How Does Learning Agile Business Leadership Differ?

Exploring a Revised Model of the Construct of Learning Agility in Relation to Executive Performance

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Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
under the Executive Committee
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2015

ABSTRACT

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Learning agility is a recent topic that has garnered a lot of attention, but empirically remains only partially understood. This is of particular concern, given that it is likely becoming ever-more important in today's dynamic world. Learning agile leaders are able to draw from a variety of past circumstances to perform successfully in novel situations. They know what to do when they don't know what to do, and they understand that not taking risks is risky.

A revised theoretical model of the construct is presented in this body of work, with Model I and Model II theories-of-action supplanting "openness to experience" as a critical antecedent. Items related to defensive reactions as consequential outcomes were created and evaluated both in terms of their reliability and predictive criterion validity.

Using performance assessment grades previously shown to predict executive performance as a proxy criterion, a concurrent criterion validity study was conducted for both this newly proposed antecedent, and for the LAAI itself. Results indicated a moderately positive relationship for both measures and a suitable level of inter-factor and inter-item reliability, giving evidence to both the establishment of a revised theoretical model of learning agility which accounts for defensive reactions resulting from one's theory-of-action, as well as providing the field with another substantiation of the LAAI as a valid and reliable measure of the construct of learning agility.

Finally, a predictive criterion validity study of the revised learning agility model with the Model I v. Model II theory-of-action antecedent was conducted using the same executive performance assessment grades as the criterion proxy, and results indicated that this new model was indeed a better predictor of the criterion than the LAAI alone, providing further evidence of the role of defensive reactions in a revised learning agility theoretical model. Implications, including a broader interpretation of the value that learning agility may provide to solving the more profound problems faced by our world in the 21st century beyond executive performance, are discussed.

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ACKNOWLEDGEMENTS

I am profoundly grateful and incredibly inspired by the mentors, professors, colleagues, and friends that I have had the good fortune to have met during my time as a student. They have each, individually in their own way, undeniably enriched my experiences. A thank you to Dr. Burke, for bringing me in to your workgroup and for giving me the opportunity to join you in both studying and teaching the complexities of leadership. I had thought I knew exactly what that was when I first joined the program, and now, I realize just how much I don't know. That is exciting. I am also grateful that you gave me the opportunity to work with fellow veterans as a doctoral student in our community. It is a privilege to have been a part of it all.

Thank you Dr. Pasmore, for being an exemplar of the "scholar-practitioner" model. Though several remarkable differences between the cultures of the applied and academic domains may exist, you are truly one of the few who can speak both languages. I greatly admire your high level of professionalism and broad expertise.

Thank you Dr. Noumair, for inviting me to join with you in my first year as a doctoral student and for guiding me towards a conception of human dynamics that is tremendously more colorful, complex, nuanced, and interesting than I had ever imagined. Thank you Dr. Roberson, for showing me the highest standards of solid academic writing. I have highly valued your feedback and exceptional perspective. Thank you "Dr. K" for allowing me to witness your unwavering passion for social understanding and justice. Your optimistic belief in others is rarely matched.

I'd also like to thank Dr. Johnson for his unique ability to teach statistics to other social scientists in a way that seems completely relevant to each of our individual interests, Dr. Buontempo, for always being willing and genuinely excited to discuss a variety of topics with me on any given day, and Dr. Block, for not being overwhelmingly dismayed at my early attempts to discuss research methods. The most impressive thing is, I could go on thanking each faculty member of my community for the many unique ways in which they have influenced me. It goes without saying that I'm incredibly grateful to be in this situation.

The same could be said of my cohort and the fellow students I have had the privilege to study with these past several years. Rachel Fudman, Nick Redding, DeMarcus Pegues, thank you for being an integral part of my experience as a doctoral student in so many ways. Dr. Rob Morris, for having lunch with me during my first month in the program and for setting me off on a path to success in both this program as well as at this level of academia.

And, I'd like to thank Dr. Eric Landrum, for the tremendous mentorship he provided to me as an undergraduate student. He taught me the foundational basics of social psychology, statistics, research methods, graduate school preparation, academic publishing, and conference presentations. Thank you for not falsely presenting a rosy picture of the hard work that is required to enter into a graduate program. Thank you also for challenging me to explore at a crucial time in my development as a student.

Denise, I could not have done it without you.

CHAPTER I: INTRODUCTION

How Does Learning Agile Business Leadership Differ?

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Overview

> *"There are terrible people who, instead of solving a problem, bungle it up and make it harder to solve for anyone who wants to deal with it. Whoever does not know how to hit the nail on the head should be asked not to hit it at all"*
>
> *(Nietzsche, 1880, pg. 326).*

Heeding Nietzsche's cautionary instruction, the proposed set of studies share one common aim: to proffer a revised, clarified understanding of the construct of learning agility as it relates to the underlying behaviors of executive leaders, particularly of organizations undergoing tumultuous change. Many important questions remain unanswered and unexplored in this domain. Although many consultants and organizational practitioners often purport that highly learning agile executives do things differently, what complete body of scholarship is currently available to be referenced when this assertion is made specifically for leaders of enterprise? And if these types of leaders do things differently, then what is it exactly that they are doing? Are they indeed less defensive of opposing views and more open-minded when it comes to considering alternative strategies that they did not originally develop themselves?

History generally gives the anecdotal sense that successful leaders are not defensive, and in fact perhaps encourage constructive debate amongst their senior advisors. But how does this relate to learning agility, if at all? In fact, what conclusive evidence do we have that learning agility relates specifically to business leadership performance outside the controlled confines of the social scientists' lab? Final question: If this captivating construct can be fully understood in relation to executive performance, then what first steps can be made to develop these unique behaviors in future business leaders? The present body of work is aligned with each of these important inquiries, and seeks to provide enough evidence to at least partially answer many of these challenging questions that face this line of scholarship.

Learning Agility

Learning agility is a recent topic that has managed to garner interest at a faster pace than empirical substantiation from many leadership scholars and organizational psychology practitioners (De Meuse, Dai, & Hallenbeck, 2010; DeRue, Ashford, & Myers, 2012; Silzer & Church, 2009). While there are indeed many varying descriptions of the topic, learning agility has been most commonly defined by scholars as the "willingness and ability to learn from experience, and subsequently apply that learning to perform successfully under new or first-time conditions" (Lombardo & Eichinger, 2000, pg. 4).

Henceforth in this collection of studies, learning agility will be operationalized as such, given Lombardo & Eichinger's complete and substantiated definition. Although various practitioners have at times been quite tangential in their interpretation of learning agility for various commercial pursuits, this widely accepted definition among organizational researchers and academic scholars also lends itself well to specific theoretical underpinnings and, therefore, to rigorous standards of empirical evaluation.

Contextual Factors Affecting Learning Agility

Referred to by Delaney (2013) as “the most in-demand” 21st century business skill and “The Big Idea of 2014” by Citrin (2013), learning agility is very likely becoming ever more important as globalization and technology continue to grow in an increasingly changing, dynamic world. Workforces continue to become more interconnected, or at least need to be, requiring managers to occupy many more cross-functional roles, unlike even a decade ago when most simply supervised a specific area of expertise. The era of departmental organizational silos, 30-year careers with a single employer, and familiar routines on the job is now headed for the history books, perhaps never to be seen again.

Like it or not, a more globally connected and technologically advanced world, despite the many well documented advantages, places unprecedented and unique demands on a variety of organizations and requires much different abilities and preferences from workers of all hierarchical levels. To succeed in this new world, most employees must be able to take on new, unfamiliar challenges that may make them quite uncomfortable at times. To put it in a more pithy way, not taking a risk, for them, will be more risky. They must know how to negotiate appropriate interactions with differing cultures and societal norms, and at the same time, avoid being overly defensive and closed-minded about the unfamiliar or the disconfirming. The most talented of this cadre will be able to quickly adopt a growth-oriented mindset, conducive to self-development and learning in a more agile posture across these varying amorphic domains. Such an approach will enable them to effectively apply their past learning to future behavior and decision making.

A Focused Conception of Learning Agility

Quite plainly, there are myriad contexts in which these essential new skills are required for success. Competitive sport, academia, and relationship building all come to mind. But largely, especially among organizational scholars, this growing interest in understanding learning agility more thoroughly is fueled by the conception that successful leaders tend to learn from experience much faster than unsuccessful leaders, and that they are more agile when adapting to novel, rapidly-changing circumstances (De Meuse et al.; McCall, 2010; McCauley, Ruderman, Ohlott, & Morrow, 1994; Spreitzer, McCall, & Mahoney, 1997). Learning agile leaders know what to do when they don't know what to do. This means they seek out answers by asking the right questions, they take calculated professional risks, they attempt to be open to considering alternative suggestions and opposing views from others, and they are not paralyzed by the ever-present fear of change and the unknown (Delaney, 2013). These attributes, in so many words, are the hallmarks of learning agility.

It is perhaps a concept that immediately engenders a sense of familiarity among nearly everyone who is presented with the idea, especially for those with past managerial experience. But there is even greater cause for this current state of frenzied interest beyond the idea that people tend to "just know it when they see it." Further adding to its appeal, learning agility may be one of the answers to the longstanding problem of why so many leaders fail after being selected for top executive positions (Hogan, Curphy, & Hogan, 1994).

This is a major problem faced by organizations and a significant discomfiture for organizational psychologists and consultants who work for them, considering that the failure rate for top leaders ranges from 30% to 67%, with the average probability of failure being that of a mere coin flip (Hogan, Hogan, & Kaiser, 2009; Murphy, 2012). Furthermore, with the average cost of a mis-hire being estimated at nearly six times the base salary for a sales representative, fifteen times the base salary for a mid-level manager, and twenty-seven times the base salary for a top executive such as the CEO, there is clearly a pressing, bottom-line incentive to quickly figure out a lasting solution to this exigent and absurdly expensive problem (Smart, 2005).

Fortunately, a greater understanding of learning agility could conceivably be a key remedy, especially if employed at the right time with appropriate means. In giving due consideration to the extent of a prospective executive's learning orientation and capacity to be learning agile before they are selected or developed for a top leadership position, these costly hiring and promotion mistakes could perhaps be dramatically mitigated. Although there exists a general consensus from senior executives that leadership skills matter (Day & Lord, 1988), most executive candidates are typically selected merely because of their immediate technical skills gained from prior work, or for political reasons, with little consideration given to other important factors that may cause individuals to derail in most high pressure leadership positions, such as arrogance or abrasiveness (Burke, 2011; Burke & Noumair, 2002; Burke & Trahant, 2000; Hogan, Curphy, & Hogan, 1994; Van Velsor & Leslie, 1995).

Complex, rapidly changing tasks and the high stakes situations often faced by executives in dynamic leadership roles require much more than just technical skills and immediately available talent. Beyond being able to simply deliver bottom line performance, perhaps, these top leadership positions require such personal characteristics as being flexible in one's perspectives and schemata. They demand an orientation focused heavily on personal growth and development. They necessitate innovative thinking and calculated risk-taking, and they require that the leader actively, and even routinely, seek out new information from others even when it does not immediately align with their pre-held beliefs, personal preferences, or strongly adopted opinions (Kaiser & Craig, 2004; Spreitzer, McCall, & Mahoney, 1997).

These positions also require that a leader have the ability to draw from a broad and diverse assortment of past personal and professional challenges (McCall, Lombardo, & Morrison, 1998; McCauley et al., 1994), and be the type of individual who learns more than most from their miscellaneous past circumstances (Howard & Bray, 1988; McCall & Lombardo, 1983; Morrison & Branter, 1992). In other words, these top leadership roles require a quality that most scholars and practitioners have recently come to refer to as … learning agility.

CHAPTER II: A REVIEW OF THE EXISTING LITERATURE

Antecedents of Interest

The collective scholarship has only just begun to provide a solid foundation in this burgeoning area of academic inquiry, and many important pieces of the learning agility puzzle remain unplaced (DeRue et al., 2012). Critical antecedents, such as a leader's personal penchant for continuous developmental learning, the extent of one's open-mindedness, and the propensity to de-rail as a result of being defensive or hostile to opposing views show promise but have yet to be firmly established beyond speculation and anecdotal evidence. More specifically, the role of defensiveness as a key learning agility "de-railer" has not yet been fully understood or even empirically established, despite recent efforts, as Mitchinson et al. (2012) have perspicaciously noted.

The function of "de-railment" as it has been suggested deserves at least a partial review. The notion that a highly learning agile leader can de-rail as a result of defensiveness or closed-mindedness implies that defensiveness and learning agility may not be mutually exclusive; that is, one can be both highly learning agile and have tendencies or preferences toward closed-mindedness and defensiveness, which would in turn cause them to de-rail. This notion has not been fully tested, though it is well within the purview of this present study and will be explored to some degree later on.

Finally, evidence of predictive validity for a recently developed behaviorally-based, valid and reliable assessment of learning agility has not yet been found. The main theme of this present body of work is comprised of these constituent domains of inquiry, and on all of these imperative fronts it is the intention of this body of work to fill in some of the (currently) pronounced gaps in the learning agility literature.

Approaches to an Improved Conceptualization of Openness to Experience

To be clear, at this present time the conceptualization of the role of "openness to experience" and indeed, of the entire learning agility construct, is considered by many to be somewhat limited and all too rudimentary. Most troubling, it is more commonly considered as a marketable product sold by (all too often) cavalier consultants, willing to boldly purport and sell a solid and reliable claim to a full understanding of the behavioral dynamics of learning agile professionals. We remain somewhat less expeditious in our work, given all the myriad complexities that continue to remain unknown and unsubstantiated by academic pioneers.

It is proposed that this particular area in the present literature, which is currently in possession of admittedly a mere elemental understanding of learning agility, can be augmented toward a more solid and broad understanding of the construct's "openness to experience" antecedent. It is most probable that this line of inquiry will also serve as a sort of springboard for future research in the field, expanding on a more universally-accepted construal of the term "learning agility." In summary, unidentified critical antecedents to be placed within an expanded theoretical model, the role of openness to experience or defensive reactions as a key de-railer, and a predictive validity study of the first behaviorally-based, valid and reliable measure of learning agility are presented as essential foci in need of further investigation.

A recently proposed theoretical model of learning agility by DeRue et al. (2012) supported previous literature that suggested a fully comprehensive model of the construct required the identification of key antecedents. In their model (pg. 265), those antecedents were discussed at length, and described as “individual differences” related to experiential learning, including most specifically, the conception of learning agility. They suggest that in identifying conceptual connections related to other experiential learning constructs, the theoretical boundaries and a more complete valuation of learning agility is established in the broader literature, as Messick (1975) has illustrated quite plainly. These individual differences, modeled appropriately as antecedents in the model, were presented as goal orientation, meta-cognitive ability, and our present antecedent of interest: openness to experience.

The present study aims to further evaluate the third proposed antecedent, openness to experience, as it relates to implicit self-evaluations, and as it is contrasted with defensive reactions and single v. double-loop learning, which will be discussed at length. For now, meta-cognitive ability and goal orientation will be intentionally left “as-is” in the current theoretical model, as they are already somewhat well established by the literature as antecedents of learning agility (as evaluated by DeRue et al., 2012), and because it is also well understood that some sufficient level of directive goal orientation and functional cognition is requisite for learning agility to be adequately demonstrated. Additionally, while it is indeed the case that some quantitatively assessed level of meta-cognition has not yet been shown to predict some significant amount of variance for learning agility, that worthy pursuit lies generally outside the purview of this behaviorally-focused paper. For now, it is sufficient to note that meta-cognitive ability remains a part of the model as established by previous literature, specifically the theoretical model put forth by DeRue et al. on pg. 265.

"Openness to Experience" Antecedent Contrasted with Defensive Reactions

Openness to experience currently exists as a learning agility antecedent for many well-documented purposes. It encapsulates necessary traits, such as being inquisitive about new ideas, imagining alternate scenarios, embracing an open minded perspective, and not remaining entrenched in outmoded opinions (Barrick & Mount, 1991; Costa & McCrae, 1992; McCrea, 1987). Openness to experience is also characterized by actively seeking out unfamiliar answers to problems, embracing new thoughts and even discomforting evidence in an attempt to evaluate pre-held beliefs, and being much less resistant to change (Costa & McCrae, 1992; King, Walker, & Broyles, 1996; McCrae, 1987). In fact, open-minded individuals are more concerned with the prospects of change and are well suited to dramatic adaptation (Baer & Oldham, 2006; Burke, Lake, & Paine, 2008; Feist, 1998; LePine, Colquitt, & Erez, 2000). This orientation is one of excitement, pioneering, and exploration. It is a modus operandi whereby contradictory worldviews and threatening new ways of thinking and problem solving are, in fact, actively sought and valued!

