on performance: Implications for health professions education. *Academic Medicine, 84*(10), S25-S33. https://doi.org/10.1097/ACM.0b013e3181b37b8f

Libby, L. K., & Eibach, R. P. (2011). Visual perspective in mental imagery. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 44, pp. 185-245). Academic Press. https://doi.org/10.1016/B978-0-12-385522- 0.00004-4

Luthans, F., & Kreitner, R. (1975). *Organizational behavior modification*. Scott Foresman.

Mahoney, M. J., & Arnkoff, D. B. (1979). Self-management: Theory, research, and application. In J. P. Brady, & D. Pomerleau (Eds.), *Behavioral medicine: Theory and practice* (pp. 75-96). Williams and Williams.

Mahoney, M. J., & Thoresen, C. E. (Eds.) (1974). *Self-control: Power to the person*. Brooks/Cole.

Mannor, M. J., Wowak, A. J., Bartkus, V. O., & Gomez-Mejia, L. R. (2016). Heavy lies the crown? How job anxiety affects top executive decision making in gain and loss contexts. *Strategic Management Journal, 37*(9), 1968-1989. https://doi.org/10.1002/smj.2425

Manz, C. C. (1986). Self-leadership: Toward an expanded theory of self-influence processes in organizations. *Academy of Management Review, 11*(3), 585-600. https://doi.org/10.5465/amr.1986.4306232

Manz, C. C., & Sims Jr, H. P. (1980). Self-management as a substitute for leadership: A social learning theory perspective. *Academy of Management Review, 5*(3), 361-367. https://doi.org/10.2307/257111

Maritan, C. A. (2001). Capital investment as investing in organizational capabilities: An empirically grounded process model. *Academy of Management Journal, 44*(3), 513-531. https://doi.org/10.5465/3069367

Marx, R. D. (1982). Relapse prevention of managerial training: A model for maintenance of behavior change. *Academy of Management Review, 7*(3), 433-441. https://doi.org/10.2307/257336

Maykrantz, S. A., & Houghton, J. D. (2020). Self-leadership and stress among college students: Examining the moderating role of coping skills. *Journal of American College Health, 68*(1), 89-96. https://doi.org/10.1080/07448481.2018.1515759

Miler, A. I. (1986). *Imagery in Scientific Thought*. MIT Press.

Mills, P. K. (1983). Self-management: Its control and relationship to other organizational properties. *Academy of Management Review, 8*(3), 445-453. https://doi.org/10.5465/amr.1983.4284594

Morina, N., Deeprose, C., Pusowski, C., Schmid, M., & Holmes, E. A. (2011). Prospective mental imagery in patients with major depressive disorder or anxiety disorders. *Journal of Anxiety Disorders, 25*(8), 1032-1037. https://doi.org/10.1016/j.janxdis.2011.06.012

Neck, C. P., & Barnard, A. W. H. (1996). Managing your mind: What are you telling yourself. *Educational Leadership, 53*(6), 24-27.

Neck, C. P., & Houghton, J. D. (2006). Two decades of self-leadership theory and research: Past developments, present trends, and future possibilities. *Journal of Managerial Psychology, 21*(4), 270-295. https://doi.org/10.1108/02683940610663097

Neck, C. P., & Manz, C. C. (1992). Thought self-leadership: The impact of self-talk and mental imagery on performance, *Journal of Organizational Behavior, 13*(7), 681-699. https://doi.org/10.1002/job.4030130705

Neck, C. P., & Manz, C. C. (1996). Thought self−leadership: The impact of mental strategies training on employee cognition, behavior, and affect. *Journal of Organizational Behavior, 17*(5), 445-467. https://doi.org/10.1002/(SICI)1099-1379(199609)17:5<445::AID-JOB770>3.0.CO;2-N

Neck, C. P., & Manz, C. C. (2010). *Mastering self-leadership: Empowering yourself for personal excellence*. Pearson.

Nersessian, N. J. (1995). Should physicists preach what they practice?. *Science & Education, 4*(3), 203-226. https://doi.org/10.1007/BF00486621

Panagopoulos, N. G., & Ogilvie, J. (2015). Can salespeople lead themselves? Thought self-leadership strategies and their influence on sales performance. *Industrial Marketing Management, 47*, 190-203. https://doi.org/10.1016/j.indmarman.2015.02.043

Patricia, D. (2004). Use mental imagery across the curriculum. *Preventing School Failure, 49*(1), 36-39. https://doi.org/10.3200/PSFL.49.1.36

Peteraf, M. A., & Bergen, M. E. (2003). Scanning dynamic competitive landscapes: A market-based and resource-based framework. *Strategic Management Journal, 24*(10), 1027-1041. https://doi.org/10.1002/smj.325

