

Running head: HIGH POTENTIAL LEADERSHIP IN ORGANIZATIONS

Making Sense of High Potential, Talent, and Leadership in Organizations: A Discursive and
Psychological Approach

by

David Kraichy

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Abstract

Despite the increased attention directed toward high potential and talent in the world of work, conceptual and empirical research is lagging and is needed to better understand what these concepts represent and how they can be predicted (Dries, 2013; Silzer & Church, 2009). The present dissertation sought to address these gaps using discursive and psychological approaches. In Study 1, semi-structured interviews were conducted with executive and senior leaders from a Canadian post-secondary institution to understand how they made sense of and gave sense to high potential and talent. I analyzed transcripts from 20 participants using discourse analysis. The analysis revealed that ‘high potential’ was in the initial stages of entering the focal institution’s discourse and tied to the concept of ‘leadership.’ Talent was used in a general sense to depict successful, skilled, or accomplished individuals. Leadership books and their corresponding ideas served as discursive resources that were used by participants to reshape, legitimate, and contest the shifting meaning of leadership that was occurring in the focal institution and to define the meaning of ‘high potential leadership.’ Moreover, the leadership books (and the associated ideas) were embedded within leadership development programming and other HR practices in the institution.

In Study 2, associations between distinct dimensions of cognitive complexity (i.e., differentiation and integration) with leadership level and high potential recommendations were examined in a sample of mid- and senior-level leaders from the aforementioned post-secondary institution. Using two novel computer-assisted software programs (i.e., Profiler Plus & Automated Integrative Complexity), participants’ responses to six questions on the topic of leadership were content analyzed to assess the extent to which their cognitive representations were differentiated and integrated. As expected, participants holding senior leadership positions

possessed lower differentiation and higher integration than mid-level leaders. Furthermore, mid-level leaders possessing higher differentiation and lower integration were provided with more high potential recommendations from senior leaders. I discuss the findings of this work within the context of how cognitive complexity may be a valid predictor of high potential leadership across its shifting conceptions.

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Dedication

This thesis is dedicated to my family. To my grandparents and great-grandparents, your sacrifices and hard work paved the way for me to have this opportunity. To my grandpa ‘Kraich,’ who instilled the value of education and the idea that knowledge is power. To my Dad, who taught me to always finish what you have started – those words resonated when I wanted to pack it in – you are the best! To my brother, sister in-law, and my adorable niece Kinsley, my visits to Red Deer and pictures of Kins kept me smiling. And finally, to my Mom, who introduced me to books and fostered my love for reading and learning – you are my rock and I could not have done this without you!

Table of Contents

Abstract	ii
Acknowledgements	iv
Dedication	v
List of Tables	ix
Chapter 1	10
1.1 High Potential and Talent in the Context of Leadership: An Introduction	10
1.1.1 Reviews on the Concept of ‘Talent’	11
1.1.2 Reviews on the Concept of ‘High Potential’	12
1.1.3 Summary of Reviews on Talent and High Potential	13
1.2 Methodological and Analytic Approaches	13
1.2.1 Discursive Approach	13
1.2.2 Psychological Approach	16
1.3 Overview of the Studies	17
1.4 References	19
Chapter 2	22
Study 1: The Construction of High Potential, Talent, and Leadership	22
2.1 Introduction	23
2.2.1 The Discourse(s) of High Potential and Talent in the Context of Leadership	24
2.2.2 Research Questions	26
2.2 Method	27
2.3.1 Organizational Context	30
2.3.2 Participants	34
2.3.3 Data Collection	35
2.3.4 Data Analytic Approach	37
2.3.5 Trustworthiness of the Analysis	40
2.3 Results	42
2.3.1 Case 1: Leadership Books: Providing a Leadership Framework, Fundamentals, and Vernacular	43
2.3.2 Case 2: Using Leadership Books to Legitimize and Contest Different Approaches to Leadership	45
2.3.3 Case 3: Leadership Challenge and its Behavioural Approach as Self-Insight – not a Style	51

2.3.4 Case 4: Leadership Books as Theory, Foundation, Written by the Gurus, and Open to Interpretation and Application.....	52
2.3.5 Case 5: Leadership Books: Making Sense of it All and Giving Sense to Others.....	53
2.3.6 Case 6: Leading Edge Views and Consistency in Language.....	55
2.4 Discussion	57
2.4.1 Reshaping and Giving Sense to the Shifting Concept of ‘Leadership’	59
2.4.2 Discourse (Leadership Books) as a Strategic Resource	60
2.4.3 Shift from the ‘Being’ to the ‘Behavioural’ of Leadership	61
2.4.4 Recursive Circuit Continues.....	62
2.4.5 Good Intentions and Unintended Consequences? The Impact of Leadership Books...	64
Chapter 3.....	67
Study 2: Cognitive Complexity, High Potential Recommendations, and Leadership Level.....	67
3.1 Introduction	69
3.1.1 Cognitive Complexity: Streufert and Colleagues.....	71
3.1.2 Stratified Systems Theory and Cognitive Complexity.....	77
3.1.3 Cognitive Complexity and Career Trajectory Outcomes: An Empirical Review	85
3.1.4 Hypothesis Development.....	88
3.2 Method	96
3.2.1 Participants	96
3.2.2 Procedure	96
3.2.3 Measures	98
3.3 Results	103
3.3.1 Hypothesis Analyses.....	105
3.3.2 Post-hoc Analyses.....	110
3.4 Discussion	113
3.4.1 Cognitive Complexity and Leadership Level.....	113
3.4.2 Cognitive Complexity and High Potential Recommendations.....	117
3.4.3 Implications	120
3.4.4 Limitations.....	125
Chapter 4.....	130
Conclusion	130
References.....	134
Appendix A: Higher-Order Categories of High Potential and Successful Leadership.....	153

Appendix B: E-Mail to Participants.....	158
Appendix C: Informed Consent Form – Senior Leaders	159
Appendix D: Excerpt from a Memo on Leadership Books	162
Appendix E: Qualitative Data Analysis Documentation Form.....	164
Appendix F: Informed Consent Form – Mid-Level Leaders	166
Appendix G: Mid-Level Leader Interview Question Guide	169
Appendix H: Review of Operationalizing Cognitive Complexity in Leadership Career Trajectory Studies.....	170

List of Tables

Table 1. Summary of Cognitive Complexity and Leadership Career Trajectory Studies	89
Table 2. Descriptive Statistics of Complexity Dimensions by Leadership Level	104
Table 3. Correlations among Study Variables	106
Table 4. Model Statistics of Complexity Dimensions Predicting Leadership Level	107
Table 5. Descriptive Statistics of Complexity Dimensions by High Potential Recommendations for Mid-level Leaders	110
Table 6. Descriptive Statistics of Complexity Dimensions by Model Classification.....	112

Chapter 1

1.1 High Potential and Talent in the Context of Leadership: An Introduction

Over the past 15 years, academic and practitioner-based interest in the area of talent management [i.e., “an integrated set of processes, programs, and cultural norms in an organization designed and implemented to attract, develop, deploy, and retain talent to achieve strategic objectives and meet future business needs” (Silzer & Dowell, 2010, p. 18)] and associated concepts (e.g., high potential, talent) has increased (Dries, 2013; Silzer & Church, 2009). Despite the popularity of this area, empirical and conceptual work to better understand the person-centered phenomena of high potential and talent is underdeveloped.

In this vein, Dries (2013) suggests that the talent management literature requires an understanding of how different stakeholders within organizations conceptualize high potential and talent and how these differences impact talent management activities. Moreover, Silzer and Church (2009) indicate that empirical research on the indicators of high potential (e.g., traits, knowledge, skills, abilities, experiences, career-relevant performance record) is sparse, yet organizations seek such knowledge to inform their talent identification and development decisions. Given that talent management processes are significantly related to firm performance (Silzer & Dowell, 2010), such an area of study has important implications for designing effective high potential identification and talent development processes and programs. In the following sections, I review the concepts of talent and high potential in the world of work. I then provide an overview of the two methodological and analytical approaches that I used to examine these phenomena (i.e., discursive and psychological). I conclude with a summary of the two studies that make up this dissertation.

1.1.1 Reviews on the Concept of ‘Talent’

To better understand what ‘talent’ means in the world of work, Tansley (2011) and Gallardo-Gallardo, Dries, and González-Cruz (2013) have conducted extensive reviews on the history of talk and meaning surrounding the concept. These authors describe how the meaning of ‘talent’ has shifted over time and has different connotations across cultures. In terms of time, ‘talent’ has evolved from a unit of weight by the Ancient Greeks to a person with exceptional abilities in the 19th century. In terms of culture, English and European languages place greater emphasis on innateness, whereas Asian languages focus on how it is acquired over extended periods of time (i.e., “an accomplishment acquired and is seen as the product of often years of striving to attain perfection”; Tansley, 2011, p. 268). Moreover, Gallardo-Gallardo et al. (2013) focused their review on the definitions of ‘talent’ in Contemporary English Dictionaries and interpreted the resultant definitions as representing ‘*talent as object*’ and ‘*talent as subject*’. Specifically, the talent as object approach centers on talent as ‘*characteristics of people*’. This perspective describes talent as individuals who: (a) possess natural abilities, (b) have engaged in a significant amount of training and development leading to the acquisition or mastery of skills and knowledge that facilitate superior performance, (c) are committed to one’s work and organization (i.e., demonstrate motivation and volition), and (d) fit within the work setting (e.g., type of work, organizational culture, industry).

The talent as subject approach describes ‘*talent as people*’ which can either be inclusive or exclusive (Gallardo-Gallardo et al., 2013). An organization with an inclusive approach may allocate the term ‘talent’ to all employees with the belief that every employee contributes to the success of the organization. Alternatively, an exclusive approach may reserve ‘talent’ to only those employees who are high performers or high potentials with the belief that this subset

contributes disproportionately more toward organizational performance. Together, these approaches are combined to inform the meaning of ‘talent’ within an organization. For example, Gallardo-Gallardo and colleagues suggest that the “objective approach specifies which personal characteristics to look for in identifications of talent, whereas the subject approach provokes discussions about cut-offs and norms” (p. 298). In other words, the extent to which an employee demonstrates specific characteristics determine who will be considered high potential or talent. Moreover, these different combinations are likely to vary according to organizational context (e.g., culture, industry).

1.1.2 Reviews on the Concept of ‘High Potential’

There have also been comprehensive efforts to better understand the meaning of high potential. Notably, Slan and Hausdorf (2004) and Silzer and Church (2009) examined how Canadian ($n = 71$) and American-based corporations ($n = 20$), respectively, defined potential and the key dimensions that are used to identify these individuals. In general, representatives of the corporations in the two countries endorsed comparable definitions. Specifically, organizations typically defined potential by role (i.e., potential to move into senior management), by level (e.g., potential to move two positions/levels above current role) within a time frame (e.g., can move up two levels within the next couple of years), by breadth (e.g., the capability to take on broader scope and leadership roles and to develop long-term leadership potential or can take on more responsibility or work in a different function), and by record (e.g., consistent track record of exceptional performance, past achievement and performance appraisal).

To gain a more nuanced understanding of what organizations use to identify high potential employees, Silzer and Church (2009) conducted a thematic review of several high potential identification and development models developed by external consulting firms,

unpublished research, and extensive literature reviews. They arrived at seven key themes which they categorized into three primary dimensions [i.e., foundational (e.g., general and emotional intelligence, dealing with complexity), growth (i.e., adaptability, motivation), and career factors (e.g., leadership competencies such as change management, and cultural fit)]. Similarly, Slan and Hausdorf (2004) focused on the career factors, namely leadership competencies (e.g., results orientation, decision-making skills, flexibility/adaptability, change management skills) that were perceived to be of extreme importance in identifying high potentials.

1.1.3 Summary of Reviews on Talent and High Potential

In light of these reviews, there are several connections between the concepts of talent and high potential. First, high potential is viewed as a type of organizational talent and talent is depicted as individuals who are successful or achieve superior levels of performance. Second, talent and high potential in the business domain are commonly linked to leadership, and these phenomena are associated with an assortment of characteristics, abilities, traits, and competencies that are thought to facilitate the development of high potential into talent. In other words, leadership is often the focus of talent and high potential-based research. Moreover, the meaning and the characteristics, traits, abilities, and competencies associated with talent and high potential vary across time and context. In tandem, these reviews signal how different methodological and analytic approaches may be beneficial for developing new insights and a holistic understanding of these phenomena.

1.2 Methodological and Analytic Approaches

1.2.1 Discursive Approach

A discursive approach investigates how organizational actors socially construct phenomena (Fairhurst, 2007). An underlying assumption of this approach is that the meaning of

phenomena can be formed and reformed over time, and thus its meaning can be influenced by, and vary across individuals, organizations, and cultures. By consequence, the resultant meaning(s) among different entities can be used to legitimate, contest, negotiate, or find consensus with others in terms of what a given phenomenon represents and what it does not. Moreover, these meanings subsequently affect individual actions and they have implications for organizational practices (Barge & Fairhurst, 2008).

For example, at an industry level, despite the similarities across several consulting firms' high potential identification models, Silzer and Church (2009) revealed substantial differences in terms of the traits, skills, experiences, behaviours, and abilities that were thought to depict the "same" phenomenon. Thus, the meaning of high potential and associated identification processes within an organization is likely influenced by the consulting firm's model. At an organizational level, the way in which members of two media-based German companies perceived and defined 'talent' related to the proportion of women participating in talent development programming and holding senior leadership positions¹ (Festing, Kornau, & Schäfer, 2015). Specifically, the company that used predominately stereotypical masculine traits to ascribe meaning to talent (e.g., possessing the ability to proactively present and sell ideas in meetings, assertiveness) did not have any women on the company's board and women comprised one-third of its talent development programming. In comparison, the second company used a balance of stereotypical feminine (e.g., communication and social skills) and masculine traits (e.g., analytical thinking) to ascribe meaning to talent, and this company's board was comprised of 33% women and their talent development programming included at least 50% women. In short, the definition of talent

¹ Within both companies, the authors did not find a "company-wide shared description of 'talent'" (p. 10); however, they both defined talent as leadership potential.

within an organization was said to have real implications for talent management practices (e.g., gender bias in talent development programs).

Correspondingly, what is predictive in one context may not always translate to another context. The golden standard of leadership one day may become obsolete the next. For example, across different phases of organizational growth, varying leadership skills and behaviours are required (Greiner, 1998). Similarly, Fairhurst (2007) referred to Bennis and Thomas's (2002) account of how culture shapes valued leadership characteristics at different points in history (e.g., World War II era vs. Internet era). By extension, revered indicators of high potential or talent one day or in one organization may be the exact thing that is dysfunctional the next day or in a different organization, and derail leaders who were once considered high potential (e.g., Coulson-Thomas, 2012; Groysberg, McLean, & Nohria, 2006). As a result, understanding how different stakeholders within and between organizations conceptualize talent, high potential, and leadership would be informative to further the talent management field (Dries, 2013).

Therefore, a discursive approach to understanding the meaning of talent, high potential, and leadership requires a focus on understanding how organizational member's talk about these phenomena, the purpose and function of their talk, and the context in which their talk is embedded (e.g., local, institutional, societal). In other words, this approach attends to how organizational member's make sense of, contest, legitimate, negotiate, or find consensus among what it is to be high potential or talented leader and how this talk shapes organizational activities (e.g., high potential identification, leadership development programming) and is shaped by external influences (e.g., industry, culture).

This approach is advantageous in that it provides the opportunity to examine how talent, high potential, and leadership are made sense of and given meaning in organizations. For

instance, how do different leaders talk about talent, high potential, and leadership? How does this talk shape or legitimate what it is to be considered a high potential leader in an organization?

Barab and Plucker (2002) suggest that to understand what constitutes high potential and who is considered to have the ability to participate in talent-related activities (e.g., senior leadership development), an examination of the phenomenon must be conducted in a local context.

Therefore, a primary aim of this dissertation is to explore senior leaders' social constructions of talent, high potential, and leadership in a local context.

1.2.2 Psychological Approach

In contrast to a discursive approach, a psychological approach promotes the position that a 'true' entity or essence of phenomena is discoverable (Fairhurst, 2007). Understanding phenomena from this perspective requires identifying relevant constructs (e.g., traits, behaviours, competencies), examining relationships, and demonstrating predictive validity. This approach is advantageous as researchers can make general statements about which constructs to assess to determine who has high potential. This psychological approach is precisely what Dries (2013) encouraged when she suggested that the talent management literature requires identification of relevant constructs and testable research propositions. For example, Silzer and Church (2009) offered a plethora of constructs that were believed to predict high potential based on their associations with long-term leadership success, career success, and growing interest among practitioners. Silzer and Church postulated that cognitive-based constructs such as dealing with complexity and possessing mental flexibility were critical for learning, growing, and developing throughout one's career. Furthermore, these cognitive processes were suggested to serve as a basis for developing key leadership competencies and support high levels of job performance in

current and future leadership positions. That is, they were deemed to be foundational variables for predicting and identifying high potential employees.

Correspondingly, cognitive complexity (i.e., the extent to which an individual processes information in a differentiated and integrated manner) is touted to be the basis for effective leadership (e.g., Day & Lance, 2004; Hannah, Lord, & Pearce, 2011; Hooijberg, Hunt, & Dodge, 1997; Jaques & Cason, 1994; Streufert & Swezey, 1986; Zaccaro, 2001). However, there are a limited number of studies that have investigated the extent to which an individual who perceives his or her environment in a unidimensional or multidimensional manner (i.e., cognitive differentiation) and the extent to which he or she connects (or integrates) these multiple differentiated dimensions (i.e., cognitive integration, Streufert & Satish, 1997) affects his or her leadership career trajectory prospects (e.g., high potential identification, leadership level attained). Therefore, this research uses a psychological approach to examine the efficacy of two dimensions of cognitive complexity (i.e., cognitive differentiation and integration) to predict leadership level (i.e., mid- vs. senior) and high potential identification (i.e., senior leader rated recommendations of mid-level leaders to a leadership development programming).

1.3 Overview of the Studies

The present work includes two studies that aim to better understand the meaning of talent, high potential, and leadership within organizations. In Study 1, senior leaders from a medium-sized Canadian polytechnic institution participated in semi-structured interviews to discuss their perspectives on leadership. The aim of this study was to explore how senior leaders made sense of and gave sense to the meaning of talent, high potential, and leadership within a local context as well as the resources that they use in which to do so. In Study 2, I examined the relationship between two distinct dimensions of cognitive complexity (i.e., cognitive

differentiation and integration) with leadership career trajectory outcomes (i.e., high potential identification, leadership level attained). To examine these relationships, I analyzed the interview transcripts from the senior leaders who participated in Study 1 and I recruited a sample of mid-level leaders from the same institution who responded to the same semi-structured interview questions. I used two novel computer-assisted software programs (i.e., Profiler Plus & Automated Integrative Complexity) to operationalize each dimension of complexity. I collected company records to ascertain an indicator of high potential (i.e., the number of nominations that mid-level leaders received from the focal institution's senior leadership team to a leadership development program for high potentials). I hypothesized that individuals holding senior leadership positions would possess higher cognitive integration and lower differentiation than mid-level leaders, and within mid-level leaders, high potential recommendations would be related to lower cognitive differentiation and higher integration. The findings of this study aim to provide empirical support for the utility of cognitive complexity as a diagnostic tool in high potential leadership assessments.

In sum, although a discursive approach to researching phenomenon (e.g., leadership), particularly in North America, is uncommon, it is growing in interest (Fairhurst & Grant, 2010). Fairhurst (2007) advises that we can learn a great deal about phenomena by using psychological and discursive lenses in a complementary and supportive fashion. As a result, the overall contribution of this dissertation to the management literature is to not only focus on predictors of high potential leadership (i.e., psychological approach), but to also explore how senior leaders ascribe meaning to these phenomena (i.e., discursive approach) and how these findings, collectively, further our understanding of how talent-related activities are designed and decisions are made.

1.4 References

- Barab, S. A., & Plucker, J. A. (2002). Smart people or smart contexts? Cognition, ability, and talent development in an age of situated approaches to knowing and learning. *Educational Psychologist, 37*, 165-182. doi: 10.1207/S15326985EP3703_3
- Barge, J. K., & Fairhurst, G. T. (2008). Living leadership: A systemic constructionist approach. *Leadership, 4*, 227-251. doi: 10.1177/1742715008092360
- Bennis, W. G., & Thomas, R. J. (2002). *Geeks & geezers: How era, values, and defining moments shape leaders*. Boston, MA: Harvard Business School Press.
- Coulson-Thomas, C. (2012). Talent management and building high performance organisations. *Industrial and Commercial Training, 44*, 429-436. doi: 10.1108/00197851211268027
- Day, V. D., & Lance, E. C. (2004). Understanding the development of leadership complexity through latent growth modeling. In D. V. Day, S. J. Zaccaro, & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 41-69). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Dries, N. (2013). The psychology of talent management: A review and research agenda. *Human Resource Management Review, 23*, 272-285. doi: 10.1016/j.hrmr.2013.05.001
- Fairhurst, G. T. (2007). *Discursive leadership: In conversation with leadership psychology*. Thousand Oaks, CA: Sage Publications.
- Fairhurst, G. T., & Grant, D. (2010). The social construction of leadership: A sailing guide. *Management Communication Quarterly, 24*, 171-210. doi: 10.1177/0893318909359697
- Festing, M. Kornau, A., & Schäfer, L. (2015). Think talent – think male? A comparative case study analysis of gender inclusion in talent management practices in the German media

- industry. *International Journal of Human Resource Management*, 26, 707-732.
doi: 10.1080/09585192.2014.934895
- Gallardo-Gallardo, E., Dries, N., & González-Cruz, T. F. (2013). What is the meaning of 'talent' in the world of work? *Human Resource Management Review*, 23, 290-300.
doi: 10.1016/j.hrmr.2013.05.002
- Greiner, L. E. (1998). Evolution and revolution as organizations grow. *Harvard Business Review*, 76, 55-63.
- Groysberg, B., McLean, A. N., & Nohria, N. (2006). Are leaders portable? *Harvard Business Review*, 84, 92-100.
- Hannah, S. T., Lord, R. G., & Pearce, C. L. (2011). Leadership and collective requisite complexity. *Organizational Psychology Review*, 1, 215-238.
doi: 10.1177/2041386611402116
- Hooijberg, R., Hunt, J. G., & Dodge, G. E. (1997). Leadership complexity and development of the leaderplex model. *Journal of Management*, 23, 375-408.
doi: 10.1177/014920639702300305
- Jaques, E., & Cason, K. (1994). *Human Capability: A study of individual potential and its application*. Falls Church, VA: Cason Hall & Co. Publishers.
- Silzer, R., & Church, A. (2009). The pearls and perils of identifying potential. *Industrial and Organizational Psychology*, 2, 377-412. doi: 10.1111/j.1754-9434.2009.01163.x
- Silzer, R., & Dowell, B. E. (2010). Strategic talent management matters. In R. Silzer and B. E. Dowell (Eds.), *Strategy driven talent management: A leadership imperative* (pp. 3-72). San Francisco, CA: Jossey-Bass.

- Slan, R., & Hausdorf, P. (2004). *Leadership succession: High potential identification and development*. Toronto, Canada: University of Guelph and MICA Management Resources.
- Satish, U. & Streufert, S. (1997). The measurement of behavioral complexity. *Journal of Applied Social Psychology, 27*, 2117-2121. doi: 10.1111/j.1559-1816.1997.tb01643.x
- Streufert, S., & Swezey, R. W. (1986). *Complexity, managers, and organizations*. Orlando, FL: Academic Press, Inc.
- Tansley, C. (2011). What do we mean by the term “talent” in talent management?. *Industrial & Commercial Training, 43*, 266-274. doi: 10.1108/00197851111145853
- Zaccaro, S. (2001). Conceptual complexity theories of executive leadership: Conceptual review and evaluation. In S. Zaccaro. *The nature of executive leadership: A conceptual and empirical analysis of success* (pp. 21-59). Washington, DC: American Psychology Association. doi: 10.1037/10398-002

Chapter 2

Study 1: The Construction of High Potential, Talent, and Leadership

Abstract

High potential, talent, and leadership are concepts that shift in their meaning over time and across contexts which in turn affect how they manifest within, and across organizations (Fairhurst, 2007; Silzer & Church, 2009; Tansley, 2011). Using a discursive approach, I explored how executives (e.g., CEO, VPs, $n = 4$) and senior leaders (e.g., Deans, Directors, $n = 16$) make sense of and give sense to (i.e., socially construct) high potential, talent, and leadership, and how these constructions shape organizational practices. I found that the concept of ‘high potential’ was being introduced into the focal institution and associated with ‘leadership,’ and thus the meaning of ‘high potential leadership’ was in its conceptual infancy. In contrast, the concept of ‘talent’ was used in broader terms to depict individuals who were successful, skilled, or accomplished. Furthermore, I discovered that the concept of ‘leadership’ within the focal institution was shifting, and leadership books served as a prominent tool to reshape, legitimate, and contest its evolving meaning. Moreover, leadership books and their corresponding ideas were embedded (or were intended to be embedded) within leadership development programming and other HR practices (e.g., performance management).

2.1 Introduction

Talent management is proliferating in interest as evidenced by an increasing number of publications dedicated to the topic (Gallardo-Gallardo et al., 2013). For example, 17 peer-reviewed articles on this topic were published in the year 2000, whereas in 2013, there were 872 articles appearing in peer-reviewed outlets (Dries, 2013). Despite the growing interest in this area, the concepts of high potential and talent in the work environment are conceptualized and operationalized in a variety of ways (Gallardo-Gallardo et al., 2013; Silzer & Church, 2009; Tansley, 2011). In other words, there is a limited consensus regarding what these concepts represent and what they do not (Gallardo-Gallardo, Nijs, Dries, & Gallo, 2015). Moreover, the concepts of high potential and talent are often discussed in the context of leadership (Silzer & Church, 2009; Silzer & Dowell, 2010) – a concept which in and of itself is talked about and conceived in different ways (Fairhurst, 2007). In addition, the meaning of all these words and their associated dimensions (e.g., qualities, characteristics, abilities, practice, experiences, education) are shaped by culture and valued at different points in history (Fairhurst, 2007; Gallardo-Gallardo et al., 2013; Silzer & Church, 2009; Tansley, 2011). Therefore, the way in which people make sense of these concepts is likely to vary across individuals, organizations, and time, and these understandings are likely to be embedded in members talk and organizational practices. In other words, this research seeks to explore how organizational members make sense of and shape the meaning of these words in a local context. This type of research merits attention given that members' sensemaking of these concepts may impact the design of talent management practices (Dries, 2013).

2.2.1 The Discourse(s) of High Potential and Talent in the Context of Leadership

The reviews on the topic of high potential (e.g., Silzer & Church, 2009; Slan & Hausdorf, 2004) and talent (Gallardo-Gallardo et al., 2013; Tansley, 2011) provide overlapping and common conceptualizations (e.g., definitions, essential dimensions) and they are often positioned in the context of leadership. In other words, these reviews may be viewed as discourses:

“a connected set of statements, concepts, terms, and expressions which constitutes a way of talking or writing about a particular issue, thus framing the way people understand and act with respect to that issue” (Watson, 1995, p. 816)

or well-accepted ideologies that researchers, consultants, and organizational representatives have used to make sense of high potential, talent, and leadership. Watson suggests that discourses:

“...function as menus of discursive resources which various social actors draw on in different ways at different times to achieve their particular purposes – whether these be specific interest-based purposes or broader ones like that of making sense of what is happening in the organization or of what it is to ‘be a manager’” (p. 816-817)

Therefore, the aforementioned perspectives on high potential and talent highlight how different entities take up different discourses or different combinations of discourses to inform their position on the phenomena (Gallardo-Gallardo et al., 2013). Time and place influence which discourses are available to organizational actors (Tansley, 2011) and the way in which they draw from multiple discourses to develop a position on high potential and talent is consequential for talent management practices (Dries, 2013). That is, a variety of discourses (e.g., sets of texts, statements, practices), fragmented or competing, will provide choice, and organizational actors will draw from these choices (i.e., a subject position) to inform their sensemaking and subsequent behaviours (Hardy, Palmer & Phillips, 2000; Watson, 1995).

These ideas parallel a social constructionist paradigm (Fairhurst & Grant, 2010). That is, people construct their social realities through their talk and interactions with others, and these communication processes are shaped by broader discourses (i.e., common or well-accepted

ideologies about a given phenomenon) within a given organization, culture, or point in history. Multiple discourses compete for truth and legitimacy, yet there is not an objective ‘truth’ to be ‘discovered;’ rather, it is possible for the meaning of these social realities to be negotiated, contested, and consensus forming (Fairhurst, 2007). In other words, language-in-use (and in-interaction) creates an understanding of a phenomenon, and the way in which it is formed and reformed among organizational actors has implications for organizational practices (Barge & Fairhurst, 2008).

Viewing high potential, talent, and leadership from this perspective highlights the importance of understanding how people – in a local context – socially construct phenomena and the implications that these meanings have on practices instituted within an organization (Alvesson & Kärreman, 2000a). It is critical to explore these socially constructed phenomena from the perspectives of those who use such terms (Barge & Fairhurst, 2008; Fairhurst & Grant, 2010), those who shape their meaning (Carroll & Levy, 2010), and ultimately those who influence high-potential identification or leadership development programming.

Additionally, it is necessary to explore the similarities and differences between how multiple individuals use the discourses that are available in the local and broader societal context as these discourses guide future sensemaking processes and sense giving activities (Phillips & Hardy, 2002). Sensemaking involves how individuals use words and categories to understand a phenomenon or events, whereas sense giving activities may consist of how individuals talk about or take action in relation to a phenomenon or event (e.g., Gioia & Chittipeddi, 1991; Weick, Sutcliffe, & Obstfeld, 2005). In other words, a leader’s perspective is important as what they say constitutes what organizations are and what they become (Schneider, 2000). In other words, what leaders say and do is transmitted to others in conversation, in documents, or activities, and is

used to shape the organization. It is through these communications and interactions that a version of a given organizational issue (e.g., behaviours of high potential leaders) become dominant.

2.2.2 Research Questions

As depicted above, leaders' sensemaking of high potential, talent, and leadership is drawn from discourses available at local and societal levels. From this perspective, the words and categories that are used to make sense of a phenomenon shape discussions and actions within an organization (Alvesson & Kärreman, 2000a; Barge & Fairhurst, 2008; Bartunek, Krim, Necochea, & Humphries, 1999; Fairhurst & Grant, 2010).

Specific to the sensemaking of leaders, this process is influenced by a variety of factors such as one's prior knowledge structures, perceptions of organizational knowledge structures, personal strategies and values, and the organizational context (e.g., Bartunek et al., 1999; Potter & Wetherell, 1987). These sensemaking processes are rooted in retrospective accounts of previous experiences and presumptions of what may be functional in the future (Fairhurst, 2007; Weick et al., 2005; Whittle, Housley, Gilchrist, Mueller, & Lenney, 2015). Because prior experiences and perceptions are likely to share commonalities and differences with others, sensemaking of a phenomenon is likely to vary as well as share common elements (Potter & Wetherell, 1987). These similarities can be consensus forming, whereas these differences may be negotiated and contested within the talk and actions taken by organizational members (Fairhurst, 2007). Moreover, the resultant conception of these phenomena within an organization has implications for organizational activities (Festing et al., 2015). In other words, the talk surrounding high potential, talent, and leadership among those who are in a position of shaping what they are and what they are not, affects the organization. Thus, a first step in developing this understanding is to explore what high potential, talent, and leadership mean to those who

influence shaping these phenomena, whether these conceptualizations are negotiated, contested, or consensus forming among organizational actors, and how broader discourses shape these conceptualizations. As such, the following research questions were extended:

Research Question 1: What are the discourses that senior leaders use when they are ascribing meaning to high potential, talent, and leadership?