The capacity to derive new solutions to difficult, complex problems even in novel situations from more varied past experiences, and the willingness to regulate behavior and self-monitor has also been shown to be positively related to openness to experience (Blickle, 1996; Busato, Prins, Elshout, & Hamaker, 1999; McCrae & Costa, 1996). This capacity to learn from more varied experiences and the willingness to self-regulate and self-assess in new contexts is fundamental to understanding why open minded individuals thrive when it comes to being more agile in their learning. They are better able to handle the inevitable feeling of cognitive dissonance associated with drawing from conflicting sources and points of view as a result of their open mindedness. In a literal respect, they simply have more information to draw from, and that information is often much more diverse than their peers or competitors. Furthermore, they are more open and flexible when it comes to learning and processing new information (Hooijberg, Hunt, & Dodge, 1997). As a result, as Day and Lance (2004) have solidly illustrated, being able to negotiate conflicting information and synthesizing viewpoints and opinions positively contributes to many desirable outcomes, even organizational leadership development and lasting organizational change leadership.

Given that openness to experience is comprised of these related characteristics, it appears quite plausible that it would indeed be an antecedent of learning agility, as DeRue et al. (2012) have insightfully proposed. But within this key domain of open mindedness, more could perhaps be said to provide for a thorough account of this antecedent. As Mitchinson et al. (2012) and Mitchinson & Morris (2012) have advocated regarding the related empirical literature, there is most likely something more to defensiveness, or conversely, to non-defensiveness, when it comes to being highly learning agile.

They reference Argyris and Schön’s (1978) formative introduction of single-loop v. double loop learning processes. In many ways, these processes seamlessly relate to the aforementioned characteristics of openness to experience, but have much more to say about defensive reactions, are theoretically grounded in literally decades of learning process research, and provide a more sophisticated understanding of how defensiveness arises and acts as a "de-railer" to openness to experience and thus, to the roadmap of learning agility. Argyris and Schön's significant contributions to a successive lineage of pragmatic learning theory beginning with Dewey (1933), Lewin (1948, 1951), and Kolb (1984) all provide for a solid appreciation of organizational, interpersonal, and intrapersonal learning models, particularly the theorizing of theory-in-action. Put quite plainly (as is not always done), their work gives a name and a way to measure and evaluate specific organizational phenomena at a high level of complexity and nuance. It provides coherence and a rubric for better understanding the experiential learning cycle. And, as Finger and Asun (2000, pgs. 45-46) have noted, Argyris and Schön's contributions are distinguished from that of Dewey's, Lewin's, or Kolb's, in that rather than a trial-and-error or pronounced valence approach to learning, their construal and evaluation of "double-loop" learning allows for re-adjustments of the theory-of-action, which only requires reflection via a Model II orientation.

Whereas single-loop learning processes are centered more on direct problem solving, like a thermostat receiving information about the temperature of the room and adjusting itself accordingly, double-loop learning processes involve the examination of one's inherent theories of action, or in other words, examining oneself and one's own assumptions about their theories of behavior. To reference the thermostat example, it would be like the thermostat first examining an implicit theory as to why the temperature is set at some level before receiving information about the room temperature and then adjusting accordingly. This important distinction is further clarified in perhaps a much more eloquent way by Argyris (1977). Outcomes of this latter, double-loop type of learning process are strongly related to non-defensive reactions, which when compared to open mindedness, is nearly a complete converse-but with a firm theoretical grounding, and a more complete description of the role of defensive reactions, such as reflecting on behavior v. avoidance of reflection, counterfactual thinking v. seeking confirming information and avoiding disconfirming information.

Additionally, Argyris's defensive reactions and distinctions between single loop learning and double loop learning processes provide for a more complete understanding of derailment, whereas open-mindedness as an antecedent of learning agility provides no such "barrier" to effective learning. As Mitchinson et al. (2012) adds:

> "We believe the absence of such defensive patterns to be an important component of learning agility, and as such we suggest that behaviors such as avoiding failure, saving face, and blaming should be included in the model… it would be useful to also consider potential learning agility 'de-railers' in future work" (pg. 288).

Thus, rather than a model focused on and comprised of solely positive antecedents, it is of more value to perhaps consider critical learning agility de-railers and interrelated approaches to theories of action.

Theory-in-use and Espoused Theory

Before these specific considerations related to defensiveness can be fully evaluated and proposed as an improved version of the “openness to experience” antecedent of learning agility, a brief overview and more thorough understanding of what we’re actually considering should be hereby proffered. Argyris’s widely known and highly influential work in the domain of defensive reactions and organizational learning was denoted by one of his more well-known former students (Senge, 1990, pg. 183):

> “As the afternoon moved on, all of us [students] were led to see (sometimes for the first time in our lives) subtle patterns of reasoning which underlay our behavior; and how those patterns continually got us into trouble. I had never had such a dramatic demonstration of my own mental models in action… But even more interesting, it became clear that, with proper training, I could become much more aware of my mental models and how they operated. This was exciting.”

This annotation captures part of what makes Argyris’s contributions to the field of organizational learning so special; that by bringing into question one’s implicit theories of action, one is empowered to become less defensive and more open minded with regard to common behaviors and pre-existing beliefs. This leads not only to new learning, but also to *better* learning.

‘Better’ learning can be best understood as an alignment of two key theories of action: Theory in Use and Espoused Theory (Argyris & Schön, 1974). In their work (also be sure to see Anderson, 1997; Argyris, 1964; Argyris, 1970; Argyris, 1993; Argyris, Putnam, & McLain Smith, 1985; Argyris & Schön, 1996), it is argued that individuals’ actions in various situational contexts are guided by well-trodden mental maps. These cognitive maps, rather than the theories that people overtly espouse (at times quite loudly to others), are what actually guide human behavior. More importantly, individuals are mostly unaware that they are in fact guided by these mental maps rather than the theories of behavior that they habitually claim to follow (Argyris, 1980). Another way of conceptualizing these phenomena is to simply say that people tend to actually do things that contradict their espoused theories of action, and that there is an important distinction between two types of theories of action: theories-in-use and espoused theory.

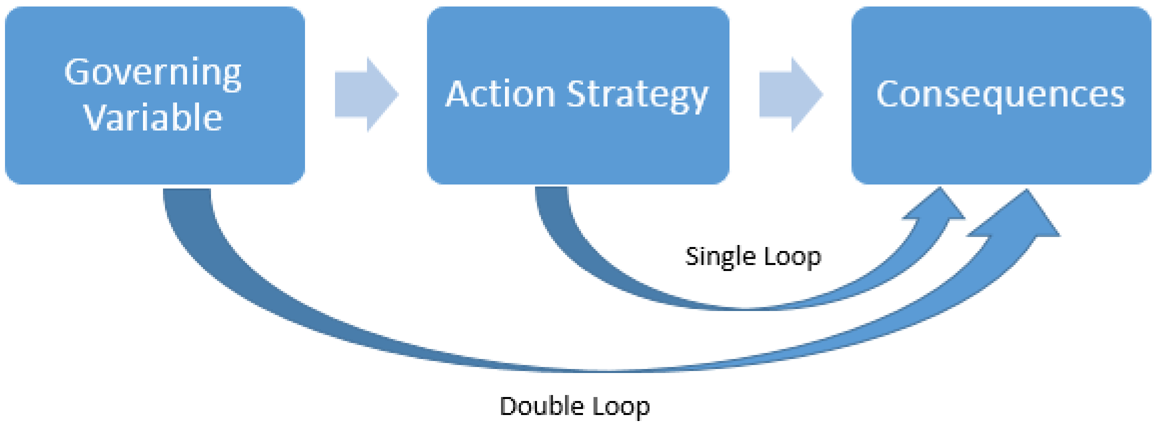
This distinction is essential to an understanding of theories of action, because espoused theories often times do not align well with one’s theories-in-use, resulting ultimately in defensive reactions and inhibited learning. Perhaps surprisingly, this fundamental understanding is derived from original research on the critical relationships between individuals and their organizations (Argyris, 1964; Argyris & Schön, 1974). As Argyris & Schön note, all theories of action are most generally formulated with the same criteria, that being generality, centrality, and simplicity. It becomes clear that these theories of action do not differ with respect to structure, but rather they are separated by an individual’s behavior; between what a person claims they do, believe, and think relative to an objective, normative theory of action (espoused theories), and what a person actually does (theories-in-use). To some degree, their unconscious behavioral hypocrisy of sorts.

With this understanding, the extent to which espoused theory fits (or does not align with) one's actions allows us to evaluate individuals' extent of congruence between their theories of action (Argyris, 1980). This level of congruence, or in many cases incongruence, is what introduces a dynamic for personal development and change, interpersonal dialogue, and is what governs the forces of defensive reactions among learners.

Governing Variables, Action Strategies, and Consequences

A theory-in-use outline better explains this process, and to that end, Argyris & Schön 's (1974) work detailing a process model between governing variables, action strategies, and consequences is worth reviewing, as well as Anderson (1997). Governing variables are those dimensions that individuals attempt to keep within acceptable limits. Any action has an impact on a number of these variables, and therefore a trade-off among governing variables can be caused by a new situation. In other words, each situation has governing variables that individuals respond to, and because they respond differently to different situations, they make tradeoffs regarding their governing variables. Action strategies are intentions used by individuals to maintain their governing variables within an acceptable range of behavior. The consequences of their actions are, of course, the result of a behavior, both intentional on the part of the actor and unintentional. A reproduction is shown in Figure 1 below:

Figure 1: Single and double loop learning



To move forward with a full understanding of single and double-loop learning, and how those processes relate to this model, let us focus for the moment on consequences, as shown above. When consequences are intentional on the part of the individual, theory-in-use process is confirmed, because intentions and outcomes are aligned. But when there is an incongruence between outcomes and intentions, and the individual's consequences are therefore unintended (especially when consequences do not follow from their governing values), Argyris and Schön argued that there are two plausible responses to this disparity: single and double-loop learning.

According to Argyris & Schön (1974), in single-loop learning, governing variables are not brought into the learning process. Rather, given or chosen goals, normative values, or plans are simply operationalized and pursued, but the governing variables (the larger, meta-contextual data) are not questioned. When something isn't working, in this modality of learning the individual simply goes back to a new action strategy in the hopes of working out the problem within the same, original governing variable. The emphasis here is simply on the efficiency of techniques (Usher & Bryant, 1989), and reflection is only taken to better evaluate action stratagem. Governing variables remain unexamined.

Alternatively, in double-loop learning, governing variables themselves are scrutinized and questioned in the process. In the model, this creates a “double loop” and allows the learner to strategize a course of action, witness the consequences of their behavior, and depending on the outcome, go back to the original governing variable underpinning the action strategy rather than merely going back to another action strategy within the domain of the same governing variable. This shifts and alters the way in which action strategies are framed, and brings into question the practical, normative way in which learning is undertaken. This is more risky for the individual, and perhaps much less comfortable than simple, single-loop learning routines, but is necessary to not take for granted one’s beliefs, ideas, policies, goals, values, frameworks, and action strategies (Usher & Bryant, 1989).

Double-loop learning, as contrasted with single-loop learning, relates to defensive reactions insomuch as hypotheses are publicly tested, and processes are not confirmed rather than merely self-seeking (Argyris, 1982, pg. 103-104). According to Argyris & Schön (1974), “In single-loop learning, we learn to maintain the field of constancy by learning to design actions that satisfy existing governing values. In double-loop learning, we learn to change the field of constancy itself” (pg. 19).

Model I and Model II Theories-of-Action

This distinction strongly persuaded Argyris (1985; 1989) to structure an individual's operative orientations as "Model I" and "Model II." When an individual is operating from Model I theory of action, it can often lead to deeply entrenched defensive reactions resulting from "making inferences about another person's behavior without checking whether they are valid and advocating one's own views abstractly without explaining or illustrating one's reasoning" (Edmondson & Moingeon, 1999, pg. 161). Within Model I, one's theories-in-use are characterized by a strong desire to win and avoid psychological humiliation. One's action strategy is fully designed to protect oneself and situational context.

Model I as a predominately defensive orientation has further consequences, as Anderson (1997) has clearly stated. To summarize, acting defensively can be viewed as moving away from something, usually some truth about ourselves. If our actions are driven by moving away from something, then our actions are controlled and defined by whatever it is we are moving away from, not by us and what we would like to be moving towards. Resultantly, our potential for learning is seriously impaired. If behavior is motivated by not wanting to be seen as incompetent, it inevitably leads individuals to hide truth from others and eventually perhaps, from themselves. Conversely, if behavior is motivated by wanting to be more competent, for example, then an accurate evaluation of one's self would be welcome and useful, no matter how ugly it may appear.

In its consideration of previously held governing variables, a Model II orientation allows for new action strategies, and facilitates more effective double-loop learning. As an aside, Argyris notes in his work that most individuals tend to espouse Model II, when their actions tend to elucidate a Model I theory-of-action. It is suspected that this comes as no big surprise to many who have extensive experiential training in organizational psychology and leadership development.

In summary, as a result of their relation to single-loop and double-loop learning, Argyris's Model I and Model II orientations take into account the unique characteristics of the existing "openness to experience" antecedent put forth in the current learning agility model by DeRue et al. (2012). But in addition, they also account for the underlying fundamental nature of defensive reactions and aversions to the contradictory and the complex. Being theoretically grounded in decades of learning process research and action science, they provide a more sophisticated understanding of how defensiveness arises and acts as a "de-railer" to openness to experience and, as a critical antecedent, to the construct of learning agility in the revised model. For these reasons, it is hereby proposed that these differing theories-of-action (Model I v. Model II) are better fit for a model of learning agility, and specifically, are a better substitute for the current "openness to experience" antecedent in the model. Their comprehensive coverage of the inner workings and the *why* behind the defensive or closed-minded behaviors is well suited for a revised theoretical model. This transforms the current model to the proposed revised model, as is shown in Figures 2 and 3 below.

Figure 2: Current learning agility model with “openness to experience” antecedent