Posner, M. I., & Petersen, S. E. (1990). The attention system of the human brain. *Annual Review of Neuroscience, 13*(1), 25-42. https://doi.org/10.1146/annurev.ne.13.030190.000325

Psychology Today. (2021). Self-talk. *Psychology Today.* Retrieved from https://www.psychologytoday.com/us/basics/self-talk

Quinteiro, P. M., Passos, A., & Curral, L. (2016). Thought self-leadership and effectiveness in self-management teams. *Leadership, 12*(1), 110-126. https://doi.org/10.1177/1742715014543579

Rogelberg, S. G., Justice, L., Braddy, P. W., Paustian-Underdahl, S. C., Heggestad, E., Shanock, L., … Fleenor, J. W. (2013). The executive mind: leader self−talk, effectiveness and strain. *Journal of Managerial Psychology, 28*(2), 183-201. https://doi.org/10.1108/02683941311300702

Rosin, L., & Nelson III, W. M. (1983). The effects of rational and irrational self-verbalizations on performance efficiency and levels of anxiety. *Journal of Clinical Psychology, 39*(2), 208-213. https://doi.org/10.1002/1097-4679(198303)39:2<208::AID-JCLP2270390210>3.0.CO;2-S

Shepard, R. N. (1996). The science of imagery and the imagery of science. *Annual Meeting of the American Psychological Society*, San Francisco, CA.

Shepard, R. N., & Cooper, L. A. (1986). *Mental Images and their transformations*. The MIT Press.

Shepherd, D. A., Souitaris, V., & Gruber, M. (2021). Creating new ventures: A review and research agenda. *Journal of Management, 47*(1), 11-42. https://doi.org/10.1177/0149206319900537

Sims, Jr H. P. (1977). The leader as a manager of reinforcement contingencies: An empirical example and a model. In J. G. Hunt, & L. L. Larson (Eds.), *Leadership. The cutting edge* (pp. 121-137). Southern Illinois University Press.

Singh, R., Kumar, N., & Puri, S. (2017). Thought self-leadership strategies and sales performance: Integrating selling skills and adaptive selling behavior as missing links. *Journal of Business & Industrial Marketing, 32*(5), 352-363. https://doi.org/10.1108/JBIM-06-2016-0127

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319-1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2017). Dynamic capabilities and (digital) platform lifecycles. In *Entrepreneurship, innovation, and platforms.* Emerald Publishing Limited. https://doi.org/10.1108/S0742-332220170000037008

Theodorakis, Y., Hatzigeorgiadis, A., & Chroni, S. (2008). Self-talk: It works, but how? Development and preliminary validation of the functions of self-talk questionnaire. *Measurement in Physical Education & Exercise Science, 12*(1), 10-30. https://doi.org/10.1080/10913670701715158

Thompson, R. J., Mata, J., Jaeggi, S. M., Buschkuehl, M., Jonides, J., & Gotlib, I. H. (2010). Maladaptive coping, adaptive coping, and depressive symptoms: Variations across age and depressive state. *Behaviour Tesearch and Therapy, 48*(6), 459-466. https://doi.org/10.1016/j.brat.2010.01.007

Thoresen, C. E., & Mahoney, M. J. (1974). *Behavior self-control*. Holt, Rinehart, and Winston.

Townsend, D., Hunt, R., McMullen, J., & Sarasvathy, S. (2018). Uncertainty, knowledge problems, and entrepreneurial action. *Academy of Management Annals, 12*(2), 659-687. https://doi.org/10.5465/annals.2016.0109

Van Raalte, J. L., & Vincent, A. (2017). Self-talk in sport and performance. In O. Braddick (Ed.), *Oxford research encyclopedia of psychology*. American Psychological Association & Oxford University Press. https://doi.org/10.1093/acrefore/9780190236557.013.157

Vandenbos, G. R. (2007). *APA dictionary of psychology*. American Psychological Association.

Wilden, R., Gudergan, S., & Lings, I. (2009). The effects of sensing and seizing of market opportunities and reconfiguring activities on the organisational resource base. In *Proceedings from Australian and New Zealand Marketing Academy Conference 2009: Sustainable Management and Marketing*. Promaco Conventions Ptd Ltd.

Williams, A. D., & Moulds, M. L. (2007). Cognitive avoidance of intrusive memories: Recall vantage perspective and associations with depression. *Behaviour Research and Therapy, 45*(6), 1141-1153. https://doi.org/10.1016/j.brat.2006.09.005

Yoon, D., & Narayanan, N. H. (2004). Mental imagery in problem solving: An eye tracking study. In *Proceedings of the 2004 Symposium on Eye Tracking Research & Applications*. https://doi.org/10.1145/968363.968382