Research Question 2: What are the similarities and differences among leaders when they are socially constructing the meaning of high potential, talent, and leadership?

2.2 Method

This method section contains six main segments. I begin by describing a summary of three different methodological and analytical processes that I considered (i.e., computer-aided content analysis, grounded theory, and discourse analysis) and the rationale for presenting the discursive approach. I then provide an overview of the organizational context, followed by a description of the participants, the secondary and archival data collection process, and the staged process for analyzing the data using a discursive lens. I conclude with a discussion on the trustworthiness of this research.

The initial aim of this research was to review and integrate various high potential identification and talent emergence models into a cohesive framework for the business context. Originally, I created the High Potential Identification and Talent Emergence model (Kraichy, 2014) and sought to examine its practical utility based on the extent to which senior leaders – in interviews about high potential and leadership – endorsed the factors of the model and the relative emphasis that they placed on each factor. I intended to use computer-aided content analysis which is suggested to be an appropriate method for exploring themes (e.g., Ryan &

Bernard, 2003) that are pertinent to senior leaders (e.g., Calori, Johnson, & Sarnin, 1994; Cheng & Chang, 2009).

However, through consultation with my advisory committee, I was directed toward grounded theory as well as a discursive approach, each with a different epistemology, and thus ways of analyzing and interpreting the interview data. For example, discourse analysis is rooted in a social constructionist epistemology (e.g., Phillips & Hardy, 2002) wherein language is highly variable regarding how it is used to discuss phenomena and is not possible to determine which interpretation is more or less accurate (Potter & Wetherell, 1987). In contrast, grounded theory focuses on discovering representations of phenomena by using a thematic structure (Wood & Kroger, 2000). That is, grounded theory typically involves a process of coding to develop a framework to explicate the essence of a phenomenon, whereas discourse analysis does not discover a “true essence,” but explores how participants use language differently to make sense of phenomena (Fairhurst, 2009; Phillips & Hardy, 2002; Starks & Trinidad, 2007; Wood & Kroger, 2000). In short, these approaches are not easily integrated.

Therefore, throughout the analytic process, I went back and forth between methodological and analytical elements that aligned with each distinct approach. Using the NVivo 10 software program, I started coding from a grounded theory tradition. Specifically, I followed a process outlined by Charmaz (2006) where I coded the transcripts line-by-line and at a paragraph level with no *a priori* categories. I created a category for each distinct word (e.g., ‘collaborative’) or phrase (e.g., ‘we work together’) that participants used to describe high potential, talent, and leadership. Moreover, I coded the explicit use of the words high potential, talent, and leadership. I then engaged in a process of comparing and contrasting participants’ use of these words and phrases and wrote first-order category descriptions. I subsequently conducted

a form of axial coding wherein I aggregated similar or related first-order categories into higher-order concepts.

Nonetheless, I found that the emergent concepts that I produced tended to be fairly descriptive and consistent with current high potential, talent, and leadership theorizing. Appendix A provides an overview of these higher-order concepts. In short, my pre-understanding and vocabulary (Alvesson & Sveningsson, 2003a) of high potential, talent, and leadership and the understanding of participants aligned with popular leadership, high potential, and talent-related discourses. As a result, I did not feel as though the findings that I was producing with this methodology provided novel insights into the phenomena of interest.

Before abandoning this methodology and in an effort to explore the data for novel insights, I then mapped my emergent dimensions of the skills, capabilities, behaviours, qualities, and competencies onto the Competing Values Framework (Cameron, Quinn, DeGraff, & Thakor, 2006). I believed this framework provided a comprehensive lens to understand and explain the requirements of high potential, talent, and leadership in the organization. That is, this framework incorporated elements of organizational culture (e.g., organizational values), leadership behaviours, references to cognitive and behavioural complexity, and common tensions, conflicts, and paradoxes that leaders face in their roles – all of which were implicitly or explicitly addressed by participants. However, upon reflection, I felt as though this process was simply a descriptive exercise that helped to confirm an existing framework and provided a structure to present my findings. In the end, I perceived this approach to be similar to the content analysis that I had previously proposed with the High Potential Identification and Talent Emergence model (Kraichy, 2014).

Therefore, I subsequently altered my lens to be more aligned with a discursive approach. Specifically, I reanalyzed the existing categories and reread the transcripts to focus on how participants used and interpreted words to make sense of and give sense to high potential and talent in the context of leadership. In short, my focus shifted from trying to build a cohesive understanding of the dimensions underlying a ‘true essence’ of these phenomena to explore and consider the underlying meaning and purpose of participants’ talk in the context of the focal institution. By adopting this lens, I believe it facilitated the discovery of a novel understanding of how discursive resources (i.e., leadership books) enter into the social construction processes of organizational actors. As a result, I opted to pursue and present this methodology and the associated findings.

2.3.1 Organizational Context

This focal institution is a Canadian post-secondary polytechnic institution. Its operating budget is several hundred million dollars, and it educates more than 25,000 students in over 100 programs that lead to a variety of degrees, diplomas, and certificates. The focal institution employs over 3,000 academic and non-academic staff. Leading these employees is the executive team (e.g., President/CEO, Vice Presidents), and this team executes the organizational direction with guidance from the Board of Governors. The executive team is supported by a number of other leadership roles in the institution (e.g., Associate Vice Presidents, Deans, Directors), and together, they form the senior leadership team. The responsibility of the senior leadership team is to advise the President/CEO on matters of strategic significance to institutional operations, resources, and affairs.

At the time of data collection, the organization had undergone changes to its executive leadership team. Moreover, the institution was currently undergoing changes to its operations and its culture.

2.3.1.1 Executive leadership team change. Three members of the executive leadership team were new to their position and two of which were new to the organization. Specifically, the VP Academic was appointed in 2010, followed in 2011 by the appointments of a new CFO and CEO, respectively. The VP Academic was promoted from her associate VP position at the focal institution, whereas the CFO and the CEO were new to the institution.

2.3.1.2 Operational change. Approximately a year before the data collection, the executive and senior leaders within the institution were finalizing the planning stages of an institution-wide operational change. At the time of the data collection, these leaders had begun the initial stages of its implementation. This large-scale change involved a significant shift regarding the delivery of the institution's academic programs. This change involved a transition to outcomes-based education, 15 week semesters, open studies, and a non-cohort model. These changes also involved modifications to tuition, fees (e.g., Health & Dental), and software programs. Furthermore, these shifts were aligned with both the focal institution and government's vision for post-secondary education in the Province (e.g., *providing accessible, flexible, sustainable, quality learning opportunities*).

2.3.1.3 Culture change. In 2009, the focal institution's CEO (i.e., CEO-former) produced Vision 2021 (i.e., Vision 2021-former) which outlined a vision, mission, guiding principles, and key directions to guide the organization into the future. However, a year after the Board of Governors approved '*Vision 2021-former*,' the CEO-former turned over, and the new CEO (i.e., CEO-current) produced an updated Vision 2021 (i.e., '*Vision 2021-current*'). Vision

2021-current was circulated to internal and external stakeholders, and an institute-wide engagement process was initiated to help refine the vision. Specifically, over 2,500 stakeholders (i.e., students, staff, alumni, government and industry representatives, and the focal institution's Board of Governors) participated in numerous sessions and events. The result of the 'consultative exercise' was the finalized vision, promises, and core values (or the '[Focal Institution] Way'). The vision was intended to guide the organization into the future and centered on being the most *relevant* and *responsive* post-secondary institution in Canada and a world-leading polytechnic. The promises (or desired outcomes to be achieved) focused on serving the needs of its stakeholders (i.e., Province, students, industry, and staff).

In contrast to the promises as outcomes, the core values were intended to reflect the organizational culture and to guide *how* employees are to work with each other, the expectations for one another, as well as how decisions should be made to achieve these promises. The five core values (i.e., *respect, collaboration, celebration, support, and accountability*) described the '[Focal Institution] Way' where 'People Matter'.

Despite the significant similarities between the current and former versions of Vision 2021, the new version introduced the value of collaboration which was not present in previous institutional vision documents. In short, the culture change was centered on using a more collaborative approach to conducting work in the organization. In the interviews, participants often described a culture shift from a top-down and siloed approach enacted by the former executive toward a collaborative approach that was espoused by the current executive. For instance, several senior leaders commented on this shift in their interviews:

You really want to avoid it where the old school was that the senior leader made the decision and everybody else just scrambled underneath to make it happen. [Focal Institution] is moving in a different direction, thank goodness, and moving towards more collaborative decision-making... We had a very dark period at [Focal Institution] where I

didn't think we were going in the right direction and so the most recent folks that have come in are a breath of fresh air so I can't go by what the old regime did because it was exactly the opposite of what I thought they should be doing. (Senior Leader 12)

Another senior leader noted:

A few years ago we had, there was a silo culture, and I would say it was at the executive level, where certain members would not really want to work with the other team, it was almost like we are against each other we're not on the same team. And it rippled through the organization and you could feel it. You could feel it was there, you know it in discussion, some people would share it with you, you know "I'm not supposed to talk to you about this thing. That's my job, is to deal with those things." (Senior Leader 22)

2.3.1.4 Context of interviews. The context of the interviews was to design senior leadership programming to support the development of a leadership pipeline at the focal institution. The leadership programming intended to provide development opportunities that were both comprehensive and responsive to the specific leadership needs at the focal institution. The first step in designing the program involved conducting interviews with the focal institution's senior leadership team. The interviews with these senior leaders was to ensure that the programming met their developmental needs and the needs that they have of the people who report to them and the cascading levels below.

To design and develop the programming, the Vice-President Academic (VPA) assigned the Project Lead (an employee of the focal institution) to this initiative. The Project Lead had previous experience designing and implementing executive leadership development programming and her research area centered on talent and high potential leadership. The Project Lead was assisted by the focal institution's Human Resource and Organizational Development staff as well as an external consulting firm specializing in leadership development. The Project Lead and the external consultant shared responsibilities in conducting the interviews.

The approach to program design was reported by the Project Lead to be a combined bottom-up and top-down approach. That is, consultations with organizational members of the

focal institution occurred where they provided their perspectives on what should be in formal leadership development programming and this information was integrated with best practices from the extant leadership literature to create a tailored leadership program for the focal institution.

2.3.1.5 The concepts of ‘high potential’ and ‘talent’ in the focal institution. Although my initial intent was to examine what made for high potential and talent in leadership roles, I reviewed organizational documents and noted that the concept of ‘high potential’ was entering the focal institution. In contrast, the concept of ‘talent’ typically referred to (a) students who had accomplished/achieved something (e.g., winning a competition), or (b) to discuss the competition for skilled labour and attracting, engaging, developing, and retaining these people. In other words, at the time of the study, the Project Lead was introducing the concept of ‘high potential’ into the focal institution and associating it with ‘leadership,’ whereas the concept of ‘talent’ was not leadership-centered. This difference materialized in the interview guide (see below) as the term ‘successful leader’ was used instead of talent. With this in mind, the study shifted to focus solely on ‘high potential and successful leadership’ and marked the introduction of a new concept (i.e., high potential) into the focal institution’s discourse.

2.3.2 Participants

In total, 20 leaders from the focal institution partook in this study. Participants were either a member of the executive team (e.g., CEO, VPs, $n = 4$) or a senior leader (e.g., Deans, Directors, $n = 16$) who reported directly to the executive suite. One senior leader declined to have their interview recorded and, as a result, a transcript was unavailable, and thus omitted from analysis. Of the 20 leaders where a transcript was available, 8 were female, and 12 were male. Leaders representing each side of the focal institutions structure participated: 8 leaders

represented the administrative function, 10 leaders represented the academic function, and 2 leaders oversaw the entire institution (i.e., CEO and Chief of Staff). Additional demographic or prior work history information was not collected.

Criterion-based purposeful sampling was used to identify participants for this study (Patton, 1990). The upper echelons of leadership in the focal institution were selected based on their current roles and experiences as senior leaders as well as their anticipated insights on the topic of high potential and successful leadership. Moreover, these leaders are responsible for identifying and developing their subordinates (i.e., lower level leaders) in the organization. Together, these individuals were purposefully selected to include individuals who are involved in dealing with issues surrounding leadership.

2.3.3 Data Collection

This study used a combination of secondary analysis and an archival approach to gather information to facilitate a research-based inquiry of participants' social construction of high potential and successful leadership. Simply put, secondary analysis, as a methodology, includes the "re-use of pre-existing qualitative data derived from previous research studies" (Heaton, 2008, p. 34). In contrast, an archival approach includes the collection of documents (e.g., letters to shareholders) that are available to the researcher (e.g., publically or otherwise) and pertinent to the research question (e.g., Cho, 2006; Osborne, Stubbart, & Ramaprasad, 2001).

2.3.3.1 Data for secondary analysis. In the Fall of 2012, the qualitative data set was collected by the Project Lead and a leadership consultant as part of the design of a senior leadership development program. The intent of the primary data collection was to gather information from the senior leadership team to ensure that the programming met their developmental needs as well as the needs of leaders at lower levels.

Participants were sent an e-mail invitation (see Appendix B) regarding their perspectives on high potential and successful leaders and advised that the interview would take no more than 60 minutes of their time face-to-face or over the telephone. The interviews were conducted at the focal institution or a location of the participant's choice (e.g., their office, a coffee shop). Participants were not offered inducements (monetary or otherwise) for their participation in this research.

Before commencing the semi-structured interviews, the interviewer obtained participants' informed consent (see Appendix C). As part of the informed consent process, the interviewer asked participants for their permission to record the interview on a digital audio recorder. If the participant consented, the interview was recorded. Participants responded to the following seven primary questions regarding their perspectives on high potential and successful senior leadership:

1. From the executive perspective, what are the leadership capabilities and behaviors of high-potential leaders?
2. For leaders to advance and to be successful at the highest levels of the organization, what do they need to be able to do?
3. Think of the most successful senior leaders that you know. What makes them so successful?
4. What are the biggest challenges facing [Name of Province] organizations in the next 10 years? What will the best leaders be able to do to thrive during this time?
5. What do senior leadership development programs need to offer?
6. What qualities are needed within our most senior leaders to effectively lead people at the [Focal institution]?

7. [Focal institution] is a unique environment. What opportunities and challenges do these present for senior leaders? And what competencies are needed to tackle these successfully?

After the interviews were complete, they were transcribed verbatim.

The secondary use of the data was centered on how senior leaders socially construct high potential and successful leadership. That is, this study sought to address a new research question using the original data. The fit between the original data being able to address the secondary research question was a critical consideration (e.g., Szabo & Strang, 1997). However, as the abovementioned interview questions were germane to the topic of this dissertation, I deemed that the interviews were appropriate. In 2014, I was provided access to the data for secondary analysis which included the digital audio recordings and verbatim transcriptions of the interviews. Before proceeding with analysis, I received ethical approval for secondary use of data.

2.3.3.2 Archival data. The archival sources used in this study were the focal institution's Annual Reports, Business, and Comprehensive Institutional Plans that were located on publically accessible portions of its website. These documents were used to ascertain a comprehensive understanding of the focal institution's past and current context.

2.3.4 Data Analytic Approach

In general, discourse analysis does not endorse a standardized set of steps to follow (Phillips & Hardy, 2002; Wood & Kroger, 2000). Therefore, in this next section, I will describe the multi-stage analytic process that was used to develop the main foci of the results section. This staged process includes some overlap with the grounded approach that I described above.

2.3.4.1 Stage 1: Listening and initial reading of interviews. Akin to Szabo and Strang's (1997) approach to secondary data, I began by listening to the digital audio recording of each interview and reading its corresponding transcript to gain a general sense of what these discussions entailed. While listening to the digital recordings, I documented broad ideas that were deemed by participants as critical or important, recurring ideas that were brought up by participants throughout their interview, as well as (dis)connections that I noticed across participants. After concluding my interactions with each interview (i.e., digital recording and transcribed interview), I reflected on the content, and I wrote summaries of the key points, (dis)connections between participants, and possible directions for analyzing the data. This step was exploratory in nature insofar as the intent was not to begin coding the data, but simply to develop a more nuanced understanding of the concepts that emerged in the interviews and to reflect on different interpretations of participants' talk.

2.3.4.2 Stage 2: Reviewing categories from initial coding of interview transcripts and exploring patterns in the data. In this stage, I reviewed the categories that emerged when using a grounded theory approach (see summary section above) whereby I reread the excerpts that represented each category. Moreover, I also reviewed my summaries from Stage 1. I looked for consistencies and differences across participants (Potter & Wetherell, 1987) and inconsistencies within participants (Alvesson & Sveningsson, 2003). In short, I was exploring for recurring themes within and between participants.

2.3.4.3 Stage 3: Engaging in interactions between themes and established literature. The next stage involved considering the possible purpose(s) or function(s) for why these themes appeared and whether there were any unresolved theoretical mysteries in the literature (Alvesson & Kärreman, 2007). This process was iterative and involved a series of back-and-forth

interactions between the emerging themes and existing empirical and theoretical research. Specifically, after a theme emerged and I contemplated its purpose(s) or function(s). I would then seek out literature that was directly related. If a theme and its purpose and functions had been addressed and solved in the literature, I would then reread and reanalyze the transcripts with these new-to-me theoretical frames to examine whether I could garner anything new from the interview transcripts. If I could not generate new contributions, I would discontinue further analytical work on that theme.

For example, collaboration emerged as a theme that elicited varying connotations (e.g., positive, critical) and multiple interpretations (e.g., working together, working through others). Furthermore, collaboration was talked about in different contexts (e.g., in reference to an organizational value, a key concept from a leadership book discussed in an organization-wide leadership development course, or simply a descriptor of how a leader needed to behave). In short, I believed that collaboration had the potential to cause tensions within the organization, and high potential individuals would be those who could cope with these tensions. As a result, I explored related literature (e.g., collaboration, competing and contradictory organizational values and institutional logics, organizational tensions and paradoxes, leadership books) in varying contexts (e.g., management, public administration, post-secondary education). Based on my reading of the literature and my reanalysis of the transcripts, the issues that I identified were already addressed. Alternately, and all too often, the unanswered issues identified in the literature could not be addressed as they required conjecture that went well beyond the data generated during the interviews.

I continued this iterative process until I discovered a theme that could contribute to our understanding of how organizational actors make sense of high potential and leadership in

organizations. Specifically, despite the popularity of leadership books (Bligh & Meindl, 2005) and other popular press outlets (e.g., Harvard Business Review), literature on how leaders use these discursive resources is underdeveloped and in need of further study (Furusten, 1999; Rovik, 2011; Schulz & Nicolai 2015). Correspondingly, leadership books were talked about within and across participants, in different ways, to make sense of and give sense to the meaning of high potential and leadership in the focal institution. Together, the overarching theme that I address in the results (i.e., leadership books) emerged from several participants who provided data that could help to explore an area that requires further understanding.

2.3.5 Trustworthiness of the Analysis

Akin to reliability and validity in a rationalistic paradigm, qualitative-based research requires similar checks to ensure and demonstrate that the interpretations and claims put forth by the researcher are justified and can be considered trustworthy (Guba, 1981; Lincoln & Guba, 1985; Wood & Kroger, 2000). In general, four criteria are used to evaluate the trustworthiness of qualitative research, namely dependability, confirmability, transferability, and credibility (Guba, 1981; Lincoln & Guba, 1985; Miles & Huberman, 1994). In the following section, I provide a description of each criterion and discuss how I attended to these requirements.

2.3.5.1 Dependability. Guba (1981) suggests that dependability is comparable to reliability or consistency. The dependability criterion ensures that researchers take reason care while conducting research processes (Miles & Huberman, 1994). In other words, a researcher should document all of the process-related activities he or she engaged in while working with the data (e.g., how concepts and themes were conceived and decisions were handled; Lincoln & Guba, 1985; Miles & Huberman, 1994; Wood & Kroger, 2000). To satisfy this criterion, I maintained a reflexive journal documenting the aforementioned process activities. In particular, I

used Miles and Huberman's (1994) qualitative analysis documentation form as a basis for developing my forms and completing journal entries. I also wrote memos (inclusive of mind maps) to conceptualize the data. I have provided a sample of these documents in Appendix D and E.

2.3.5.2 Confirmability. The confirmability criterion ensures the data and existing theory and knowledge in the field support the interpretations and overall claims that are put forth (Guba & Lincoln, 1982; Wood & Kroger, 2000). The researcher should be able to trace back his or her claims to the excerpts (i.e., data) provided by participants and existing literature about the topic of interest. Therefore, using NVivo 10, I documented the segment(s) of data provided by participant(s) that supported a given theme. Moreover, in the presentation of findings, I have included excerpts from the interviews and references to existing literature to support these interpretations and claims. As it is also recommended that a researcher documents his or her assumptions, values, biases, affective states, and prejudices about the context or the problem (Guba & Lincoln, 1982; Miles & Huberman, 1994), I documented these occurrences in my reflexive journal and memos.

2.3.5.3 Transferability. Guba (1981) associates transferability with terms such as external validity, generalizability, and applicability. Therefore, the transferability criterion examines the extent to which the description of the context is reasonably "thick" for the reader to determine whether the findings are transferable to his or her organization (Guba & Lincoln, 1982; Lincoln & Guba, 1985). To fulfill the requirements of this criterion, I used purposive sampling to acquire a range of perspectives from key stakeholders on the central topic and provided a description of the participants involved in the study. Furthermore, I have provided a description of the context of the focal organization (e.g., leadership, and operational changes)

and the intended purpose of the interviews (i.e., the creation of leadership development programming). In tandem, it is intended that these descriptions will allow the reader to make an informed judgment as to whether this research is transferable to his or her work setting.

2.3.5.4 Credibility. The credibility component is similar to the concept of internal validity or truth value (Guba, 1981). Therefore, the credibility criterion ensures that a holistic understanding and account of the phenomenon within its context have occurred. Guba (1981) and colleagues (e.g., Lincoln & Guba, 1985) propose several methods to ensure credibility (e.g., prolonged engagement at a site, persistent observation, peer debriefing, triangulation, referential adequacy, member checks); however, not all of these methods need to be used. As a result, I undertook peer debriefing with colleagues (e.g., members of the dissertation committee, fellow professors at the University of Saskatchewan) where I discussed and challenged the viability of my interpretations and claims. Moreover, although I did not directly engage in a prolonged visit at the site nor conduct persistent observation², the Project Lead is native to the focal institution, and thus the credibility of this research benefited from her involvement in reviewing my interpretations. For example, in an interview with an external leader, the Project Lead commented on how participants had been referring to books in their interviews. She says:

Project Lead: You know it's interesting in almost all of the conversations that I have with people while I'm going through these senior leader interviews, most people will talk about a recent book they've read or something that they're engaged in currently to advance their own thinking or like you're talking about being involved in mentorship - it's almost a...sort of a top of mind thing or it's something that's on their mind.

2.3 Results

In the following section, I present six mini cases on how leadership books served as discursive resources in participants talk about high potential, leadership, and leadership

² I was on site to conduct comparable interviews with mid-level leaders.

development. Although leadership books constitute the overarching theme, many of these cases intertwine elements of leadership styles and the focal institutions context. I start by presenting two cases of members of the executive leadership team (i.e., CEO and VPA), followed by the Project Lead who was designing the new leadership development programming, and then three cases of senior leaders who held various positions (e.g., Deans, Directors). The number of cases was selected to depict the commonalities and differences among participants regarding how leadership books manifested in their talk and the differing purpose(s) that the books served. Akin to Alvesson and Sveningsson (2003b), it is important to note that this presentation is not ‘the only interpretation,’ and thus it should not prevent readers from making their respective interpretations.

2.3.1 Case 1: Leadership Books: Providing a Leadership Framework, Fundamentals, and Vernacular

In this first case, I present how the CEO intertwines his talk about leadership books with fundamentals of leadership and leadership styles and how he would like to see these ideas integrated into HR practices. Following a statement about how there are “a ton of effective leadership styles” and underlying these styles is a “foundation of leadership” which he briefly describes (e.g., ‘ability to communicate’, ‘ability to motivate’, ‘to provide feedback’, ‘the difference between communicating and consulting’), the CEO remarks:

You know my favourite book just in terms of – I don’t actually love the book, it’s an okay book, but I think it’s the best book just for what are fundamentals, so moving away from style, I think. *The Leadership Challenge* by Kouzes and Posner, and for me that’s just a fairly simple framework. I get deeply disturbed when leadership borders on religion. That gets back to different people are going to have different styles, and you also don’t want to be picking winners based on people who match your style. As a matter of fact, that’s the worst thing you can ever do. You want to pick winners based on outcomes and performance. And I think the number of times I’ve seen people go on the wrong side of that line...

In this passage, the CEO describes Kouzes and Posner's *Leadership Challenge* (i.e., leadership book) as a simple framework for providing the fundamentals of leadership to high potential individuals. Nonetheless, he offers a diffident endorsement of the book by changing his positioning four times (i.e., favourite, don't love, okay, best book just for what are fundamentals) and hesitantly positions these fundamentals as something different than a style. He then indicates that highly effective leaders can have very different styles and basing selection decisions on a similar-to-me approach is the wrong way and a common error made by decision makers. In short, the CEO appears to be working through whether *The Leadership Challenge* promotes a uniform leadership style and engages in a debate with himself to confirm why he likes it.

When discussing what senior leadership development programs need to offer, the CEO revisits the utility of *The Leadership Challenge* and the fundamentals by indicating that "I think the long and the short of it is that *The Leadership Challenge* is sort of a good place to start" and continues to say:

I think what you want, first of all, is an incredibly strong fundamentals program, which is two-third leadership and one-third business fundamentals. I know we call all of this leadership, but I'm not sure what leadership means if people don't understand enough vernacular and of the fundamentals... you know, what does it mean to achieve a budget?

He then suggests:

And that's where once again my greatest concern in leadership courses – and I've taken a ton. The ones I always thought were most valuable were the ones – not where you had everyone score the session either a seven or a two, but the ones where no one scored it less than a six or a five because irrespective of their leadership style, they saw the nature of the concepts and could understand how that could apply to what they're doing. So this isn't about converting people, it's about arming people. If only two-thirds of everything people hear are things they internalize and say 'how can I use this and how do I believe this works for me' then that's hugely powerful. If we ever get to the stage where we say 'everything that you're about to learn, you should be implementing,' that's a huge bloody problem.

In these passages, the function of the fundamentals was further clarified as outlining the basic behaviours and knowledge that are necessary for all leaders to possess. Also, leadership books and fundamentals were described as providing a common vernacular or meaning to the concept of 'leadership' within the organization. Furthermore, he positions the concepts offered in leadership development courses as something that leaders with varying styles can integrate into their personal approach to leadership. Therefore, it appears as though the CEO is positioning the fundamentals offered by *The Leadership Challenge* as a guiding framework to provide a common leadership language and to outline the basic behaviours and knowledge that are needed by all leaders.

Moreover, he seemingly clarifies his stance on *The Leadership Challenge* indicating that what it offers is different from a leadership style. Specifically, *The Leadership Challenge* presents the opportunity to 'arm' people with concepts they can implement in a way that works for them rather than 'converting' people to implement everything contained within a given approach. In other words, this positioning is consistent with his beliefs that perpetuating a uniform leadership style is problematic.

2.3.2 Case 2: Using Leadership Books to Legitimize and Contest Different Approaches to Leadership

In the second case, the VP Academic (VPA) uses leadership books and the focal institution's values to support her position on the necessity of certain leadership capabilities (e.g., self-awareness) and a particular leadership style. Her position on leadership seemingly differs from the direction that the institution is going (e.g., the leadership book that the Project Lead intended to use to develop the leadership programming – *The Leadership Challenge*) and this becomes more apparent as the interview progresses. As a result, I have provided several

passages about the VPA's use of leadership books, descriptions and clarifications of her ideal leadership style, and the exchanges between the VPA and the Project Lead. I included these exchanges as the VPA was positioning her approach to leadership and leadership development as something that I interpreted to be different than what the Project Lead was planning for the institution's new leadership development initiative.

At the beginning of the interview, the VPA talks about *The Leadership Challenge* as a leadership framework; however, she positions it as secondary to her perspective. When responding to the question regarding the leadership capabilities and behaviours of high potential leaders, she indicates:

I'll start with, for me, the highest capability that's required: self-awareness. And therefore leading to the desire for personal development. So being able to be aware of self in the context of being a leader. That would be my top one. I think it's really important that executive leaders are attuned to the heart of the people, so they care for the people. That they are collaborative – and I think that's more important now than it ever was. And I think it's more than just the word collaborative; it's not one leader, it's actually a team, so from the executive on through the system it has to be a team of leaders. And then things like Kouzes and Posner would talk about: being able to inspire the way, be a role model, encourage the people, provide that vision and really some kind of framework for the people. I'd say that pretty much captures it for me.

In this passage, the VPA discusses the importance of self-awareness and caring for all of the people and being collaborative with all leaders in the system. These capabilities and this approach to leadership aligned with the focal institution's values of '*Support*' and '*Collaboration*'. She *then* discusses elements of *The Leadership Challenge* and describes it as a framework.

The VPA reiterated her secondary positioning of *The Leadership Challenge* in her response to the subsequent question about what leaders need to do to advance to and be successful at the highest levels of the organization:

I'll take it two ways. One, I would say again Kouzes and Posner's 10 practices. I would say that's the framework we're using at [Focal Institution] in terms of looking for

potential and where do people have strength and where might their gaps be and how do we help them to move forward in that way. But I'll go back to the whole self-awareness, personal development: what a leader needs to be able to do is to be able to be aware of themselves in the context of a leadership role and what changes they might need to make. They have to be able to walk that bridge – Robert Quinn talks about: 'you have to be able to undergo deep personal change in order to lead change. I think, in general, in order just to lead, you need to be aware of that if you're not shifting and changing and growing, it's difficult to lead others.

The VPA acknowledges that *The Leadership Challenge* is the framework that will be used by the organization to identify high potential as well as leaders' strengths and gaps, but presents the framework in a way that depicts it as incomplete. Specifically, she revisits the importance of self-awareness and introduces an alternate leadership-oriented book (i.e., *Deep Change: Discovering the Leader Within* by Robert Quinn) to illustrate how leading others and leading change requires an awareness that constant shifting, changing, and growing is necessary. In other words, it appears as though she positions *The Leadership Challenge* as deficient in preparing leaders to be self-aware to facilitate personal change and lead others through change.

In the Project Lead's effort to clarify how the VPA's perspective differed from *The Leadership Challenge*, the following exchange occurred:

Project Lead: K+P [Kouzes & Posner] is very behaviourally focused and in what leaders do. You're talking a lot about who leaders are

VPA: The how they are and what they do are connected

Project Lead: So is it understanding who you are so that you can act or is it...

VPA: I think you can behave in Kouzes and Posner's and intentionally decide 'I'm going to behave that way,' but if it's not aligned with who you are and what you believe and your core values, then it shows up when there's a difference.

Project Lead: Right. There's walking the talk and then there's living what you're...

VPA: That's right. And integrity is an interesting word because really, you as an individual are the only person who knows if your integrity is intact or not. And I remember reading that five or six years ago and thought 'oh my goodness, that's so true.' Nobody else can really tell because you're the

only one that knows internally. So I'm really talking about the being as opposed to the behavioural.

The VPA differentiates her 'way' of leadership from *The Leadership Challenge* by describing it as a 'being' versus a 'behavioural' approach. Specifically, whereas a leader within the behavioural approach can intentionally decide to behave or act in a certain way, she contrasts the 'being' of leadership as behaving in a way that is consistent with one's personal values and belief systems.

The VPA then continues to differentiate a 'being' from a behavioural approach to leadership and says:

I would say FI, as an organization, is still predominantly focused on the behavioural approach, and so what we do need is our leaders to know the five ways and be able to practice in the 10 practices, absolutely. And so I think that needs to be a big part of our focus at [Focal Institution] in the current culture and where I see the culture going. Back to will we be a leader in the system? I think then we have to focus more on the being, but it may be a staged process for us in terms of how we get there. And certainly, my experience over the last year is that there have been some that are totally there from a being perspective, they totally resonate with the book *Presence*. There are others that – not so much. And maybe we can support both.