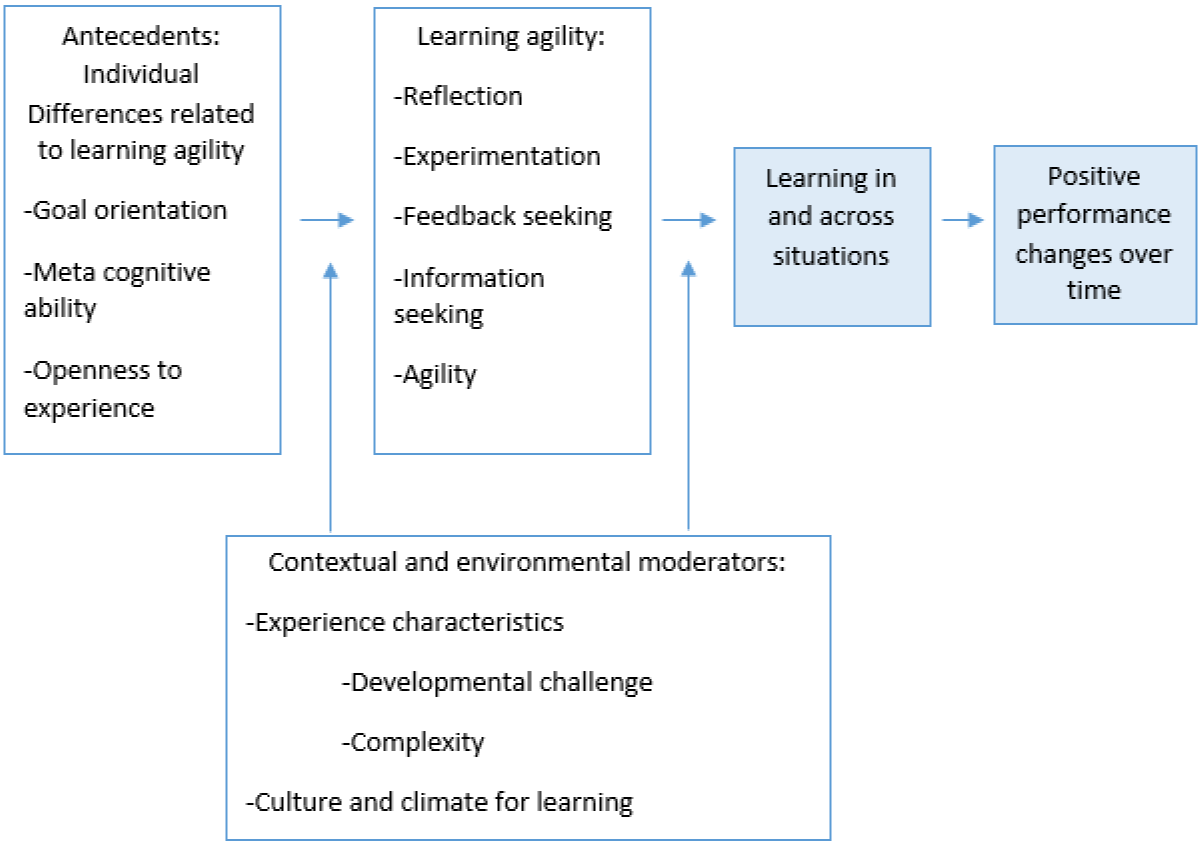
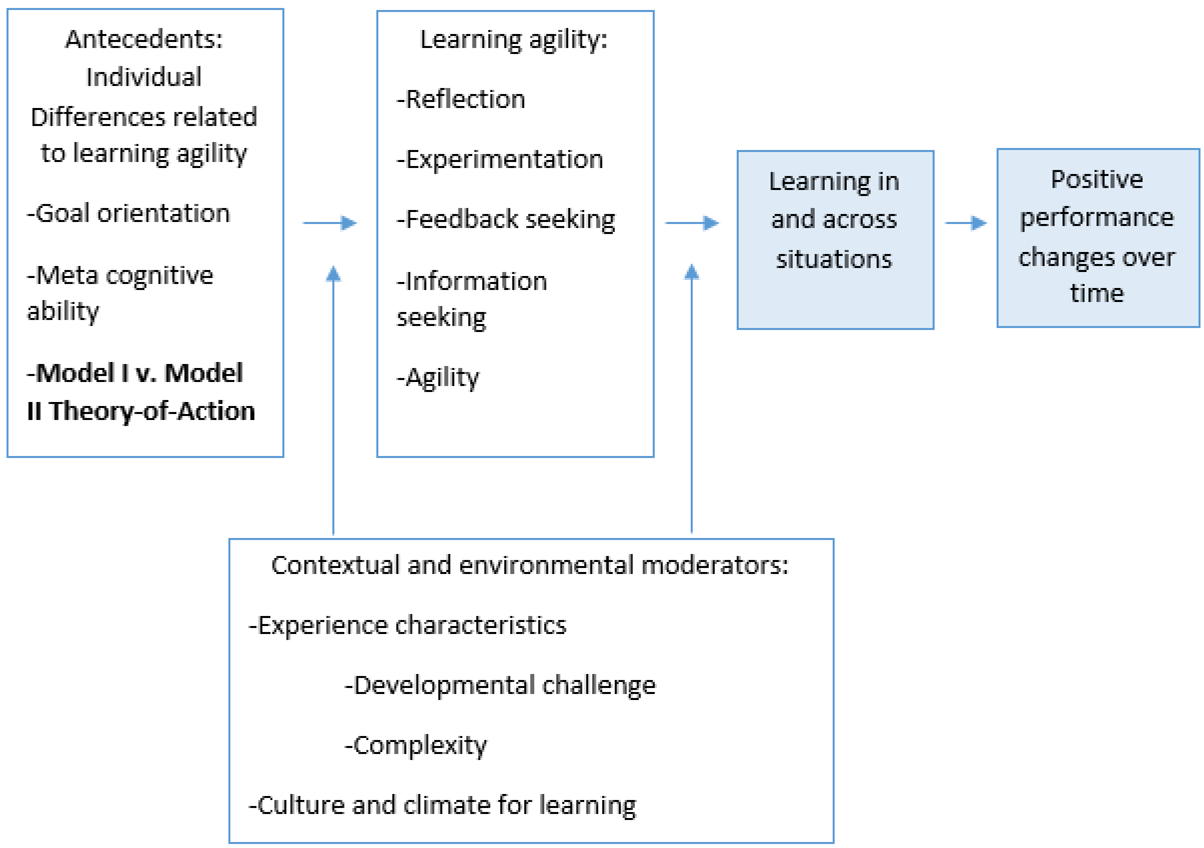


Figure 3: Revised model with “Model I v. Model II theory-of-action” antecedent



Behavioral Features of Model I and Model II Theories-of-Action

In order to provide for a means to assess Model I and Model II theories-of-action effectively in a revised theoretical model of learning agility with behavioral measures, it is necessary to evaluate the behaviors that have been shown to strongly relate to each, in more detail than was reviewed in the previous section of this chapter. Identifying these behavioral aspects opens the door to an opportunity to craft exploratory survey items, and thereby attempt to assess the presence or absence of this newly proposed critical antecedent in a revised model.

In Table 1 below, behavioral aspects of both Model I and Model II are presented. These behaviors are derived from seminal work by Argyris (1977; 1990; 1993), Argyris, Putnam, & McLain-Smith (1985), Argyris & Schön (1974; 1978). They are also informed and have been cross-checked by a body of more recent work related to experiential learning application and action science studies by Anderson (1997), Edmondson & Moingeon (1999), and Fullan (2001a, 2001b).

For each behavior, the governing variables are first set forth. These relate to the prescriptive and normative ethos underlying the motives for behavior, or the reasoning behind it. In the next column, the corresponding action strategies follow, and they describe the mode and style in which the governing variables take shape, behaviorally, within the Model I and Model II theories-of-action contexts. And then the aftermath follows, the consequences, on both an individual and organizational outcome level. The final result of this full behavioral taxonomy is a representative depiction, taking place outside the laboratory, of the differences between these theories of action.

Table 1: Taxonomy of Model I v. Model II: Governing variables, action strategies, and consequences

MODEL I

Governing Variables	**Action Strategies**	**Consequences**
Winning “Face saving” suppression of insecurity and negative feelings Seeking confirming information Emphasis on simplicity and non-complexity Goal attainment defined by the individual Focused on closed-ended objective solutions	Unilateral control of task Unilateral control of environmental context Protection of self and allies	Defensiveness Closed mindedness Single-Loop learning Low level of freedom Inhibited access to information No public evaluation of thoughts and ideas

MODEL II

Governing Variables	**Action Strategies**	**Consequences**
Allegiance to valid information Emphasis on complex, free and informed choice Commitment to higher task and common goals Continual evaluation of self in relation to task implementation Combination of advocacy with inquiry (Argyris & Schön, 1996; Bulman & Deal, 1997, pg. 147-148) Focused on self-directed, open-ended development of subjective solutions	Bilateral control of task Bilateral control of environmental context	Non-defensive relationships Open mindedness Double-Loop learning High level of freedom Access to complex, diverse, even conflicting information Public evaluation of thoughts and ideas, from self and group members Higher likelihood of access to valid information and informed choice Higher likelihood of successful change efforts

A Concurrent Criterion Validity Study of the "Defensive Reactions" Subset

What follows from Table 1 is a series of distinctive action strategy behaviors, related and directed to both a Model I and a Model II theory-of-action. At present, these characteristics of each have not yet been translated into a behavioral questionnaire suited for evaluation as an antecedent in a revised learning agility theoretical model. It is the aim of this present work to do just that, and to collect data indicating the strength of relationship and prediction relative to learning agility in terms of concurrent criterion validity with executive performance, as well as the reliability of the collective set of items themselves. This task seems well-suited at a time when researchers are looking to fully establish an operationalized, behavioral understanding of a theoretically revised model of learning agility that takes into account open mindedness *and* key barriers and de-railers, particularly defensiveness and an aversion to the unfamiliar. Perhaps Argyris (1985) has already best defined some of the types of malignant behaviors that are characteristic of this Model I v. Model II antecedent on pg. 88 some thirty years ago:

> "People programmed with Model I theories-of-action produce Model I group and organizational dynamics that include quasi-resolution of conflict, uncertainty, avoidance, mistrust, conformity, face saving, intergroup rivalry, invalid information for important problems and valid information for unimportant problems, misperceptions, miscommunication, and parochial interests."

But the work of creating and validating behavioral items to assess these theories of action first suggested by Argyris is not yet complete. Table 2 below contains proposed survey items, behaviorally-focused and exploratory in nature, that account for a Model I versus a Model II theory-of-action orientation. They are formatted for a 6-point Likert-type scale, mirroring the structure of the Learning Agility Assessment Inventory (LAAI; Mitchinson et al., 2012). For a full review of these items, also see Appendix B. Participants will be asked to evaluate how true each statement is with regard to how they engage with their work, from 1 = *Not at all true* to 6 = *Always True*. Following suit, these items will be coded for 1 = extreme Model I theory-of-action orientation to 6 = extreme Model II theory-of-action orientation. This mirrored quality allows these items to fit well logistically and methodologically alongside data collected by the LAAI as part of the revised learning agility model of the structure first put forth by DeRue et al. (2012). Parsimony is duly taken into account, so as to positively affect both feasibility in measurement and overall response rate from participants.

As a measure of internal consistency, Cronbach's alpha will be examined for the proposed set of "defensiveness" type items to assess how much the items on the scale are measuring the same underlying dimension (Bland & Altman, 1997; Cronbach, 1957; DeVellis, 2003; Kline, 2005; Pett, Lackey, & Sullivan, 2003). Findings will provide evidence of the value of each new (and at present, untested) item for the entire subset. A discussion will be put forward regarding any potential decision to either keep, replace, or completely exclude any question that, if excluded, would increase the overall internal consistency of the subscale.

Finally, taking into account the established validity and effectiveness of using survey items designed to inquire about personal and revealing reputational factors, especially when dealing with narcissistic or highly defensive responders (Hogan & Fico, 2011; Judge, Lepine, & Rich, 2006), the proposed subset of items are worded in terms of one's assessment of his or her reputation, rather than of his or her evaluation of self. This avoids the inevitable tautological logic surrounding the likelihood that individuals with strong defensive inclinations are, of course, much less likely to admit it, or even to know themselves well enough to report their behavior accurately and transparently when participating in a survey. In sum, it is one thing to be asked outright about being defensive; it is another to simply report that others may find some behaviors to be so. The explicit expectation is that increased authenticity will occur with the former, and this expectation is grounded in sound empirical evaluation as established by Hogan & Fico and Judge et al. as previously mentioned in this section.

Table 2: Model I v. Model II theory-of-action "defensive reactions" subset of items

My colleagues know that I listen carefully to other people's opinions and ideas, even if I think they are wrong or different from my own.
People have commented that I can be defensive when I'm challenged with opposing opinions. (reverse coded)
Past colleagues might say that I've taken control over a situation too quickly when information wasn't clear. (reverse coded)
People know that I usually seek to fully understand both sides of an issue with an open mind, even if I've already formed an opinion.
I am known for quickly simplifying complex issues. (reverse coded)

A Concurrent Criterion Validity Study of the LAAI

A separate but entirely related domain of research in this body of work, as previously established, is to critically evaluate the concurrent criterion validity of the Learning Agility Assessment Inventory. Given the recent enthusiasm but lack of empirical rigor and consensus for the newfound construct, Mitchinson, Gerard, Roloff, & Burke (2012) have set out to provide the field with the first reliable and valid measure of learning agility that is theoretically grounded, behaviorally based, and freely accessible to organizational practitioners and scholars.

Their ongoing determined efforts to provide the field with this essential empirical contribution cannot be applauded enough, given the fact that many "tools" and "measures" of learning agility have already been developed and put into use, despite the unfortunate actuality that they lack the requisite underlying theoretical orientations, sound research methods, and clear and agreed-upon operationalizations of learning agility (DeMeuse, Dai, Eichinger, Page, Clark & Zewdie, 2011; Lombardo & Eichinger, 2000; Spreitzer et al., 1997). Gathering, organizing, and making sense of what is currently known about the construct, Mitchinson et al. (2012) have developed a theoretically informed, valid and reliable measurement tool.

The present study proposes to further augment this ongoing line of scholarship related to the LAAI. The extent to which the LAAI is related to and predicts executive leadership success in the overly nuanced and highly politicized corporate environment has yet to be firmly established. It is unknown, perhaps due to the regrettable fact that access to such a population is invariably difficult and far-reaching, how learning agility manifests itself among leaders of organizations undergoing pronounced change both in terms of rapid growth as well as restructuring- theoretically when learning agility would be required of leadership and valued most. For perhaps the first time, this proposed study brings forward newfound insight into this hard-to-find population.

Internal Consistency Verification of the LAAI

Given the fortuitous opportunity to re-examine both the internal consistency of the subscale items within each subset for all factors comprising the LAAI, as well as the factors themselves, Cronbach's alpha levels (Bland & Altman, 1997; Cronbach, 1957; DeVellis, 2003; Kline, 2005; Pett, Lackey, & Sullivan, 2003) will be inspected and discussed. This full, comprehensive analysis is not entirely ancillary to the aims of the present set of studies, for in fact, many of the other proposed pursuits are contingent on whether or not the LAAI is indeed a reliable instrument for this population of executives.

If it were found, for example, that the items on each of the factors, or the factors themselves, were actually not measuring the same underlying dimension(s), it would be evidence for the premature notion that no further work need be done to enhance and “fine tune” the LAAI itself. An in-depth discussion will be outlaid immediately following, not just of the relative reliability measures, but also of any other findings of interest to the interpretation of the items comprising the LAAI. Furthermore, should any one item or number of items be found to be inconsistent with their respective factor, a normative explanation will be put forth for future researchers to investigate and replicate the present study.

Criterion Sampling of Executives

In collaboration with researchers from Cornell University, a market leading boutique consulting firm specializing in the selection and development of CEOs, C-Suite executives, senior hedge fund portfolio managers, and other leaders of private equity-backed portfolio companies confirmed that the individual executive performance assessment grades they assigned to prospective executive job candidates on behalf of their investor clients strongly predicted their post-hire performance in top leadership positions (Flaum, 2009; Hausknecht, Langevin, & Schruhl, 2009). In other words, higher overall executive performance assessment grades predicted better performance by the business leader, and lower overall grades predicted worse performance by the business leader in a top executive position. Given that the large majority of these executives were placed into leadership positions of portfolio companies, they often led during times of tumultuous change, when learning agility would conceivably be fully put to the test. Their grading methodology involved a 9-point grading system, using the well-known A+ to C- scale. Accompanying every total grade given to a job candidate was a lengthy and rigorous report, intimately detailing the individual's past personal and professional behaviors as they related to the objective needs of the position for which they were being considered, and their work performance in meeting those expectations. The final overall grade fully encompassed an equal weighting of all of the sub-evaluations of all of the various areas of performance needed for success in the leadership role for which they were being hired.

Given the aforementioned *theoretical* relationship between the dimensions of learning agility and performance in top leadership positions, an immediate inquiry subsequently arises when considering that a database hereby exists of executive leaders who have been quantitatively graded with a grading system that has been shown to strongly predict success in top leadership positions. That is, do executive performance assessment grades given to senior executive leaders that have been empirically shown to predict their performance also relate to the extent of their learning agility?

With the application of the first theoretically derived, valid and reliable behaviorally based learning agility measure, the Learning Agility Assessment Inventory, this noticeable gap in the literature could begin to be filled using these executive performance assessment grades as a proxy for executive performance, and evidence for the concurrent criterion validity of the LAAI could be potentially demonstrated. If the LAAI were to be identified as an appropriate measure to administer to this broad database of senior leaders, an understanding of how learning agility affects comprehensive assessment evaluations of senior executives, particularly related to their performance in a leadership role within an organization, would be substantially augmented. Additionally, because the proposed general inquiry relates to senior executive leaders' learning agility and performance, it is thereby theoretically aligned and focused on the population of interest. Put another way, it would be measuring learning agility where it matters the most. Methodological procedures and descriptive statistics will be further discussed in Chapter III.

A Predictive Criterion Validity Study of the Revised Learning Agility Model with "Model I v. Model II theory-of-action" Antecedent

A third pursuit is hereby proposed to establish the predictive criterion validity of the revised learning agility model which contains the Model I v. Model II theories-of-action antecedent as presented in Figure 3. Findings will add empirical evidence to the notion that one's theory of action affects some measure of their ability to be learning agile, in addition to, and not in place of, the presence of the other factors of learning agility which they may or may not incorporate in their learning style. Evidence that something beyond mere "openness to experience" plays a critical role in the de-railment of learning agility will open up new frontiers for further exploration, and will, at the same time, add to the action science body of scholarship as pioneered by Argyris nearly three decades ago.

The proposed path forward in terms of the predictive criterion validity study of the LAAI and the revised model is further outlined is Hypothetical Category 3 below.

Proposed Hypotheses and Predicted Results

The newly proposed "defensive reactions" subset, as fully denoted and described in the taxonomy in Table 1 and the list in Table 2, will accompany the Learning Agility Assessment Inventory. These items will be sent out to a sample of 700 executives as will be further described in the sampling and descriptive statistics section in Chapter III, as well as in Figure 3, Table 2, and Charts 1-6. Based on the full analysis of total responses to this complete set of items (the complete LAAI and the Model I v. Model II "defensiveness-type" subset of items), three main hypotheses will be put to the test.