Again, the VPA acknowledges that the behavioural approach (i.e., the 5 ways and 10 practices associated with *The Leadership Challenge*) will be part of leadership development at the institution, but asserts that it is not an approach that will make the institution a leader in the system. Rather in this exchange, she suggests that forward thinking leadership development programs need be centered on the 'being' of leadership and refers to the book *Presence*³: *Exploring Profound Change in People, Organizations, and Society* (Senge, Scharmer, Jaworski, & Flowers, 2005) to depict her alternate view on leadership. This 'way of being' is described by the authors of *Presence* as "connecting to the more authentic or higher aspects of our self"

³ The authors of *Presence* have written numerous books on the topic and as a result the precise version of the book could not be identified.

(Scharmer, 2015). Lastly, the VPA regards leaders who are already demonstrating ‘the being’ more positively than those who are not, and is hesitant about whether the focal institution and its leadership development programming can support both types of leaders. In other words, it appears as though the VPA is advocating for a specific (and perhaps uniform) ‘way’ or style of leadership and leadership development programming within the organization.

In a second attempt to better understand the concepts underlying the VPA’s approach to leadership, the Project Lead asks about self-awareness:

Project Lead: How does someone become more self-aware?

VPA: We actually do start by – because really the answer is: you just are after a while – but I think we start by things like reflective practice; by encouraging journaling. By having those probing questions, so in the development program itself: ‘what were your reflections last night?’ Or whatever. Having some key questions, I think that’s how we start to bring it. And we make it totally safe and okay for people to share honestly. There’s no right or wrong answer to it. And you don’t need to say you reflected and you think we need to go this direction, it’s just... So I think that’s how we bring it into the program and I think that’s possible in a behaviourally based program.

Project Lead: 360 degree, LPI [Leadership Practices Inventory] related?

VPA: I think that helps because then you see the perspective of others. You’re aware of yourself and your reactions to things, and then you think about how others might see that. Understanding yourself in the context of others. I think Quinn calls it ‘other focused.’ But he has a word for the ‘knowing self’ as well. That book made an impression on me when I first got into leadership.

In this exchange, the VPA appears to have a difficult time verbalizing how someone becomes self-aware by indicating that you just are after a while and suggesting that reflecting and journaling is a place to start. Following these statements, the VPA’s position on the ‘being’ approach is tempered by noting that there is not a right or wrong way to leadership development and that the Project Lead does not have to take the program in the ‘being’ direction. Moreover, compared to the previous exchange, she uses greater conviction in suggesting that leadership

development programming can include both approaches (i.e., from ‘maybe we can’ to ‘I think that’s possible’).

The Project Lead then questions whether the LPI – a 360-degree assessment tool that is part of *The Leadership Challenge* - is related to self-awareness wherein the VPA refers to it as somewhat related to developing self-awareness. Even so, the VPA refers back to the concepts offered in leadership books that aligned with her approach and notes how the book had an impression on her leadership. That is, the VPA seemingly does not believe that the behavioural approach helps to develop self-awareness (or the ‘being’ approach does a better job).

In sum, the VPA depicted *The Leadership Challenge* as a traditional and behavioural approach to identifying high potential and creating leadership development programming and inferred that it was incomplete. In contrast, she positioned the ‘being’ way or style of leadership more positively by describing it as forward thinking. This ‘way’ of leadership highlighted concepts such as self and other-awareness, working in collaborative environments, and the need for constant personal change and evolution to lead and enact change. To support or legitimize these concepts and the ‘being’ approach to leadership, the VPA referred to multiple leadership and change-oriented books that aligned with organizational values (e.g., collaboration) and the significant changes that were occurring in the organization (e.g., self-awareness to lead change). In short, the VPA aligned these concepts with other important discursive resources (i.e., organizational values) and current events in the organization (i.e., operational and culture change) and contested *The Leadership Challenge* (and its behavioural approach) by using leadership books that supported her alternate perspective.

2.3.3 Case 3: Leadership Challenge and its Behavioural Approach as Self-Insight – not a Style.

In this third case, I provide context for why the Project Lead had selected the *Leadership Challenge* and the benefits that she sees in using the behavioural approach. In an interview with a senior leader who was external to the focal organization (which followed the Project Lead's interview with the VPA), the Project Lead elaborates on her position toward *The Leadership Challenge*, she comments:

Project Lead: I don't think I've figured out exactly how we'll determine whether someone who has been through the program has been successful at learning what they're doing. One of the tools that I've used in the past that I think is really insightful for individuals, is to use a behavioural index – like the *Leadership Practices Inventory*, the LPI, from the *Leadership Challenge*. Giving them some insights into how do other people see you, and see you behaviourally. Because I think the focus needs to be on the behaviours, and not on certain styles. I don't think it's insightful for people long term to say “oh well, you're this style, and this person is ...”

Ext. Leader: People have different [styles] depending on who they're dealing with, and it's situational.

Project Lead: And different styles with different people, and I think the behavioural way of going is...

Ext. Leader: The behavioural inventory is a very good place to start and maybe people would self-select after that.

Project Lead: I think so. So definitely I would agree that some people would say “Wow, I didn't know people saw me that way, and I need to work on this” ... or “This isn't for me.” But I think it's a snapshot in time that gives people something to work on as well, and you can't teach leadership in one single program, but it has to be something you work on over time. I definitely believe in that 70-20-10 leader development: 70% of your development is going to come from being on the job, and having stretch assignments, and experiencing different kinds of scenarios that we can't create for you. And 20% would come from watching other people, through mentorship programs, learning vicariously. And then 10% can be taught. And, we'll try and master that 10%, but then give people a snapshot – “this is where you are” and then focus on the future snapshot.

In this passage, the Project Lead distinguishes *The Leadership Challenge* and its behavioural approach from that of a leadership style, noting that multiple leadership styles are needed to deal with different people. Moreover, she discusses how the LPI (i.e., Leadership Practices Inventory) assessment provides leaders with greater insight into how others view them (as a leader) which can then be used to identify behaviours that require improvement. Moreover, the LPI was also discussed as a tool that may help current leader's self-select out of future leadership positions based on the insights they garner. However, although the Project Lead views behaviours as something that is different than a style, a style can be a manner of behaving or doing things (Merriam-Webster, n.d.). Therefore, in this instance, a style is seemingly positioned as a way a given leader *is* (i.e., unlikely to change and/or used as an attribution), whereas behaviours are malleable and can be identified and worked towards to provide leaders with tools to enact multiple styles.

2.3.4 Case 4: Leadership Books as Theory, Foundation, Written by the Gurus, and Open to Interpretation and Application

In this case, I show how the discursive practices (i.e., leadership development) and the discursive resources (i.e., leadership books) were perceived and used by senior leaders in the focal institution. When asked for her final thoughts on building the leadership development programming for the institution, this senior leader remarked:

One thing I liked about what we did in the *Change Leadership*, and I see that [CEO] is doing that now, is he started a book club. I think it is important to really have it based on a foundation of theory so that folks, not that they have to read all of the leadership books, but if they have some sort of foundation where they get to see what different folks are writing about leadership and that they'll get a better understanding if they have a chance to discuss those things and talk about them and talk about how it affects their personal style. Everybody is different and everybody takes different things from the theory and applies it differently. I think it is important to have that foundation and for people to have a chance to hear about what the gurus out there are saying. (Senior Leader 12)

This passage provides a positive evaluation of how the books were used in the focal institution's leadership development programming and how they can be used to facilitate conversation about leadership. The senior leader viewed these books as theory-based and served to provide a foundation of leadership. She then talks about how these foundational or theoretically-based things can be (and are) interpreted and applied differently by leaders with different personal styles. From her perspective, leadership books are a discursive resource that is interpreted, discussed with others, and implemented in a way that suits one's personal style. Lastly, the statement concludes by legitimizing the status of these books by referring to the authors as gurus. In sum, this senior leader legitimizes the use of leadership books by referring to them as theoretically-based, written by gurus, and a discursive resource that is interpreted and applied differently by leaders with diverse personal styles.

2.3.5 Case 5: Leadership Books: Making Sense of it All and Giving Sense to Others

In this fifth case, we meet a senior leader who enthusiastically acknowledges how leadership books serve as a prominent resource in her sensemaking processes. Moreover, we see how she has internalized the concepts that were presented in the leadership books within the *Change Leadership* programming and espouses to be enacting the concepts within her department.

When discussing leadership capabilities and behaviours of high potential leaders, the senior leader refers to the main components of the book '*Creating Leaderful Organizations*' (i.e., 4 C's) used in the *Change Leadership* development program.

I also tell my staff that everybody is a leader. So a leader has to understand that a collaborative, concurrent, compassionate leadership is where we are going as an institution. The 4 C's is where we are going and each one of my faculty and staff members that we do performance management on has the opportunity to put a leadership goal into their PMP. Because everybody is a leader and as soon as everyone understands that then you have a fantastic team working in the right direction for the organization.

In this passage, the senior leader highlighted several functions of leadership books. First, the senior leader uses the tenets (e.g., ‘everybody is a leader’, the 4 C’s) derived from ‘*Creating Leaderful Organizations*’ (Raelin, 2003) to make sense of what leadership is and is going to be in the institution. Correspondingly, these ideas are then used as a means for giving sense to her staff of what leadership involves in the focal institution. This sense giving is reinforced through HR processes and practices (i.e., performance management) as every staff member can develop a leadership goal. She elevates the legitimacy of this ‘way’ of leadership by indicating that once people understand it, then everyone will work together to move the organization in its intended direction. In other words, the tenets of the leadership book have taken on prominent position within *this* leader’s talk and actions about leadership.

This senior leader reiterated the prominence of leadership books in her sensemaking when she discussed how she learned the competency of reflective practice.

[External consultant] has been here and has been using her expertise to bring forward engagement and her leadership is both dynamic leadership and change leadership. But listening to what [External consultant] would say, at a leadership moment with a group of people in our change management leadership course, taking that and writing it down, bringing it home, reading it, reflecting on it, and looking it up and looking at all the literature on leadership. Like Kouzes and Posner, I love their *Leadership Challenge*. I have all of Ruiz, *The Four Agreements on Leadership*. Any book, anything I can find. *Theory U*, Otto Scharmer, I love his concepts around *Theory U* and leadership. Really, truly understanding restorative leadership which, to me, is really where we are right now in terms of community and that’s what we need within this city, within this province, is all around restorative leadership. So really, truly understanding what those things are and what do they mean to an organization. If we say we are going to take engagement, we are going to engage people, in a huge change within this organization, which [VPA] has done. We are going to do change leadership and we are going to look at emergent leadership and change leadership at the same time. What does that really mean to this organization and reflecting on that?

In this passage, the senior leader describes how leadership books serve as literature that contains concepts which she reflects upon to inform her understanding of, and approach to leadership. Furthermore, she draws from other leadership concepts presented in the *Change*

Leadership programming (i.e., change and emergent leadership) and her external search (e.g., restorative leadership) on what these concepts mean to the organization. In other words, these concepts are used as discursive resources to create an integrated position on a ‘way(s)’ of leading that she believes the organization needs (i.e., restorative leadership). Moreover, the books provide an understanding of what leadership is going to ‘be’ in the organization (e.g., change leadership and restorative leadership).

Lastly, the senior leader provided the following response to the qualities needed for senior leaders to lead others effectively at the focal institution:

But it’s just another thing that a leader has to do, they have to be able to take off their judge hat and look at something and say, you know, I am not judging this person from their ability or their inability to understand or comprehend or know, but I am looking at this person holistically as an individual and looking at what they offer and what they bring and helping that individual to understand holistically, what it is that we are doing in the organization. So it is the ability to remove yourself from judging is really important. And I am using some of the terms from the readings we have had from change leadership, but at the same time, I truly believe it..

Again, this passage reflects how this senior leader used leadership books (i.e., provided in the *Change Leadership* development program) as a discursive resource to inform her talk on what leaders in the organization need to possess. However, she extends her previous musings about these books by recognizing her use of the terms presented in the *Change Leadership* program. She then supports her use of these concepts by indicating that she truly believes in them. In other words, although senior leaders may espouse concepts, their enactment and implementation may require a ‘true belief’ in the concepts.

2.3.6 Case 6: Leading Edge Views and Consistency in Language

In this final case, we meet a senior leader who approaches leadership books with a bit more skepticism than the previous two senior leaders. I present this case to highlight what may be needed for a leadership book to be accepted within the focal institution. In providing a

response to what senior leadership development programs need to offer, the senior leader asserted the following:

I mean obviously I think new leading edge views and things like that – I think bringing things in from research and all that kind of stuff. So this is new, this isn't rehashing something I read in a book. (Senior Leader 28)

In this passage, the senior leader imparts his desire for leadership development programming to include content based on new perspectives and research. In doing so, he positions leadership books as a discursive resource that is useful if they provide a new perspective that is research-based.

When further elaborating on what leadership development programming need to include, he says to the Project Lead:

SL 28: I guess if there's – if we're going to be carrying forward, and this is – I don't know if this is going to be a given, but some of the concepts that were being introduced through the leadership change – *Change Leadership* stuff, are we going to stick with that? Because this will be the first test. If we bring something in that is a different language again, the other one's going to get thrown out. And I'm not saying that it has to be the 4 C's and all the rest of it, but it's something we may want to keep in mind. And I don't know whether that's possible, whether when we start pulling all this stuff together, whether it's going to emulate that or not, but having a single language I think is really important for an organization.

Project Lead: I like that. And I completely agree. What qualities are needed within our most senior leaders to effectively lead people at FI?

SL28: I mean, let's throw out the 4 C's because I'm not convinced the passion is always there for example.

The senior leader's response highlights how leadership books are used to introduce a language of leadership into the organization and leadership development programming is one of the sites of dissemination. Moreover, he cautions the Project Lead about introducing a language of leadership that is inconsistent with previous initiatives (i.e., *Change Leadership*) asserting that a single language is important. Furthermore, by referring to the new leadership development

programming as a test, it prompts the notion that senior and lower level leaders will evaluate the new programming based on the consistency of language with previous programs. In other words, by not using a common language or a language that maps onto previous development programs, new programming with a new language may have a difficult time reaching legitimacy in the organization. Following this statement, the senior leader shows a reflexive awareness regarding the importance of a single language by drawing from the discourse of the 4 C's (i.e., concepts introduced by *Creating Leaderful Organizations* in the *Change Leadership* development programming) to describe the qualities needed for effective senior leaders at the focal institution.

2.4 Discussion

The general managerial discourse that permeates individual organizations, broader institutions, and society are often produced, diffused, and consumed in the form of popular management books (Furusten, 1999). One popular topic of these management books is leadership. Leadership books serve as a popular communication tool that define and inform people's beliefs, ideas, philosophies, and perspectives on leadership (Bligh & Meindl, 2005). These books create expectations among leaders and followers of what leadership is or should be (e.g., behaviours, skills, characteristics). In the focal institution, leadership books were considered (particularly by the executive leaders) as a way to communicate a common language and give meaning to leadership and define its key fundamentals for others in the focal institution. In this sense, the executive leaders framed leadership as something that can or needs to be given meaning, and this meaning can be shaped and reshaped over time. These leaders implicitly recognized that the concept of 'leadership' is, at least in part, a socially constructed phenomenon (Fairhurst, 2007) and that they were actively engaged in fostering a change in the meaning of the leadership function in the focal institution. They used leadership books as a prominent

communication tool and resource to legitimize their respective positions.

For the CEO, *The Leadership Challenge* represented a way to introduce a common leadership language and to provide leaders with an outline of the fundamentals of effective leadership. For the VPA, leadership books were a means to introduce a different approach to leadership. This approach was meant to provide leaders with the skills and a mindset that would facilitate their ability to work in collaborative environments and to deal with, and effect change. Whereas the VPA was advocating for providing skills that would prepare leaders to facilitate and engage in constant change, the CEO sought to provide fundamentals that can be used across time and context. In other words, these executives were advocating for fundamentals or key skills that aligned with the focal institution's current and future context (i.e., change) and those that they believed were needed (or missing) among leaders in the focal institution. In effect, the executive leaders used these leadership books (and the concepts within) to frame their desired meaning of leadership and the basic changes that they wanted to see regarding how others approached the enactment of 'leadership' in the context of a changing institution.

Furthermore, the executives approach to these leadership books was in line with they are typically positioned. For instance, Bligh and Meindl (2005) note that many leadership books on the market tend to provide a list of suggestions, traits/competencies (e.g., skills, characteristics) that are needed for effective leadership, universally, and particularly in the context of 'leading change.' That is, leadership books tend to depict leadership as something that is easily achievable by distilling it down to a few behaviours or a certain way of being that will facilitate a leader's ability to lead and effect change. Moreover, they are often a reflection of the current cultural and societal context (e.g., technological changes, globalization, demographic changes) and serve as a guide on how to lead in uncertain times (as was the case in the focal institution).

2.4.1 Reshaping and Giving Sense to the Shifting Concept of 'Leadership'

The concept of 'leadership' that was communicated and demonstrated by the previous executive was described as an old way of leadership. This old way of leadership was top-down wherein leaders isolated themselves from staff and other leaders in the institution. Several senior leaders commented on how they were happy to see that the new executive (i.e., CEO and VPA) were fostering a different way of leadership in the focal institution. As leadership becomes more of a concern when it has been poor (Meindl, Ehrlich, & Dukerich, 1985) or when it has become overly focused on hierarchy and control (Cameron et al., 2006), the disenchantment of leadership style that was used by the previous executive presented the opportunity to reshape the meaning of 'leadership' in the institution.

Shaping and reshaping the meaning of leadership often occur in leadership development programming (Carroll & Levy, 2010). Accordingly, the executives and the Project Lead had used (or intended to use) leadership development programming as one of the main sites, and leadership book(s) as one of the main tools for reshaping the meaning of leadership. Specifically, the VPA began to introduce the 'being' way of leadership and its associated ideas during the *Change Leadership* development programming. This program centered on preparing all of the institution's leaders to cope with and implement the upcoming changes.

Seemingly, this leadership programming served its sense giving purpose as the senior leader in Case 5 described how she communicated the concepts offered by *Creating Leaderful Organizations* (i.e., a leadership book from the *Change Leadership* programming) to her staff and encouraged them to embed these concepts within their performance management plans. Moreover, the senior leader in Case 6 referenced the qualities (i.e., passion) needed by leaders which he associated with the 4 C's of *Creating Leaderful Organizations*. In other words, there

was a trickle-down effect of how the concepts offered in leadership books were used to make sense of and give sense to leadership in the focal institution at multiple levels. Moreover, these sensemaking and sense giving processes were reinforced through everyday conversations and HR practices.

2.4.2 Discourse (Leadership Books) as a Strategic Resource

The processes described above fit with elements of Hardy et al. (2000) model of how discourse is a strategic resource that can shape perceptions of outsiders. In the context of the focal institution, however, the discourse was used as a strategic resource to shape perceptions of internal leaders. Specifically, the VPA engaged in a circuit of activity, wherein she associated the concepts from leadership books (e.g., 4 C's, everyone's a leader) with an approach to 'leadership' that she wanted to introduce into the focal institution. That is, she made new discursive statements about what leadership needed to be. She also implemented ideas (e.g., 4 C's) from leadership books into the *Change Leadership* development programming in an attempt to associate this new approach with the concept of 'leadership'.

However, for this discourse (i.e., the 'being' way of leadership) to take effect, the position offered by the disseminator of the discourse (i.e., VPA) must warrant voice. The concept (e.g., leadership) and the associated ideas located within the discursive statements (e.g., leadership books) must also be pertinent to the context of the organization and its members (i.e., the circuit of performativity; Hardy et al., 2000). In this case, the VPA seemingly warranted voice as she held a prominent position in the organization (e.g., a VP and responsible for overseeing the planning and implementation of the focal institution's operational change) and offered a different way of leadership that departed from the fairly unpopular top-down approach enacted by the former executive. The leadership books aligned with the context of change that

the focal institution was undergoing and with the organizational values (e.g., collaboration). Moreover, the *Change Leadership* programming included all of the leaders in the institution that were responsible for implementing the upcoming changes. In short, the VPA's approach to leadership was embedded within a context that was pertinent to all leaders in the focal institution. In addition, she ensured that all leaders were able to attend the developmental programming to disseminate the ideas about her 'way' for leadership.

Lastly, when the circuit of activity and performativity intersect, the new position propagates throughout the organization (i.e., the circuit of connectivity; Hardy et al., 2000). As evidenced by the senior leader's talk in Case 5 and 6, they took to components of this approach to leadership (e.g., reference to 4 C's) and embedded these ideas within other organizational activities (e.g., performance management). In other words, this different 'way' of leadership had become part of the focal institution's leadership discourse insofar as it had been adopted and was in the process of being transformed into practice.

2.4.3 Shift from the 'Being' to the 'Behavioural' of Leadership

The VPA had begun introducing the 'being' way of leadership through the *Change Leadership* development initiative (e.g., supported by *Creating Leaderful Organizations*). She felt it was her responsibility to introduce this conception of leadership to others. However, the Project Lead was *now* responsible for designing and implementing the leadership programming at the institution and was planning to (and did) use a behavioural approach (i.e., supported by *The Leadership Challenge*). This approach was endorsed by the CEO but positioned as incomplete by the VPA. As discussed above, the 'being' approach was seemingly focused on developing abilities and skills that would prepare leaders for constant change (e.g., self-awareness, reflective practice), whereas the behavioural approach appeared to center on

developing a set of behaviours that are implementable in varying contexts. Despite the possible similarities that the reader may interpret between these approaches, they were depicted as different and somewhat incompatible. That is, these approaches to leadership were in the process of contestation and as a result, a shift in the discourse on 'leadership' was afoot.

2.4.4 Recursive Circuit Continues

The circuit of activity had begun wherein the Project Lead (supported by the CEO) was making new discursive statements to manage the meaning of leadership. She conducted interviews with the top levels of leadership within the focal institution for their perspectives. Furthermore, she was developing leadership programming for which they would attend as well as leaders at the levels cascading below them.

With respect to the circuit of performativity (e.g., did the 'behavioural' position of the new CEO and Project Lead *warrant voice* among these leaders? Did the language of *The Leadership Challenge* and the 'behavioural' approach have *meaning* for these leaders?) and whether it produced connectivity among leaders within the focal institution (e.g., did the 'behavioural' approach '*take*' with leaders?) remains to be seen. Specifically, at the time of the interviews, the focal institution's leaders had only participated in the *Change Leadership* programming offered by the VPA, and thus the introduction of the 'behavioural' discourse had not yet occurred.

To provide some insight into this upcoming process, the senior leader in Case 6 depicted how a shift in language from previous leadership programming may result in contestation or rejection of a new approach to leadership. The senior leader in Case 4 was seemingly willing to take up a leadership approach if it was theory-based and leaders with different personal styles could apply the concepts. Similarly, the senior leader in Case 5 provided an example of someone

who may be willing to integrate concepts from different leadership approaches as long as she truly believes in them, and they can be implemented to serve the needs of the focal institution. Although integration of both conceptions of leadership is a possibility, Watson (1995) suggests that organizational actors tend to use one of the rival sets of discourses. Similarly, Hardy et al. (2000) suggest that organizational actors tend to pick a position and situate themselves within a particular discourse. In other words, a favoured position or language of leadership would be posited to be taken up.

Since the time of the interviews, the focal institution's senior and mid-level leaders have participated in the Project Lead's leadership development programming and been exposed to *The Leadership Challenge* and the 'behavioural' discourse. Moreover, the VPA pursued a lucrative position at a different institution and as a result, she is no longer embedding her chosen 'leadership' discourse and contesting the 'behavioural' approach. Therefore, future research may seek to examine how the 'behavioural' discourse on leadership was taken up, contested, integrated, or rejected by the focal institution's leaders and whether it has manifested in other HR practices (e.g., high potential identification, performance management). That is, it would be fruitful to explore whether the leadership language (or discourse) of the '4 C's' from *Creating Leaderful Organizations* remains, whether the '5 ways and 10 practices' of *The Leadership Challenge* replaced it, or whether an integrated language has emerged?

Correspondingly, beyond leadership development programming, have these discourses been embedded in other HR activities and within the context of the institution (e.g., day-to-day conversations, interactions, and actions) and if so, how? Specifically, ideas offered by leadership books are often decontextualized wherein some ideas are adopted, and others discarded as they may not be transferable, and thus multiple interpretations and translations throughout the

organization are possible (Furusten, 1999). This type of investigation requires a naturalistic approach (Lincoln & Guba, 1985) wherein I would be observing leaders in their day-to-day conversations and interactions to explore further how these discourses come to life. That is, I would seek to discover whether these concepts were simply espoused in interviews or used in day-to-day doing of leadership.

2.4.5 Good Intentions and Unintended Consequences? The Impact of Leadership Books

The general intended use of leadership books was to provide (a) a common language, (b) foundational or fundamental skills that leaders with varying styles could pick and choose from, and then (c) implement in a way that worked for them. For the CEO, it was critical not to perpetuate a uniform style as he believed that multiple leadership styles could be effective. However, by advocating for a certain approach to leadership and specific behaviours (e.g., by aligning them with HR practices such as leadership development, performance management, selection decisions), it begs the question of whether a uniform style of leadership becomes privileged and manifests itself over time?

In particular, although the CEO (hesitantly) and the Project Lead seemingly separate the behavioural approach from a leadership style, the *Leadership Practices Inventory* (LPI); a tool from *The Leadership Challenge* used by the Project Lead in the leadership programming, has been associated with a transformational leadership style (Carless, 2001; Zagorsek, Stough, & Jaklic, 2006). Thus, *The Leadership Challenge* may privilege behaviours associated with a transformational style or discourse of leadership. This may be problematic as behaviours associated with alternate styles of leadership have *also* been associated with effective leadership (e.g., transactional leadership behaviours such as initiating structure, contingent reward; Bass, Avolio, Jung, & Berson, 2003; Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006; Cameron

et al., 2006; Judge & Piccolo, 2004). In other words, the transformational discourse may be overemphasized, whereas the transactional discourse may be minimized, and yet a leader is likely to have to engage in behaviours that are pertinent to each discourse (Quinn, Faerman, Thompson, McGrath, & St. Clair, 2011). An example of this type of tension has materialized with the discourse from *Creating Leaderful Organizations* and the 4'Cs, namely *collaboration*.

Specifically, the majority of the senior leaders in the focal institution emphasized skills pertaining to collaboration and being collaborative, and yet some noted that other leaders within the institution were engaging in collaboration at the expense of decision-making. In fact, they questioned whether the pendulum had swung too far at the focal institution in the collaboration direction. In short, the prevalent leadership discourses offered by the leadership books seemingly increased the salience of inherent organizational tensions (collaborate vs. control; Cameron et al., 2006; Smith & Lewis, 2011). This pendulum swing may be in response to the style of the previous leadership team (e.g., top-down and isolated) and/or to leadership books simplified foci which can contribute to creating unrealistic expectations for leaders and followers (Bligh & Meindl, 2005). In sum, leadership books are seemingly a contradictory discursive resource insofar as they provide coherence of language and direction and yet can be a source of making latent tensions salient.

The present work aimed to understand how senior leaders' social constructions of high potential and leadership, in a local context, impact organizational practices. The crux of the findings revealed how leadership books served as discursive resources to reshape and give sense to the desired shift in the concept of 'leadership' within the focal institution. This shift was accomplished (or was intended to be accomplished) primarily through leadership development programming and supported through everyday conversations with staff and performance

management plans. Future research would benefit from exploring whether these discourses are simply espoused in interviews or whether and how they are implemented in day-to-day leadership.

Chapter 3

Study 2: Cognitive Complexity, High Potential Recommendations, and Leadership Level

Abstract

In Study 1, I used a discursive approach to explore how senior leaders made sense of and gave sense to high potential and leadership. I found that leadership books served as a common tool to direct attention toward the competencies required of high potential leaders and leadership more broadly within the focal institution. Furthermore, the competencies emanating from the interviews highlighted the complex cognitions and behaviours that leaders need to demonstrate to be successful. In Study 2, I shift methodological and analytic approaches by using a psychological lens to determine whether these complex cognitions (or cognitive complexity) is a foundational predictor of leadership career trajectory outcomes. Specifically, this study investigated the relationship between two dimensions of cognitive complexity (i.e., differentiation and integration) with leadership level (i.e., mid- vs. senior) and high potential recommendations. Mid- ($n = 11$) and senior level leaders ($n = 20$) from a Canadian post-secondary institution responded to six questions about their perspectives on leadership and leadership development. Using two novel computer-assisted software programs (i.e., Profiler Plus & Automated Integrative Complexity), leaders' responses were content analyzed to assess the extent to which their cognitive representations on leadership were differentiated and integrated. Findings revealed that those holding senior leadership positions tended to possess lower levels of cognitive differentiation and higher levels of cognitive integration. In addition, mid-level leaders producing higher cognitive differentiation and lower integration received more high potential recommendations from senior leaders. In tandem, these findings highlight the importance of measuring separate components of cognitive complexity and provide rudimentary

support for the validity of using computer-generated indicators as part of a high potential leadership assessment.

3.1 Introduction

Human information processing involves both the content of perception and behaviour (i.e., what people perceive, think, and do) as well as the structure of information in our minds (i.e., how people think). The structure of how we think (or process information) varies from simple and unidimensional to complex, multidimensional, and integrated (Streufer & Satish, 1997). These information processing capacities are commonly referred to as cognitive complexity (Conway, Conway, Gornick, & Houck, 2014; Streufert & Streufert, 1978; Streufert & Swezey, 1986). The overarching theoretical construct of cognitive complexity is often subdivided into differentiation and integration components (Conway et al., 2008). Cognitive differentiation centers on how one perceives distinct dimensions in their environment (i.e., unidimensional to multidimensional), whereas cognitive integration refers to how one connects differentiated dimensions in their environment (i.e., no connection to multiple connections, Conway et al., 2014, Streufert & Satish, 1997). Moreover, cognitive differentiation is a prerequisite for (or precedes) cognitive integration, and thus it is a more complex mode of information processing (Streufer & Satish, 1997; Streufert & Streufert, 1978; Streufert & Swezey, 1986). In short, complexity theory⁴ examines how individuals process information (i.e., differentiation, using few vs. several dimensions and/or integration, perceiving few vs. several connections among the dimensions) to construct and understand their environment and its subsequent effect on behaviours and decisions (Jaques, 1989; Streufert & Satish, 1997; Streufert & Streufert, 1978).

Complexity theory is pertinent to leadership as higher leadership levels are marked by qualitative shifts in thinking. These shifts in thinking are characterized by a need to process more complex, multidimensional, and higher-order information to accurately interpret, construct, and

⁴ Although complexity theory may be applied at an organizational or systems level (Driver & Streufert, 1969; Streufert & Swezey, 1986), the focus of this dissertation is on complexity at the individual level.

understand one's environment (Jaques, 1989). That is, the information processing demands increase at higher leadership levels (e.g., Hooijberg et al., 1997; Jaques & Cason, 1994; Zaccaro, 2001) and effective leaders require both the capacity to cognitively differentiate and integrate increasingly complex information (e.g., Jacobs, 2010; Jaques & Cason, 1994; Streufert & Nogami, 1989).

For example, leaders need to differentiate incoming information from internal (e.g., staff, peer, and subordinate leaders) and external sources (e.g., competitors, technology, labor market trends) and integrate (i.e., see connections) this information to effectively deal with the complicated and complex demands that are characteristic of such positions (e.g., Jaques & Cason, 1994). Although there is theorizing regarding the importance of cognitive complexity in leadership along with some evidence to suggest that its dimensions predict managerial performance (e.g., Streufert & Swezey, 1986) and firm-level performance (e.g., Cheng & Chang, 2009), little empirical research has been conducted to support such assertions, particularly in the leadership assessment domain (Hooijberg et al, 1997).

From an assessment perspective, of the few studies that have examined the complexity-potential and leadership level relationships (e.g., Goodman, 1968; Jaques & Cason, 1994; Stamp, 1988; Streufert, Pogash, & Piasecki, 1988; Sypher & Zorn, 1986; Wofford, 1994), the authors have differed in terms of how they conceptualized (e.g., differentiation-only, integration) and operationalized complexity (e.g., simulation, interview analysis). Furthermore, computer-assisted analytic tools that are consistent with the theoretical underpinnings of complexity have not been explored as a viable predictor or assessment tool in this domain. Taken together, I contribute to the management literature by examining the role of different complexity dimensions

(i.e., cognitive differentiation and integration) as predictors of senior leadership potential and current leadership level. I also use a novel approach for assessing complexity in this domain.

In the next section, I introduce two prominent theoretical perspectives on cognitive complexity and the importance of cognitive complexity in a leadership context. I conclude by developing hypotheses for two distinct dimensions of complexity (i.e., cognitive differentiation and integration) and their respective relationships with high potential identification and leadership level (i.e., mid versus senior).

3.1.1 Cognitive Complexity: Streufert and Colleagues

In general, cognitive complexity is conceptualized as an individual difference variable that examines how individuals structure information to construct meaning and to understand given stimuli (Streufert & Streufert, 1978; Streufert & Swezey, 1986; Streufert & Nogami, 1989). Rather than focusing on the content of the information (i.e., the “what”), cognitive complexity researchers are concerned with “how” the information is structured when individuals interpret and respond to their environment (Conway et al., 2008; Streufert & Swezey, 1986). These cognitive structures vary from simple to complex (Streufert & Nogami, 1989). Specifically, individuals who are cognitively simple may only use one or two dimensions⁵ to interpret their environment, whereas more cognitively complex individuals construct and interpret their environment in a multidimensional manner (i.e., cognitive differentiation) and integrate and see interrelations among multiple dimensions (i.e., cognitive integration, Streufert & Streufert, 1978; Streufert & Swezey, 1986). That is, cognitive complexity centers on how individuals process and structure information in increasingly complex ways. Moreover,

⁵ A dimension is described by Streufert and Swezey (1986) as being formed by a bipolar cognitive scale that is used to provide meaning to concepts. For instance, they provide the example of profit and productivity as being distinct dimensions that are used in organizations.

individuals must progress through each information processing level in a sequential manner such that the lower level is a prerequisite to advance to the next, higher information processing level (Streufer & Satish, 1997; Streufert & Streufert, 1978; Streufert & Swezey, 1986).

The lowest level of complexity is cognitive simplicity or unidimensional processing. Individuals who process information at this level interpret and respond to his or her environment using predominantly one dimension (Streufer & Satish, 1997; Streufert & Streufert, 1978). For example, he or she may only consider overall job performance when identifying high potential candidates rather than using a multidimensional or profile approach (e.g., considering distinct dimensions of job performance, career ambition, person-organization fit).

The second information processing level is differentiation which consists of perceiving one's environment using two or more relatively orthogonal dimensions (e.g., Streufert & Streufert, 1978; Streufert & Satish, 1997; Streufert & Swezey, 1986). The greater number of dimensions one uses to perceive their environment, the more differentiated and cognitively complex this individual would be considered. Individuals processing information with a high level of differentiation perceive multiple dimensions when interpreting their environment and can generate one or more behavioural responses. Nevertheless, these multiple dimensions are not related to each other via a plan or strategy. As a result, although a number of behavioural responses are possible based on the perception of multiple dimensions, a single dimension will generally guide their behavioural responses (Streufer & Streufert, 1978; Streufert & Swezey, 1986). In other words, a highly differentiated individual may consider several dimensions (e.g., job performance, strategic thinking, personality, cognitive ability) when contemplating high potential candidates, but would predominately rely on one dimension to inform his or her decisions. Therefore, in contrast to individuals who use one dimension (i.e., low differentiation),

those higher in differentiation perceive a greater number of possible behavioural responses based on their perceptions of multiple dimensions (Streufert & Satish, 1997). In short, individuals who process information in a highly differentiated manner may draw from any one of the multiple dimensions when identifying high potential candidates, whereas those using one dimension would only have the one option.

The third information processing level is integration. Integration involves not only perceiving one's environment from two or more dimensions but also the extent to which an individual uses these dimensions in some combinatory weighted fashion to inform perceptual or behavioural outcomes (Streufert & Satish, 1997; Streufert & Streufert, 1978; Streufert & Swezey, 1986). In other words, integration considers the interconnections or relationships between multiple differentiated dimensions in one's cognitive space that inform perceptions and behaviour. Thus, individuals with high integrative complexity generate plans and strategies that consider relationships among various dimensions and set the occasion for multiple responses to their environments (Streufert & Streufert, 1978). For example, an integratively complex individual would be able to use multiple dimensions in a combinatory fashion (e.g., job performance, experience, change management, strategic, and coaching/mentoring competencies) when identifying high potential candidates.

Furthermore, within integration, two levels of information processing have been discussed. Specifically, individuals can differ in their capacity to integrate hierarchically versus flexibly (Streufert & Swezey, 1986; Streufert & Streufert, 1978). Hierarchical integration, a lower level of information processing level than flexible integration, is when individuals have a fixed interpretation of the environment with respect to the relationships they perceive among dimensions. In other words, an individual weighs the dimensions in a fixed and consistent

pattern. For instance, if an individual who integrates hierarchically was contemplating high potential identification, he or she may use similar dimensions regardless of changes in time or the environment. This individual would produce a fixed, unchanging response to a given stimulus.

In contrast, an individual who integrates flexibly would be able to vary and change the relationships among the dimensions they use to interpret their environment. In other words, an individual may alter the weight given to dimensions and interconnections among them when interpreting the environment. For example, if this individual was contemplating high potential identification, he or she may adjust the weightings of each dimension (e.g., job performance, experience, change management, strategic, and coaching/mentoring competencies) based on the context (e.g., implementing operational change, focusing on leadership development). That is, when greater emphasis is placed on leadership development relative to implementing operational change, coaching and mentoring may be provided greater weight than change management competencies, and vice versa when the organization priorities shift. As a result, individuals who integrate flexibly rather than hierarchically may be more responsive to changes in the environment and thus produce more variable and changing responses (Streufert & Swezey, 1986; Streufert & Streufert, 1978). In sum, flexible integration is considered to be a more advanced level of information processing in comparison to hierarchical integration due to the possible dynamism and reintegration that is required when altering the relationships among dimensions (Streufert & Nogami, 1989).

3.1.1.1 Environmental complexity. In the context of Streufert and colleagues research, environmental complexity relates to the amount and diversity of information that exists in a given situation and the extent to which the situation is static or dynamic (e.g., Schroder, Driver,

& Streufert, 1967; Streufert & Streufert, 1978; Streufert & Swezey, 1986). In other words, complex environments are characterized as including larger amounts of information, a broader range of differing perspectives, and often in a state of flux. Correspondingly, Streufert and Swezey (1986) indicate that organizations vary on a simplicity-complexity continuum. Specifically, more complex organizations may pursue a number of relatively independent organizational goals (e.g., maximize profit and maintain internal staff harmony) that need to be integrated in an interactive fashion to achieve its desired outcomes, whereas simple organizations may have a single prominent orientation (e.g., gaining market share). Moreover, the formal (e.g., number of departments with different objectives, interdependencies between departments) and informal structures (e.g., communication channels, subcultures), as well as external influences (e.g., competitors) may add to the complexity of the environment. In sum, Streufert and colleagues postulate that the complexity of the environment demands and produces a certain level of individual complexity.

3.1.1.2 Individual complexity as a function of environmental complexity. An individual's cognitive complexity and the complexity of their environment interact to impact perceptions and behaviours (Streufert & Swezey, 1986; Streufert & Satish, 1997). The nature of the interactive relationship between environmental and individual complexity is curvilinear. Specifically, Streufert and colleagues (Streufert & Streufert, 1978; Streufert & Swezey, 1986; Streufert & Nogami, 1989) indicate that at low levels of environmental complexity, there is little need for more complex levels of information processing or behavioural responses and thus unidimensional, or simplistic information processing and behavioural responses are appropriate. As a result, individuals higher and lower in cognitive complexity may construct and respond to simple environments in a comparable manner.

At high levels of environmental complexity, there is a greater need for complex levels of information processing and behavioural responses. However, the information processing requirements at these high levels of environmental complexity may exceed the capacity of most individuals. Specifically, Driver and Streufert (1969) suggest that individuals have an upper limit in which they can process new information in a differentiated and integrated manner, and after this upper limit has been reached, the use of information begins to decline in quality and quantity. Thus, regardless of one's level of cognitive complexity (i.e., higher or lower), individuals may become overloaded with the environmental input (or information) and subsequently rely on unidimensional or simplistic information processing and behavioural responses (e.g., Streufert & Swezey, 1986). In other words, at the highest levels of environmental complexity, individuals at higher and lower levels of cognitive complexity may resort to processing information and responding to situations in a relatively simplistic and unidimensional manner (e.g., Streufert & Streufert, 1978). Even so, in instances of complex environmental conditions, relative to those who are lower in complexity, those higher in cognitive complexity tend to search actively for adequate amounts of information that is relevant and more diverse (Streufert & Nogami, 1989). Moreover, acquiring accurate cognitive representations of the environment facilitates more effective decision making (e.g., Streufert & Swezey, 1986).

In contrast to high or low levels of environmental complexity, it is at intermediate levels where more complex levels of information processing and behavioural responses occur (Streufert & Swezey, 1986). As such, individuals processing information with greater complexity (i.e., differentiation and integration) interpret and respond to their environment in an optimal, more complex manner than individuals lower in complexity.

In sum, differences among individuals higher versus lower in cognitive complexity are likely to materialize at intermediate levels of environmental complexity. At low or high levels of environmental complexity, both individuals of higher and lower cognitive complexity may interpret their environment and respond to it in a more simplistic and unidimensional manner. Although individuals may process information about their environment with greater or lesser complexity, the environment has an impact on how well individuals at varying levels of cognitive complexity respond to it (Streufer & Swezey, 1986). That is, complex responding will occur when the environmental conditions permit it (Streufer & Streufer, 1978). Despite the possible hindering effect of the environment on information processing, it is indeed advantageous to process information at a higher level of complexity when the interpretation and subsequent behavioural responses for dealing with the environment require consideration of multiple dimensions and various alternatives for obtaining one's goal (Streufer & Streufer, 1978). Therefore, possessing greater cognitive complexity sets the occasion for integrated, planned, and strategic responses to complex environments which are typical of higher level management and leadership positions (e.g., Streufer & Streufer, 1986; Streufer & Nogami, 1989).

3.1.2 Stratified Systems Theory and Cognitive Complexity

Similar to Streufer and colleagues, Jaques and Jacobs along with their associates have examined the notion of cognitive complexity⁶ regarding how information is structured (i.e., how individuals construct meaning and organize information) rather than the content (or the 'what')

⁶ Although earlier works distinguished conceptual capacity from cognitive complexity, with the former being considered broader (i.e., inclusive of the capacity for integration, abstraction, independent thought, use of broad and complex frames of reference; Lewis & Jacobs, 1992), recent work has used these terms more interchangeably and it has been referred to as personal complexipacity (e.g., Jacobs, 2010). Moreover, all of these terms (i.e., conceptual capacity, cognitive complexity, complexity of mental processing) refer to how individuals process and structure information (i.e., the 'how') in their environments to construct meaning, and thus I would suggest that these conceptualizations are indeed highly related and will be used interchangeably for the purposes of this dissertation.

of information. In contrast to Streufert and colleagues, however, these researchers have concentrated on the relationship between information processing complexity and the critical tasks of different leadership levels within an organization⁷.

The underlying premise of stratified systems theory is that leaders contribute value to their organizations through their thinking (e.g., Jacobs & Lewis, 1992; Jaques, 1998). Jaques suggests that leadership work involves discretion, judgment, and decision-making which is characterized by a variety of information processing activities (i.e., selection, organization, analysis, reasoning, judgment) that are used to develop plans and take action. Accordingly, Jaques and colleagues developed an interactive theory (i.e., stratified systems theory) to describe the relationship between task complexity (i.e., time span of most critical task), leadership levels (e.g., line manager to division leader to CEO of a global company), and the corresponding complexity of mental processing (i.e., declarative to parallel processing at concrete to abstract levels) that is needed for effective individual and firm performance. In particular, the stratified systems theory posits that effective leaders need a requisite increase in their complexity of mental processing (or cognitive complexity) to match the increase in task complexity that arises with higher levels of leadership (Jaques 1989; Jaques & Cason, 1994; Jaques & Clement, 1991). In short, the stratified systems theory depicts four distinct mental processing complexity levels that reoccur at successively higher orders of information. These processing levels are used across seven leadership levels with each leadership level corresponding to specific critical tasks. In the following section, I will describe the stratified systems theory's complexity levels as well as its leadership levels and associated critical tasks.

⁷ See Zaccaro (2001) for a complete review on the similarities and differences between the aforementioned approaches to complexity.

3.1.2.1 Four levels of complexity of mental processing. The complexity of mental processing of leaders consists of four qualitatively different patterns and these patterns reoccur at five orders of information (i.e., concrete to abstract, Jaques, 1998). Jaques and colleagues posit that progressing from simpler to more complex levels of mental processing occur in a step-wise and discontinuous manner with each level representing a qualitative shift in thinking. Progression from lower (e.g., department leader) to higher levels of leadership (e.g., company leader) follow an equivalent pattern to one's complexity of mental processing. That is, each successively higher level of leadership requires a qualitative shift in thinking characterized by increasing levels of complexity of mental processing (Jaques & Clement, 1991).

The lowest level of information processing is declarative or assertive processing which refers to organizing information in a direct manner and creating a rationale by using a number of separate dimensions with no connections made between them (Jaques, 1995; Jaques, 1998; Jaques & Clement, 1991). For instance, Jaques (1995) describes this form of processing as having a disjunctive quality and it is exemplified by the following statement "Here's one reason for my idea, and here's another, and I could give you others as well" (p. 347). This level of processing is comparable to Streufert and colleagues' (1986) notion of unidimensional or more simplistic forms of differentiation.

The second level of mental processing that Jaques (1998) refers to is cumulative processing. An individual displaying this level of mental processing uses a number of different dimensions that are connected to inform one's rationale and decisions (Jaques & Clement, 1991). Jaques (1995) describes this form of processing as having a conjunctive quality, and it is exemplified by the following statement "If you take this first point..., and put it together with these three other items we have observed, then it becomes clear that such-and-such has occurred"

(p. 347). This level is akin to the initial stages of integration where combining multiple dimensions is occurring (Streufert & Swezey, 1986).

Similar to cumulative processing, the third stage of information processing (i.e., serial processing) involves the consideration of multiple dimensions and their interconnections. However, this stage of information processing is more advanced as it involves constructing a rationale (or making a decision) based on a linear series of logically connected reasons (e.g., progressive story, decision tree) with a conditional if-then or cause-effect quality used to inform current and future actions (Jaques 1998; Jaques & Clement, 1991). Specifically, Jaques (1995) indicates that this is exemplified by the following example “I would do A because it would lead to B, and B will lead to C, and C would lead to where we want to get” (p. 347). This example depicts what Streufert and colleagues refer to as hierarchical integration in that there is a set of fixed patterning of relationships among dimensions.

In contrast, parallel processing (i.e., the fourth level of mental processing) builds on serial processing insofar as it involves developing several connected and conditional reasons to inform decisions. These multiple pathways are held in parallel and may or may not be linked to each other. This process is akin to developing multiple organizational strategies insofar as if one dimension changes then an alternate strategy may be employed. Jaques (1995) describes this form of processing as having a double conditional quality as each series can be linked together and may be conditional on each other; an exemplary statement is as follows:

“If I start with a possible position, that would lead to A and A to B, and that would end in outcome 1 which I do not support. Or I could start with another position that would lead on to C and then to D and get to outcome 2, which I also do not support. I like a third position because it could lead to E and then to F, and that could lead to outcome 3 that I do favor, but only if you took action B from the first series, and inserted it between steps E and F on the way to outcome 3.” (p. 347)

This form of information processing is comparable to Streufert and Satish's (1997) description of flexible integration wherein individuals have the capacity to develop and consider multiple solution pathways to effectively generate plans (e.g., strategic) to respond to changes in the environment.

In sum, each of the abovementioned complexity of mental processes (i.e., declarative, cumulative, serial, parallel) occur in a cyclical manner at higher-order levels of information complexity (Jaques & Cason, 1994). These higher-order levels represent greater abstraction and aggregation (Jaques & Clement, 1991). For example, a senior leader may aggregate 'recruitment' and 'training and development' within the broader realm of 'talent management' when developing an organization-wide strategic plan. This type of processing is consistent with Streufert and Streufert (1978) notion that an individual with integrative capacities (i.e., high level cognitive complexity) aggregate several independent dimensions into broader categories, whereas an individual with predominately differentiated capacities process independent dimensions rather than the broader category.

3.1.2.2 Stratified systems theory's seven levels of leadership, its critical tasks, and time-spans. Stratified systems theory conceptualizes leadership within organizations as consisting of three overarching domains (i.e., production, organizational, and systems) containing seven distinct strata (or levels⁸). Each level (i.e., SI – SVII) represents an increasing amount of task complexity and is a function of the number of internal and external dimensions operating in a situation (e.g., units and departments, trade-offs between time and money), the extent to which these dimensions are interconnected, and the level of abstraction used for understanding these dimensions (e.g., lower vs. higher-order information, ambiguity and rate of

⁸ For the purposes of this dissertation, I will refer to Jaques "Strata" as leadership levels.

change of dimensions and interconnections; Jaques, 1989; Jaques, 1998; Jaques & Cason, 1994; Jaques & Clement, 1991; Jacobs & Lewis, 1992). In addition, each higher leadership level is associated with an increasing time-span for its critical tasks (Jaques, 1998; Jaques & Cason, 1994; Jaques & Clement, 1991; Lewis & Jacobs, 1992) where time-span represents the length of time required for organizing and carrying out the critical tasks of a given leadership position (Jaques & Clement, 1991). In short, higher leadership levels require a greater capacity to differentiate and integrate information at more abstract levels to effectively deal with the increasing time-span of the critical tasks.

3.1.2.2.1 Production domain. In general, leaders in the production domain (i.e., SI-SIII) are bounded by standardized organizational procedures. Within these guidelines, they are tasked with establishing general objectives and are responsible for short-term planning (e.g., scheduling work) via integrating several dimensions such as people, materials, equipment, and tasks (e.g., Jacobs & Jaques, 1987). The time-span of these critical tasks typically extend from 3 months to 2 years (Jaques, 1986; Jacobs & Jaques, 1987; Jacobs & Lewis, 1992).

Jacobs and Jaques (1987) describe SI leaders as shop floor managers who are primarily responsible for managing direct output and dealing with concrete problems that require practical judgments. SII leaders or first level management (e.g., unit or section) are responsible for diagnosing current and emerging problems, dealing with some uncertainty, and having some discretion (or flexibility) to pursue its unit's goal (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992). SIII leaders or second level management (i.e., departmental level) lead and monitor several subordinate lower level leaders, develop solutions for short-term requirements, and concurrently initiate actions toward longer-term goals. These leaders have the flexibility to

change the direction of the department if initial choices are ineffective (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992).

3.1.2.2.2 Organizational domain. In contrast to the production domain, organizational level leaders (i.e., SIV and SV or division and company leaders) deal with a variety of higher level organizational processes with longer-term foci (e.g., forecast trends, create policy, allocate resources, develop business plans and strategies, manage organizational working climate and reputation, profit and loss responsibilities; Jacobs & Jaques, 1987). On average, these tasks extend between 2 and 5 years (Jacobs & Lewis, 1992). These leaders must deal with multiple units, departments, groups, and environmental factors when making their decisions. In particular, SIV leadership is described as the first level of general management which involves coordinating among various departments and developing long range plans (e.g., modifying, maintaining or fine-tuning organizational subsystems). Leaders at this level are moderately bound by the organization. In contrast, SV leaders are not bounded by the organization as they have control over major organizational decisions and are responsible for large-scale profits and losses. This level of leadership requires coordinating actions of the interdependent divisions of the organization and monitoring internal and external environments to adapt organizational strategies to meet organizational goals and objectives (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992).

3.1.2.2.3 Systems domain. Lastly, the systems (strategy) domain includes two levels of leadership (i.e., SVI and SVII). This domain involves leadership that manages an organization at a national or international level (e.g., executive vice-presidents or chief executive officers). Similar to leaders in the organizational domain, these leaders deal with a variety of organizational processes with long-term foci. Nonetheless, these processes require a greater capacity to interpret and synthesize information that is ambiguous and abstract (Jacobs & Jaques,

1987). Specifically, system domain leaders create a vision and value system for the organization in an unbounded environment and develop corporate strategy that extends to all levels of the organization. When establishing or modifying organizational systems, strategic priorities, and business actions (e.g., mergers) to meet the goals of the organization, leaders at these levels must consider a variety of higher-order external environmental factors (e.g., sociocultural, political, economic, technological), competitors' strategies, and strategies of lower level leaders within the organization (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992). The time-span for these critical leadership tasks may extend beyond 5 years.

In sum, stratified systems theory indicates that successively higher leadership levels require qualitatively different (i.e., increasingly more complex) mental processes to effectively perform the corresponding critical tasks. Making sense of these increasingly complex tasks/problems that extend over longer time-spans require leaders to construct cognitive representations that are equally complex (Jacobs, 2010). That is, leaders with higher levels of cognitive complexity have the capacity to create more complex and comprehensive cognitive representations (i.e., accurately representing the relevant patterns of internal and external dimensions to make attributions and causal inferences), enabling them to understand and interpret the complexity of their critical tasks. In turn, this complex understanding allows for adaptive and proactive strategic decision-making (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992). In other words, stratified systems theory refers to how well leaders represent the internal and external environment conceptually in their minds which facilitate appropriate adaptations, adjustments, and decisions (Lewis & Jacobs, 1992). Altogether, stratified systems theory posits that the proper match between these aforementioned factors will result in effective leadership and subsequent organizational strategic functioning and performance.

3.1.3 Cognitive Complexity and Career Trajectory Outcomes: An Empirical Review

As an overarching concept, cognitive complexity refers to the structure of information in one's mind (Streufert & Streufert, 1978). Information can be structured in increasingly complex manners wherein individuals may progress from unidimensional to differentiated processing, and then differentiated to increasingly complex forms of integrative processing (Jaques & Clement, 1991; Streufert & Swezey, 1986). The capacity to differentiate among multiple elements in one's environment is necessary to integrate these elements (i.e., form relationships between them) and using these two processes set the occasion for adaptable and effective decision making and subsequent performance (Jacobs & Lewis, 1992).

Correspondingly, these concepts are commonly discussed as integral for effective leadership and prominent in leadership theorizing (e.g., Akrivou & Bradbury-Huang, 2011; Bartunek, Gordon, & Weathersby, 1983; Day & Lance, 2004; Hannah et al., 2011; Hooijberg et al., 1997; Hunt & Ropo, 1995; Jaques & Cason, 1994; Levy, Beechler, Taylor, & Boyacigiller, 2007; Streufert & Streufert, 1986; Zaccaro, 2001) and organizational strategy (Cheng & Chang, 2010; Manral, 2011; Wang & Chan, 1995; Wong, Ormiston, & Tetlock, 2011). Despite the popularity of these concepts, empirical examinations with pertinent leadership outcomes have lagged (e.g., cognitive complexity – high potential or leadership level relationships).

Furthermore, this research has often measured either cognitive differentiation, integration, or a combined score that confounds differentiation and integration (e.g., integrative complexity) rather than using both variables or separate indicators of each. In this section, I review empirical research pertaining to both differentiation and integration in leadership contexts and develop hypotheses for their respective and combined contributions in predicting high potential identification and leadership level.

3.1.3.1 Complexity and decision-making. Effective decision making requires the consideration of several independent pieces of information and how they fit together (Jacobs & Lewis, 1992). For instance, when Information Systems project managers were engaged in an experimental project planning task, those scoring higher on differentiation were better at planning certain tasks and activities (e.g., matching tasks to team members based on skills, experience, location, sequencing tasks, and foreseeing and planning for unexpected events; Green, 2004). Moreover, those scoring higher on integrative complexity were better able to identify the key tasks and activities for successful project completion. Similarly, when military leaders were engaged in multi-step tactical military simulation exercise, those scoring higher on differentiation used more adaptive decision-making processes [i.e., situational analysis (e.g., perceived and comprehended key features in the environment, adjusted thinking to meet demands of changing situation), decisiveness, (e.g., provided clear and well-articulated directives), and positive action orientation (e.g., decisions actively and effectively affected the situation); Hannah, Balthazard, Waldman, Jennings, & Thatcher, 2013].

3.1.3.2 Complexity and job performance. In addition to more effective decision making, individuals with greater cognitive complexity have been found to be more effective in their jobs. For example, in the banking industry, measures of differentiation have been positively associated with micro (individual and unit performance, McGill, Johnson, & Bantel, 1994) and macro-level performance indicators (e.g., deviation from the inflation target, exchange rate volatility; Thies, 2004; 2009). More generally, senior leaders (e.g., managers and upper-level executives) possessing higher integrative complexity have received more positive performance evaluations (i.e., peer and supervisor-rated) than those at lower levels of complexity (Augurell & Lindberg, 2011; Streufert & Swezey, 1986; Tadmor, Galinsky, & Maddux, 2012), particularly at

high versus low levels of environmental complexity (Yao & Zhang, 2010). Furthermore, leaders using more complex information processing than their opposition tend to win presidential bids (e.g., serial vs. declarative or cumulative processing; Brause, Cason, & Spelman, 2005) and military battles (i.e., higher relative integrative complexity; Suedfeld, Corteen, & McCormick, 1986). In short, leaders with greater complexity engage in cognitive processes associated with perceptions and outcomes indicative of effective performance.

3.1.3.3 Complexity and indicators of high potential. The advantage of possessing greater levels of information processing complexity extends beyond performance to proxies of high potential. Specifically, Wofford (1994) found that supervisors rated their employees with higher differentiation as more likely to be promoted to a position one level higher than their current role. This effect was stronger when the authors factored in the task complexity of the upper-level job. Similarly, Jaques and Cason (1994) and Augurell and Lindberg (2011) reported a robust positive relationship between higher levels of complexity of information processing and supervisor perceptions of whether their subordinate had the potential to deal effectively with the tasks associated with a higher level, more complex, leadership position.

3.1.3.4 Complexity and leadership level. Differentiation and integrative dimensions of complexity have also been used to predict organizational level attained and the rate of one's upward trajectory. Goodman (1968) found that higher level positions in the organizational hierarchy were predominately filled by highly differentiated managers, whereas undifferentiated managers generally held lower level positions. Similarly, those with greater differentiation moved up the organizational hierarchy at a faster rate (Streufert et al., 1988) and held higher level jobs (Sypher & Zorn, 1986), particularly when those higher level jobs are more complex

(Goodwin & Ziegler, 1998). Nonetheless, others have found non-significant differences between manufacturing workers and their managers (Schneier, 1979).

With respect to integration, managers' levels of integrative complexity has produced significant and positive associations with higher occupational levels in both cross-sectional (Streufert et al., 1988; Tadmor et al., 2012) and longitudinal studies (Stamp, 1988). That is, indicators of integrative complexity have played a significant role in predicting movement to higher level leadership positions. Table 1 provides an overview of the aforementioned studies

3.1.4 Hypothesis Development

Together, these findings suggest that it is beneficial to possess higher levels of both differentiation and integration for a range of career outcomes. Nonetheless, these studies rarely include separate indicators of both differentiation and integration despite the theoretical underpinnings of complexity theory which posit more nuanced relationships. In particular, cognitive differentiation (or acquiring a differentiated perception of one's environment) is the basis for progressing to more complex forms of information processing (i.e., cognitive integration) and the extent to which these dimensions are needed is dependent on the complexity of the job (Streufert & Swezey, 1986; Jaques & Clement, 1991). That is, successively higher level leadership roles require more complex information processing (Jaques & Cason; Streufert & Nogami, 1989). Therefore, lower level leadership roles (e.g., mid-level leaders) may require differentiation and lower levels of integration whereas differentiation and higher levels of integration may be more pertinent for higher level leadership roles (e.g., senior and executive leaders).

Table 1

Summary of Cognitive Complexity and Leadership Career Trajectory Studies

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Green (2004)	Information Systems Professionals	REP	Diff ^a	Task decomposition	$r = -.16$
				Task sequencing	$r = -.48^{**}$
				Task Assignment	$r = -.45^{**}$
				Communication planning	$r = -.08$
				Quality assurance	$r = .28$
				Risk Identification	$r = -.60$
		Risk Response	$r = -.14$		
		PCT	Diff – Integ	Task decomposition	$r = .47^{**}$
				Task sequencing	$r = .23$
				Task Assignment	$r = -.11$
Communication planning	$r = .35$				
		Quality assurance	$r = .16$		

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Green (2004)	Information Systems Professionals	PCT	Diff – Integ	Risk Identification	$r = -.10$
				Risk Response	$r = .07$
Hannah et al. (2013)	Military leaders	LSC	Diff	Adaptive decision-making	$r = .30^{***}$
		NLSC ^a			$r = -.35^{***}$
Augurell & Lindberg (2011)	CEOs & private equity firm partners	CIP Others perceptions	Diff – Integ	Performance	$r = .61^{***}$
Brause, Cason & Spelman (2005)	Presidential candidates	CIP	Diff – Integ	Performance	In 5 elections, the candidate who demonstrated the higher level of complexity of information processing won.
					In only 1 election, the candidate with the higher complexity of information lost
					In the remaining 3 elections, the candidates demonstrated the same level of complexity of information processing.
McGill, Johnson, & Bantel (1994)	Bank executives	Composite: Author developed items DSCI questionnaire DDSI simulation Others perceptions	Diff	Performance	$b = .681^{***}$

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Suedfeld, Corteen, & McCormick (1986)	Military Generals	PSA	Diff – Integ	Performance	In 5 of 6 battles, the military leader with relatively greater complexity was victorious
					3 of the 5 battles were won despite facing relatively larger forces
Thies (2004)	Central Bank Governors of OECD countries	Profiler Plus	Diff	Performance	Central bankers higher in complexity were better at reducing exchange rate volatility – particularly in legally independent central banks
Thies (2009)	Central Bank Governors of East Asian countries	Profiler Plus	Diff	Performance	Central bankers higher in complexity were better at reaching inflation targets in legally independent central banks
Yao & Zhang (2010)	Chinese department managers from a variety of industries (e.g., manufacturing, finance and insurance, retail)	REP	Diff ^a	Leader effectiveness	$r = -.24$ ***
			Diff x EC		Higher Diff produced greater leadership effectiveness ratings, and this effect was more pronounced at higher levels of EC $\beta = -.30$ **
Tadmor, Galinsky, & Maddux (2012)	Israeli professionals working in Silicon Valley	PCT	Diff-Integ	Performance reputation	$r = .51$ ***
				Promotion rate	$r = .45$ ***

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Goodman (1968)	Supervisory & nonsupervisory employees	LPC REP Assessment of interview responses	Diff	Org. level	Differentiated individuals held higher level supervisory positions with few undifferentiated found in supervisory positions
					More undifferentiated individuals held nonsupervisory positions
Goodwin & Ziegler (1998)	Various leadership levels & nonsupervisory employees	REP	Diff ^a	Org. level	$r = -.03$ ns
			Diff x JC	Org. level	Higher differentiation in complex jobs held higher level positions and vice versa for lower complexity jobs $R^2 = .145^{***}$
Jaques & Cason (1994)	All leadership levels (i.e., frontline to CEO)	CIP	Diff – Integ	Org. level	$r = .89-.91^{***}$
Schneier (1979)	Supervisory & nonsupervisory employees	REP	Diff	Org. level	Supervisors did not significantly differ from their subordinates $t(167) = -.657$ ns
Stamp (1988)	Supervisory & nonsupervisory employees	Career Path Appreciation	Diff – Integ	Org. level	$r = .79^{***}$
Streifert, Pogash, & Piasecki (1988)	Mid & lower-level senior leaders (i.e., below VP level)	Computer simulation	Diff	Occupational level at age	$r = .07$ ns
				Promotions in last 10 years	$r = .41^{***}$

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Streufert, Pogash, & Piasecki (1988)	Mid & lower-level senior leaders (i.e., below VP level)	Computer simulation	Integ	Occupational level at age	$r = .66^{***}$
				Promotions in last 10 years	$r = .01 ns$
			Serial Integ	Occupational level at age	$r = .54^{***}$
				Promotions in last 10 years	$r = .01 ns$
			Parallel Integ	Occupational level at age	$r = .39^{***}$
				Promotions in last 10 years	$r = -.16 ns$
Sypher & Zorn (1986)	Supervisory & nonsupervisory employees	RCQ	Diff	Job level	$r = .55^{***}$
				Upward mobility ⁹	$r = .63^{***}$
Wofford (1994)	Supervisory & nonsupervisory employees	REP	Diff ^a	Promotability	$r = -.23^{***}$
			Diff x JC		Higher differentiation in complex jobs received higher promotability ratings, $\beta = .48^{**}$
Kraichy (2016)	Mid & senior-level leaders	Profiler Plus	Diff	Leadership level	$r_s = -.35^{**}$
				HiPo Rec	$r_s = .21 ns$
		AIC	Diff	Leadership level	$r_s = -.26 ns$

⁹ Upward mobility was calculated by dividing number of levels advanced by number of years employed by the organization

Study	Sample	Complexity Measurement Tool	Dimension of Complexity	Relationship with outcome	
				Outcome	Effect
Kraichy (2016)	Mid & senior-level leaders	AIC	Diff	HiPo Rec	$r_s = -.22$ ns
		AIC	Integ	Leadership level	$r_s = .26$ ns
				HiPo Rec	$r_s = -.27$ ns

Notes. Outcomes are ordered (i.e., distal to proximal) relative to the focal criterion variables in this study. For parsimony, multiple outcomes reported from the same study were placed together. REP = Role Construct Repertory Test, Diff = cognitive differentiation, Diff-Integ = cognitive differentiation and integration continuum, Integ = Integration, LSC = Psychological leader self-complexity, NLSC = Neurological leader self-complexity, PSA = Paragraph scoring, DSCI = Driver-Streifert Complexity Indicator, DDSI = Driver Decision Style Indicator, OECD = Organization for Economic Cooperation and Development, CIP = Cognitive Information Processing, LPC = Least Preferred Co-worker, RCQ = Role Category Questionnaire, CPA = Career Path Appreciation, Org. level = organizational level, JC = Job complexity, EC = Environmental complexity, HiPo Rec = High potential recommendation, AIC = Automated Integrative Complexity.