<u>Hypothetical Category 1:</u>

As formerly described, it is of immediate relevance to explore the extent to which learning agility, as operationalized by scores on the LAAI, is related to executive performance. Using executive performance assessment grades as proxy for the objective performance of an executive in a position of organizational leadership (its operationalization), it is now possible to attempt to fill this critical gap in the learning agility literature. A cumulative odds ordinal logistic regression with proportional odds was considered as a possible proper measure to examine the predictive criterion validity of this newly proposed factor, but in this particular case, a Pearson's correlation coefficient will be utilized to examine the relationship between scores on the LAAI and executive performance assessment grades. Thus, it should be noted that the seemingly ordinal 1-9 scale of performance assessment grades variable will be treated in this particular case as continuous, pending all assumptions of the data are met to properly run it, because these grades exist on an interval-ratio scale, with each having an actual numerical value assigned (as opposed to a simple ordinal ranking alone). The methodological requirements and requisite assumptions of the data for both of these procedures have been examined, particularly for appropriateness and suitability for procedures with ordinal or continuous dependent variables, such as executive assessment grades on a 1-9 ("C-" to "A+") scale (Agresti, 2010 & 2013; Hardy, 1993; Hosmer, Lemeshow, & Sturdivant, 2013; Kleinbaum & Klein, 2010; Liao, 1994; Long, 1997; Long & Freese, 2006; O'Connell, 2006; Pregibon, 1981). Specifically, it is hypothesized that:

> Hypothesis #1: There will be a strong statistically significantly positive correlation between scores on the LAAI and executive performance assessment grades.

Hypothetical Category 2:

But, examining the relationship between scores on the LAAI and executive performance is only the tip of the iceberg, and much more can be explored. In this second hypothetical category, the concurrent criterion validity of the proposed de-railer of learning agility ("defensiveness") as operationalized by Argyris' Model I v. Model II conceptions in our revised situated model, will be explored for the very first time in relation to executive performance. Findings will shed light on the extent to which this dimension "carries weight" in explaining variations in executive performance and assessed business leadership. Or to put it plainly, non-defensiveness will be positively related to better executive performance assessment scores, giving evidence to the notion that defensiveness can be a "de-railer" of learning agility, though no direct causality can be established from this analysis alone. Specifically, it is hypothesized that:

> Hypothesis #2: There will be a statistically significantly negative correlation between scores on the newly proposed LAAI dimension of "Defensiveness" (which is operationalized as a high level of Model I theory-of-action and a low level of Model II theory-of-action equating to general non-defensiveness) and executive performance assessment grades.

<u>Hypothetical Category 3:</u>

A multiple linear regression analysis will be used to examine the extent to which the "defensiveness" factor, or, of the scores from the responses to the items related to Model I and Model II theories-of-action, statistically significantly adds to the predictive criterion validity of the LAAI on executive performance assessment scores. Specifically, it is hypothesized that:

> Hypothesis #3: Scores on both the Model I v. Model II theory-of-action "defensive reactions" subset of items and scores on the LAAI will statistically significantly add to the prediction of executive performance assessment grades, the criterion proxy for objective executive performance.

Chapter III: Methodology

Introduction

Before a discussion of the methodology related to the areas of inquiry is presented, a researcher perspectives section is presented as requested by the Teachers College Office of Doctoral Studies. Then, a brief overview of the prospective sample and the population of interest will be described. This overview will be immediately followed by a summary of the methods used to ensure the proper and ethical handing of all human subjects in the present study. Then, the methodology for appropriately investigating each of the domains of empirical interest will be discussed in respective order.

Researcher Perspectives

In this subsection, as is often times standard protocol with a research project of this scope, the author presents his perspectives, possible biases and espoused notions as to the normative agenda of the present set of studies. The author has prior experience in organizational leadership consulting, and indeed shares the perspective that learning agility is a) not well understood both conceptually and empirically, b) rapidly becoming a topic of interest among organizational psychology researchers and business professionals and practitioners alike, and is c) an essential skill set for the 21st century, most particularly for the identification and development of future change leaders.

Possible biases remain mostly limited, given that much of the current work related to learning agility, including the present set of studies, is still in its infancy, and thereby is inherently mostly exploratory in nature and markedly less limiting than most areas of current organizational research. Following from this wilderness characteristic, the author makes very few limiting remarks or opinionated asides in his discourse along all three veins of empirical inquiry. However, the very nature of the intent of the study indeed rests on generally-held assumptions about human behavior, most notably that a conceptualization of learning agility is a beneficial thing for organizations and wholly, for society onmes circumstantis.

There exists no overtly pronounced normative agenda in the present research, beyond the aforementioned intention to further the literature's understanding of learning agility, and to provide fruitful avenues for future research. Broadly, this study is a) an analysis of the degree of rigor regarding criterion validity, and b) an examination of predictive criterion validity with the general hypothesis that higher executive performance assessment grades are related and predicted by greater degrees of learning agility, and lower executive performance assessment grades are related to and predict lesser degrees of learning agility, as measured by participant scores on the LAAI. The author also makes few normative suggestions as to how the majority of practitioners ought to utilize and employ the findings of the present set of studies, except that a priority should perhaps be placed more on employee development (v. immediate selection). This preferential bias logically follows from a basic understanding of individual capabilities and human motives. Indeed, the literature review in the present study on a proposed critical antecedent should sufficiently establish this often overlooked emphasis on human and organizational development. It is with this due consideration of the author's espoused perspectives, inclinations, and situational contexts that we now proceed to discuss the proposed methodology for the set of studies comprising this work.

Review of Intended Approach

This section is purposefully short and sweet (though not intended to be overly perfunctory in scope), simply intended to serve as a broad review of Hypothetical Categories 1-3 found within Chapter II. This section may serve as a simple reference point within Chapter III to find orientation and direction as various methodologies and preliminary findings are discussed and reviewed.

First, a concurrent criterion validity study is being undertaken to evaluate the extent to which there exists a strong statistically significantly positive correlation between scores on the LAAI and executive performance assessment grades. A second a concurrent criterion validity study is then being examined to evaluate the extent to which there will be a strong statistically significantly positive correlation between scores on the newly proposed LAAI dimension of “Defensiveness” (which is operationalized as a high level of Model I theory-of-action and a low level of Model II theory-of-action equating to general non-defensiveness) and executive performance assessment grades. Third, a predictive criterion validity study is proposed to further evaluate how scores on both the Model I v. Model II theory-of-action “defensive reactions” subset of items and scores on the LAAI will statistically significantly add to the prediction of executive performance assessment grades, which is the criterion proxy for objective executive performance.

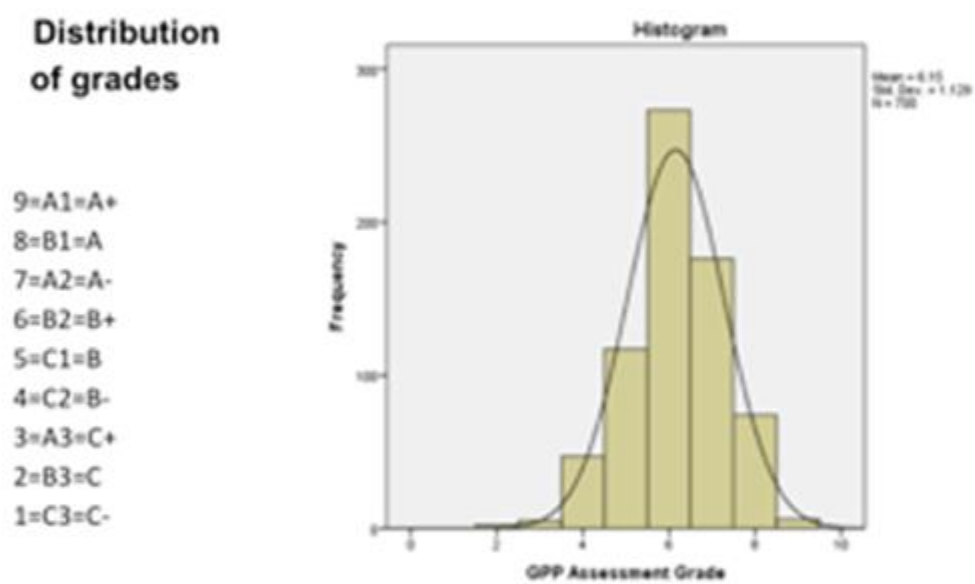
Sampling and Descriptive Statistics

With express permission from Green Peak Partners Organizational Consulting (see Appendix C for letter of express permission), a proprietary sample consisting of 700 CEOs, C-Suite executives, hedge fund principal managers, and leaders of private equity-backed portfolio companies will comprise the sample. As mentioned previously in Chapter II, all participants in the sample have been previously assessed with an extensive performance assessment measure consisting of a lengthy report of the candidates past personal and professional behaviors as they related to the requirements and objectives of the senior leadership position for which they were being hired, and a grade was given which summarized their total probability of success, and including their actual past documented successes and failures, in the position as a leader of commercial enterprise. Given that the large majority of these executives were placed into leadership positions of portfolio companies, they often led during times of tumultuous change, when learning agility would conceivably be most valuable. The executive performance assessment grades, already shown by an independent third party source at Cornell University (Flaum, 2009; Hausknecht et al., 2009) to predict senior executive leader success on the job, have been methodologically assigned on a 9-point scale from A+ to C-, with A+ representing a very high probability of success in an executive leadership role, and C- representing a very strong probability of failure in an executive leadership role. The final overall grade fully encompassed an equal weighting of all of the sub-evaluations of all of the various areas of performance needed for success in the leadership role for which they were being hired.

These performance assessment grades were normally distributed, with a mean of 6.15, a standard deviation of 1.129, and acceptable levels of skewness (-0.24) and kurtosis (0.229).

The median assessment grade given was a 6, or “B+” on a scale of 1-9. Letter grades were coded into ordinal values, such that an A+ = 9, and C- = 1, for the purposes of statistical analysis. See Chart 1 below for a graphical review of this information:

Chart 1: Distribution of the sample of executive performance assessment grades



Individual consultants were assigned all performance assessments of senior executive leaders as part of their work on behalf of their clients, and thus an evaluation of the extent of the reliability among all individual assessors is a worthwhile component to examine when considering the interpretation and distribution of executive performance assessments. It is important to note that each prospective executive was assessed in many cases by a single assessor, and most often in a randomly assigned way. Using ANOVA and a test of homogeneity of variances to evaluate the sample, assessment grades by consultants were shown to have a high level of equality of means, $F(700) = 0.53$, n.s. Each assessment grade was given by a single consultant; however, the author conducted a test of equality of means across all consultant assessment grades and found that it was indeed quite high and not statistically significant, indicating that there was no significant difference in grading across individual consultants, $F(700)= 0.53$, n.s. In other words, a non-significant finding is evidence that assessment grades are consistent among consultants; no singular consultant or group of consultants gives significantly higher or lower assessment grades than the rest. So, assessment grades are thereby understood to be more representative of the actual performance of the executive leader, and not so much a representation of the error variance in grades among consultants or of the individual biases of assessors.

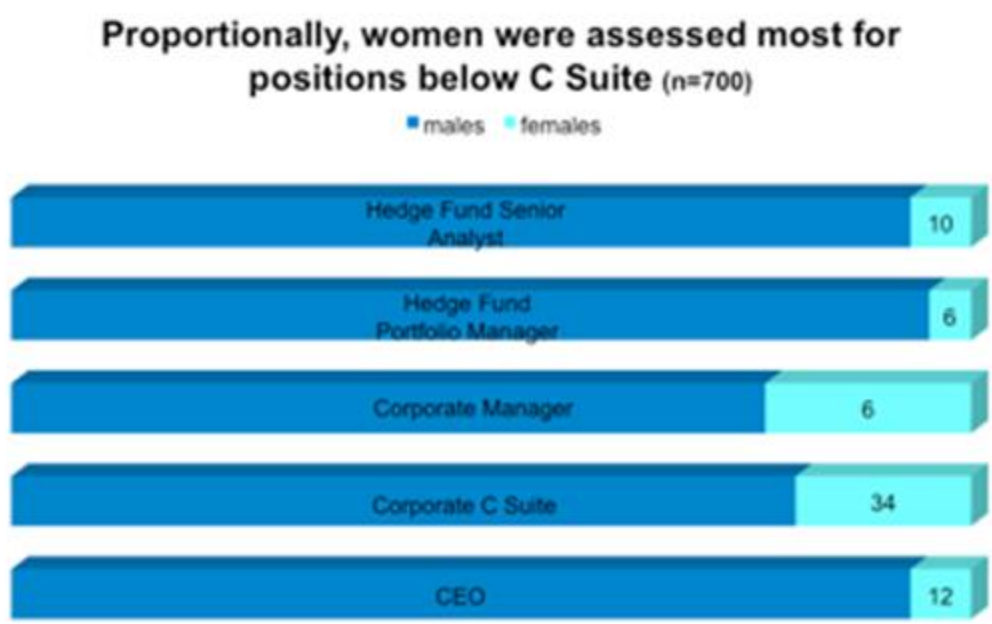
All of the 700 individuals assessed for their performance were being evaluated for positions of senior leadership, which required the theoretically requisite dimensions of learning agility. The positions only varied by technical and strategic priorities. In other words, learning quickly in novel circumstances and being agile in one's opinions are no less important for a hedge fund portfolio manager as they are for a typical CEO. Only the technical requirements for such positions differ in terms of day-to-day work, such as anticipating minute-by-minute market trends versus pursuing strong returns to shareholders and gaining total market leadership. The sample included five different job type categories, with CEOs being the modal type (n=204), as is shown below in Chart 2.

Chart 2: Executive performance assessments by candidate position

The sample included 68 females and 632 males. Of course, much more could be said about the disparity between the two genders in the sample, but this important discussion is unfortunately not within the purview of the present study. The author does, however, note that the sample reflects the unfortunate dearth of diversity found at the top of many leading companies and investment funds, pertaining not only to gender, but also to many other types of diversity, such as race, educational background, and socio-economic status.

Of the total sample of 700 executives proportionally, females were most assessed for positions below C-Suite level. Utilizing a t-test to examine mean differences, it was found that there was not a significant difference between male and female mean assessment grades, $t = -0.847$, n. s. This indicates once again that performance assessment grades were indeed actually related to executives' performance in a leadership position, rather than of some other moderating nuisance variable, which in this case may very well have been gender. Refer to the results in Chart 3 below:

Chart 3: Dramatic gender differences within executive performance assessment grades

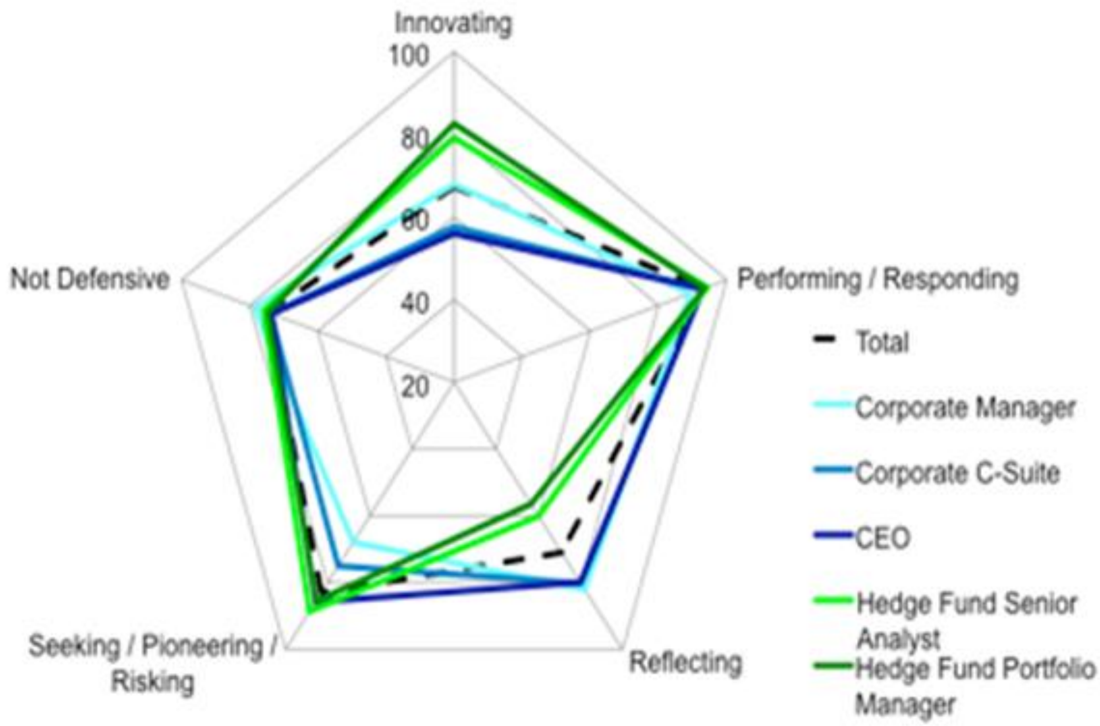


Preliminary Examination of the Sample

A comprehensive examination was undertaken to evaluate the participants' suspected level of learning agility, before any items were actually sent to them, to gain a better understanding of this population of interest and thereby align methodologies appropriately. Observations of the 700 executive participants' performance assessments by subject matter experts found evidence that a high executive performance assessment grade predicted a perceived high level of overall learning agility, and a low assessment grade significantly predicted a perceived low level of overall learning agility for an executive leader, $R^2 = .72$, $F(1, 700) = 769.72$, $p < .001$.

Preliminary findings also strongly indicated that each of the five theoretically derived and statistically validated dimensions of learning agility as they are presented by Mitchinson et al. (2012) are manifested differently depending on job type. Results showed that all executive leadership position types tended to be perceived as equally high on the dimensions of Performing / Responding and Defensiveness, but differed with respect to Innovating, Seeking / Pioneering / Risking, and Reflecting, with CEOs and Corporate C-Suite executives perceived as lower on innovative thinking (M = 55.9, M = 57.6, respectively) and information seeking (M = 85.8, M = 75, respectively) than hedge fund senior analysts and fund portfolio managers, but having much higher perceived reflective behaviors. CEOs had a mean reflective assessment of 79.9, and Corporate C-Suite had a mean reflective assessment of 80.2, whereas and hedge fund portfolio managers had a mean reflective assessment of only 56.5, and hedge fund senior analysts had a mean reflective assessment of 60.1. See Chart 4 below for graphical interpretation:

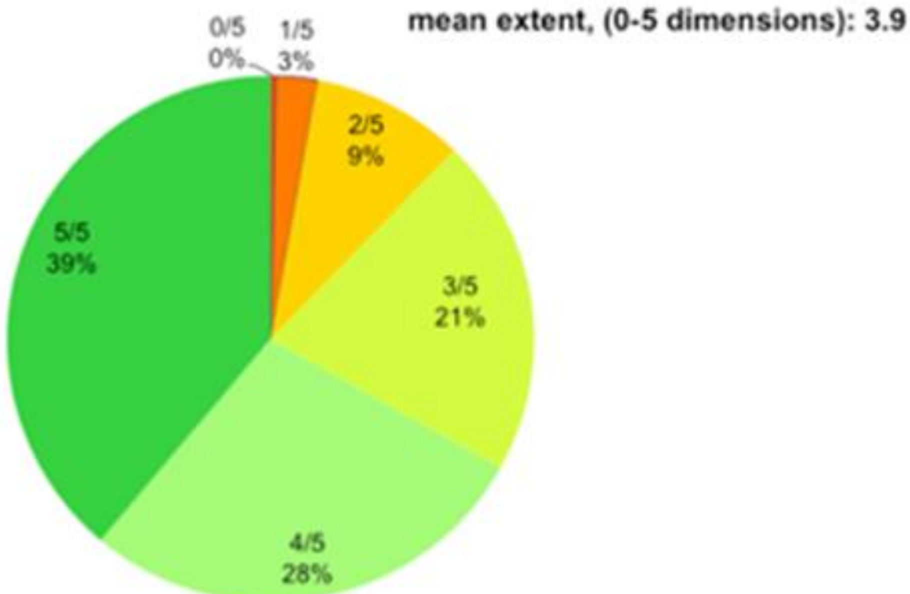
Chart 4: Executive role differences by learning agility factors



An evaluation was undertaken to assess the extent of total learning agility behaviors present among the sample. Observed results indicated that the sample was highly learning agile as a whole, which is evinced by the following pie chart showing the proportion of participants and number of salient dimensions of learning agility. All of the participants had at least one dimension of learning agility present in their assessment, and the average number of salient dimensions of learning agility present among the participants was 3.9.

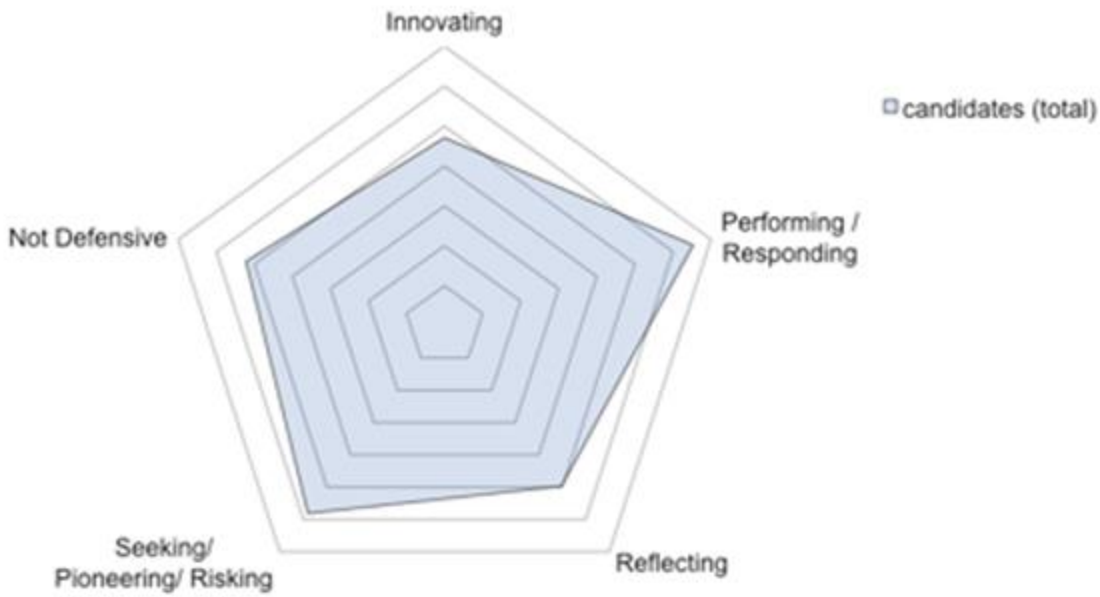
[Note: This is expected of a sample taken of only the most senior executives in various organizations. It stands to reason that if learning agility does indeed have something to do with performance, that those who have progressed to this level in their career as a result of prior performance would also possess a high level of learning agility.]

Chart 5: Extent of learning agility among business executive sample, by factor



Overall, the participants in the sample were perceived as being higher on the learning agility dimensions of Performing and Seeking / Pioneering / Risking than on any other dimension, and lower on the learning agility dimensions of Innovating and Reflecting than on any other dimension, as is shown in Chart 6:

Chart 6: Collective extent of learning agility factors among executive sample



Proper Consideration of Human Subjects

All subjects were guaranteed anonymity. The principal investigator was only able to identify participants by their assigned nominal numerical (PIN) number that had been previously assigned to them by Green Peak Partners. This ensured that all participants' names and other identifying data were not directly attached to the information collected, as per Institutional Review Board policy for exempt research projects.

Green Peak Partners invited previously assessed executives (prospective participants from the executive population of interest) to access the principal investigator's online Teachers College Qualtrics survey. When participants accessed the survey link, the principal investigator provided all survey instructions, including additional information about how learning agility was currently operationalized, and specific details related to the aims of the present study, before they began. All subjects were explicitly told that participation was optional, and that they may leave blank any items they do not wish to report on, and/or that they may end the survey at any time they wish. Finally, before commencing with the survey, participants were asked to enter their assigned PIN for the purposes of linking their Green Peak Partners performance assessment grade with their scores on the LAAI. This PIN does not allow the principal investigator to gain access to any other source of information about participants beyond the associated Green Peak Partners performance assessment grade. All materials used were approved by the Institutional Review Board at Teachers College, Columbia University prior to use. Appendix A contains a transcript of the information that was provided to all prospective participants prior to taking the Learning Agility Assessment Inventory in this present study.

CHAPTER IV: RESULTS

Overview

It became immediately clear that executives leading portfolio companies of private equity firms and hedge funds don't have a lot of time nor a lot of interest in participating in doctoral candidate research, regardless of how relevant or "hot a topic" the research might be for them and their challenging leadership roles. Although exactly 700 executives were contacted throughout three separate iterations of reaching out per the methodologies previously outlined in this study (i.e. via formal email invitation with fancy and impressive letterhead), only 142 gave a partial effort to complete most of the survey, and only 18.5% (130) finished it.

Regardless of the admittedly small response rate, the number of respondents was fortunately still suitable for some statistical evaluation and analysis, and did in fact reveal a few interesting insights into this extremely hard to reach population for the very first time related to learning agility. This executive sample is perhaps one of the unique strengths of this present body of work. A sacrifice in large sample size was made in exchange for an opportunity to derive insights directly from the population of interest when it comes to learning agility- that is, from business leaders and from other leaders of organizations currently undergoing unbridled change characteristic of the new 21st century marketplace environment.

In review, a concurrent criterion validity study was undertaken to evaluate the extent to which there existed a strong statistically significant positive correlation between scores on the LAAI and executive performance assessment grades. A second concurrent criterion validity study was then performed to evaluate the extent to which there was a strong statistically significantly positive correlation between scores on the newly proposed LAAI dimension of "Defensiveness" (which was operationalized as a high level of Model I theory-of-action and a low level of Model II theory-of-action equating to general non-defensiveness) and executive performance assessment grades. Finally, a predictive criterion validity study was proposed to further evaluate how scores on both the Model I v. Model II theory-of-action "defensive reactions" subset of items and scores on the LAAI statistically significantly added to the prediction of executive performance assessment grades, which was the criterion proxy for objective executive performance.

Testing Hypothesis #1

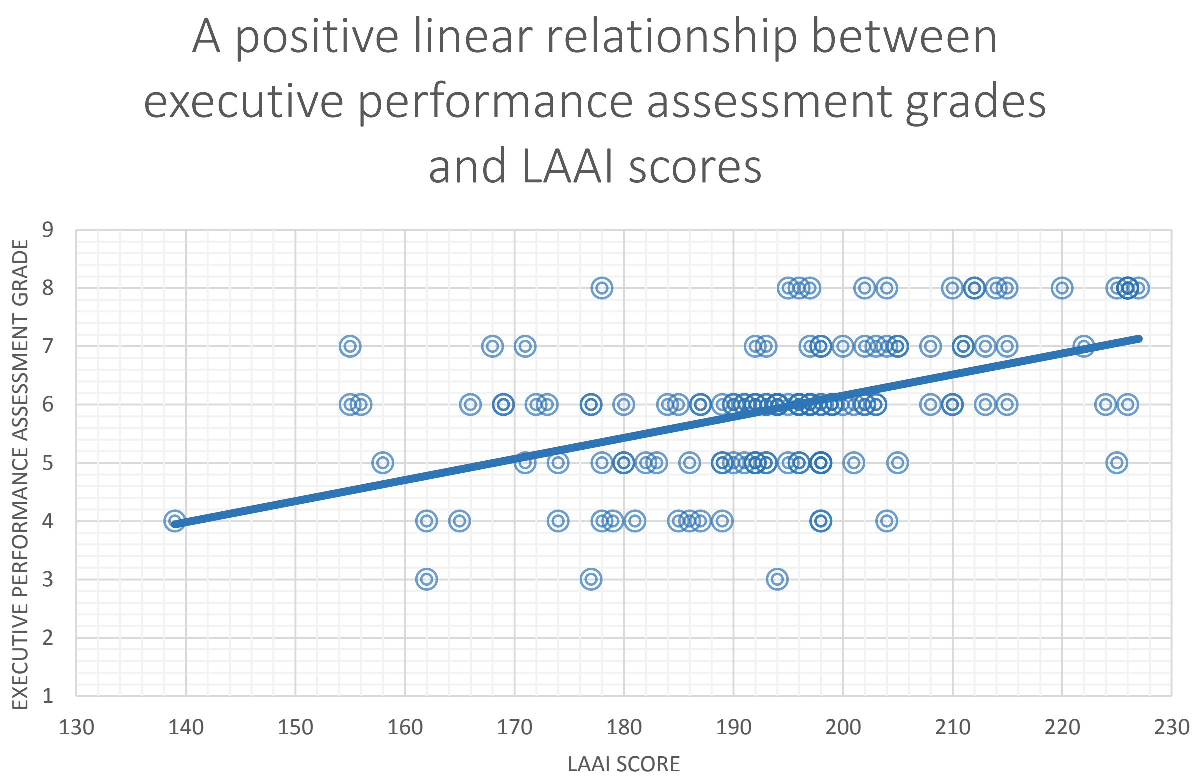
Findings

It was found that there was only a moderate positive correlation between executive performance assessment grades and learning agility as assessed by scores on the LAAI, $r(142) = .431$, $p < .05$ (see Cohen, 1988 for strength of association guidelines).

Assumptions of the data explored

The assumption of a linear relationship was established in the data for this study, with no significant outliers (to which Pearson's correlation is particularly susceptible). A graphical illustration is presented in Chart 7 below.

Chart 7: Linearity between executive performance assessment grades and LAAI scores



Testing Hypothesis #2

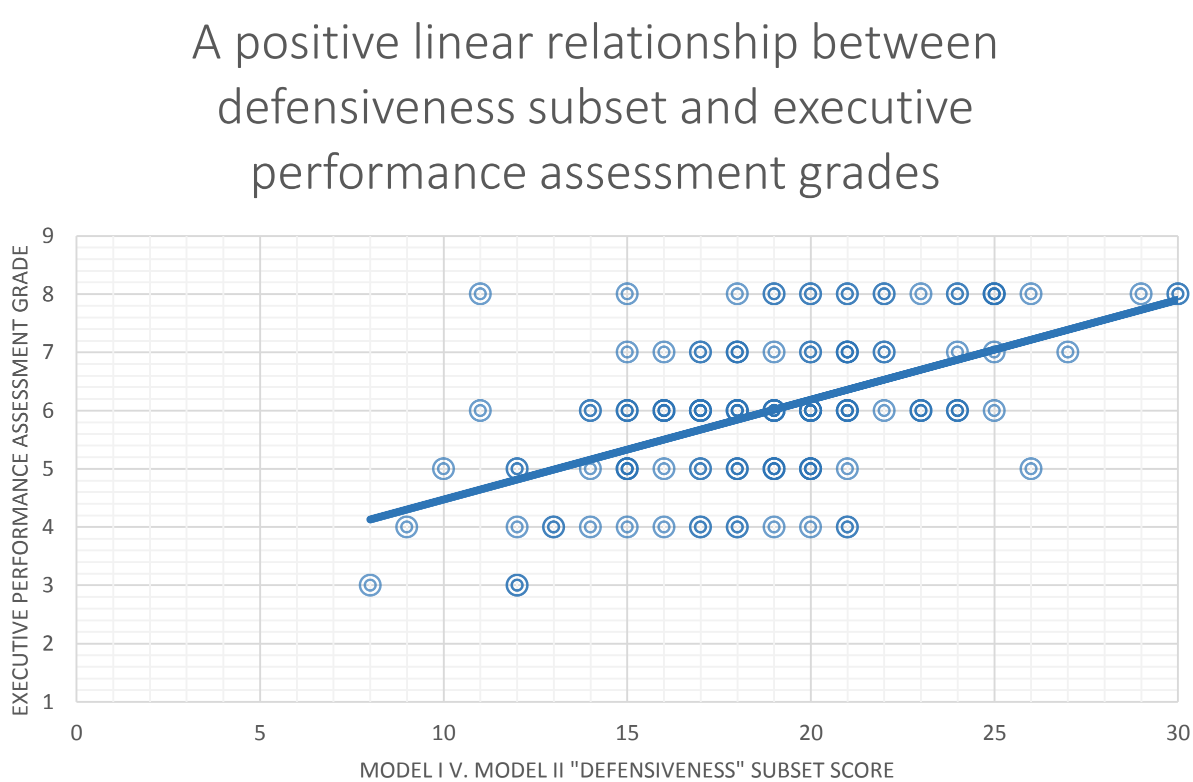
Findings

Only a moderately positive correlation was found between executive performance assessment grades and the “defensiveness” subset of Model I v. Model II theories-of-action, $r(142) = .474$, $p < .05$ (see Cohen, 1988 for strength of association guidelines).

Assumptions of the data explored

Similar to what was found in the assumptions of the data for the testing of hypothesis #1, a linear relationship was established in this data, with no significant outliers, as is shown below in Chart 8.

Chart 8: Linearity of defensiveness subset and executive performance assessment grades



A non-significant Shapiro-Wilk's test ($p > .05$) result was found for the Model I v. Model II theory-of-action "defensiveness" subset of scores, indicating that the assumption of normality was met for this variable, but it was bordering insignificance (0.083). Given the substantial size of the sample, in addition to the Shapiro-Wilk test, further graphical analysis was conducted to evaluate the assumption of normality for this variable. It is presented in Chart 9 in Appendix D.