^a Lower scores indicate higher cognitive differentiation.

* $p < .10$ ** $p < .05$ *** $p < .01$

Moreover, higher levels of cognitive complexity are characterized by greater abstraction and aggregation (Jaques & Clement, 1991). That is, an individual possessing more advanced levels of integration may aggregate several independent elements into a broader category, whereas an individual with lower levels of integration may retain a greater number of independent elements (vs. collapsing these elements into a broader category; Streufert & Streufert, 1978). Therefore, contrary to previous findings, individuals in lower level leadership roles may possess greater differentiation than those in higher level leadership positions. Thus, the following hypotheses were extended:

Hypothesis 1: As a set, cognitive differentiation and integration will distinguish senior from mid-level leaders.

Hypothesis 2: Individuals holding higher level leadership positions will have (a) higher cognitive integration and (b) lower cognitive differentiation than lower level leaders.

Jaques and Cason (1994) contend that supervisors can sense whether their subordinates are using higher or lower complexity processes and it is used as a signal to inform assessments of potential for future development opportunities (e.g., projects, lateral transfers), and promotions. Correspondingly, because leaders who are lower in complexity are prone to failure post-promotion as a result of not having the requisite complexity to deal with new more complex tasks (Augurell & Lindberg, 2011; Jaques & Cason, 1994; Streufert & Nogami, 1989), supervisors may be positively influenced by subordinates (i.e., lower-level leaders) who demonstrate and signal the requisite complexity for future higher level jobs. In other words, mid-level leaders may need to possess lower levels of differentiation and higher levels of integration to acquire recommendations from senior leaders to participate in a high potential leadership development program. Thus, I hypothesize the following:

Hypothesis 3: Within mid-level leaders, the number of high potential recommendations received will be negatively related to (a) cognitive differentiation, and positively related to (b) cognitive integration.

3.2 Method

3.2.1 Participants

A total of 31 leaders from a large-sized Canadian post-secondary polytechnic institution provided data for this study. Participants held leadership roles at three different levels of the organizational hierarchy [i.e., the executive team ($n = 4$), the senior leaders who report to them ($n = 16$), and a sample of mid-level leaders ($n = 11$)]. Furthermore, the institutional structure is divided into academic and administrative sides. Therefore, notwithstanding the CEO and the Chief of Staff who oversee the entire organization, 16 of these leaders represented the academic side (e.g., Provost and Vice President Academic, Deans, Registrar), whereas 13 leaders represented the administrative side (e.g., Vice President Administration and Chief Financial Officer, Directors). Leaders of all levels and institutional sides were Caucasian, and 14 (45%) were female. Additional executive and senior level leader demographic information was not collected. However, of the mid-level leaders, seven participants were 30 to 49 years of age and 4 were over 50 years old. Regarding organizational tenure, four of these leaders had been working for the organization for less than 5 years, whereas seven had been with the organization for more than 5 years.

3.2.2 Procedure

Leaders were sent an e-mail invitation with a description of the research outlining that participation would involve sharing their perspectives on leadership competencies and behavioral indicators of high potential and successful senior leaders (Appendix B). The context of the

interviews was to inform the design of a new senior leadership development program and to ensure that it was meeting the developmental needs of leaders across the institution. Executive and senior leaders were interviewed before the development of the program, whereas interviews with mid-level leaders occurred after the development of the program. The invitation was sent to all executive and senior leaders in the institution; however, invitations to mid-level leaders were restricted to those who would be attending the senior leadership development program the following week ($n = 24$). One of three interviewers conducted the interviews which were held at the focal institution in a meeting room or a location of the participant's choice (e.g., their office). The interviews lasted approximately 60 minutes, and participants did not receive inducements in exchange for their time.

Before commencing the semi-structured interview, the interviewer obtained informed consent from the participant (i.e., mid- and senior leaders, see Appendix C & F). As part of the informed consent process, the interviewer asked participants for their permission to record the interview on a digital audiotape recorder. The interviews of consenting participants were recorded. In total, participants responded to six primary questions regarding their perspectives on high potential and successful senior leadership¹⁰. Moreover, mid-level leaders were asked two additional questions pertaining to the time-span of the most critical task of their work and a motivation-based question to assess their interest in pursuing higher level leadership positions (see Appendix G). Lastly, an external transcriptionist transcribed the interviews verbatim.

3.2.2.1 Transcript preparation. Before analyzing the data, I carefully listened to each audio-recording and its associated transcript to ensure transcription accuracy. When I noticed an

¹⁰ Participants responded to a seventh question; however, executive and senior leaders were asked about the qualities needed of senior leaders, whereas mid-level leaders were asked about the best and worst aspects of leadership development programs.

audio-transcript discrepancy, I corrected the transcript accordingly. In addition, I removed personal identifiers (e.g., names, positions, tenure) and I conducted a spell check on each document. I removed all of the text generated by the interviewer (i.e., initial and follow-up questions) to ensure that their words did not contribute to participant complexity scores. Lastly, I removed the non-overlapping main questions from the senior and mid-level leader interviews. That is, for the complexity analyses, I only included responses to the six overlapping questions that were asked to both groups of leaders.

3.2.3 Measures

3.2.3.1 Operationalizing cognitive complexity. The conceptualization and operationalization of cognitive complexity center on exploring an individual's mental representation when making sense of, or decisions within, his or her environment. Assessments of cognitive complexity generally focus on discovering the extent to which an individual's mental representation is differentiated and/or integrated. Studies investigating the complexity-leadership career trajectory relationships have differed on conceptualizations of complexity (i.e., differentiation-only to more advanced forms of integrative complexity) and its operationalization (e.g., role construct repertory tests, archival or interview analysis, paragraph completion tests, questionnaires, physiological indicators, computer simulations). For example, many of the cognitive differentiation assessments center on the number of constructs (or adjectives) an individual uses to discriminate among different people or roles (self or other) in his or her environment (e.g., Kelly, 1955; Fiedler, 1967), whereas assessments of cognitive integration are often acquired via human coded systems (e.g., Baker-Brown, Ballard, Bluck, De Vries, Suedfeld, & Tetlock, 1992; Jaques & Cason, 1994; Schroder et al., 1967; Suedfeld, Tetlock, & Streufert, 1992) or computer-based simulations (e.g., Streufert et al., 1988) that seek

to discover the extent to which participants' talk or decisions are interconnected. Table 1 presents a summary of the conceptual and operational differences among studies that have examined cognitive complexity and career trajectory outcome linkages. Moreover, a detailed description of each of these methodologies is provided in Appendix H.

Despite the proposed and demonstrated utility of these constructs, a significant barrier is acquiring the expertise to use these systems or develop a simulation. That is, these approaches tend to be resource intensive and require extensive development (e.g., computer simulations, Streufert et al., 1988) and training (e.g., training human coders to use the scoring scheme, Conway et al., 2014; Jaques & Cason, 1994). However, with the progression of technology, complexity researchers have begun to develop computer-assisted methods for assessing separate dimensions of complexity, and as a result, these developments have increased the accessibility of measuring complexity constructs. In this study, I used the Profiler Plus and Automated Integrative Complexity software programs to operationalize cognitive differentiation and integration. In the next subsections, I provide an overview of the design of each software program.

3.2.3.1.1 Profiler Plus. This software program was developed to assess leaders on seven traits by examining their verbal patterns (i.e., words and phrases) in spontaneous situations (e.g., interviews, Hermann, 2005)¹¹. The program is a multiple pass system that content analyzes transcripts and searches for predetermined indicators of a given trait (Young & Hermann, 2014).

¹¹ This program has predominantly been used in the political domain (for a list of publications see <http://socialscience.net/partners/research.aspx>); however, Hermann indicated that she has used this program with CEOs of transnational NGOs and with application forms of candidates to her Leadership Institute (personal communication, July 20, 2014).

That is, the program identifies how words are used (or patterned), and if they match a pre-determined pattern (or coding scheme), then they are counted as being an indicator of that trait.

Of the seven traits, the Profiler Plus tool includes a measure of conceptual complexity which is purported to measure cognitive differentiation (Hermann, 1999). Using a deductive approach, a list of words and phrases that ought to represent high complexity (e.g., approximately, sometimes, possibility, maybe, trend, for example) and low complexity (e.g., absolutely, without a doubt, certainly, always, irreversible) were compiled. High complexity words and phrases were selected to represent leaders who attend to multiple dimensions, whereas low complexity words were selected to represent leaders who consider fewer dimensions. The program content analyzes a transcript searching for high and low complexity indicators and calculates an index (i.e., high complexity words divided by the sum of high and low complexity words). Each participant receives a score ranging from 0 (no complexity) to 1 (very high complexity).

3.2.3.1.2 Automated Integrative Complexity. As a more time efficient alternative to using human-coded integrative complexity (i.e., the strategy used in the paragraph completion and textual analysis studies described above), this program was designed by integrative complexity researchers to assess the overarching integrative complexity construct as well as separate indicators of both differentiation and integration (Conway et al., 2014; Houck, Conway, & Gornick, 2014). This program is particularly novel as it is the only automated program designed to assess integrative complexity and estimate separate numerical values for differentiation and integration.

The developers of this program employed a deductive approach. Specifically, they generated a list of words and phrases (and associated synonyms) based on the integrative

complexity construct and coding manual (Baker-Brown et al., 1992; Suedfeld et al., 1992) and used an empirical procedure to assess the relationship between particular words/phrases and human-scored integrative complexity. Separate lists of words and phrases were compiled for differentiation (e.g., ‘on the other hand’) and integration (e.g., ‘in conjunction with’), respectively. Each word and phrase was given a probability of whether it represents no/low complexity, differentiation, or integration. This approach was used to model how some words and phrases are fully indicative of complexity (e.g., ‘on the other hand’ as differentiation), whereas other words or phrases (e.g., ‘apart from’) may be used in either a complex (e.g., ‘apart from this reason, there is another reason why...’) or descriptive manner (e.g., ‘I do not wish to be apart from you...’).

The program content analyses each paragraph within a document for words and phrases that are indicative of differentiation and integration and produces a corresponding component score. That is, each paragraph receives a differentiation score ranging from 0 to 2 and an integration score ranging from 0 to 6. The average across all paragraphs in a document is used to produce the respective differentiation and integration component scores.

3.2.3.2 Cognitive differentiation. Two separate indicators of cognitive differentiation were assessed using the Profiler Plus and Automated Integrative Complexity software programs. As described above, the Profiler Plus program used a coding scheme that identified words and phrases that are indicative of high (e.g., for example) and low complexity (e.g., without a doubt). A ratio was calculated by dividing a participant’s high complexity words by the sum of their high and low complexity words. Each participant received a score ranging from 0 (low complexity) to 1 (high complexity).

The Automated Integrative Complexity program content analyzed the transcripts searching for markers (i.e., words and phrases) indicative of cognitive differentiation (e.g., ‘on the other hand’). For documents of approximately 2,000 words, it is recommended that paragraphs are divided into 75-word chunks as it reduces the artificial inflation of complexity scores (Conway, 2015). The program automatically performs this chunking process. Each paragraph (or 75-word chunk) receives a score ranging from 0 (undifferentiated or no use of differentiation words/phrases) to 2 (use of words/phrases of high levels of differentiation). An average across all paragraphs was calculated to provide an overall differentiation score.

3.2.3.3 Cognitive integration. Using a dictionary of words and phrases that are markers of integration (e.g., ‘in conjunction with’), the Automated Integrative Complexity program content analyzed each paragraph (i.e., 75-word chunk). Each paragraph received a score ranging from 0 (no use of integration words/phrases) to 6 (usage of high levels of integrative complexity words/phrases). The average level of integration across the paragraphs was calculated and used as a participant’s integration score. Paragraphs indicative of high levels of integration are infrequent (Houck et al., 2014), and therefore, the average tends to be low.

3.2.3.3 Leadership level. Based on their current position in the focal institution’s hierarchical structure, participants were classified as either a mid- or senior-level leader (i.e., senior and executive).

3.2.3.4 High potential identification. As part of the focal organization’s leadership development program, the senior leadership team (i.e., executive and senior leaders) nominated leaders [at the level(s) below them] to advance to the senior leadership development program. The senior leadership team was instructed to restrict their nominations to those who they perceived to have high potential to fill senior level leadership positions at the focal organization

within the next three years. The senior leaders could nominate both mid-level leaders that reported directly to them and those in other departments. In other words, a mid-level leader could be endorsed by up to 17 senior leaders and, as a result, a range from 0 to a maximum of 17 nominations was possible.

3.2.3.5 Other variables. A variety of other variables were collected for exploratory purposes. Specifically, I coded for institutional function (0 = administrative, 1 = academic) and sex (0 = female, male = 1). Lastly, mid-level leaders responded to whether they were motivated to pursue higher level leadership positions (0 = not motivated, 1 = motivated) and their perceptions of the time-span of their most critical task (reported in months). Several participants reported a range (e.g., 1 to 5 years) and consistent with stratified systems theory (Jaques, 1989), I focused on the longer period¹².

3.3 Results

I used two main approaches for testing the hypotheses of whether participants that hold higher level leadership positions (i.e., executive and senior leaders) possess lower differentiation and higher integration than those at lower levels (i.e., mid-level leaders). First, logistic regressions were conducted to examine whether the set of complexity predictors distinguished senior from mid-level leaders. As differentiation and integration have different measurement units, I standardized these variables to interpret the respective coefficients (Tabachnick & Fidell, 2007). Second, I used *t*-tests to detect mean differences between leadership levels on differentiation and integration. Table 2 presents the means, standard deviations, and ranges for the complexity variables by leadership level. To test the relationship between differentiation and integration with high potential recommendations, I examined the correlation as well as

¹² Two mid-level leaders reported that the time-span of their most critical task was greater than 1 year. For these participants, I inputted 18 months.

Table 2

Descriptive Statistics of Complexity Dimensions by Leadership Level

Complexity Variables	Leadership Level						<i>t</i> (29)	<i>p</i>
	Mid (<i>n</i> = 11)			Senior (<i>n</i> = 20)				
	<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI		
PP – Differentiation	0.72	0.05	[0.69, 0.76]	0.68	0.06	[0.65, 0.71]	-2.07	.047
AIC – Differentiation	1.17	0.17	[1.06, 1.28]	1.06	0.17	[0.98 – 1.13]	-1.79	.083
AIC – Integration	0.17	0.10	[0.10, 0.23]	0.25	0.12	[0.19 – 0.31]	1.92	.065

Note. PP = Profiler Plus; AIC = Automated Integrative Complexity.

dichotomizing high potential (0 = 0 to 1 recommendation, 1 = 2 or more recommendations) and conducted a *t*-test. Table 3 presents the correlations among the study variables. Due to the small sample size, I used a *p*-value of 0.10 to interpret the significance of hypothesis testing.

3.3.1 Hypothesis Analyses

The significant correlation between both indicators of differentiation ($r = .58, p = .001$) and either no association with integration ($r = -.02, p = .92$, PP – Differentiation) or a positive relationship ($r = .20, p = .29$, AIC – Differentiation) demonstrated the expected pattern of relationships. That is, both programs that are designed to measure differentiation are in large part tapping the same construct. Moreover, the associations with integration provided evidence that differentiation can occur relatively independent of integration with some overlap.

To test hypothesis 1, a series of logistic regressions were conducted to assess whether differentiation and integration, as a set, distinguished senior from mid-level leaders. The first set of logistic regressions examined whether each of the cognitive differentiation indicators distinguished leadership level relative to a null model. Both cognitive differentiation indicators improved model fit over the constant-only model, PP differentiation, $\chi^2(1) = 4.52, p = .034$, and AIC differentiation, $\chi^2(1) = 3.22, p = .073$.

I then examined whether the set of complexity indicators would improve model fit over the one-indicator models. That is, using sequential logistic regressions, each measure of differentiation was entered into the first step and integration into the second step. Both of these models relative to one-indicator models were statistically significant, indicating that the complexity indicators as a set improved the fit of the model predicting leadership level. Table 4 provides an overview of the model improvement statistics.

Table 3

Correlations among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Sex	.55	.51	--							
2. LCT ^a	32.91	23.23	-.09	--						
3. IF ^b	1.55	.51	.02	-.06	--					
4. Motivation ^a	.64	.51	-.07	.42	-.31	--				
5. PP – Diff	.69	.06	-.02	-.41	.06	-.15	--			
6. AIC – Diff	1.10	.17	-.07	-.41	.02	-.36	.58***	--		
7. AIC – Integ	.22	.12	-.33*	.01	.09	-.12	-.02	.20	--	
8. LeadLevel	.65	.49	.14		.01		-.35*	-.26	.26	--
9. HiPo Rec ^a	2.00	1.48	.73***	.31	.43	.13	.21	-.22	-.27	--

Notes. $N = 31$. LCT = longest time-span of most critical task, IF = institutional function, PP – Diff = Profiler Plus differentiation, AIC - Diff = Automated Integrative Complexity differentiation, AIC - Integ = Automated Integrative Complexity integration, LeadLevel = leadership level, HiPo Rec = high potential recommendation. Sex was coded 0 = female, 1 = male. Institutional function was coded as 0 = administrative, 1 = academic. Motivation was dichotomized 0 = no, 1 = yes. LeadLevel was coded 0 = mid-level leader, 1 = senior leader. Relationships among LCT, PP – Diff, AIC – Diff, and AIC – Integ, respectively, are Pearson correlations, the remaining relationships are Spearman correlations.

^a $n = 11$. ^b $n = 29$.

* $p < .10$ ** $p < .05$ *** $p < .01$.

Table 4

Model Statistics of Complexity Dimensions Predicting Leadership Level

Model	χ^2	χ^2_{diff}	<i>p</i>
Null Model	40.33		
1-Indicator Model			
PP – Differentiation	35.81	4.52	0.03
AIC – Differentiation	37.10	3.23	0.07
2-Indicator Models			
PP – Differentiation with AIC – Integration	31.59	4.22	0.04
AIC – Differentiation with AIC – Integration	31.24	5.86	0.02

Note. *N* = 31; PP = Profiler Plus; AIC = Automated Integrative Complexity.

An examination of the classifications for each set provided comparable, yet slightly different results. Using, the PP – differentiation with AIC – Integration complexity model, 85% ($n = 17$) of senior and executive leaders and 45% ($n = 5$) of mid-level leaders were correctly classified, for an overall success rate of 71%. Similarly, the AIC – Differentiation with AIC – Integration complexity model accurately predicted 45% ($n = 5$) of mid-level leaders and 80% ($n = 16$) of senior and executive leaders, for an overall rate of 67.7%. Using predicted group membership from each of the models, I examined their agreement and found that 9 of 11 mid-level leaders and 17 of 20 senior leaders received the same classification resulting in a Cohen's kappa = .60.

In terms of odds ratios, in the PP – Differentiation with AIC – Integration model, for every standard deviation increase in integration, participants were 2.85 times more likely to hold a senior leadership position, $\beta = 1.05$, $Wald = 3.04$, $p = .081$, 95% $CI_{Exp(\beta)}$ [.88, 9.22], whereas for every standard deviation increase in differentiation, participants were .34 times less likely to hold a senior leadership position, $\beta = -1.07$, $Wald = 3.58$, $p = .059$, 95% $CI_{Exp(\beta)}$ [.11, 1.04]. For the AIC – Differentiation with AIC – Integration model, a standard deviation increase in integration resulted in a 3.29 times greater likelihood that a participant would hold a senior level position, $\beta = 1.19$, $Wald = 4.24$, $p = .039$, 95% $CI_{Exp(\beta)}$ [1.06, 10.24], whereas a standard deviation increase in differentiation produced an odds ratio of .39 times less likely of a participant working in a senior leadership role, $\beta = -.95$, $Wald = 3.75$, $p = .053$, 95% $CI_{Exp(\beta)}$ [.15, 1.01].

Correspondingly and consistent with hypothesis 2a, senior leaders produced lower levels of differentiation. Specifically, when using the Profiler Plus measure of differentiation, senior leaders produced lower scores ($M_{SL} = .68$, $SD_{SL} = .06$) than mid-level leaders

($M_{ML} = .72$, $SD_{ML} = .05$), $t(29) = -2.07$, $p = .047$, $\eta^2 = .13$, and a similar effect was found for the Automated Integrative Complexity indicator of differentiation, ($M_{SL} = 1.06$, $SD_{SL} = .17$ vs. $M_{ML} = 1.17$, $SD_{ML} = .17$), $t(29) = -1.79$, $p = .083$, $\eta^2 = .10$. Moreover, in support of hypothesis 2b, senior leaders also demonstrated higher levels of integration ($M_{SL} = .25$, $SD_{SL} = .12$) relative to mid-level leaders ($M_{ML} = .17$, $SD_{ML} = .10$), $t(29) = 1.92$, $p = .065$, $\eta^2 = .11$. Taken together, consistent with hypotheses 1 and 2 both differentiation and integration predicted leadership level, and as a set, they produced better model fit statistics.

For hypothesis 3, an examination of Table 2 revealed a non-significant positive relationship between PP – Differentiation and high potential recommendations ($r_s = .21$, $p = .53$), and the opposite pattern of relationships with AIC – Differentiation ($r_s = -.22$, $p = .51$), and AIC – Integration, ($r_s = -.27$, $p = .42$). Accordingly, when categorizing high potential recommendations into two groups (i.e., 0 or 1 recommendation vs. 2 or more recommendations), the means across the complexity indicators did not significantly differ, PP – Differentiation, $t(9) = -.34$, $p = .74$, AIC – Differentiation, $t(9) = 1.23$, $p = .25$, and AIC integration, $t(9) = .54$, $p = .61$. These means are presented in Table 5. Together, this does not support hypothesis 3.

3.3.2 Post-hoc Analyses

As noted above, both sets of complexity variables predicted leadership level, however, upon first observation of the data, the classification statistics were unimpressive. Nonetheless, misclassification (observed \neq predicted) may indicate that a leader does not possess the ideal level of complexity for their current position. In particular, complexity theory outlines that effective performance requires a fit between individual and job complexity

Table 5

Descriptive Statistics of Complexity Dimensions by High Potential Recommendations for Mid-level Leaders

Complexity Variables	Number of Recommendations						<i>t</i> (9)	<i>p</i>
	≤ 1 (<i>n</i> = 6)			≥ 2 (<i>n</i> = 5)				
	<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI		
PP – Differentiation	0.72	0.05	[0.67, 0.77]	0.73	0.07	[0.65, 0.81]	-0.34	0.74
AIC – Differentiation	1.22	0.20	[1.01, 1.43]	1.10	0.10	[0.98, 1.22]	1.23	0.25
AIC – Integration	0.18	0.10	[0.08, 0.29]	0.15	0.10	[0.02, 0.28]	0.54	0.61

Note. PP = Profiler Plus; AIC = Automated Integrative Complexity.

(Jaques & Cason, 1994; Streufert & Nogami, 1989). That is, a misclassified senior leader may represent an individual who has reached a leadership level that is beyond their individual complexity capacity. Alternately, a misclassified mid-level leader may denote a leader who has the individual complexity capacity to hold a more senior level position. Therefore, misclassified senior leaders may trend toward having lower levels of integration and higher levels of differentiation relative to other senior leaders, whereas misclassified mid-level leaders may trend toward having higher levels of integration and lower levels of differentiation compared to other mid-level leaders. Lastly, misclassified mid-level leaders may trend toward having a similar profile to matched senior leaders.

To explore these expected patterns, I used the difference between observed and predicted leadership level using the PP – Differentiation with AIC – Integration and the AIC – Differentiation with AIC – Integration models, respectively, to classify individuals as matched or mismatched for their given role and then examined their means. Table 6 provides a summary of these means. As expected, mismatched senior leaders compared to their senior-level counterparts did produce lower integration and higher differentiation, whereas mismatched mid-level leaders relative to their colleagues scored higher on integration and lower on differentiation.

Furthermore, mismatched mid-level leaders had similar complexity profiles to matched senior leaders, albeit slightly lower on integration and higher on differentiation. Taken together, the proposition could be made that mismatched senior leaders do not have the complexity capacity to be effective senior leaders, whereas mismatched mid-level leaders may be better equipped to undertake higher level positions. To further explore this possibility regarding mid-level leaders, I examined whether mismatched mid-level leaders received more high potential recommendations as a function of their complexity capacity.

Table 6

Descriptive Statistics of Complexity Dimensions by Model Classification

PP – Differentiation with AIC – Integration Model							
Complexity Variables							
Classification	<i>n</i>	PP – Differentiation			AIC – Integration		
		<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI
Matched – ML	5	0.76	0.04	[0.71, 0.81]	0.13	0.12	[-0.01, 0.27]
Mismatched – ML	6	0.69	0.04	[0.65, 0.73]	0.20	0.07	[0.12, 0.28]
Matched – SL	17	0.67	0.06	[0.64, 0.70]	0.27	0.12	[0.20, 0.33]
Mismatched – SL	3	0.74	0.01	[0.71, 0.77]	0.15	0.04	[0.05, 0.24]

AIC – Differentiation with AIC – Integration Model							
Complexity Variables							
Classification	<i>n</i>	AIC – Differentiation			AIC – Integration		
		<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI
Matched – ML	5	1.27	0.19	[1.03, 1.51]	0.09	0.08	[0.00, 0.19]
Mismatched – ML	6	1.08	0.09	[0.99, 1.17]	0.22	0.06	[0.16, 0.29]
Matched – SL	16	1.02	0.17	[0.93, 1.11]	0.27	0.13	[0.20, 0.34]
Mismatched – SL	4	1.18	0.05	[1.10, 1.26]	0.16	0.05	[0.08, 0.25]

Note. PP = Profiler Plus; AIC = Automated Integrative Complexity; ML = mid-level leader; SL = senior-leader.

3.3.2.1 Mid-level leaders and high potential recommendations. Using both the PP – Differentiation with AIC – Integration and AIC – Differentiation with AIC - Integration models, high potential recommendations did not significantly differ across matched ($M_{PP} = 2.40$, $SD_{PP} = 1.52$, $M_{AIC} = 2.20$, $SD_{AIC} = 1.64$) and mismatched mid-level leaders ($M_{PP} = 1.67$, $SD_{PP} = 1.51$, $M_{AIC} = 1.83$, $SD_{AIC} = 1.47$), $t_{PP}(9) = .80$, $p = .443$, $t_{AIC}(9) = .39$, $p = .71$, respectively. In other words, irrespective of complexity capacity, mid-level leaders received relatively equivalent nominations, with matched mid-level leaders (i.e., higher differentiation and lower integration) garnering slightly more recommendations.

3.4 Discussion

The primary goals of this study were to examine whether dimensions of cognitive complexity (i.e., cognitive differentiation and integration) distinguish among leadership level (i.e., mid versus senior) and high potential identification. Validity evidence was obtained using two novel computer-automated techniques to measure complexity dimensions. That is, I found that compared to mid-level leaders, senior leaders possessed lower cognitive differentiation and higher integration. Lastly, the complexity dimensions were not associated with high potential recommendations.

3.4.1 Cognitive Complexity and Leadership Level

3.4.1.1 Cognitive integration. As predicted, and consistent with previous complexity research (Jaques & Cason, 1994; Stamp, 1988; Streufert et al., 1988), individuals who possessed a more integrative approach to information processing (i.e., when describing successful and high potential leadership and the environmental opportunities and challenges facing the institution) held higher level leadership positions. This finding is consistent with leadership theorizing which indicates that senior leaders require complex information processing skills to develop an

understanding of real and hypothetical relationships among internal and external dimensions within their environments (Zaccaro, 2001).

Furthermore, this may be reflective of an increasingly complex understanding of leadership that is commensurate with exposure to higher level leadership roles. For example, Day and Harrison (2007) indicate that as individual's progress from lower (e.g., first-level supervisor) to higher leadership levels, their thinking and focus evolves to develop increasingly complex leadership identities. Specifically, an individual with a more basic leadership identity (or understanding) views leadership from an individual-based perspective (e.g., traits, role-based authority). An individual with a mid-level leadership identity would expand on the basic identity and begin to consider relational or interpersonal components of leadership (e.g., focusing on reciprocal interactions with other individuals in the work environment). An individual with a more advanced (or complex) leadership identity would not only consider the basic and relational identities, but would also begin to incorporate the collective (e.g., focusing on a broader organization-based understanding of leadership centered on the interdependencies among individuals, teams, and organization). In other words, the higher levels of integration produced by the senior leaders may be attributable to their exposure to these more complex senior level roles.

However, from a broader complexity perspective, the formation of a complex leadership identity requires the capacity to differentiate and integrate lower level identities into one inclusive approach to understanding leadership. That is, leadership at senior levels requires an understanding of top-down (e.g., basic identity) and bottom-up processes (e.g., relational identity), as well as multi-level considerations that encompass individual, team, organization, and external entities (e.g., collective identity, Day & Harrison, 2007). Thus, as leaders advance

through the hierarchical levels of an organization, the cognitive requirements (or complexity) need to increase to enable the development and integration of these multiple identities.