As is shown in that appendix, it appears to be somewhat normally distributed, despite an odd "tri-modal" appearance. This is perhaps due to a reluctance on the part of participants to be fully authentic in their response patterns, though no such claims can be confirmed in this analysis. Upon further review, it could also be suspected that there is evidence to consider that the fully transparent Model II theory-of-action type participants lie in the middle, with those who have habitual tendencies and preferences toward a Model I theory-of-action who are fully transparent occupy the smaller low-end hump, and those with Model I theory-of-action who are not at all transparent (who purport socially-desirable response patterns, i.e., who have falsely indicated non-defensiveness) may occupy the smaller high-end hump. Conceivably, this occurrence could result in two "authenticity gaps" of sorts on such a chart. It is strongly noted, however, that the speculative nature of these conjectures is only resulting from mere visual observation, without reference to any other source of information, nor to a large sample of data. Certainly, a larger sample size would more powerfully provide for an enhanced data-driven perspective on these speculations. In summary, the admittedly ugly normal curve did not appear overly prohibitive, and so the analysis was conducted.

Testing Hypothesis #3

Findings

After critical assumptions were evaluated, a multiple linear regression analysis was run to predict executive performance assessment grades from learning agility (operationalized as scores on the LAAI) and “defensiveness” as operationalized as a Model I v. Model II theory-of-action subset. These variables statistically significantly predicted executive performance assessment grades, $F(2, 127) = 29.565$, $p < .05$, adj. $R^2 = .307$. Both variables added statistically significantly to the prediction, $p < .05$. Regression coefficients and standard errors can be found in Table 3 below.

Table 3: Regression coefficients and standard errors

Variable	β	SE_{β}	Standardized coefficient
(Constant)	-1.376	1.125	
Model I v. Model II theory-of-action	0.122	0.025	0.378*
LAAI	0.026	0.006	0.326*

Assumptions of the data explored

In the testing of this hypothesis, as established in the methodologies sections of Chapter III, executive performance assessment grades as a proxy for objective executive performance was established as the criterion variable of interest. The LAAI and the “defensiveness” Model I v. Model II theory-of-action subset were established as regressor variables. The empirical aim of this procedure was intended to examine a better overall fit of the revised learning agility model and the relative contribution of each of the predictor variables in relation to the total variance explained by the model.

All critical assumptions of the data were thoroughly checked. There was independence of residuals, the regressor variables collectively were linearly related to the criterion variable, and also each regressor variable was linearly related to the criterion variable (as was graphically illustrated in Charts 7-8). Collective linearity was tested for by plotting the studentized residuals against the (unstandardized) predicted values. The residuals did not show any evidence of a non-linear relationship, as is shown in Chart 10 of Appendix E, and so it can be accurately surmised that the relationship between the criterion variable and all regressor variables is highly likely to be suitably linear. Additionally, the assumption of homoscedasticity (that the residuals are equal for all values of the predicted dependent variable) appeared to have been met (also refer to Chart 10), as they are equally spread over the predicted values of the dependent variable, indicating the assumption of homogeneity of variance had not been violated.

The assumption of multicollinearity was also acceptably met, as none of the regressor variables had correlations greater than 0.469. Tolerance and VIF (VIF being simply the reciprocal of Tolerance) values in the coefficients table also indicated that this critical assumption had been met (Tolerance: 0.923; VIF: 1.084).

As was previously established, the Casewise Diagnostics table did not highlight any case where a standardized residual was seen as being greater than three standard deviations from the mean (which conventionally, I instructed SPSS to treat as an outlier of interest). Leverage points were examined by creating a variable “LEV_1” in my data file, which stored the leverage values for each case. The highest leverage value observed was 0.11, which was not deemed problematic (“safe” values are usually >0.2). Influential points were examined in much the same way, by creating a separate variable “COO_1” which stored Cook’s Distance values for each case. There were no values above 0.20, which is well below the criterion for investigation (Cook & Weisberg, 1982).

Although regression analysis is fairly robust to deviations from normality, evidence of the normality of residuals was found, and is shown in Chart 11.a and Chart 11.b in Appendix F. Both charts indicate the assumption of normality had been appropriately met for this analysis.

Checks and Verifications of the Internal Consistency of Items and Factors

LAAI

An inter-item reliability analysis was undertaken to evaluate the extent to which the items comprising each factor of the LAAI were acceptably reliable. It was found that all inter-item reliability levels for each factor of the LAAI were moderately acceptable, except for several instances where one or two questions were found to result in an increase in Cronbach's Alpha if removed. Various compelling and perhaps even somewhat counter-intuitive findings were also illuminated by the analyses, and each are further reported in Tables 5-10 in *Appendix G: Reliability of LAAI*.

Inter-item reliability of Model I v. Model II "Defensive Reactions" subscale

There was only a mild level of inter-item reliability found among the subset of Model I v. Model II items proposed (see Table 4). One item, "I am known for quickly simplifying very complex issues" was deemed appropriate to remove.

Table 4. Reliability of Model I v. Model II theory-of-action "Defensiveness" subscale

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.673	.710

Item-total statistics

Item	Cronbach's Alpha if item deleted
D_ColleaguesKnowListentoOthers	.595
D_PeopleCommentDefens	.517
D_PastTakenControlQuickly	.567
D_PeopleknowISeekBothSds	.602
D_ImKnownforSimplyfingComplx	.794

CHAPTER V: DISCUSSION

Summary of study

To review, these studies focused on a relatively newfound construct known as "learning agility." The empirical construal of the notion of being learning agile is not well understood, despite the fact that is quickly becoming an ever-more imperative behavior. This is because the workplace of the 21st century is an entirely different environment than that of the 20th. Its rapidly changing, dynamic demands are not well suited for those who avoid taking risks, who steer away from new information, who discredit feedback from others, and who don't take time to reflect on their past learning.

It is also a place where executive success at the top of an organizational hierarchy is quite bleak. The probability of successfully reaching the tenure milestone of just 18 months as a CEO is currently that of a coin flip (Hogan, Hogan, & Kaiser, 2009; Murphy, 2012). Furthermore, the average cost of a mis-hire has been estimated at nearly six times the base salary for a sales representative, fifteen times the base salary for a mid-level manager, and twenty-seven times the base salary for a top executive such as the CEO (Smart, 2005). This plainly demonstrates the need for organizational scholars to begin to explore contextual and causal factors, and to ask that eternal question, "Why?"

Fortunately, learning agility may very well be a distinguishing factor when it comes to 21st century executive performance. Learning agile executives theoretically will know what to do *when they don't know what to do*. They will understand that not taking risks is risky. They will actively seek out opportunities to get information, feedback, and even criticism from others. They will respond in open, non-defensive ways to disconfirming information. And finally, when they feel the urge to resist change and the unknown, they will be the first to intrepidly lean forward, push ahead despite professional risks, and be among the first to venture into the unknown.

DeRue, Ashford, & Myers' (2012) learning agility model had assigned "openness to experience" as an antecedent, but this concept may be partially limited in scope. As Finger and Asun (2000, pgs. 45-46) have noted, Argyris and Schön's (1978) conception of single v. double loop learning, or Model I v. Model II orientations, provide an enhanced picture, which accounts for more than mere trial and error, or open v. closed mindedness. Their extensive work has also been thoroughly rooted in pragmatic learning theory beginning with Dewey (1933), Lewin (1948, 1951), and Kolb (1984). This is a good thing, simply because it allows for a more theoretical evaluation, and it provides the researcher with a much more holistic comprehension of the contextual factors underlying defensiveness and its converse, "open mindedness" as put forth by DeRue et al.'s first learning agility model.

Argyris and Schön (1978) explain the underlying fundamentals of defensive reactions, or the differences in the extent to which an individual's theories-in-use and their espoused theory are aligned. When not aligned, the consequential outcomes of defensiveness, closed mindedness, and inhibited learning immediately follow as a logical result. Worse still, this single loop process may not always be even known by the individual. In other words, in such a situation there may likely exist a mental map that accounts, to some degree, for an unconscious cognitive hypocrisy of sorts. That, in other words, what they say they do, and what they think they do, is not actually *what* they do.

"Openness to experience" as DeRue et al. (2012) have put forth as an antecedent to learning agility also does not account for avoiding failure, saving face, or blaming, which there is reason to believe should be an integral part of the revised learning agility model (Mitchinson, Gerard, Roloff, & Burke, 2012; Mitchinson & Morris, 2012). Compare that to Argyris' conception of Model I and Model II theories-of-action, which lends itself extremely well to this notion, and thus is as an ideal substitution for mere "openness to experience" as an antecedent of learning agility. Within Model I, one's theories-in-use are characterized by a strong desire to win and avoid psychological humiliation. People programmed with Model I theories-of-action also produce Model I group and organizational dynamics that include quasi-resolution of conflict, uncertainty, avoidance, mistrust, conformity, face saving, intergroup rivalry, invalid information for important problems and valid information for unimportant problems, misperceptions, miscommunication, and parochial interests. One's action strategy is fully designed to protect oneself and their situational context. If actions are driven by moving away from something, then those actions are controlled and defined by whatever it is they are moving away from, not by the conscious individual and what they might ideally like to be moving towards. Resultantly, the potential for learning is seriously impaired.

To evaluate this newly proposed antecedent, items were created for Model I v. Model II theories-of-action, and a concurrent criterion validity study was conducted. The behaviorally-focused items were carefully scripted to ask about reputational factors. As Hogan & Fico (2011) and Judge, Lepine, & Rich (2006) have perspicaciously noted, when asking about socially undesirable traits and behaviors such as defensiveness, the respondent, as a result of their defensiveness, may be less likely to respond transparently, or to even know that they are defensive in the first place. So, an effective means of eliciting an authentic response is to ask about what others have said in relation to these undesirable traits, which the respondent may be better able to recall and communicate.

The reliability of the scale items were also examined, and one question "I am known for quickly simplifying complex issues" was found to reduce overall reliability. Overall, results indicated a moderate positive relationship and thus gave evidence to the notion that this is an acceptable antecedent of learning agility in a revised model.

A concurrent criterion validity study was also performed for the LAAI itself, using executive performance assessment grades as a proxy criterion for executive performance. A moderate positive relationship was found, indicating that the LAAI and executive performance assessment grades, previously shown to predict executive performance, were also positively related to learning agility. Reliability was analyzed, and although some items were found to be less reliable than others, the idiosyncratic nature of the sample may have had some influence. Further discussion on this matter will take place in the next section.

Finally, a predictive criterion validity study of the revised learning agility model with the Model I v. Model II theory-of-action antecedent was conducted, and was found to be a better overall predictor of executive performance assessment grades than the LAAI alone. This finding gives evidence to the notion that learning agility and defensiveness are negatively related concepts, and that more specifically, one's theories-of-action play an important role as an antecedent in a revised model of the construct of learning agility.

Implications of findings

Owing to the title of this manuscript, it should be summarized that the results of this study indicate that learning agile business leadership does perhaps differ in some very distinct ways, and most importantly from a theoretical perspective, the revised model of learning agility may be a better model for future research for several key reasons.

Primarily, it positively relates to at least one measure of executive performance. Although no causal claims can be made, such that learning agility predicts performance, it is interesting to note that a positive relationship between a proxy of performance and learning agility has been found to exist among executives. Second, these executives do perhaps look different, and not only in terms of the factors of learning agility, but also in terms of their inherent theories-of-action, with more learning agile leaders and better executive performers adopting a Model II theory-of-action, and less learning agile leaders and worse executive performers adopting a Model I theory-of-action.

Newfound implications related to the reliability of LAAI items is also a worthy area to review. Many of these results could conceptually be due to the idiosyncratic characteristics of the sample, that being executive leaders of extremely dynamic business organizations, but this suggestion of course cannot be known with whole confidence. It is with that important realization in mind that we now proceed to examine some of the more noteworthy findings by factor.

Item statistics tables showed that the LAAI factor “Feedback Seeking” was found to have one question, “Constructively discuss my mistakes with others,” that had a much lower mean response, at 4.429. The explanation of this lower average value is purely speculative in nature, but it is conceivable that many senior executives do not find the opportunity to, or do not wish to, highlight their mistakes to their peers (which in this case would be other executives), regardless of the potentially constructive nature of the dialogue or the possibilities for beneficial outcomes on behalf of the executive. From a purely anecdotal standpoint, this conjecture that highlighting mistakes is more costly and carries much higher ramifications for senior executives than others seems to make practical sense. Thus, the tradeoff for them would not be comparable with most others, and so despite the fact that they might have performed this behavior in other circumstances, they might tend to admit mistakes less often as a result of their position- not directly as a result of their lack of learning agility. In other words, this comparison may contain more error as a result of the participant’s role within the organization, and the question might otherwise remain appropriate for future use with a broader audience.

The LAAI factor “Information Seeking” also had one item, “Bring up problems and tough issues with others when needed” which, once again, seems a probable candidate for the notion that the population from which this sample was drawn could, with reasonable likelihood, be less inclined to divulge problems and tough issues with others. Doing this in a high stakes executive role would perhaps have much more profound and robust implications (on multiple levels) that it would for even mid-level managers to bring up tough problems. This suspicion is further evinced by the fact that this item had the lowest response mean (4.071) than all other items within the factor, indicating that this would indeed be the least likely behavior to be performed by this sample of business leaders.

The LAAI factor "Reflection" indeed contained something of perhaps substantial remark, which ought to be briefly discussed. Inter-item correlation matrix reported that among the inter-correlations between items, there were two that were very highly correlated at $r(142) = .612$, $p < .05$. These two items were "Take time to reflect on how to be more effective" and "Stop to reflect on work processes and projects." On reading and re-reading these two items, it does appear that they may indeed lack some measure of exclusivity. In other words, they might overlap too much, and be asking about the same behavior (or at least, be interpreted by the respondent as the same behavior in many circumstances). If, for this sample of dynamic business leaders, "effectiveness" is similarly related in their conception to "work processes and projects" then it is indeed one in the same for them. This oversimplification and narrowed scope of all that encompasses effectiveness might have been problematic due to the homogenous sample, and thus the LAAI in turn less suitable in this regard for this type of population, but more research would need to be conducted to confirm. However, it should be noted that problematic circumstances such as these could very well arise when an instrument is applied to a sample from a population of which it was not comprehensively normed.

These two items also had the lowest average responses, at 4.57 and 4.63, respectively. While these means are not too much lower than the rest, they still indicate that these behaviors were the least likely to have occurred among this sample of executives. This also might make practical sense, given that time to stop and reflect may be all too often be seen as a luxury for this group.

The LAAI factor “Experimenting” had an item, “Work with colleagues from different backgrounds or job functions to share perspectives” which also produced something of peculiar interest. Upon review of this item, it was found that the standard deviation was much higher for this item (1.435) than all the rest of the items within this factor. This could conceivably be due to the opportunistic nature of this behavior. That is, working with colleagues from different backgrounds or job functions could be much more contingent on job type, geography, executive role, etc., than a simple choice for the participant. Thus, those with ample opportunities to do so report moderate to high levels of this behavior, and those without a regular chance to work with colleagues from different backgrounds report very low levels of this behavior. If this were the case, it could conceivably result in our actual finding of a much higher variance compared to other items within the scale. Although further investigation is needed at this time to confirm this conjecture, it may be important to once again note the importance of norming for any instrument, particularly when it is applied to such a specific job role as that of “business executive” or some such.

Along the same line of reasoning, there was another noteworthy finding resulting from this analysis of the “Experimenting” factor. The item, “Ask others for help when needed” had a much lower mean reporting score than all other items (4.54), implying that this behavior was done much less often. It once again stands to reason that this finding is perhaps germane to the sample being studied, as executives and leaders of dynamic organizations in the business world may find less strategic utility, or less psychologically secure opportunities, to ask others for help.

The LAAI factor of “Agility” contained one item, “Articulate seemingly competing ideas or perspectives when needed,” which had a much lower mean response than all other items (4.754), indicating this behavior was not performed as often as the rest. Any in-depth explanation for this finding is purely speculative, and it is the opinion of the author that further review ought to take place to perhaps establish possible causal motives. But, could it be that executives and other business leaders (i.e. this sample) tend to habitually articulate unifying ideas, rather than competing ideas, in order to better galvanize and unify their organizations? This worthy line of inquiry is indeed in need of further review.

The second interesting finding resulting from the analysis of this LAAI factor was a quite strong correlation between the item, “Switch between different tasks or jobs as needed” and the item, “Consider many different options before taking action” with $r(130) = .724$, $p < .05$. It appears that these behaviors may be highly interrelated among executives, as they might continually balance various work streams and routinely multi-task throughout the day, while at the same time, be recurrently considering the wide array of various options being put in front of them for potential action by subordinates.