Therefore, simply being exposed to a given job does not guarantee that an individual will have the capacity to differentiate and integrate incoming information. Thus, it is equally plausible to assert that in addition to their exposure to higher level positions, senior leaders, on average, have a greater capacity for integrative processing. Taken together, the resultant complexity indicators are likely a function of both the content (e.g., domain knowledge) from being exposed to higher level leadership positions and structural elements of cognition (i.e., differentiation and integrative capacities).

3.4.1.2 Cognitive differentiation. Although leaders require an ability to differentiate and integrate incoming information for effective decision-making (Swezey, Streufert & Mietus, 1983), I found that senior leaders produced somewhat lower cognitive differentiation than mid-level leaders. This finding is consistent with complexity theory insofar as leaders holding higher level positions may differentiate at a higher-order level (Jaques & Cason, 1994; Streufert & Streufert, 1978). Moreover, empirical work by McNamara, Luce, and Tompson (2002) revealed that when top management teams reported on the general strategies that were used in their industry, more effective top management teams (i.e., organizational return on average assets) identified fewer strategies, but had an understanding of more of their competitor's strategies. In short, they indicated that the knowledge structures of effective top management teams used fewer categories (e.g., lower differentiation), but contained more items within each category (e.g., higher-order differentiation).

However, this finding does deviate from previous empirical studies which have found positive associations between cognitive differentiation and organizational level (e.g., Goodman,

1968; Sypher & Zorn, 1986). Even so, the participants in these studies held nonsupervisory and supervisory positions where increasingly more complex cognitive processing may be needed (Streufert & Swezey, 1986; Jaques & Cason, 1994). That is, relative to the current study where the entire sample held supervisory positions, it may be that higher differentiation is a demarcation point for holding or transitioning from nonsupervisory to supervisory roles.

3.4.1.3 Cognitive differentiation and integration. Few studies have concurrently used separate indicators of differentiation and integration to explore associations with career trajectory outcomes (see an exception, Streufert et al., 1988). The current study found, that when used as a set, cognitive differentiation and integration discerned mid- from senior-level leaders. Moreover, in aggregate, senior leaders were typified by a complexity profile of higher integration and lower differentiation than mid-level leaders. Similarly, Streufert and colleagues (1988) found differential relationships between cognitive differentiation and integration with career trajectory outcomes (i.e., number of promotions in the last 10 years, occupational level). In particular, cognitive differentiation was related to number of promotions in the last 10 years, and yet not associated with occupational level, whereas the opposite pattern of relationships was found for cognitive integration (i.e., significantly associated with occupational level). In short, higher indicators of cognitive differentiation appeared to help individuals obtain *prior* promotions and to reach supervisory roles, whereas integration facilitated obtaining higher level positions.

Taken together, the transition from nonsupervisory to supervisory leadership roles may be a function of higher levels of differentiation (e.g., Goodman, 1968; Sypher & Zorn, 1986), whereas the transition from mid- to senior-levels, as demonstrated in the current study, may be characterized by an increase in integration with a qualitative shift in differentiation (i.e., higher-order).

3.4.2 Cognitive Complexity and High Potential Recommendations

Overall, indicators of complexity did not demonstrate significant relationships with high potential recommendations. However, the differences between complexity profiles of matched and mismatched mid-level leaders and their associated high potential recommendations provide interpretations that are consistent with complexity and leadership theories. Specifically, more advanced levels of cognitive processing are needed by leaders to deal effectively with the complex nature of higher level leadership positions (Zaccaro, 2001). Cognitively complex individuals use information processes (e.g., search for adequate amounts of relevant information, use more diverse information) that support more effective strategic planning and being open and flexible to making adjustments to changing environmental demands (Streufert & Nogami, 1989).

Furthermore, greater cognitive complexity not only enables the production of multiple and integrated decision options, but it also facilitates a greater number of behavioural responses (Streufert & Satish, 1997). That is, cognitive complexity is not a sufficient condition in and of itself to result in effective leadership, but rather it sets the foundation for leaders to acquire and demonstrate a broader behavioural repertoire (i.e., behavioural complexity) which results in leadership effectiveness (Hooijberg et al., 1997). In particular, Denison, Hooijberg, and Quinn (1995) demonstrated that effective executive leaders are perceived by their followers to use a broader range of distinct leadership behaviours (e.g., mentoring, encouraging participative decision making, goal setting, influencing decisions). In contrast, ineffective leaders primarily used a narrower set of behaviours that were more representative of a transactional approach to leadership (e.g., task-oriented, focused on goal setting, establishing clear expectations, enforcing rules, monitoring performance). Thus, mismatched mid-level leaders (i.e., higher integration and lower differentiation) may have been displaying a wider variety of leadership behaviours and

using more strategic and integrated planning and decision making. As a result, senior leaders may have identified these mismatched mid-level leaders as high potential for senior leadership positions.

Alternately, the complexity of the task can determine the individual level of complexity that is needed or produced by an individual (Streufert & Swezey, 1986). Therefore, because mid-level leadership positions typically have lower task complexity than senior level positions (e.g., Streufert & Nogami, 1989; Jacobs & Jaques, 1987), individuals holding mid-level positions may subsequently require and demonstrate less complex forms of information processing (i.e., differentiation and lower integration) or a narrower range of behaviours. Specifically, not all mid-level leadership positions may provide leaders with opportunities to acquire or demonstrate higher integrative information processing or to enact multiple leadership behaviours. In other words, senior leaders may identify mid-level leaders as high potential when they possess the requisite complexity for their current positions (i.e., equivalent or higher levels of differentiation), but have not yet demonstrated the information processing (e.g., higher integration) or behaviours that are characteristic of senior level leaders.

Correspondingly, Goodwin and Ziegler (1998) suggested that less complex employees may have an advantage over their more complex colleagues in less complex positions. That is, matched mid-level leaders (i.e., less complex leaders) may have been using information processing strategies (i.e., higher differentiation, lower integration) that were more appropriate for performing effectively in the lower complexity job (i.e., mid-level leadership) and were viewed positively by their superiors. In contrast, mismatched mid-level leaders may have been using information processing strategies (i.e., higher integration, lower differentiation) beyond the requirements for the position.

Therefore, the motivations behind providing these two groups of mid-level leaders with high potential recommendations (i.e., leadership development opportunity) may have been varied. In particular, senior leaders may have allocated high potential recommendations to mismatched mid-level leaders (i.e., similar complexity profile to senior leaders) as an opportunity for them to further enhance their leadership competencies. In contrast, for the matched group, it may have been regarded as an opportunity to reward their effective performance and/or expose them to a broader set of organizational issues and leadership behaviours to facilitate the development of higher integrative complexity and a more expansive behavioural repertoire.

This dual strategy for development is consistent with the notion that such opportunities are used to enhance and/or create employee abilities (Brungardt, 1997). Furthermore, it is aligned with the institutional value of '*Support*' that denotes the priority of providing all employees with opportunities for personal and professional growth. For instance, the recommendation instructions were for senior leaders to nominate subordinates and colleagues who they perceived to be high potential to fill senior level positions in the next 3 years or required in-role leadership development. Moreover, at the same meeting, the project lead noted that the CEO specified that all mid- and senior-level leaders should consider themselves for attendance.

Taken together, it may have been that mismatched mid-level leaders were perceived as 'ready now' for senior leadership positions, whereas matched mid-level leaders were thought to need the opportunity to acquire or demonstrate the requisite cognitive integration and subsequent behaviours. Future research would benefit from probing senior leaders with respect to their attributions for providing recommendations for development opportunities as well as their perceptions of matched and mismatched senior leaders. Moreover, examining the relationship

between cognitive complexity and behavioural complexity/leadership competencies (e.g., strategic thinking, building relationships, change management, communication) and overall job performance would provide a more holistic understanding of how these variables interplay to influence talent-related decisions (e.g., promotion, development).

3.4.3 Implications

3.4.3.1 Cognitive complexity and its trainability. The preceding discussion prompts the consideration of whether training and development can enhance cognitive complexity.

Unfortunately, few empirical studies have addressed such concerns (Streufert & Swezey, 1986; Streufert & Nogami, 1989). Training, broadly speaking, has produced mixed findings (see Baldwin 1972; Sauser & Pond, 1981). Nonetheless, studies that have been designed to focus exclusively on increasing participants' cognitive complexity have succeeded. For instance, participants' cognitive differentiation increased when provided with more information about a policy (Cronen & LaFleur, 1977). Moreover, Streufert, Nogami, Swezey, Pogash, and Piasecki (1988) found that training on both content knowledge (i.e., what to do to solve problems such as specific strategies for planning) and structural processing strategies (i.e., how information can be organized, differentiated, and integrated and how these processes affect performance) relative to content knowledge-only or a no training baseline condition, can increase participants' use of integrative strategies when dealing with complex problems (i.e., novel, fluid, and uncertain).

Correspondingly, Jacobs (2010) advocates that individual levels of complexity can be enhanced and offers several possible interventions. Specifically, he recommends that to progress from basic to higher levels of complexity, organizations need to provide their employees with opportunities for education (e.g., macroeconomics, leadership), structured practice of basic skills (e.g., rules-based processes, probabilistic decision-making, reflective and metacognitive skills),

studying and solving increasingly complex domain-specific problems, and structured experiential learning. Similarly, Jaques and Clement (1991) advocate for providing skills development, domain-specific knowledge, coaching to help employees understand their strengths and weaknesses, and mentoring to help them better understand organizational problems and to develop judgment and wisdom.

Nevertheless, Streufert and Swezey (1986) note that generally speaking “none of the complexity theorists would predict rapid and overall training potentials” (p. 35). Rather cognitive complexity is often viewed as an innate ability (Jaques & Cason, 1994) with physiological underpinnings (Streufert & Nogami, 1989) and follows a stable and predictable maturational growth pattern (Jacobs, 2010; Jaques & Clement, 1991).

Furthermore, despite the notion that environmental complexity (e.g., Streufert & Swezey, 1986), situational context (e.g., Levi & Tetlock 1980; Tetlock, 1981) as well as physiological, and psychological conditions (e.g., stress, significant life events; Suedfeld & Bluck, 1993) can produce state levels of individual complexity, successful leaders have been found to demonstrate an ability to adjust their individual level of complexity to match the changing demands of the environmental context (i.e., simplicity to complexity), whereas failed leaders were cited as either not possessing this ability, or were unwilling to make the required cognitive shift (Suedfeld & Rank, 1976). In other words, although the context can affect state levels of cognitive complexity, individuals have an upper and lower bound for how they respond to the environment (Jaques & Cason, 1994; Suedfeld & Bluck, 1993) and those with greater complexity are better equipped to adjust to changing environmental demands (Suedfeld & Rank, 1976).

Taken together, although training on domain-relevant content knowledge, more complex structural process strategies to solve problems, reflective skills, and coaching and mentoring

opportunities may enhance cognitive complexity, the return on investment of such endeavors may be greater for those possessing higher levels of complexity earlier in the maturational process (i.e., at a younger age). Therefore, future research may seek to examine how initial levels of complexity and age impact the extent to which employees benefit from training and development opportunities. That is, how do the trajectories of cognitive and behavioural complexity progress or stagnate over time as a function of initial levels of complexity, age, and experience?

3.4.3.3 Faking and underutilization of cognitive complexity in selection contexts.

Faking in selection is common, and it can affect the predictive utility of diagnostic tests (Donovan, Dwight, & Schneider, 2014; Levashina, Weekley, Roulin, & Hauck, 2014). Nevertheless, Jaques and Cason (1994) suggest that faking cognitive complexity is not a major concern when applicants are engaged in unprepared and unrehearsed discussion. Specifically, they note that it is difficult (if not impossible) to spontaneously formulate arguments at a level that is beyond one's current maximum capacity. That is, they suggest that applicants would have a difficult time introducing a highly complex and integrated argument into a conversation without truly possessing this capacity. In other words, instances of applicants faking good would be unlikely.

However, Jaques and Cason (1994) do caution that it is possible for an applicant to express a level of complexity that is *below* their maximum cognitive capacity. Specifically, they indicate that this can occur when an applicant is uninterested in a given topic. For example, a leader who is uninterested in the topic of leadership and the environmental opportunities and challenges that the institution faces may have produced lower levels of cognitive complexity than their maximum capacity.

Correspondingly, leaders have also been found to use greater cognitive simplicity in their communications during times of revolutionary change (e.g., Suedfeld & Rank, 1976) and greater complexity after the large-scale change has occurred. In other words, an institution that is undergoing significant changes (e.g., operations, culture, leadership) – as was the case with the focal institution – may produce responses from applicants that are lower than their maximum complexity capacity. Moreover, as discussed in previous sections, limited exposure to content or domain-specific knowledge on a given topic can also restrict a candidate from displaying their maximal integrative capacity.

Therefore, an ideal assessment of cognitive complexity would require an candidate to discuss several topics. For instance, Jaques and Cason (1994) provided a standard topic across all applicants (i.e., legalization of drugs) and allowed participants to select a topic that was personally relevant. Moreover, an assessment using a domain-specific topic (e.g., leadership and the institution's environment), as was used in the current study, may be included as such topics are highly relevant to what applicants will be required to do on-the-job (e.g., environmental scan). In addition, organizations may seek to use computer simulations where applicants deal with situations of varying task complexity, as more complex individuals tend to use more integrative processing at intermediate levels of complexity (Streufert & Swezey, 1986) and can vary their complexity depending on the demands of the situation (Streufert & Nogami, 1989; Suedfeld & Rank, 1976). In other words, the computer simulations provide the opportunity for a more controlled setting to assess how applicants adjust to changing demands of a scenario and the maximum level of cognitive complexity that they use. In sum, the predictive utility of cognitive complexity may be maximized when using a more holistic multi-method approach for its assessment.

3.4.3.4 Computer automated operationalizations of cognitive complexity. Across academic fields, much of the complexity research has been performed by a relatively small group of researchers (e.g., Lucian Conway, Michael Driver, Elliot Jaques, Harold Schroder, William Scott, Siegfried Streufert, Susan Streufert, Peter Suedfeld, Robert Swezey, Philip Tetlock). Notwithstanding the preponderance of leadership theorizing regarding the importance of cognitive complexity for effective leadership and organizational functioning (Day & Lance, 2004; Hannah et al., 2011; Hooijberg et al., 1997; Zaccaro, 2001), the empirical validation of such constructs (e.g., differentiation and/or integration) in the management literature has been sparse and sporadic. One of the primary reasons perhaps is the significant amount of resources and expertise that are required for assessing complexity constructs (Conway et al., 2014).

The current dissertation capitalized on the invention of two computer-assisted automated programs for operationalizing indicators of both differentiation and integration and provided convergent and concurrent validation for these programs. Specifically, both measures of cognitive differentiation were strongly correlated and thus provided convergent validity evidence. Cognitive differentiation and integration were able to distinguish senior from mid-level leaders (e.g., concurrent validity). Moreover, these complexity indicators produced a differing pattern of relationships with leadership level, and therefore provided a nuanced insight into the differentiation and integration processes of leaders at different levels. Taken together, this research responded to the calls made by complexity researchers to validate automated indicators of complexity across programs and with pertinent outcomes (e.g., Houck et al., 2014).

3.4.3.5 Alternate computer assisted operationalizations of cognitive complexity.

There are alternate forms of measurement that are theoretically consistent with operationalizations of complexity and that have not been explored in the high potential

leadership assessment domain. In particular, the area of semantic network analysis – which has its roots in social network analysis (Carley, Columbus, & Landwehr, 2013), content analysis (Carley, 1997; Leximancer, 2011), linguistics (Smith & Humphreys, 2006), and cognitive psychology (Doerfel & Marsh, 2003), may be well suited for assessing the extent to which an individual’s cognitive structure is differentiated and integrated.

Specifically, Doerfel and Marsh (2003) indicate that the way in which an individual structures his or her words in natural language is purposeful and thus, representative of how meaning is structured in one’s mind. This structure can be extracted from natural language (e.g., interview transcripts) by analyzing word frequencies and co-occurrences; forming concepts (i.e., single words, multiple words or phrases) and connections among concepts (Carley et al., 2013; Danowski, 2012; Smith & Humphreys, 2006). The resultant network provides the possibility of exploring the extent to which an individual’s semantic network is differentiated (e.g., the number of clustered concepts) and integrated (e.g., the number of connections between concepts). Future research using semantic network-based programs such as WORDij (Danowski, 2013), AutoMap (see Carley, Columbus, & Landwehr, 2013) or Leximancer (Leximancer, 2011) may seek to compare how indicators of differentiation and integration relate to other automated operationalizations of complexity and leadership outcomes.

3.4.4 Limitations

These automated programs used in the current study do pose limitations. First, although the Automated Integrative Complexity program uses several strategies (e.g., probabilities, word co-occurrence) to rectify potential discrepancies (i.e., over and underestimates of complexity) between human and automated approaches, it does not easily reconcile multidimensional statements (e.g., “a leader is caring and tough”) when complexity markers (e.g., but, yet) are not

present (see Conway et al., 2014 for a full review). In this instance, the program would underestimate cognitive differentiation compared to a human coder. In contrast, Young and Hermann (2014) suggest that their Profiler Plus program overcomes many of the issues encountered by the Automated Integrative Complexity program (e.g., under and overestimates of complexity) by utilizing a multiple-pass text analysis system which identifies parts of speech (e.g., verb, noun). In short, this process is more selective in its assessment of whether a sentence is scored as simple or complex and is suggested to be a better platform for assessing complexity. Nevertheless, irrespective of the different approaches that these programs use to operationalize cognitive differentiation, they produced substantive overlap (i.e., $r = .58$) and relatively equivalent findings.

The second concern with automated assessments of complexity is that they are described as providing coarse indicators relative to human scoring (i.e., $r = .46$, Conway et al., 2014). For example, when comparing how well Automated Integrative Complexity program could replicate human-scored findings, Conway and colleagues tended to obtain concordant results when there was a stronger theoretical complexity-outcome linkage and/or a large effect size. In other words, automated indicators may provide lower bound estimates of complexity-outcome effect sizes. This may be why human-coded interview transcripts produce larger effect sizes (Jaques & Cason, 1994; Stamp, 1988) relative to the current study. As a result, although Conway and colleagues advocate that automated programs are an effective *alternative* to human-scored approaches, particularly for large projects, they suggest that a more nuanced understanding of an individual's cognitive structure can be extracted by human coders.

Despite the issues with automated programs, there are several inherent advantages. First, in comparison to human-scored methods that require multiple trained coders who typically score

a random sampling of paragraphs generated by a participant, automated programs allow a single researcher to more easily and efficiently assess the entirety of a participant's interview (i.e., all paragraphs, Conway et al., 2014). Second, automation eliminates reliability concerns and ensures that the coding procedures are applied consistently within and across research groups (Young & Hermann, 2014). Third, as demonstrated in the present study and Conway and colleagues, these indicators produce validity-based properties. Lastly, for practitioners, these programs foster greater accessibility to acquire indicators of cognitive complexity, and in turn incorporate into talent-related assessments and decision-making. In other words, rather than investing resources (e.g., time and money) into training human coders and manually coding interview transcripts – or paying consultants to do so – practitioners can use these programs to efficiently gain insight into how high potential candidate's may cognitively approach organizational issues.

A second limitation of the current study was the small sample size insofar as it restricted the power to detect interactive effects of complexity with other pertinent variables that have been proposed by complexity researchers. For example, Jaques and Clement (1991) identified motivation (i.e., commitment to the type of work) as a critical aspect for attaining one's full potential. That is, high potential employees are those who have a desire to lead others rather than simply being individual contributors. Although varying patterns between motivation, cognitive complexity indicators, and high potential recommendations in the current study materialized, the only mid-level leader not to receive a nomination indicated that they were uninterested in pursuing higher level positions despite possessing a complexity profile that resembled the focal institution's senior leaders.

Beyond cognitive complexity and motivation, most high potential and talent frameworks describe multiple interacting dimensions that facilitate or hinder the emergence and development

of high potential into talent (e.g., Ericsson, Krampe, & Tesch-Romer, 1993; Gagne, 2009; Silzer & Church, 2009). Moreover, if a talent domain such as leadership is indeed multidimensional and interactive, then the additive effect(s) of singular traits or experiences on talent development will account for less variance and less understanding of the talent development process than if one were to examine the profile or interactive effects of these variables (Simonton, 1999).

Therefore, future research ought to undertake a profile approach to leadership and explore ideal weightings and trade-offs between its critical dimensions (e.g., cognitive complexity, resilience, learning agility, behavioural flexibility, openness to feedback, career ambition, general leadership competencies, person-organizational fit, job performance history; Silzer & Church, 2009) and their interrelationships.

A third limitation was that I used leadership level in the focal institution's organizational hierarchy as a proxy for job complexity rather than conducting a detailed analysis of each position or acquiring supervisor-rated perceptions. Therefore, it is difficult to decipher, for instance, regardless of hierarchical level, whether more complex leaders held more complex positions, whereas their lower complexity counterparts worked in lower complexity roles.

A final limitation centered on the fact that leadership level was confounded by the interviewer. Specifically, only one of the three interviewers conducted the mid-level leader interviews, and these leaders produced higher differentiation and lower integration scores compared to the senior leaders. In other words, the interviewer may have artificially produced these differences. Nonetheless, an examination of the data reveals that nearly half of the mid-level leaders possessed a similar complexity profile to senior leaders and the interviews with the senior leaders conducted by the other two interviewers. As a result, it is unlikely that the interviewers had a significant effect on the study's overall findings.

The current study investigated relationships between two dimensions of cognitive complexity (i.e., differentiation and integration) and high potential identification as well as leadership level among mid and senior leaders in a Canadian post-secondary institution. Using two novel computerized approaches to assess complexity, individuals with lower levels of cognitive differentiation and higher levels of cognitive integration tended to hold senior leadership positions. Among senior leaders, those with higher cognitive differentiation and lower integration, relative to their peers, had a greater likelihood of turning over from the focal institution within four years of the initial interviews. Furthermore, among the mid-level leaders, counter to expectations, those with higher cognitive differentiation and lower integration received more high potential recommendations. However, this unexpected finding may be attributable to differing motivations that senior leaders may have used when identifying lower level leaders for developmental opportunities. Overall, the pattern of these relationships supported the more nuanced theoretical propositions of complexity theory. Future research in this domain should strive to capitalize on these novel measurements of complexity to investigate the aforementioned attributions and relationships with behavioural complexity and leadership effectiveness.

Chapter 4

Conclusion

The present work aimed to understand high potential, talent, and leadership, in a local context, by using different analytic paradigms (i.e., psychological and discursive). In Study 1, I employed a discursive approach that provided a nuanced perspective into how ‘leadership’ is communicated, given meaning, and reshaped in organizations over time. In particular, I demonstrated the multipurpose function of leadership books in the sensemaking and sense giving processes within the focal institution. The leadership books served as a resource to communicate a common conception of leadership. This sense giving of leadership in the focal institution was accomplished (or was intended to be accomplished) through everyday conversations with staff, leadership development programming, creating developmental plans (i.e., as a basis to identify gaps and weaknesses in leadership fundamentals), performance management plans, and high potential identification and selection decisions. For example, the senior leader in Case 5 described how she communicated the concepts offered by *Creating Leaderful Organizations* (i.e., a leadership book from the *Change Leadership* programming) to her staff and then encouraged them to embed these concepts within their performance management plan. In contrast, *The Leadership Challenge* was going to be used in subsequent leadership development initiatives and the CEO (Case 1) and VPA (Case 2), noted that *The Leadership Challenge* would serve as a resource that would direct attention to the capabilities and behaviours expected of current and future leaders (e.g., identifying high potential leaders).

Furthermore, leadership books were often elicited to legitimate participants’ personal perspectives on leadership and to contest other leadership approaches. For example, the VPA endorsed books that legitimized the ‘being’ approach to leadership and used these resources to

critique the behavioural approach of the *Leadership Challenge*. Moreover, the VPA further legitimized her approach to leadership by aligning it with organizational values and the context in which leaders were currently facing (i.e., culture and operational change) and would be facing into the future. This approach resonated among leaders within the organization, and for some, it was espoused to be in-use in everyday leadership activities. In short, this study demonstrated how discourse (in the form of a leadership book) can be used a strategic resource to impact the meaning of 'leadership' and 'high potential leadership' within an organization. Using Hardy et al.'s (2000) discourse as strategic resource model, I demonstrated that it is also applicable to reshaping meaning among internal as opposed to external stakeholders. Moreover, this study contributes to the literature insofar as it provides insight into the consumption of popular press in organizations rather than by academics (Furusten, 1999; Rovik, 2011; Schulz & Nicolai, 2015).

In stark contrast to the discursive approach used in Study 1, I used a psychological approach in Study 2 to investigate the relationship between cognitive complexity and leadership career trajectory outcomes (e.g., high potential identification, leadership level attained). Cognitive complexity is a construct that is critical in leadership (e.g., Day & Lance, 2004; Hannah et al., 2011; Zaccaro, 2001) and strategy (e.g., Cheng & Chang, 2010; Wang & Chan, 1995), and yet it is underused empirically at a universal level (Conway et al., 2014) and in the business domain (Hooijberg et al., 1997). Furthermore, despite the theoretically proposed distinct functions of cognitive differentiation and integration, leadership research has generally measured cognitive differentiation (e.g., Hannah et al., 2013; Sypher & Zorn; Wofford, 1994) or a combined differentiation-integration indicator (e.g., Augurell & Lindberg, 2011; Suedfeld et al., 1986) rather than separate indicators of each dimension (e.g., Streufert et al., 1988). This study contributed to the leadership literature by operationalizing distinct components of cognitive

complexity (i.e., cognitive differentiation and integration) and provided a more detailed empirical account of complexity theory insofar as senior leaders produced a complexity profile of higher integration and lower differentiation compared to mid-level leaders. This study also used two novel automated programs that produced valid findings, and thus may be useful as diagnostic tools in talent-based assessments and decisions (e.g., promotion, high potential identification, development opportunities). In sum, this research set forth numerous directions regarding how cognitive complexity can enhance our understanding of high potential identification, development, and talent emergence in the leadership domain.

When considering these studies in unison, the findings direct our attention to how cultural stereotypes of leadership at a local level are formed and reformed – with the aid of leadership books – and the type of leader that may succeed in these shifting environments. Study 1 denotes how leadership books serve as meaning making tools for distilling a complex job into a relatively simplified language and endeavour. Moreover, these books set the occasion for creating a leadership stereotype (i.e., leadership skills, behaviours, competencies) that garners legitimacy in the focal institution. However, a consequence of this simplified language and leadership stereotype is that critical competencies or behaviours that contribute to effective leadership may be overvalued, undervalued, or omitted altogether. In other words, effective leaders may be those who engage in a threshold level of the myriad of over and undervalued behaviours (i.e., behavioural complexity; Cameron et al., 2006). At the root of this ability to act in a behavioural complex manner is possessing a sufficient level of cognitive complexity (Hooijberg et al., 1997). Study 2 demonstrates the linkage between cognitive complexity and reaching and remaining in the upper echelons of leadership within the focal institution. In tandem, Study 1 outlines the cognitive and behavioural complexities of leadership and Study 2 demonstrates the

significance of cognitive complexity in supporting one's ascent to higher level leadership positions.

In conclusion, leaders (particularly with PhDs as was the case in the focal institution) tend to be exposed to varying discourses on 'leadership,' and thus tend to develop social constructions that are contradictory, confusing, and at times incoherent (Alvesson & Sveningsson, 2003a). These social constructions, in and of themselves, may not be problematic as leadership involves behaving and taking actions that are (or may be) perceived as contradictory or paradoxical (Cameron et al., 2006; Smith, 2014). Nevertheless, those leaders who can deal effectively with these tensions are suggested to be cognitively and behaviourally complex (Cameron et al., 2006; Lawrence, Lenk, & Quinn, 2009; Smith & Lewis, 2011). That is, those leaders who emerge as successful or high potential may demonstrate or possess competencies that are emphasized in the prevalent institutional discourse on leadership, but will also be able to pursue behaviours and take actions that are pertinent to other leadership discourses. In effect, as leadership is seemingly something that is reshaped over time, an individual with greater cognitive complexity may be predisposed (or more likely) to adapt and thrive in a constantly changing environment and shifting leadership discourse.

References

- Akrivou, K., & Bradbury-Huang, H. (2011). Executive catalysts: Predicting sustainable organizational performance amid complex demands. *Leadership Quarterly*, 22, 995-1009. doi:10.1016/j.leaqua.2011.07.019
- Alvesson, M., & Kärreman, D. (2000a). Taking the linguistic turn in organizational research: Challenges, responses, consequences. *Journal of Applied Behavioral Science*, 36, 136- 158. doi: 10.1177/0021886300362002
- Alvesson, M., & Kärreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review*, 32, 1265-1281.
doi: 10.5465/AMR.2007.26586822
- Alvesson, M., & Sveningsson, S. (2003a). Good visions, bad micro-management and ugly ambiguity: Contradictions of (non-) leadership in a knowledge-intensive organization. *Organization Studies*, 24, 961-988. doi: 10.1177/0170840603024006007
- Alvesson, M., & Sveningsson, S. (2003b). The great disappearing act: Difficulties in doing “leadership” *Leadership Quarterly*, 14, 359-381.
doi:10.1016/S1048-9843(03)00031-6
- Augurell, M., & Lindberg, U. (2011). *Predictability of investment performance and the impact of the level of CEO's and partners: Prospective study of 24 companies and 6 private equity firms* (Featured Research July-September 2011). Retrieved from the Requisite Organization International Institute website: <http://requisite.org/>
- Automated Integrative Complexity for Documents [Computer software]. Retrieved from <http://hs.umt.edu/politicalcognition/resources/auto-ic/default.php>

- Baker-Brown, G., Ballard, E. J., Bluck, S., De Vries, B., Suedfeld, P., & Tetlock P. E. (1992). The conceptual/integrative scoring manual. In C. P. Smith (Ed.) *Motivation and personality: Handbook of thematic content analysis* (pp. 401-418). New York, NY: Cambridge University Press.
- Baldwin, B. A. (1972). Change in interpersonal cognitive complexity as a function of a training group experience. *Psychological Reports*, *30*, 933-940. doi: 10.2466/pr0.1972.30.3.935
- Barge, J. K., & Fairhurst, G. T. (2008). Living leadership: A systemic constructionist approach. *Leadership*, *4*, 227-251. doi: 10.1177/1742715008092360
- Bartunek, J. M, Gordon, J. R., & Weathersby, R. P. (1983). Developing “complicated” understanding in administrators. *Academy of Management Review*, *8*, 273-284. doi: 10.5465/AMR.1983.4284737
- Bartunek, J. M., Krim, R. M., Necochea, R., & Humphries, M. (1999). Sensemaking, sensegiving, and leadership in strategic organizational development. In J. A. Wagner, III (Ed.), *Advances in qualitative organizational research* (Vol. 2, pp. 37-71). Stamford, CT: JAI Press.
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, *88*, 207-218. doi: 10.1037/0021-9010.88.2.207
- Bieri, J., Atkins, A. L, Briar, S., Leaman, R. L., Miller, H., & Tripodi, T. (1966). Cognitive structure and judgment. In J. Bieri, A. L. Atkins, S. Briar, R. L. Leaman, H. Miller & T. Tripodi (Eds.), *Clinical and social judgment: The discrimination of behavioral information* (pp. 182-206). New York, NY: John Wiley & Sons, Inc.

- Bligh, M. C., & Meindl, J. R. (2005). The cultural ecology of leadership: An analysis of popular leadership books. In D. M. Messick & R. M. Kramer (Ed), *The psychology of leadership: New perspectives and research* (pp. 11-52). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Brungardt, C. (1997). The making of leaders: A review of the research in leadership development and education. *Journal of Leadership & Organizational Studies*, 3, 81-95. doi: 10.1177/107179199700300309
- Burke, C. S., Stagl, K. C., Salas, E., Pierce, L., & Kendall, D. (2006). Understanding team adaptation: A conceptual analysis and model. *Journal of Applied Psychology*, 91, 1189-1207. doi: 10.1037/0021-9010.91.6.1189
- Brause, A., Cason, K., & Spelman, W. (2005). Does the smart guy win? An individual capability model for predicting presidential elections. *International Journal of Applied Psychoanalytic Studies*, 2, 365-380. doi: 10.1002/aps.24
- Calori, R., Johnson, G., & Sarnin, P. (1994). CEOs' cognitive maps and the scope of the organization. *Strategic Management Journal*, 15, 437-457. doi: 10.1002/smj.4250150603
- Cameron, K. S., Quinn, R. E., DeGraff, J., & Thakor, A. V. (2006). *Competing values leadership: Creating value in organizations*. Northampton, MA: Edward Elgar Publishing Inc.
- Carless, S. A. (2001). Assessing the discriminant validity of the Leadership Practices Inventory. *Journal of Occupational and Organizational Psychology*, 74, 233-239. doi: 10.1348/096317901167334

- Carley, K. M. (1997). Extracting team mental models through textual analysis. *Journal of Organizational Behavior*, 18, 533-558. doi: 10.1002/(SICI)1099-1379(199711)18:1+<533::AID-JOB906>3.0.CO;2-3
- Carley, K. M., Columbus, D., & Landwehr, P. (2013). *AutoMap user's guide 2013* (Technical Report No. CMU-ISR-13-105). Retrieved from Carnegie Mellon University, Center for Computational Analysis of Social and Organizational Systems AutoMap website: <http://www.casos.cs.cmu.edu/publications/papers/CMU-ISR-13-105.pdf>
- Carroll, B., & Levy, L. (2010). Leadership development as identity construction. *Management Communication Quarterly*, 24, 211-231. doi: 10.1177/0893318909358725
- Chan, D. (1996). Cognitive misfit of problem-solving style at work: A facet of person-organization fit. *Organizational Behavior & Human Decision Processes*, 68, 194-207. doi:10.1006/obhd.1996.0099
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage Publications.
- Cheng, S. L., & Chang, H. C. (2009). Performance implications of cognitive complexity: An empirical study of cognitive strategic groups in semiconductor industry. *Journal of Business Research*, 62, 1311-1320. doi:10.1016/j.jbusres.2008.12.002
- Cheng, S. L., & Chang, H. C. (2010). Cognitive complexity implications for research on sustainable competitive advantage. *Journal of Business Research*, 63, 67-70. doi:10.1016/j.jbusres.2009.02.016
- Cho, T. S. (2006). The effects of executive turnover on top management team's environmental scanning behavior after an environmental change. *Journal of Business Research*, 59, 1142-1150. doi:10.1016/j.jbusres.2006.06.004

- Conway, L. G., III. (2015). Automated integrative complexity manual. Retrieved from <http://hs.umt.edu/politicalcognition/resources/auto-ic/default.php>
- Conway, L. G., III., Conway, K. R., Gornick, L. J., & Houck, S. C. (2014). Automated integrative complexity. *Political Psychology, 35*, 603-624. doi: 10.1111/pops.12021
- Conway, L. G., III., Thoemmes, F., Allison, A. M., Towgood, K. H., Wagner, M. J., Davey, K., Conway, K. R. (2008). Two ways to be complex and why they matter: Implications for attitude strength and lying. *Journal of Personality & Social Psychology, 95*, 1029-1044. doi: 10.1037/a0013336
- Crockett, W. H. (1965). Cognitive complexity and impression formation. In B. A. Maher (Ed.), *Progress in experimental personality research* (pp. 47-90). New York, NY: Academic Press.
- Cronen, V. E., & LaFleur, G. (1977). Inoculation against persuasive attacks: A test of alternative explanations. *The Journal of Social Psychology, 102*, 255-265.
doi:10.1080/00224545.1977.9713272
- Danowski, J. A. (2012). Social media network size and semantic networks for collaboration in design. *International Journal of Organizational Design & Engineering, 2*, 343-361.
doi: 10.1504/IJODE.2012.051440
- Danowski, J. A. (2013). WORDij Version 3.0: Semantic network analysis software. Chicago: University of Illinois at Chicago.
- Day, D. V., & Harrison, M. M. (2007). A multilevel, identity-based approach to leadership development. *Human Resource Management Review, 17*, 360-373.
doi:10.1016/j.hrmr.2007.08.007
- Day, V. D., & Lance, E. C. (2004). Understanding the development of leadership complexity

- through latent growth modeling. In D. V. Day, S. J. Zaccaro, & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 41-69). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Denison, D. R., Hooijberg, R., & Quinn, R. E. (1995). Paradox and performance: Toward a theory of behavioral complexity in managerial leadership. *Organization Science, 6*, 524-540. Retrieved from <http://www.jstor.org/stable/2634960>
- Doerfel, M. L., & Marsh, P. S. (2003). Candidate-issue positioning in the context of presidential debates. *Journal of Applied Communication Research, 31*, 212-237.
doi: 10.1080/0090988032000103449
- Donovan, J. J., Dwight, S. A., & Schneider, D. (2014). The impact of applicant faking on selection measures, hiring decisions, and employee performance. *Journal of Business & Psychology, 29*, 479-493. doi: 10.1007/s10869-013-9318-5
- Dries, N. (2013). The psychology of talent management: A review and research agenda. *Human Resource Management Review, 23*, 272-285. doi: 10.1016/j.hrmr.2013.05.001
- Driver, M. J., & Streufert, S. (1969). Integrative complexity: An approach to individuals and groups as information-processing systems. *Administrative Science Quarterly, 14*, 272-285. doi: 10.2307/2391105
- Driver, M. J., & Mock, T. J. (1975). Human information processing, decision style theory, and accounting information systems. *The Accounting Review, 50*, 490-508. Retrieved from <http://www.jstor.org/stable/245007>
- Ericsson, K. A., Krampe, R. T., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*, 363-406.
doi:10.1037/0033-295X.100.3.363

- Fairhurst, G. T. (2007). *Discursive leadership: In conversation with leadership psychology*. Thousand Oaks, CA: Sage Publications.
- Fairhurst, G. T. (2009). Considering context in discursive leadership research. *Human Relations*, 62, 1607-1633. doi: 10.1177/0018726709346379
- Fairhurst, G. T., & Grant, D. (2010). The social construction of leadership: A sailing guide. *Management Communication Quarterly*, 24, 171-210. doi: 10.1177/0893318909359697
- Festing, M. Kornau, A., & Schäfer, L. (2015). Think talent – think male? A comparative case study analysis of gender inclusion in talent management practices in the German media industry. *International Journal of Human Resource Management*, 26, 707-732. doi: 10.1080/09585192.2014.934895
- Fiedler, F. E. (1967). *A Theory of Leadership Effectiveness*. New York, NY: McGraw Hill.
- Furusten, S. (1999). *Popular management books: How they are made and what they mean for organisations*. New York, NY: Routledge.
- Gagné, F. (2009). Building gifts into talents: Detailed overview of the DMGT 2.0. In B. MacFarlane, & T. Stambaugh, (Eds.), *Leading change in gifted education: The festschrift of Dr. Joyce VanTassel-Baska* (pp. 61-80). Waco, TX: Prufrock Press.
- Gallardo-Gallardo, E., Dries, N., & González-Cruz, T. F. (2013). What is the meaning of ‘talent’ in the world of work? *Human Resource Management Review*, 23, 290-300. doi: 10.1016/j.hrnr.2013.05.002
- Gallardo-Gallardo, E., Nijs, S., Dries, N., & Gallo, P. (2015). Towards an understanding of talent management as a phenomenon-drive field using bibliometric and content analysis. *Human Resource Management Review*, 25, 264-279. doi:10.1016/j.hrnr.2015.04.003

- Gioia, D. A., & Chittipeddi, K. (1991). Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, *12*, 433-448. doi: 10.1002/smj.4250120604
- Goodman, P. S. (1968). The measurement of an individual's organization map. *Administrative Science Quarterly*, *13*, 246-265. Retrieved from <http://www.jstor.org/stable/2391454>
- Green, G. C. (2004). The impact of cognitive complexity on project leadership performance. *Information and Software Technology*, *46*, 165-172. doi:10.1016/j.jbusres.2008.12.002
- Goodwin, V. L., & Ziegler, L. (1998). A test of relationships in a model of organizational cognitive complexity. *Journal of Organizational Behavior*, *19*, 371-386.
doi: 10.1002/(SICI)1099-1379(199807)19:4<371::AID-JOB850>3.0.CO;2-V
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, *29*, 75-91. Retrieved from <http://www.jstor.org/stable/30219811>
- Guba, E. G. & Lincoln, Y. S. (1982). Epistemological and methodological bases of naturalistic inquiry. *Educational Communication and Technology*, *30*, 233-252. Retrieved from <http://www.jstor.org/stable/30219846>
- Hannah, S. T., Balthazard, P. A., Waldman, D. A., Jennings, P. L., & Thatcher, R. W. (2013). The psychological and neurological bases of leader self-complexity and effects on adaptive decision-making. *Journal of Applied Psychology*, *98*, 393-411.
doi: 10.1037/a0032257
- Hannah, S. T., Lord, R. G., & Pearce, C. L. (2011). Leadership and collective requisite complexity. *Organizational Psychology Review*, *1*, 215-238.
doi: 10.1177/2041386611402116

- Hardy, C., Palmer, I., & Phillips, N. (2000). Discourse as a strategic resource. *Human Relations*, 53, 1227-1248. doi: 10.1177/0018726700539006
- Hermann, M. (1999). Assessing leadership style: A trait analysis. Retrieved from <http://www.socialscience.net/Docs/LTA.pdf>
- Hermann, M. G. (2005). Assessing leadership style: A trait analysis. In J. Post (Ed.), *The psychological assessment of political leaders* (pp. 178-212). Ann Arbor, MI: University of Michigan Press.
- Hooijberg, R., Hunt, J. G., & Dodge, G. E. (1997). Leadership complexity and development of the leaderplex model. *Journal of Management*, 23, 375-408.
doi: 10.1177/014920639702300305
- Houck, S. C., Conway, L. G. III., Gornick, L. J. (2014). Automated integrative complexity: Current challenges and future directions. *Political Psychology*, 35, 647-659.
doi: 10.1111/pops.12209
- Hunt, J. G., & Ropo, A. (1995). Multi-level leadership: Grounded theory and mainstream theory applied to the case of General Motors. *Leadership Quarterly*, 6, 379-412.
doi:10.1016/1048-9843(95)90015-2
- Jacobs, T. O. (2010). On become more complex (and what to do about it). *On the Horizon*, 18, 62-70. doi: 10.1108/10748121011021010
- Jacobs, T. O., & Jaques, E. (1987). Leadership in complex systems. In J. Zeidner (Ed.), *Human productivity enhancement: Vol. 2. Organizations, personnel, and decision making* (pp. 7- 65). New York, NY: Praeger Publishers.

- Jacobs, T. O., & Lewis, P. (1992). Leadership requirements in stratified systems. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective* (pp. 15–25). Westport, CT: Quorum Books.
- Jaques, E. (1989). *Requisite organization*. Arlington, VA: Carson Hall & Co. Publishers.
- Jaques, E. (1995). Why the psychoanalytical approach to understanding organizations is dysfunctional. *Human Relations*, 48, 343-349. doi: 10.1177/001872679504800401
- Jaques, E. (1998). *Requisite organization: A total system for effective managerial organization and managerial leadership for the 21st century*. Arlington, VA: Carson Hall & Co. Publishers.
- Jaques, E., & Cason, K. (1994). *Human Capability: A study of individual potential and its application*. Falls Church, VA: Cason Hall & Co. Publishers.
- Jaques, E., & Clement, S. D. (1991). *Executive Leadership: A practical guide to managing complexity*. Arlington, VA: Cason Hall & Co. Publishers.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89, 755-768. doi: 10.1037/0021-9010.89.5.755
- Kelly, G. A. (1955). *The psychology of personal constructs. Vol. 1: A theory of personality*. New York, NY: Norton
- Kouzes, J. M., & Posner, B. Z. (2007). *The leadership challenge* (4th ed.). San Francisco, CA: Jossey-Bass.
- Kraichy, D. (2014). *High potential identification and talent emergence*. Unpublished manuscript, Department of Business Administration, University of Manitoba, Winnipeg, Canada.

- Lawrence, K. A., Lenk, P., & Quinn, R. E. (2009). Behavioral complexity in leadership: The psychometric properties of a new instrument to measure behavioral repertoire. *Leadership Quarterly*, 20, 87-102. doi:10.1016/j.leaqua.2009.01.014
- Levashina, J., Weekley, J. A., Roulin, N., & Hauck, E. (2014). Using blatant extreme responding for detecting faking in high-stakes selection: Construct validity, relationship with general mental ability, and subgroup differences. *International Journal of Selection & Assessment*, 22, 371-383. doi: 10.1111/ijsa.12084
- Levi, A., & Tetlock P. E. (1980). A cognitive analysis of Japan's 1941 decision for war. *The Journal of Conflict Resolution*, 24, 195-211. Retrieved from <http://www.jstor.org/stable/173850>
- Levy, O., Beechler, S., Taylor, S., & Boyacigiller, N. A. (2007). What we talk about when we talk about 'global mindset': Managerial cognition in multinational corporations. *Journal of International Business Studies*, 38, 231-258. doi:10.1057/palgrave.jibs.8400265
- Lewis, P., & Jacobs, T. O. (1992). Individual differences in strategic leadership capacity: A constructive/developmental view. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective* (pp. 121-139). Westport, CT: Quorum.
- Leximancer (2011). *Leximancer manual: Version 4*. Retrieved from Leximancer website <http://static.squarespace.com/static/539bebd7e4b045b6dc97e4f7/t/53c33e0fe4b056735b9b4683/1405304335237/Leximancer%20Manual%20Version%204.pdf>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

- Manral, L. (2011). Managerial cognition as bases of innovation in organization. *Management Research Review, 34*, 576-594. doi: 10.1108/01409171111128733
- McGill, A. R., Johnson, M. D., & Bantel, K. A. (1994). Cognitive complexity and conformity: Effects on performance in a turbulent environment. *Psychological Reports, 75*, 1451-1472. doi: 10.2466/pr0.1994.75.3f.1451
- McNamara, G. M., Luce, R. A., & Tompson, G. H. (2002). Examining the effect of complexity in strategic group knowledge structures on firm performance. *Strategic Management Journal, 23*, 153-170. doi: 10.1002/smj.211
- Meindl, J. R., Ehrlich, S. B., & Dukerich, J. M. (1985). The romance of leadership. *Administrative Science Quarterly, 30*, 78-102. Retrieved from <http://www.jstor.org/stable/2392813>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Namey, E., Guest, G., Thairu, L., & Johnson, L. (2008). Data reduction techniques for large qualitative data sets. In G. Guest and K. M MacQueen (Eds.), *Handbook for team-based qualitative research* (pp. 137-161). Lanham, MD: Altamira Press.
- Osborne, J. D., Stubbart, C. I., & Ramaprasad, A. (2001). Strategic groups and competitive enactment: A study of dynamic relationships between mental models and performance. *Strategic Management Journal, 22*, 435-454. doi: 10.1002/smj.166
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.
- Phillips, N. & Hardy, C. (2002). *Discourse analysis: Investigating processes of social construction*. Thousand Oaks, CA: Sage Publications.

- Potter, J., & Wetherell, M. (1987). *Discourse and social psychology: Beyond attitudes and behaviour*. London, England: Sage Publications.
- Profiler Plus (Version 5.8.4) [Computer software]. Retrieved from <http://socialscience.net/partners/AcademicUsers.aspx>.
- Quinn, R. E. (1996). *Deep change: Discovering the leader within*. San Francisco, CA: Jossey-Bass.
- Quinn, R. E., Faerman, S. R., Thompson, M. P., McGrath, M., & St. Clair, L. S. (2011). *Becoming a master manager: A competing values approach* (5th ed.). Hoboken, NJ: Wiley.
- Raelin, J. A. (2003). *Creating leaderful organizations: How to bring out leadership in everyone*. San Francisco, CA: Berrett-Koehler.
- Rooney, D., Paulsen, N., Callan, V. J., Brabant, M., Gallois, C., & Jones, E. (2010). A new role for place identity in managing organizational change. *Management Communication Quarterly*, 24, 44-73. doi: 10.1177/0893318909351434
- Rovik, K. A. (2011). From fashion to virus: An alternative theory of organizations' handling of management ideas. *Organization Studies*, 32, 631-653. doi: 10.1177/0170840611405426
- Ryan, G. W., & Bernard, H. R. (2003). Techniques to identify themes. *Field Methods*, 15, 85-109. doi: 10.1177/1525822X02239569
- Satish, U. & Streufert, S. (1997). The measurement of behavioral complexity. *Journal of Applied Social Psychology*, 27, 2117-2121. doi: 10.1111/j.1559-1816.1997.tb01643.x
- Schneider, B. (2000). Managers as evaluators: Invoking objectivity to achieve objectives. *Journal of Applied Behavioral Science*, 36, 159-173. doi: 10.1177/0021886300362003

- Schroder, H. M., Driver, M. J., & Streufert, S. (1967). Appendix 2: Structure analysis of verbal responses. In H. M. Schroder, M. J. Driver, S. Streufert (Eds.), *Human information processing: Individuals and groups functioning in complex social situations* (pp. 185-214). New York, NY: Holt, Rinehart and Winston, Inc.
- Schulz, A. C., & Nicolai, A. T. (2015). The intellectual link between management research and popularization media. A bibliometric analysis of the Harvard Business Review. *Academy of Management Learning & Education, 14*, 31-49. doi: /10.5465/amle.2012.0397
- Scott, W. A. (1969). Structure of natural cognitions. *Journal of Personality & Social Psychology, 12*, 261-278. doi: 10.1037/h0027734
- Scharmer, C. O. (2015). *Theory U*. Retrieved from <https://www.presencing.com/theoryu>.
- Senge, P., Scharmer, C. O., Jaworski, J., & Flowers, B. S. (2005). *Presence: Exploring profound change in people, organizations, and society*. New York, NY: Doubleday.
- Silzer, R., & Church, A. (2009). The pearls and perils of identifying potential. *Industrial and Organizational Psychology, 2*, 377-412. doi: 10.1111/j.1754-9434.2009.01163.x
- Silzer, R., & Dowell, B. E. (2010). Strategic talent management matters. In R. Silzer and B. E. Dowell (Eds.), *Strategy driven talent management: A leadership imperative* (pp. 3-72). San Francisco, CA: Jossey-Bass.
- Simonton, D. K. (1999). Talent and its development: An emergenic and epigenetic model. *Psychological Review, 106*, 435-457. doi:10.1037/0033-295X.106.3.435
- Slan, R., & Hausdorf, P. (2004). *Leadership succession: High potential identification and development*. Toronto, Canada: University of Guelph and MICA Management Resources.
- Smith, A. E., & Humphreys, M. S. (2006). Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. *Behavior Research Methods, 38*,

262-279. doi: 10.3758/BF03192778

Smith, W. K. (2014). Dynamic decision making: A model of senior leaders managing strategic paradoxes. *Academy of Management Journal*, *57*, 1592-1623.

doi: 10.5465/amj.2011.0932

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, *36*, 381-403.

doi: 10.5465/amr.2009.0223

Stamp, G. P. (1988). *Longitudinal research into methods of assessing managerial potential*. (Technical Report No. 819). Alexandria VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Starks, H. & Trinidad, S. B. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative Health Research*, *17*, 1372-1380.

doi: 10.1177/1049732307307031

Streufert, S., & Nogami, G. Y. (1989). Cognitive style and complexity: Implications for I/O psychology. In C. L. Cooper and I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 93-143). Chichester, UK: Wiley.

Streufert, S., Nogami, G. Y., Swezey, R. W., Pogash, R. M., & Piasecki, M. T. (1988). Computer assisted training of complex managerial performance. *Computers in Human Behavior*, *4*,

77-88. doi:10.1016/0747-5632(88)90034-9

Streufert, S., Pogash, R., & Piasecki, M. (1988). Simulation-based assessment of managerial competence: Reliability and validity. *Personnel Psychology*, *41*, 537-557.

doi: 10.1111/j.1744-6570.1988.tb00643.x

- Streifert, S., & Satish, U. (1997). Complexity theory: Predictions based on the confluence of science-wide and behavioral theories. *Journal of Applied Social Psychology, 27*, 2096-2116. doi: 10.1111/j.1559-1816.1997.tb01642.x
- Streifert, S., & Streifert, S. C. (1978). *Behavior in the complex environment*. Washington, DC: V. H. Winston & Sons.
- Streifert, S., & Swezey, R. W. (1986). *Complexity, managers, and organizations*. Orlando, FL: Academic Press, Inc.
- Style. (n.d.). In *Merriam-Webster's online dictionary* (11th ed.). Retrieved from <http://www.merriam-webster.com/dictionary/style>
- Suedfeld, P., & Bluck, S. (1993). Changes in integrative complexity accompanying significant life events: Historical evidence. *Journal of Personality & Social Psychology, 64*, 124-130. doi: 10.1037/0022-3514.64.1.124
- Suedfeld, P., Corteen, R. S., & McCormick, C. (1986). The role of integrative complexity in military leadership: Robert E. Lee and his opponents. *Journal of Applied Social Psychology, 16*, 498-507. doi: 10.1111/j.1559-1816.1986.tb01155.x
- Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term success as a function of changes in conceptual complexity. *Journal of Personality & Social Psychology, 34*, 169-178. doi: 10.1037/0022-3514.34.2.169
- Suedfeld, P., Tetlock P. E., & Streifert, S. (1992). Conceptual/integrative complexity. In C. P. Smith (Ed.) *Motivation and personality: Handbook of thematic content analysis* (pp. 393-400). New York, NY: Cambridge University Press.

- Swezey, R. W., Streufert, S., & Mietus, J. (1983). Development of an empirically derived taxonomy of organizational systems. *Journal of the Washington Academy of Sciences*, *73*, 27-42.
- Sypher, B. D., & Zorn, T. E. Jr. (1986). Communication-related abilities and upward mobility: A longitudinal investigation. *Human Communication Research*, *12*, 420-431.
doi: 10.1111/j.1468-2958.1986.tb00085.x
- Szabo, V., & Strang, V. (1997). Secondary analysis of qualitative data. *Advances in Nursing Science*, *20*, 66-74. Retrieved from http://journals.lww.com/advancesinnursingscience/Abstract/1997/12000/Secondary_Analysis_of_Qualitative_Data.8.aspx
- Tabachnick, B. G., & Fidell, L. S. (2007). Principal components and factor analysis. In B. Tabachnick and L. Fidell (Eds.), *Using multivariate statistics* (5th ed., pp. 607-675). Boston, MA: Pearson.
- Tabachnick, B. G., & Fidell, L. S. (2007). Logistic regression. In B. Tabachnick and L. Fidell (Eds.), *Using multivariate statistics* (5th ed., pp. 437-505). Boston, MA: Pearson.
- Tadmor, C. T., Galinsky, A. D., & Maddux, W. W. (2012). Getting the most out of living abroad: Biculturalism and integrative complexity as key drivers of creative and professional success. *Journal of Personality and Social Psychology*, *103*, 520-542.
doi: 10.1037/a0029360
- Tansley, C. (2011). What do we mean by the term “talent” in talent management? *Industrial & Commercial Training*, *43*, 266-274. doi: 10.1108/00197851111145853
- Tetlock P. E. (1981). Pre- to postelection shifts in presidential rhetoric: Impression management or cognitive adjustment? *Journal of Personality & Social Psychology*, *41*, 207-212.
doi:10.1037/0022-3514.41.2.207

- Thies, C. G. (2004). Individuals, institutions, and inflation: Conceptual complexity, central bank independence, and the Asian crisis. *International Studies Quarterly*, 48, 579-602.
doi: 10.1111/j.0020-8833.2004.00316.x
- Thies, C. G. (2009). The conceptual complexity of central bankers and the Asian financial crisis. *Political Psychology*, 30, 445-464. doi: 10.1111/j.1467-9221.2009.00707.x
- Wang, P., & Chan, P. S. (1995). Top management perception of strategic information processing in a turbulent environment. *Leadership & Organization Development Journal*, 16, 33-43.
doi: 10.1108/01437739510100937
- Watson, T. J. (1995). Rhetoric, discourse and argument in organizational sense making: A reflexive tale. *Organizational Studies*, 16, 805-821. doi: 10.1177/017084069501600503
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, 16, 409-421. doi: 10.1287/orsc.1050.0133
- Whittle, A., Housley, W., Gilchrist, A., Mueller, F., & Lenney, P. (2015). Category predication work, discursive leadership and strategic sensemaking. *Human Relations*, 68, 377-407.
doi: 10.1177/0018726714528253
- Wofford, J. C. (1994). An examination of the cognitive processes used to handle employee job problems. *Academy of Management Journal*, 37, 180-192. doi: 10.2307/256776
- Wong, E. M., Ormiston, M. E., & Tetlock, P. E. (2011). The effects of top management team integrative complexity and decentralized decision making on corporate social performance. *Academy of Management Journal*, 54, 1207-1228.
doi: 10.5465/amj.2008.0762
- Wood, L. A., & Kroger, R. O. (2000). *Doing discourse analysis: Methods for studying action in talk and text*. Thousand Oaks, CA: Sage Publications.

- Yao, Y., & Zhang, J. (2010). The influence of cognitive complexity on leadership effectiveness: Moderating effects of environmental complexity. *International Conference on Management Science and Engineering, Australia*, 1792-1797.
doi: 10.1109/ICMSE.2010.5720022
- Young, M. D., & Hermann, M. G. (2014). Increased complexity has its benefits. *Political Psychology*, 35, 635-645. doi: 10.1111/pops.12208
- Zaccaro, S. (2001). Conceptual complexity theories of executive leadership: Conceptual review and evaluation. In S. Zaccaro. *The nature of executive leadership: A conceptual and empirical analysis of success* (pp. 21-59). Washington, DC: American Psychology Association. doi: 10.1037/10398-002
- Zagorsek, H., Stough, S. J., & Jaklic, M. (2006). Analysis of the reliability of the Leadership Practices Inventory in the item response theory framework. *International Journal of Selection & Assessment*, 14, 180-191. doi: 10.1111/j.1468-2389.2006.00343.x

Appendix A: Higher-Order Categories of High Potential and Successful Leadership

Understanding the Organization

The high potential and successful leader needed to understand different elements of the organization. Specifically, participants referred to the importance of knowing and acknowledging the history of the institution and its governance structure in terms of how decisions are made and the various stakeholders that are involved (e.g., union, board of governors). This knowledge was said to facilitate the process of implementing plans. Extending beyond that, participants discussed the importance of knowing the plans of the institution and aligning their *planning* and *goal-setting* processes within the broader goals of the institution while considering their impact on other areas of the institution.

Accountability

High potential and successful leaders were described as those who adhered to rules or policies (e.g., performance management) as well as holding yourself and others accountable for behaviors and actions. In other words, it includes *modeling*, *walking-the-walk*, or *behaving consistently* with the behavior you would expect of others (e.g., ethical behavior). In addition, it is also centered on *providing others with clarity* around their role and what they are accountable for in the organization.

Information Acquisition

High potential and successful leaders are those who *gather information* from a variety of internal sources and then use it for *analyzing information* (e.g., budgets, trends, data) to inform their decisions.

Understanding the Environment.

High potential and successful leaders have an external focus beyond the walls of the organization. Specifically, they were described as having an understanding of government's role in terms of determining what the focal institution is, and will be moving forward (i.e., setting its mandate and approving new programming), as well as how it is funded. In addition, participants discussed how changes in government can alter plans and how lobbying the government or *building relationships with key stakeholders* is necessary to acquire funds or approvals to get things done. Furthermore, leaders are attuned to what is occurring in the external environment (e.g., industry needs) and plan and pursue programming or developing opportunities (e.g., applied research) that are needed and/or contribute to the broader global economy. In short, leaders developing relationships with key external stakeholders and acquire information to continue to remain relevant and responsive. That is, successful and high potential leaders are able to *get things done* (i.e., execute, make things happen) and produce *outcomes and results*.

Strategic

A critical component that was often discussed pertained to leaders needing to have competence around strategy and strategic thinking and planning. Specifically, strategy was referred to broader organizational level planning and decision-making and how leaders need to integrate numerous elements or 'pieces of the puzzle' in their environment to move the organization forward. That is, strategy was often conceptualized as a process that supports the long-term planning or vision of the organization.

Vision, Foresight, and Seeing the Big Picture

Participant's described the need for leaders to have foresight to see what might be and then create and set a vision for the future that is clear, and well-articulated to direct the organization. This is supported by an ability to *identify opportunities, anticipate problems*, and

find solutions, as well as *adapting plans* or direction when the circumstances in the environment change. Nonetheless, there is an acknowledgement that these processes often have to be undertaken with *incomplete or ambiguous information* and thus, the need for adaptability.

Inspiring Others and Generating Buy-In and Ownership.

Another critical component of the visioning process was to use the collective to create the vision (i.e., where everyone was involved in the process). Following the visioning process, *passion* and communicating the future in such a way that *others can understand* and be *inspired* was suggested to facilitate *generating buy-in and ownership* of vision. As a result, organizational members would be motivated to work collectively to move the organization forward toward achieving its long-term objectives.

Leading Change, Taking Calculated Risk, and Doing Things Differently.

As a function of the context of changes to the educational system over the past 16 years, as well as endogenous factors (e.g. leadership change, operational changes), and the anticipated randomness of the external environment (e.g., government, economy, global context), leaders need to be able to *deal with, lead, and implement change*. Furthermore, relative to the way that post-secondary has been managed in the past (e.g., hierarchical, cautious, slow moving), there is a need for leaders to *consider risk* and then *take calculated risks* and *do things differently* (e.g., creative, innovative) based on the knowledge of the environment to avoid missing out on opportunities (e.g., technology, curriculum, programming).

Collaborating

Collaboration was centered on the notion that leaders will need to create a culture where members work together and work as a team to achieve organizational objectives (i.e., *working with others*). The behaviors that represented this concept were *consulting with others*, *listening to*

others, and then *using the information from others in decisions* as well as *sharing information*. In other words, collaboration was described as a team oriented approach where leaders within the organization are required to be a team player and build teams by bringing people together. Furthermore, this collaborative approach involved the need for leaders to *take a step back* and be a *participant in the process* and allowing others to take the lead.

Empowering and Delegating

These concepts were discussed in the context of *letting go* and allowing others to make decisions (i.e., *working through others*). That is, these concepts differed somewhat from collaboration insofar as the collaboration was focused on *doing things together*, whereas empowerment and delegation were centered on *working through others* by providing them the authority or autonomy to make decisions. In other words, leaders who are empowering or delegating may be providing directives or oversight rather than working with others as a participant in the decision making process.

Developing People

This organization was focused on the need for leaders to develop their subordinates through *mentorship* and *coaching*. This involved *supporting others* and *encouraging others* in their desire for skill development. Furthermore, leaders were described as having an *awareness of their follower's strengths and motivations* in order to provide them with relevant opportunities and tasks that were aligned with their interests and to achieve success in their jobs and careers. Developing people was prompted by the context of the aging demographics in the organization and the *lack of* succession planning and previous development opportunities offered to the focal institution's employees.

Building Relationships

This concept encompassed the idea of leaders needing to foster an environment where *followers trusted and supported them*. Other leadership behaviors that were described to support this type of environment was *caring for others* and *celebrating accomplishments* as well as providing a *safe environment* for development where mistakes could happen and they would be supported, irrespective of outcome.