Finally, the inter-item reliability analysis of the subscale designed to assess defensiveness had several noteworthy implications. There was only a mild level of inter-item reliability found among the subset of Model I v. Model II items proposed (see Table 10). One item, “I am known for quickly simplifying very complex issues” was deemed appropriate to remove. It is perhaps judicious to conjecture that again, this finding could be due to sampling error, rather than a mere problem with the wording of the question. As leaders of portfolio companies, partially or wholly owned by activist investors, this sample could actually be quite adept at translating complicated information into bulleted, simplified action plans for their stakeholders (read: shareholders). For example, it would be beneficial in these circumstances for many members of this sample to translate myriad macroeconomic indicators of infinite complexity into simplified, structured, 1-2-3 step problems, in order to facilitate an organized and focused business strategy. However, this is merely a speculative assessment of the underlying circumstances surrounding the problems with this item. Further use of this subscale should make attempts to remove or revise this problematic item, and could continue to evaluate the role of one's theories-of-action as an antecedent contained within a revised model of learning agility.

Conceptualization of defensiveness as a "de-railer" of learning agility

It is worth questioning the common conceptualization of defensiveness as a generalized "de-railer" of learning agility. This important conceptualization was fully formulated by Mitchinson et al. (2012). The results and findings of these present studies perhaps suggest something theoretically much more complete. That is, rather than an otherwise learning agile individual being de-railed as a result of defensive behaviors, instead, a Model II (non-defensive) theory-of-action is a *prerequisite for* learning agility. This differentiation is important, primarily, because the former indicates that learning agility and defensiveness can both be at odds simultaneously with each other within the everyday happenings and outcomes of a given individual's actions, and the latter outlines non-defensiveness as a requisite antecedent to learning agility. In such circumstances, learning agility would not occur if defensive reactions, in the form of a Model I theory-of-action, is present. This fruitful area of future research would be well worth the investigation, and would confirm what this set of studies suggest about critical antecedents within its revised model of learning agility.

Limitations

This body of research is not without several key limitations, primarily resulting from the tradeoff that was intentionally made to enhance mundane realism in lieu of experimental or quasi-experimental laboratory conditions which could have potentially allowed for causality to be established. The opportunity to engage with a sample of senior executives, the population for which learning agility is extremely relevant both from a practical and theoretical standpoint, was deemed worthy of this admittedly more messy approach.

The underestimated difficulties of soliciting participation resulted in a disappointing 81.5% who did not respond to the survey. What were they like? What would the results have been if participation had been more in the range of 30% or more? These questions must go unanswered, and the missed opportunity for solid empirical evidence will have to be substituted for hollow speculation and conjecture. For example, it is unknown if the sample who did choose to participate was not representative of the population of executives in that their learning agile tendencies were a motive to seek information about themselves by taking the survey. This line of reasoning is logical, but of course, also entirely unfounded.

Another limitation was the use of Green Peak Partners' executive performance assessment grades. First, it is quite apparent that a more longitudinally-based criterion proxy for executive performance would have been preferable, although no such measure was available to the researcher at the time of this set of studies. Although the grades indeed took into account the tracking of the executive's past performance from the very beginning of their career, it would have been more empirically justified to use a measure that provided a time series set of data points.

Furthermore, better criterion proxies certainly exist when it comes to executive performance, which were not available for these endeavors due to legal information privacy standards. Such things as, or perhaps even a weighted combination of, tenure in leadership position, senior team feedback and performance reviews, governing board member's reviews and evaluations, longitudinal analysis of quarter-over-quarter market leadership or EBITDA growth adequately controlled for market factors, share price controlled for market factors, or a combination of any or all of the above, might have been a much more accurate and objective criterion variable for overall executive performance. These hard-to-measure criteria may be a significant opportunity for future research if they were able to be measured, both legally and practically, especially for business management researchers.

Related to the conception of defensiveness as an antecedent, it is worth considering that Argyris' Model I and Model II theory-of-action approach is certainly not the only valid substitute for "openness to experience" in a revised learning agility model. For example, based on a successive lineage of previous human development scholarship by such authors as Kohlberg, Piaget, and others, Kegan (1994) has developed a theory of adult cognitive development that defines five stages of mental complexity or “orders of mind” known as Constructive-Developmental Theory. These developmental stages are not placed within a value system such that higher stages are considered objectively better, nor are they about higher generalized “g” intelligence or IQ, but rather, they represent five levels of qualitatively more complex ways of thinking, including a version of defensiveness as a consequential outcome of the level of ordered thinking that one’s process is engaged. Proposing a substitute for “openness to experience” in a revised theoretical model through this lens would be a fruitful avenue of future research and inquiry, and would continue to test the model in empirically constructive ways. In other words, there is more than one way to conceptualize defensive reactions, and although some may be more appropriate than others, it is unlikely that merely one approach provides exhaustive coverage of the matter.

Final Remarks

Suitably technical academic language does not easily lend itself to the communication of emotive considerations, but in this final section, such contemplations will be briefly addressed.

Challenges and profoundly difficult problems have always confronted the leaders of people. But in the brave new world of the rapidly changing and dynamic 21st century, our leaders will need to rely on many of the aforementioned behaviors comprising learning agility more than ever, to effectively solve the profound challenges facing all of us today. Will we substantially mitigate social injustice in the next 50 years? Will we be able to successfully intervene in the intractable conflicts that hinder the communication of ideas and thwart prosperity for all? Will we find a sustainable solution to climate change and the health of our planet, now home to over six billion of us?

We cannot know if we will meet these challenges. But as the leaders of tomorrow begin to witness the problems of today, they will need to actively seek new information, consider the feedback they receive, reflect on best practices, be agile in their learning, draw from a variety of colorful past experiences, and be non-defensive and open to receiving and giving due consideration to information that may not always align with their pre-conceived beliefs. Beyond the mere value of learning agility as it relates to executive performance, which was the focus of this body of work, it is even more important to consider the role that learning agility will likely play when it comes to solving the most challenging problems of the next century.

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APPENDICIES

Appendix A: Informed Consent & Participant's Rights Script

Welcome!

You are invited to voluntarily participate in this online research study on the role of learning agility, particularly in the workplace. Learning agility refers to the ability to learn quickly and broadly, and to draw from many past lessons to perform successfully in new situations. This present research is investigating the extent to which learning agility relates to professional performance assessments, and the extent to which defensiveness can act as a de-railer of learning agility. You will be asked a series of survey questions related to learning agile behaviors and preferences. You will also be asked to enter the PIN that has been assigned to you by Green Peak Partners, which will enable the principal investigator of this study to link your past assessment grade from Green Peak Partners with your score on the Learning Agility Assessment Inventory, which comprises the content of this survey. However, no other personally identifying information will be known to the principal investigator, and Green Peak Partners will not know which PINs have been entered by participants in this study (or otherwise, who has decided to take this survey). The principal investigator of the present study is Brad Smith, a student at Teachers College, Columbia University. This investigation is part of a doctoral dissertation. Minimal risk is associated with participation, given that this research is entirely comprised of an online survey. If you experience discomfort of any kind, or encounter any other obstacle or inconvenience as a result of your participation, you may exit the survey at any time. If complications of any kind are not resolved as a result of exiting the survey, you may contact the principal investigator at bcs2136@tc.columbia.edu, and appropriate measures will be immediately taken. Thank you for your time, and I wish you continued success.

Expect 10-12 minutes to complete.

For any further inquires related to this research, contact Brad Smith, the principal investigator of this study, at bcs2136@tc.columbia.edu.

If at any time you have comments or concerns regarding the conduct of the research, or you have questions about your rights as a research subject, contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.

Appendix B: LAAI Items

Q1 Below, you will find a list of behaviors that people perform at work. Thinking back over the past 6 months, please consider how often you have engaged in each behavior in your professional life.

Seek feedback from my manager about my performance

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q2 Appropriately discuss my potential for advancement within the organization with my manager

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q3 Ask my peers to provide me with feedback on my performance

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q4 Directly ask others for their thoughts on how I can improve my performance

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q5 Constructively discuss my mistakes with others

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q6 Below, you will find a list of behaviors that people perform at work. Thinking back over the past 6 months, please consider how often you have engaged in each behavior in your professional life.

Seek new information on topics related to my job or field

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q7 Read trade journals, newspaper articles, books, or other sources to stay informed

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q8 Update my knowledge and expertise through formal training or education

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q9 Collect data to increase my knowledge, evaluate my progress, and inform my next steps

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q10 Bring up problems and tough issues with others when needed

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q11 Below, you will find a list of behaviors that people perform at work. Thinking back over the past 6 months, please consider how often you have engaged in each behavior in your professional life.

Consider the reasons for and consequences of my actions or recent events

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q12 Collaborate with people in other parts of the organization

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q13 Ask a variety of stakeholders for their points of view

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q14 Take time to reflect on how to be more effective

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q15 Work with colleagues from different backgrounds or job functions to share perspectives

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q16 Stop to reflect on work processes and projects

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q17 Critically evaluate work-related events with others in order to understand what happened

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q18 Look for ways to leverage the unique skills, knowledge, and talents of others

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q19 Ask others for help when needed

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q20 Below, you will find a list of behaviors that people perform at work. Thinking back over the past 6 months, please consider how often you have engaged in each behavior in your professional life.

Jump into action and learn by trial and error

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q21 Embrace pursuits that may be risky, even if the outcomes are uncertain

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q22 Experiment with unproven ideas by testing them out

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q23 Engage in tasks that are ambiguous in terms of how to succeed

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q24 Volunteer for assignments or projects that involve the possibility of failure

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q25 Take on new roles or assignments that are challenging

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q26 Try different approaches to see which one generates the best results

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q27 Challenge others' ideas and opinions even when they are shared by many people

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q28 Evaluate new techniques or different ways of solving problems

- Not at all (1)
- Very Rarely (2)
- Rarely (3)
- Occasionally (4)
- Frequently (5)
- Very Frequently (6)

Q29 For the following items, please evaluate how true each statement is with regard to how you engage with your work:

My colleagues know that I listen carefully to other people's opinions and ideas, even if I think they are wrong or different from my own

- Not at all true (1)
- Rarely true (2)
- Only partially true (3)
- Somewhat true (4)
- Mostly true (5)
- Always true (6)

Q30 People have commented that I can be defensive when I’m challenged with opposing opinions

- Always true (1)
- Mostly true (2)
- Somewhat true (3)
- Only partially true (4)
- Rarely true (5)
- Not at all true (6)

Q31 Past colleagues might say that I've taken control over a situation too quickly when information wasn't clear

- Always true (1)
- Mostly true (2)
- Somewhat true (3)
- Only partially true (4)
- Rarely true (5)
- Not at all true (6)

Q32 People know that I usually seek to fully understand both sides of an issue with an open mind, even if I’ve already formed an opinion

- Not at all true (1)
- Rarely true (2)
- Only partially true (3)
- Somewhat true (4)
- Mostly true (5)
- Always true (6)

Q33 I am known for quickly simplifying very complex issues

- Always true (1)
- Mostly true (2)
- Somewhat true (3)
- Only partially true (4)
- Rarely true (5)
- Not at all true (6)

Q34 Please evaluate how well each statement describes how you engage with your work:

Consider many different options before taking action

- Not at all (1)
- Hardly (2)
- Only Partially (3)
- Somewhat (4)
- A Fair Amount (5)
- Very Much (6)

Q35 Switch between different tasks or jobs as needed

- Not at all (1)
- Hardly (2)
- Only Partially (3)
- Somewhat (4)
- A Fair Amount (5)
- Very Much (6)

Q36 Find common themes among opposing points of view

- Not at all (1)
- Hardly (2)
- Only Partially (3)
- Somewhat (4)
- A Fair Amount (5)
- Very Much (6)

Q37 Articulate seemingly competing ideas or perspectives when needed

- Not at all (1)
- Hardly (2)
- Only Partially (3)
- Somewhat (4)
- A Fair Amount (5)
- Very Much (6)

Q38 Propose solutions that others see as innovative

- Not at all (1)
- Hardly (2)
- Only Partially (3)
- Somewhat (4)
- A Fair Amount (5)
- Very Much (6)

Q39 Quickly develop solutions to problems

- ❍ Not at all (1)
- ❍ Hardly (2)
- ❍ Only Partially (3)
- ❍ Somewhat (4)
- ❍ A Fair Amount (5)
- ❍ Very Much (6)

Q40 Get up to speed quickly on new tasks or projects

- ❍ Not at all (1)
- ❍ Hardly (2)
- ❍ Only Partially (3)
- ❍ Somewhat (4)
- ❍ A Fair Amount (5)
- ❍ Very Much (6)

Q41 Acquire new skills and knowledge rapidly and easily

- ❍ Not at all (1)
- ❍ Hardly (2)
- ❍ Only Partially (3)
- ❍ Somewhat (4)
- ❍ A Fair Amount (5)
- ❍ Very Much (6)

Q42 React well to unexpected problems

- ❍ Not at all (1)
- ❍ Hardly (2)
- ❍ Only Partially (3)
- ❍ Somewhat (4)
- ❍ A Fair Amount (5)
- ❍ Very Much (6)

Q43 Readily grasp new ideas or concepts

- ❍ Not at all (1)
- ❍ Hardly (2)
- ❍ Only Partially (3)
- ❍ Somewhat (4)
- ❍ A Fair Amount (5)
- ❍ Very Much (6)

Appendix C: Letter of Intent and Express Permission from Green Peak Partners

July 10, 2014

To Whom It May Concern:

This letter is to communicate that Bradford Smith, the principal investigator of this research study on learning agility, has our authority to analyze data related to prior assessments that have been conducted by us with the intent to learn more about the construct of learning agility.

Please feel free to reach out with any questions.

Regards,

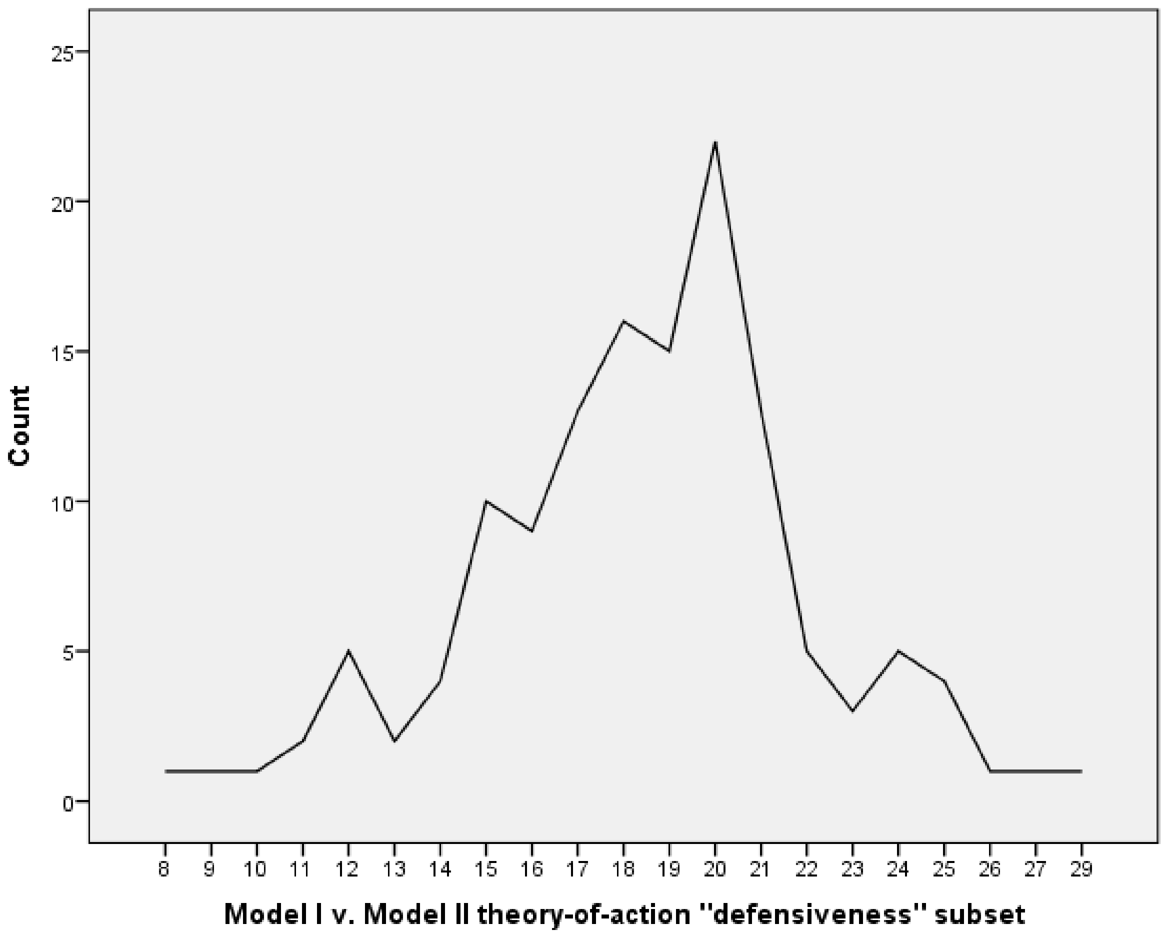
Becky Winkler

Becky Winkler, Ph.D.
Principal, Green Peak Partners

Green Peak Partners

Appendix D: Normal Distribution of Model I v. Model II Theories-of-Action “Defensiveness” Subset with Slight Trimodal Appearance