Qualities Supporting a Collaborative Culture

Several qualities were noted to support fostering the desired collaborative culture. Specifically, leaders were expected to be *open to others ideas or perspectives*, *honest*, and *transparent* in their communications as well as displaying *integrity* in their decision making.

Taken together, the social construction of successful and high potential leadership focused on the capacity to provide a vision for the future and see the big picture from both short and long-term perspectives. This direction facilitates strategy development and planning wherein leaders scan the internal and external environments and gather information to inform these plans. Nonetheless, leaders need to have a willingness to adapt their plans when/if the environment shifts (e.g., government, economy). Furthermore, the creation and implementation of strategy and planning is to be accomplished as a collaborative effort engaging all employees in decision-making processes and supporting this endeavour with clear, transparent, and open communication. Lastly, leaders need to focus on developing others through mentoring and coaching and providing opportunities for development through empowering/delegating decisions to others and/or working with others as a participant to make these decision

Appendix B: E-Mail to Participants

Dear XXXX,

As you are probably aware, we are designing a new leadership training series to prepare our staff at [focal institution] for future senior leadership positions. To ensure that we develop a comprehensive set of course topics to build our leadership pipeline, in addition to interviewing senior executives from [focal institution] and senior executives from select other organizations, [name of executive leaders] would also like me to invite participation from the members of the senior leadership team.

We think that you have a valuable perspective on the key areas for development of future leaders, in particular those who may be developed for future executive positions. We are hoping that you might share your insights on the leadership competencies and behavioral indicators of high-potential leaders during a maximum 60-minute anonymous and confidential interview.

Depending on schedules, it will be either [name of external consultant] who is a partner at the [Name of consulting agency] (they are providing me with some assistance in developing the leadership program architecture), or I who will attend the interview. Thanks so much in advance and looking forward to it.

Best,

Name of Project Lead

Appendix C: Informed Consent Form – Senior Leaders

Name of Research, School, Department, Telephone, and Email:

Name of Project Lead, Position
 Department, Focal Institution
 Phone number
 E-mail

Name of External Consultant, Position
 Name of consulting agency
 Phone number
 E-mail address

*[Name of consultant] has been confidentially contracted by [focal institution] to assist with development of [focal institution]'s leadership programming.

Title of the Project: Executive Perspectives on Leadership Development

Sponsor: [Focal institution]

Purpose of the Study:

The purpose of this research is to identify topics and components that senior leaders believe should be included within a leadership development training series. As a senior leader, you have been identified as a leader whose perspective may help us to understand key areas for development of future leaders, in particular those who may be developed for future executive positions.

What will I be asked to do?

You will be asked to respond to 7 primary questions regarding your perspective about leadership and developing future leaders who may have high potential to take on more senior leadership roles in the future. The interview will take no more than an hour.

Your participation is voluntary and you have the right to withdraw from the study at any time. You may choose not to participate at all, only participate in part of the study, or may withdraw from the study at any time by emailing or telling the interviewer that you wish to do so. If you withdraw, you may choose whether the researcher can use your responses to that point or not.

What type of personal information will be collected?

No personal identifying information will be collected in this study, and all participants shall remain anonymous if they so choose.

There are several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:

I grant permission to be audio taped: Yes: ___ No: ___

I grant permission to have my company's name used: Yes: ___ No: ___

You may email me with a quote to ask permission to quote me: Yes: ___ No: ___

Are there Risks or Benefits if I participate?

In this study, you will be asked your opinions about skills and behaviours of promising future leaders. There are no incorrect responses, and as such there is limited risk to participating in the study.

The benefits to participating in this study are to assist staff at [focal institution] to develop a comprehensive Senior Leadership training series and a Leadership training series, and potentially to contribute to scholarly research on executive perspectives of leadership development.

What happens to the information I provide?

Participation is completely voluntary and confidential, and your anonymity will be preserved according to the preferences you indicated above. You are free to discontinue participation at any time during the study. No one except the researchers will be allowed to see or hear any of the answers to the interview tape. The tapes will be transcribed with no names associated with them, unless you specified otherwise above. Only group information will be summarized for any presentation or publication of results. The interview tapes will be kept in a locked cabinet only accessible by the researchers until they are transcribed, at which point they will be permanently erased and destroyed. The transcribed data will be digitally stored for three years, at which time, it will be permanently erased. The information you provide, and any other information gathered for the research project, will be protected and used in compliance with [Province]'s Freedom of Information and Protection of Privacy Act.

If you would like to receive a summary of the data from this study, please indicate your email address here: _____

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time without consequence. If you wish to withdraw from the study, your information will be removed from the results upon your request. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) _____

Participant's Signature _____ Date: _____

Researcher's Name: (please print) _____

Researcher's Signature: _____ Date: _____

Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

Name of Project Lead
Department
Phone number and e-mail address

If you have any concerns about the way you've been treated as a participant or about the ethics process, please contact the Research Ethics Board Chair, [Name of Contact], [Focal Institution] at [Phone Number]; email: [e-mail address]

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form

Appendix D: Excerpt from a Memo on Leadership Books

Leadership Books or Authors – Categories



On several occasions I noticed that participants were explicitly referencing leadership books. Therefore, I am curious to examine the following:

How prevalent was this trend?

Internal: 8 of 20 = 40%

External: 6 of 12 = 50%

What was the context of the question when these books were elicited? * Indicates external

HIGH POTENTIAL = 6/14 = 43%

001, 002, 003, 014, 025, 034*

SUCCESS = 3/14 = 21%

002, 019*, 034

THRIVE = 1/14 = 7%

005*

DEVELOPMENT = 11/14 = 79%

001, 002, 004, 005, 010*, 012, 014, 025*, 028, 031, 034*

QUALITIES = 3/14 = 21%

002, 014, 028

ASPIRING COMPETENCIES = 1/14 = 7%

011*

How many referenced books across questions in the interview?

Two questions:

001, 005, 028, 034

Three Questions:

014

Four Questions:

002,

How many people referenced multiple books?

Two books:

005, 034

Four + books:

002, 014

*****File 025 wrote a book on leadership – thus the entire interview refers to his book.*****

Interpretations:

Using leadership books (or books to describe leadership) across ALL interviews was fairly common $14/32 = 44\%$. A subset used them across multiple questions ($6/14 = 43\%$) and an even smaller proportion used multiple books within their interviews ($4/14 = 28\%$). In other words, some participants relied on leadership books when socially constructing leadership.

The books tended to be commonly used in the sections that asked participants to describe senior leaders in the context of leadership development.

The most commonly referenced book was the Leadership Challenge or Kouzes & Posner (6/14) and the following books were referenced by two participants: Creating Leaderful Organizations (4 C's of Leadership), Jim Collins (author of Good to Great), Strengths-Based Leadership, and Lencioni (Five Temptations of a CEO and Five Dysfunctions of Teams).

The next step is to examine HOW they were used... and then perhaps WHY they are used? (if the HOW and the WHY don't intersect)

Appendix E: Qualitative Data Analysis Documentation Form

Date: **November 3, 2014**

Research task: **Listening to executive and senior leader interviews**

Purpose of analysis task*: **To get a general sense of what these discussions entailed as well as to note any general ideas, or items that were particularly interesting or surprising. In other words, it is a pre-screening prior to analysis. I also wanted to assess whether the interviews need to be re-transcribed with added detail (i.e., interviewer dialogue). The analysis at this point is broad and exploratory and is related to the Main Idea/Broad Category document in the sense that every once in a while I will make a note of which leadership or talent theory is referenced in by the interviewee.**

Description of procedures: **See below**

SPECIFIC DATA SETS IN USE**	PROCEDURAL STEPS (number each one, explain what was done and exactly how it was done)	DECISION RULES followed during the analysis operations***	CONCLUSIONS DRAWN from these specific analysis operations; give substance in brief	RESEARCH COMMENTS, reflections, remarks on any of the preceding.
Discussion with Project Lead SL File 013 (I) SL File 014 (I) SL File 015 (I) (Internal = I) (External = E)	<ol style="list-style-type: none"> 1. Debriefed for Credibility purposes 2. Listen to interviews 3. Provide point form notes while listening 4. Reflect at the conclusion of the interview and summarize a few broad ideas 5. Based on the authors the interviewee's reference – I sought information regarding the authors and the books they publish 6. End of day summary 	<p>I am listening to the executive and senior leader interviews – and documenting general thoughts. There is no intention to begin analysis or coding.</p> <p>However, I am noting any broad ideas that the interviewee indicates are critical – or connections that I notice between interviews or personal surprising or unexpected comments that are made during the interviews.</p>	<p>The content of the Change Management Leadership training involved the following books:</p> <ul style="list-style-type: none"> • The Tipping Point • Change Your Questions, Change your Life • Creating Leaderful Organizations <p>SL File 013 mentioned the “Distributed Leadership” framework which seems to be a leadership theory that is focused on the educational context. I collected a variety of articles on this Leadership Theory.</p> <p><i>I think it will be important to generate a list of all of the books and theories that are referred to in these interviews.</i></p> <p>Are these interviews an opportunity to reflect on where the interviewee feels they are deficient? SL File 013 explicitly talks about where he is deficient – and what he would like to do better.</p> <p>I need to investigate the Discourse around different leadership styles and results orientation – as I feel as though there is a trend between linking different leadership styles to results (e.g., File 013 & 015).</p> <p>In doing research on Distributed Leadership I found an article - Harris (2008) – where the article corroborates my assessment of leadership books not having sufficient empirical enquiry.</p> <p>SL File 015 also mentioned how Inspirational is a term that is overused in leadership. Correspondingly, I thought about how Inspirational is tied to Transformational Leadership and the Leadership books (or Leadership Challenge) and how these words can become over used or catch phrases – and rather than be looked at as substantial elements – they are simply included because they are on trend – perhaps –</p> <p>Eleanor introduced the following books, frameworks</p> <ul style="list-style-type: none"> • Chair Academy – linked to Name • Kouzes & Posner • The Four Agreements • Theory U 	<p>Reflections, remarks on any of the preceding.</p>

			<ul style="list-style-type: none"> • <i>Restorative Leadership</i> • <i>Change Your Questions, Change Your Life</i> <p>There were expected and unexpected combinations of INCLUSIVE/EXCLUSIVE DISCOURSE with INNATE/DEVELOPABLE</p> <p>For instance, File 014 has a focus on an INCLUSIVE Leadership discourse with deliberate practice or TALENT LEADERSHIP AS DEVELOPABLE</p> <p>File 015 introduces an interesting combination of discourse in that she refers to Leadership Talent as INNATE – yet also as INCLUSIVE (everyone’s a leader).</p> <p><i>I found this notable as I would relate INNATE Discourse to EXCLUSIVE and DEVELOPABLE DISCOURSE to INCLUSIVE</i></p> <p><i>I also contemplated whether natural born leader (INNATE) is an attribution for successful leaders – following a Romance of Leadership discourse</i></p> <p>In addition, perhaps innate discourse is used for those very successful leaders – otherwise INNATE AND DEVELOPABLE discourses are used for the average leader – that is, does discourse change if we are talking about highly effective leaders versus leadership more broadly?</p> <p>On the flip side – from the psychological perspective – what is the association between genetics or natural abilities and leadership emergence or leadership attainment (e.g., cognitive complexity)</p> <p>-----</p> <p>I find that MLs and SLs that I have a hunch have lower cognitive complexity – make reference to themselves much more often – and their examples are maybe rooted in their examples vs. broader examples? – I don’t know but it is something to look into... (e.g., File 014 & File 015)</p> <p>I also need to examine the structure of the organization to see who the MLs reported to and the lesser SL’s in order to examine whether the talk permeates to lower levels. (File 014 references to File 002 – and ML’s references to similar things that these two individuals spoke of or were they involved in the training discussed below)?</p> <p>Is it possible to get the list of participants that were involved in the Change Management Training – from those that participated in the interviews?</p> <p>Lastly, File 015 had a multiple styles of leadership discourse – and I wonder whether this is common with also subscribing to the leadership as results orientation – that is multiple styles can achieve results – and if you can achieve results – you are a leader – look at the previous interviews to see if multiple styles of leadership is consistent with espousing a results orientation discourse</p> <p>-----</p> <p>I’m finding there are some inconsistencies on the order of when the questions were asked and how they were asked.</p> <p>Also, why did File 015 leave in 2012 – is it around that time that File 002 and File 004 left?</p>
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*Give context and a short rationale, say whether focus is exploratory or confirmatory; make the connection with earlier analyses

**Indicate what type of data is being used. May include: notes, summaries, documents, transcripts, etc.

*** Explicit list of actual rules used for ‘readying’ data (clustering, sorting, etc.) may also apply to drawing/confirming conclusions

Appendix F: Informed Consent Form – Mid-Level Leaders

Name of Research, School, Department, Telephone, and Email:

Name of Project Lead, Position

Department, Focal Institution

Phone number

E-mail

David Kraichy, PhD Cand.

Asper School of Business, University of Manitoba

Phone number

Title of the Project: Perspectives on Leadership Development**Sponsor:** [Focal institution]**Purpose of the Study:**

The purpose of this research is to identify topics and components that senior and mid-level leaders believe should be included within a leadership development training series. As a leader at [Focal institution], you have been identified as a leader whose perspective may help us to understand key areas for development of future leaders, in particular those who may be developed for future senior leader positions.

What will I be asked to do?

You will be asked to respond to 7 primary questions regarding your perspective about leadership and developing future leaders who may have high potential to take on more senior leadership roles in the future. The interview will take no more than an hour.

Your participation is voluntary and you have the right to withdraw from the study at any time. You may choose not to participate at all, only participate in part of the study, or may withdraw from the study at any time by emailing or telling the interviewer that you wish to do so. If you withdraw, you may choose whether the research can use your responses to that point or not.

What type of personal information will be collected?

No personal identifying information will be collected in this study, and all participants shall remain anonymous if they so choose.

There are several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:

I grant permission to be audio taped: Yes: ___ No: ___

I grant permission to have my company's name used: Yes: ___ No: ___

You may email me with a quote to ask permission to quote me: Yes: ___ No: ___

Are there Risks or Benefits if I participate?

In this study, you will be asked your opinions about skills and behaviours of promising future leaders. There are no incorrect responses, and as such there is limited risk to participating in the

study.

The benefits to participating in this study are to assist staff at [Focal institution] to develop and validate a comprehensive Senior Leadership training series and a Leadership training series, and potentially to contribute to scholarly research on senior leader perspectives of leadership development.

What happens to the information I provide?

Participation is completely voluntary and confidential, and your anonymity will be preserved according to the preferences you indicated above. You are free to discontinue participation at any time during the study. No one except the researchers will be allowed to see or hear any of the answers to the interview tape. The tapes will be transcribed with no names associated with them, unless you specified otherwise above. Only group information will be summarized for any presentation or publication of results. The interview files will be kept in a locked cabinet only accessible by the researchers until they are transcribed, at which point they will be permanently erased and destroyed. The transcribed data will be digitally stored for three years, at which time, it will be permanently erased. The information you provide, and any other information gathered for the research project, will be protected and used in compliance with [Province]'s Freedom of Information and Protection of Privacy Act.

If you would like to receive a summary of the data from this study, please indicate your email address here: _____

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time without consequence. If you wish to withdraw from the study, your information will be removed from the results upon your request. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) _____

Participant's Signature _____ Date: _____

Researcher's Name: (please print) _____

Researcher's Signature: _____ Date: _____

Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

*Name of Project Lead
Department
Phone number and e-mail address*

If you have any concerns about the way you've been treated as a participant or about the ethics process, please contact the Research Ethics Board Chair, [Name of Contact], [Focal Institution] at [Phone Number]; email: [e-mail address]

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.

Appendix G: Mid-Level Leader Interview Question Guide

1. From your perspective, what are the leadership capabilities and behaviors of more senior, high-potential leaders?
2. For leaders to advance to and be successful at the highest levels of the organization, what do they need to be able to do?
3. Think of the most successful (or talented) senior leaders that you know. What makes them so successful?
4. (a) What are the biggest challenges facing [Name of Province] organizations in the next 10 years? (b) What will the best leaders be able to do to thrive during this time?
5. What do senior leadership development programs need to offer?
6. [*Focal institution/Post-secondary education*] is a unique environment. What opportunities and challenges do these present for senior leaders? And what competencies are needed to tackle these successfully?
7. Considering other leadership programs you have come across, what are the best aspects? Worst aspects? *Follow-up prompts: delivery modes, activities, formats, locations.*

Additional Questions:

- Thinking of your most critical task, what is the time-span (from start to finish) to complete this task/to see results/the outcome?
- Do you have aspirations (are you motivated) to pursue senior leader positions in the future?

Appendix H: Review of Operationalizing Cognitive Complexity in Leadership Career Trajectory Studies

The lineage of most cognitive complexity measurements can be traced to Kelly's (1955) personal construct theory. Kelly's assessment aimed to evaluate the number of constructs people use to interpret their environments [i.e., Role Construct Repertory Test (REP Test)]. A participant would be given a list of roles (oral or written) of people in their environment (e.g., a supervisor you liked, a supervisor you did not get along with, a father, a mother) and would be asked to describe how these people are alike and different from one another. Over a series of trials, a participant would be given three roles and asked to describe how two of these people are similar but different from a third. Derived from this work, the notion was such that the greater use of distinct personal constructs was indicative of an individual who viewed their world in a more complex differentiated manner. This next section will review the different types of tests that have been used in predict career trajectory outcomes.

Role Construct Repertory Tests

Goodman (1968) used a version of Kelly's (1955) role construct repertory test wherein participants listed a number of people in their work environment and then over several trials, they were asked to describe how two of these people were similar and yet different from a third¹³. The resultant number of constructs that participants generated constituted the extent to which they were considered cognitively differentiated.

Goodman (1968) also used a version of Fiedler's (1967) least preferred co-worker measure. Participants identified their least and most preferred co-worker and rated each of these co-workers on 17 bipolar adjective items (e.g., friendly-unfriendly, cooperative-uncooperative)

¹³ The author did not provide information pertaining to the exact number of people participants were asked to elicit, or the number of comparison trials that were used to generate the constructs.

using an 8-point Likert scale. A difference score between least and most preferred co-worker on each bipolar adjective item was calculated and summed, and then multiplied by the number of different scale value pairs. For example, if participant A rated their most and least preferred co-worker a 5 and 1, respectively, on both the friendly-unfriendly and cooperative-uncooperative items, then this would be considered a pair; whereas, if participant B rated their most and least preferred co-worker a 5 and 1, respectively, on the friendly-unfriendly item, but a 5 and 2, respectively, on the cooperative-uncooperative item, then this would be counted as two pairs. In other words, in this condensed example, participant A would receive a complexity score of 8 [i.e., $(5-1 + 5-1) \times 1$], whereas participant B would receive a score of 14 [i.e., $(5-1 + 5-2) \times 2$] with higher scores being indicative of greater complexity.

Similarly, Schneier (1979), Wofford (1994), Goodwin and Ziegler (1998), and Green (2004) employed a modified version of the role construct repertory test (e.g., Bieri, Atkins, Briar, Leaman, Miller, & Tripodi's, 1966). Participants were given a 10 by 10 matrix wherein the columns corresponded to role types that are assumed to be important in one's environment (e.g., yourself, person you dislike, person you like, boss, mother, father) and the rows consisting of 10 bipolar adjectives that are commonly used to describe people (e.g., shy-outgoing, maladjusted-adjusted, indecisive-decisive, self-absorbed-interested in others). Participants rated each role type on each bipolar adjective item using a 6-point scale ranging from -3 to +3, totalling 100 ratings. Scores were computed by comparing ratings on each bipolar adjective item across role types for the entire matrix. A score of 1 was allocated for each comparison that was exactly the same. There were 45 possible comparisons per construct row (i.e., a maximum score of 450). Higher scores were indicative of lower cognitive differentiation. That is, individuals with higher scores

provided the same rating on the adjectives to describe different people in their environment (Bieri et al., 1966).

Role Category Questionnaire

Sypher and Zorn (1986) used a modified version of Crockett's (1965) role category questionnaire. Specifically, participants identified a liked and a disliked co-worker and given 5 minutes to describe each of these individuals with respect to their characteristics, habits, beliefs, ways of treating others, mannerisms, and attributes. The resultant number of distinct constructs that a participant used to describe these two coworkers was considered an indicator of cognitive differentiation (i.e., more constructs equated to greater complexity).

Self-Complexity

Consistent with these measurement traditions, Hannah et al. (2013) developed a multi-step assessment of leader self-complexity. The first step used a free response technique to probe participants to identify the key roles that they would need to perform in a leadership capacity (i.e., leadership roles). Next, a list of 33 attributes that were pertinent to the leadership context were given to participants. Participants then used a 3-point scale to assess how important (i.e., not important, important, very important) each attribute was to their self-concept for each of the previously self-identified leadership roles. In other words, for each leadership role that a participant generated, the importance of each of the 33 attributes were also rated. A leadership role by attribute matrix was created for each participant and an *h*-statistic was calculated. In this context, the *h*-statistic calculated the minimum number of attributes that were used to distinguish among roles (see Scott, 1969). In other words, a participant that perceived leadership to consist of a number of different roles that required different attributes would produce a higher cognitive differentiation score.

Paragraph Scoring

Another popular method for assessing complexity is analyzing the written or spoken materials of participants (Satish & Streufert, 1997). The content is elicited directly from participants (e.g., paragraph completion test, an interview) or indirectly through collecting archival materials (e.g., presidential addresses). The content that is generated is commonly scored by trained coders using a manual developed by complexity researchers (e.g., Baker-Brown et al., 1992; Schroder et al., 1967; Suedfeld et al., 1992). Paragraphs are assigned a score on a scale from 1 (undifferentiated or low differentiation/integration) to 7 (high integration) based on how the participant constructed their understanding or position on a given topic.

For example, using Schroder et al.'s (1967) manual, a score of 1 (low integration index) may be assigned when a participant uses a single fixed rule to construct their position, whereas a 7 (high integration index) may be assigned when a participant produces multiple perspectives which he or she compares and contrasts and uses simultaneously to form a comprehensive view of his/her environment. Similarly, Baker-Brown et al.'s (1992) manual describes a score of 1 as containing unidimensional perspectives when interpreting the environment (i.e., no sign of either differentiation or integration), whereas a score of 7 is assigned to a response that uses a systems level perspective about a concept which includes an explanation of the concept's organizing principles. This type of description is said to require a specific discussion outlining how different levels of a concept interact (in a dynamic manner) to support the broader perspective. Furthermore, although both manuals depict increasingly complex levels on their scales (i.e., from no differentiation to high integration), the Baker-Brown et al. (1992) manual explicitly identifies that scores of 2 to 3 are indicators of differentiation-only, whereas scores of 4 to 7 are indicators of differentiation plus/and increasing levels of integration.

Two of the studies in Table 1 employed these methods. Specifically, Green (2004) used Schroder et al.'s (1967) version of the paragraph completion test with the following two stems 'Parents...' and 'When a friend acts differently towards me...'. A participant's complexity score was the average of the two scored responses. Suedfeld et al. (1986) used archival analysis where they collected published letters written by their participants under study. A blind author randomly selected at least five paragraphs written by each participant, each paragraph was scored by trained coders, and then the average was calculated and used as the participant's indicator of complexity.

Interview Analysis

The dialogue that participants use and/or how they solve problems, in an interview setting, has also been used as an indicator of complexity. In these types of studies, participants are generally asked questions about their working environment and their answers are subsequently assessed by trained coders. The highest level of complexity, on a continuum, that a participant demonstrates is then used as to assign a complexity score.

For example, Goodman (1968) developed an interview and coding system to assess the extent to which participants had a differentiated understanding of their organization in terms of five regions. Participants were given a score of differentiated (1) or undifferentiated (0) on each organizational region, and the sum across the five regions was used as an indicator of complexity. These scores were determined by the researcher based on an analysis of the distribution provided in participant answers. For example, to be scored as differentiated (1) on the promotion region, a participant made comparisons among the promotion patterns in different departments, whereas low differentiators (0) were unaware of departmental promotion patterns.

Consistent with stratified systems theory, Stamp (1988) used a multi-step assessment which consisted of two problem-solving activities (i.e., symbol card sorting task and ‘approach to work’ exercise) as well as a semi-structured interview that included questions pertaining to work history and future work-related aspirations. To complete the symbol card sorting task, participants had to discover and implement a predetermined sorting rule. In particular, they were given a pack of 162 cards that varied on four factors (i.e., color, number, size, and shape), and of these cards, they had to correctly match ten cards consecutively to four display cards (three display cards have symbols and the fourth card is blank). There was no time limit or feedback provided, aside from the author advising the participant of a correct card placement.

In the ‘approach to work’ exercise, participants were prompted to discuss 54 phrase cards, arranged in nine sets of six, pertaining to how they accomplish their work. The author analyzed participants’ responses to determine the highest level of complexity that they used during the career path appreciation. The focus was not on the content per se, but rather on the complexity of mental processing that was used by participants. Based on the coders’ analysis, participants were assigned to a level of complexity that was derived from Jaques’ stratified systems theory (e.g., Jaques, 1989). For instance, individuals categorized to the lowest level of complexity were those who “see the world through a few focussed dimensions and engage directly with physical objects or serve one task at a time” (Stamp, 1988, p. 14). In contrast, individuals at higher levels of complexity were those who:

“...retain contact with what currently exists and detach to conceptualise something completely different – not a modification but a point of departure. Contrast and compare alternative operating systems and alternative modes of deploying or modifying them. Maintain a patterned structure within which hypotheses are tested.” (Stamp, 1988, p. 14)

Although Stamp (1988) shared the same theoretical framework as stratified systems theory, Jaques and Cason (1994) used an alternate interview-based protocol for obtaining an

indicator of complexity. Specifically, participants discussed two topics in a semi-structured interview format. The first topic was chosen by participants and they were instructed to select a topic that was of strong personal interest or concern. The second topic was chosen by the researchers and it pertained to the possibility of the legalization of drugs. To help keep the interviewee interested in the discussion, the interviewers were able to ask clarification questions and present alternative arguments. The interviews were tape recorded and transcribed. Three evaluators (two interviewers and a trained coder) reviewed the transcripts and categorized each participant to the highest level of complexity that he or she demonstrated during the interview. Evaluators identified one of the four levels of mental processing (i.e., declarative, cumulative, serial, parallel)¹⁴ at either second- or third-orders of information complexity. The following is an excerpt from Jaques and Cason (1994) providing an example of declarative processing at a second-order information complexity:

Interviewer: Which question do you want to start on? Legalization of drugs?

Subject A: Legalization of drugs. I would say no. There are too many out there in this country now. I think this is really going to be our downfall if they don't do something about it. (p. 132)

Jaques and Cason (1994) provide the following commentary for this response:

A number of discrete articulated reasons linked to the conclusion but not verbally connected to each other. "Too many" is a good reason or "it will be our downfall" is a good enough reason. (p. 132)

In other words, this participant demonstrates some differentiation, but not integration. In contrast, parallel processing at a second-order information complexity demonstrates a higher level of both differentiation and integration. This is depicted by individuals who use several main

¹⁴ See Jaques and Cason (1994) for a complete review of how levels of mental processing and orders of information complexity were identified.

points (or chain) to develop their position, inclusive of several reasons (or links) to support each main point. An example of a link-chain relationship is as follows¹⁵:

I believe that history (Look for a chained historical account) has shown that inordinately large amounts of money and resources can be plowed in forever to containing the proliferation of the use of those recreational substances (Link A) and it hardly ever works. (A linked to B) So that's an overall point of view. (End of Chain #1 regarding history.)¹⁶ (Jaques & Cason, 1994, p. 136)

Additionally, reasons (or links) in one main point (or chain) are used in other main points (or chains) and these connections have the capacity to build other main points to further explicate one's position. These connections will form an "if-and-only-if" type of position.

Brause et al. (2005) used this same scoring procedure, however, they used archival methods to collect their data. Specifically, the authors reviewed televised debates from 9 U.S. presidential elections and assessed the candidates' responses for the highest level of complexity of processing that they employed. Augurell and Lindberg (2011) also assessed the highest level of complexity of information for a subset of their sample by observing leaders during meetings and in interviews.

Self and Other-rated Complexity Measures

McGill (1994) used several self- and other-rated indicators of complexity. Specifically, they administered the 60-item Driver-Streifert Complexity Indicator (DSCI) questionnaire that measures comfort with complexity, differentiation, and openness. The authors also developed an 8-item self-assessment and 13-item superior-rated questionnaire that were designed to tap different dimensions of complexity. A sample item for the self-assessment was "when making decisions at the strategic level, do you usually try to focus on single or multiple goals", and a supervisor-rated item included "This person operates with very rigid mental models of the world

¹⁵ For more detailed examples, see Jaques and Cason's (1994) illustrative case material section.

¹⁶ The information within parentheses was provided by the authors.

around him” (McGill et al., 1994, p. 1472). In addition, they compiled statements from each executive over the course of the study, and they had external judges rate each executive in terms of their decision-making complexity. Similarly, Augurell and Lindberg (2011) used others’ perceptions of the highest level of job complexity that a participant could handle as a proxy for individual level complexity.

Physiological Indicators of Self-Complexity

Hannah et al. (2013) used the brain’s electrical activity (in a resting state) to derive numerical indicators of self-complexity. Electroencephalography (EEG) electrodes were used to analyze the average connectivity (i.e., EEG coherence in the alpha frequency) between different areas in the frontal lobes of the brain. The authors selected these regions based on previous associations with complex cognitive processes (e.g., executive and memory functions). Lower coherence or connectivity in the brain was considered to be indicative of an individual’s capacity to use a broader set of neural networks and processing information more efficiently, and thus higher levels of differentiation.

Simulations

Rather than evaluate the logic that participants use when describing their approach to a given issue and then interpreting a given response to assess complexity (e.g., Stamp, 1988; Jaques & Cason 1994), Driver and Streufert and colleagues have focused on participants’ actual decision making when solving a problem using simulations (paper-pencil and computer-based) to measure complexity. For example, McGill et al. (1994) used a paper-pencil version of Driver and Mock’s (1975) simulation where participants engaged in solving a multi-period interactive business problem. Participants’ complexity was assigned based on their decision-making style (i.e., decisive, flexible, hierarchic, integrative, integration/hierarchic).

Correspondingly, Streufert and Swezey (1986) and Streufert et al. (1988) designed an interactive computer-based quasi-experimental simulation that engages and tracks participants' decision-making in response to events (that are presented by the computer) over the length (i.e., time) of the simulation. Participants are provided with one of two scenarios. In one scenario, participants take on the role of a civil servant (i.e., disaster control coordinator) who must deal with a potential emergency, whereas the second scenario has participants take on the role of a politician in a developing country who must deal with a host of political, economic, and military issues. During the simulation, half of the events are fixed (i.e., they occur for all participants), whereas the other half are partially based on the participant's decisions (i.e., computer program has pre-determined events in response to specific decisions). The resultant decisions in response to events, over time, are plotted on a graph to create what the authors refer to as a time-event matrix. This matrix is then used to calculate indicators of complexity¹⁷.

To calculate cognitive differentiation, the computer simply counts the number of different types or categories of actions or decisions that a participant used over time. Several indicators representing the continuum of integration are also calculated. For instance, a general form of integration is calculated by summing all of the connections among decisions that a participant made during the simulation. A serial form of integration is calculated by summing the number of different sequences that are used across different action or decision categories. And a parallel form of integration is calculated by summing the number of connections between different sequences of decision categories across time. Taken together, the computer is programmed to examine the number of different types of decisions that a participant made (i.e., differentiation)

¹⁷ The computer is not programmed to examine whether actions were correct or incorrect, rather it is programmed to examine how participants structured their problem solving actions and decisions

and how these decisions are interconnected (i.e., integration) across the duration of the simulation¹⁸.

¹⁸ A detailed review of the design and measurement of the simulation can be found in Streufert and Swezey (1986).