Chart 9: Trimodal distribution of Model I v. Model II theories-of-action subset

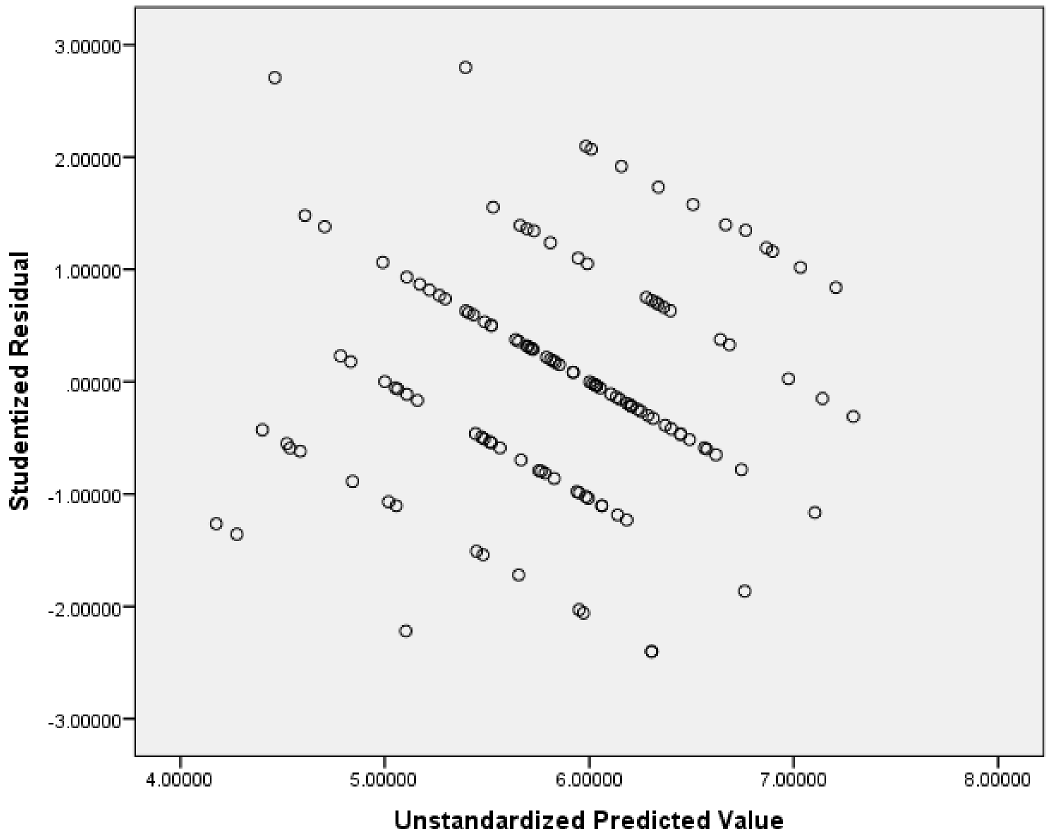


Appendix E: Linearity and Homoscedasticity by Studentized Residuals plotted against (unstandardized) Predicted Values

As established in the methodologies sections of Chapter III, executive performance assessment grades as a proxy for objective executive performance was established as the criterion variable of interest. The LAAI and the “defensiveness” Model I v. Model II theory-of-action subset were established as regressor variables. The empirical aim of this procedure was intended to examine a better overall fit of the revised learning agility model and the relative contribution of each of the predictor variables in relation to the total variance explained by the model.

All critical assumptions of the data were thoroughly checked (refer to Charts 7-8 to see evidence of the independence of residuals and the linearity of the regressor variables collectively related to the criterion variable). Furthermore, collective linearity was tested for by plotting the studentized residuals against the (unstandardized) predicted values. The residuals did not show any evidence of a non-linear relationship, as is shown in this appendix. Therefore, it can be accurately surmised that the relationship between the criterion variable and all regressor variables is highly likely to be suitably linear. Additionally, the assumption of homoscedasticity (that the residuals are equal for all values of the predicted dependent variable) appeared to have not been violated, as they are equally spread over the predicted values of the dependent variable, indicating the assumption of homogeneity of variance had been met.

Chart 10: Studentized residuals plotted against unstandardized predicted values



Appendix F: Assumption of Normality of Residuals

Although regression analysis is fairly robust to moderate deviations from normality, the critical assumption of normality of residuals was established by Chart 11.a. and Chart 11.b. below, which both indicate the assumption of normality had been appropriately met:

Chart 11.a. Regression standardized residuals histogram

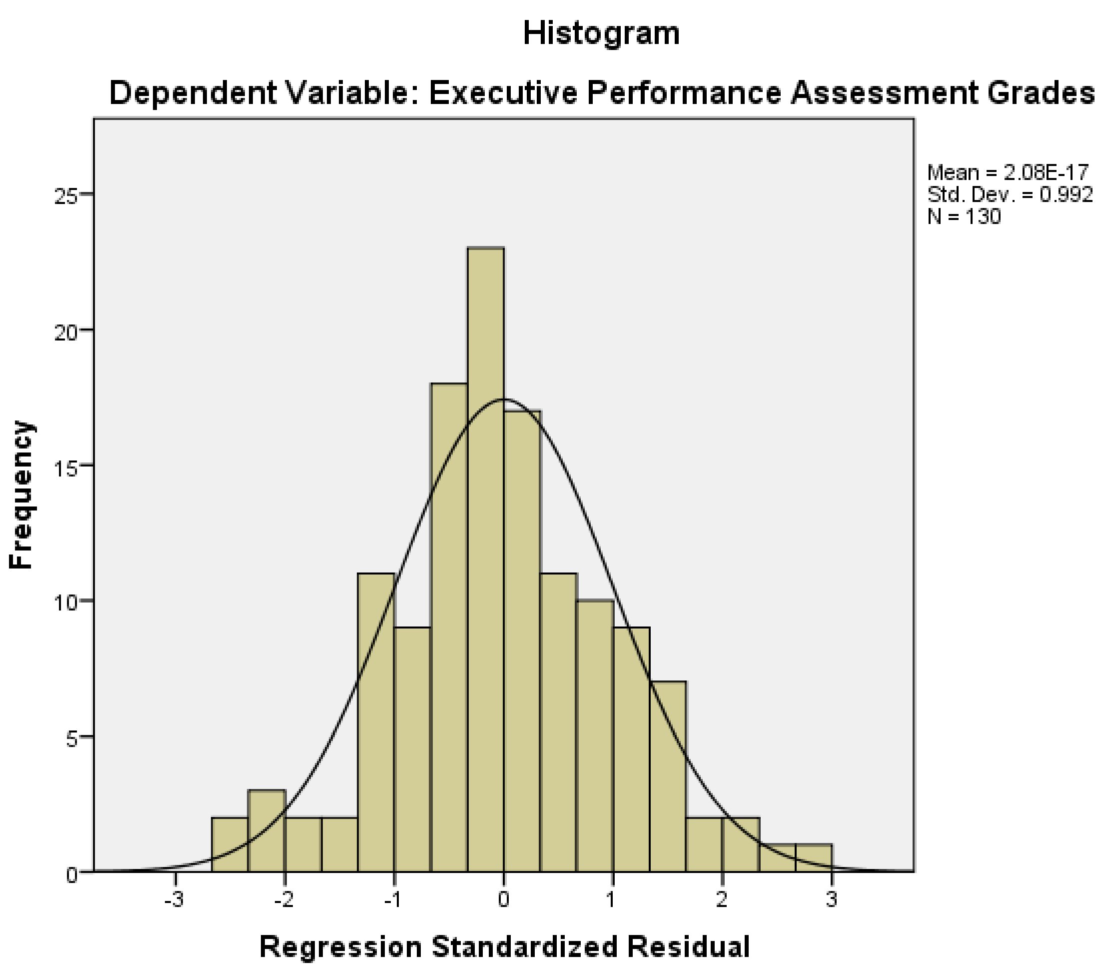
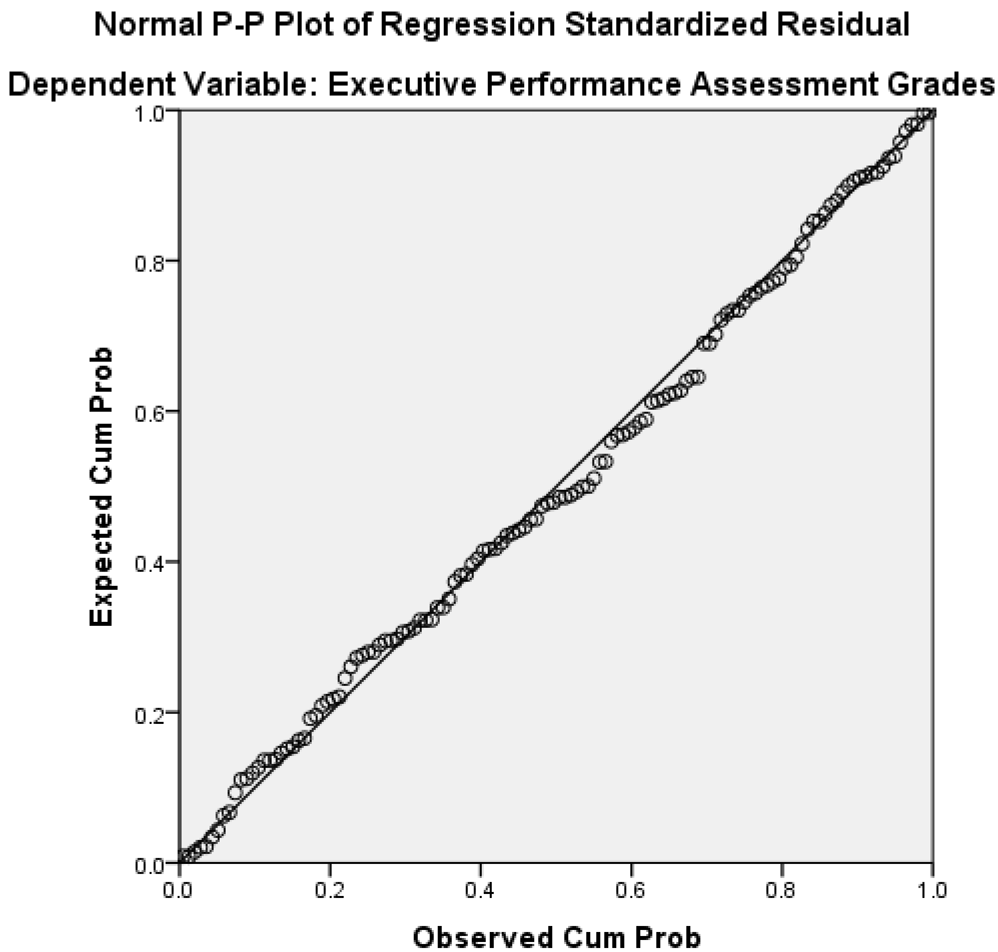


Chart 11.b. Normal P-P plot of regression standardized residuals



Appendix G: Reliability of LAAI

The LAAI factor "Feedback Seeking" had just a moderately acceptable level of internal consistency (see Table 5 below). The item "Appropriately discuss my potential for advancement within the organization with my manager" was the only item that was found to result in an increase in Cronbach's Alpha to 0.693 from 0.646 if removed. Item statistics outputs also showed that the item, "Constructively discuss my mistakes with others" had a much lower mean response, at 4.429.

Table 5. Inter-item reliability of LAAI factor: Feedback Seeking

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.646	.644

Item-total statistics

Item	Cronbach's Alpha if item deleted
FS_Seekfeedbackfrommymanager	.610
FS_Discussmypotentialforadvance	.693
FS_Askpeerstoprovidemewith	.599
FS_Directlyaskothersfortheir	.500
FS_Discussmymistakes	.530

The LAAI factor "Information Seeking" had an acceptable level of internal consistency. As with the first factor previously discussed, this too had one item that if deleted, would increase overall factor reliability from .747 to .836 (see Table 6). This questionable item was "Bring up problems and tough issues with others when needed."

Table 6. Inter-item reliability of LAAI factor: Information Seeking

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.747	.783

Item-total statistics

Item	Cronbach's Alpha if item deleted
IS_Seeknewinfoonjobfield	.663
IS_ReadJournArtBooks	.667
IS_UpdateKnowWtraininged	.657
IS_Collectdata	.677
IS_BringUpProblems	.836

The LAAI factor "Reflecting" had a moderate level of inter-item reliability as well, with no single item showing an increase in Cronbach's Alpha if removed (Table 7). Inter-item correlation matrix reported that among the inter-correlations between items, there were two that were highly correlated at $r(142) = .612$, $p < .05$. These two items were "Take time to reflect on how to be more effective" and "Stop to reflect on work processes and projects." These two items also had the lowest average responses, at 4.57 and 4.63, respectively. While these means are not too much lower than the rest, they still indicate that these behaviors were the least likely to have occurred among this sample of executives.

Table 7. Inter-item reliability of LAAI factor: Reflecting

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.682	.682

Item-total statistics

Item	Cronbach's Alpha if item deleted
R_Considerthereasonsfor	.666
R_Askstakeholderspointofview	.638
R_Taketimereflecteffectiveness	.624
R_Stopreflectonwork	.597
R_Criticallyevalwork	.629

The LAAI factor "Experimenting" showed a strong level of internal consistency. There was one item, "Work with colleagues from different backgrounds or job functions to share perspectives" which would have increased Cronbach's Alpha from .762 to .830 if deleted (refer to Table 8). Upon review of this item, it was found that the standard deviation was much higher for this item (1.435) than all the rest of the items within this factor. There was another noteworthy finding resulting from this analysis. The item, "Ask others for help when needed" had a much lower mean reporting score than all other items (4.54), implying that this behavior was done much less often.

Table 8. Inter-item reliability of LAAI factor: Experimenting

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.762	.815

Item-total statistics

Item	Cronbach's Alpha if item deleted
E_Collaboratewpplotherpts	.753
E_Workwdifftoshareperspect	.830
E_Lookforwaystoleverageskills	.750
E_Askothersforhelp	.733
E_Jumpintoaction	.729
E_EmbracePursuitsRisky	.732
E_ExperimentUnproven	.739
E_EngageAmbigSucceed	.751
E_VolunteerAssProjPossFail	.742
E_TakeonNewRolesChallenging	.726
E_TryDiffApproachResults	.746
E_ChallOtherIdeaShared	.728
E_EvalNewTechWaysSolve	.739

The LAAI factor referred to as "Agility" had the strongest measure of inter-item reliability among all of factors (Table 9). There were no items that, if deleted, would have increased the overall Cronbach's Alpha for the set. Two important findings also coincidentally resulted from this analysis, however.

The item “Articulate seemingly competing ideas or perspectives when needed” had a much lower mean response than all other items (4.754), indicating this behavior was not performed as often as the rest. The second interesting finding resulting from the analysis of this LAAI factor was a quite strong correlation between the item, “Switch between different tasks or jobs as needed” and the item, “Consider many different options before taking action” with $r(130) = .724$, $p < .05$.

Table 9. Inter-item reliability of LAAI factor: Agility

Cronbach’s Alpha	Cronbach’s Alpha based on standardized items
.831	.830

Item-total statistics

Item	Cronbach’s Alpha if item deleted
A_ConsiderDiffOptions	.803
A_SwitchBetweenTasks	.797
A_FindCommThemes	.815
A_ArticulateCompetingIdeas	.818
A_PropSolutionsInnovat	.823
A_QuickDevSolu	.828
A_GetUpToSpeed	.820
A_AcquireNewSkillKnowl	.815
A_ReactWellTo	.821
A_ReadilyGraspNew	.815

Finally, Cronbach's Alpha was used to assess the extent to which the five factors of the LAAI were reliable. No one factor was identified that if removed, would increase overall reliability. Refer to Table 10 below:

Table 10. Reliability of LAAI factors

Cronbach's Alpha	Cronbach's Alpha based on standardized items
.831	.880

Item-total statistics

Item	Cronbach's Alpha if item deleted
FS	.796
IS	.779
R	.813
E	.789
A	.806