Career Decision Self-Efficacy and Career Decision Distress: The Role of Occupational Engagement, Grit, and Future Work Self Salience Among Recent University Graduates

by

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ADAPTIVE CAREER DECISION-MAKING PROCESSES

Abstract

Adaptive career decision-making processes play a pivotal role in the ways that young adults explore and develop their careers and form career identities. The career development literature extols the benefits of active involvement in the management and monitoring of career decisions before and during the transition from school to work. Using a retrospective recall design, elements of the trilateral model of adaptive career decision making were explored with a sample of 300 recent university graduates. Participants were asked to report on their career decision-making processes during their transition to work. Those who were occupationally engaged were significantly more likely to have a clearer, salient view of their future work selves and exhibited greater confidence when making career decisions. Moreover, recent graduates' future work self salience significantly explained the positive association between occupational engagement and career decision-making self-efficacy. Finally, recent graduates who were occupationally engaged and displayed high levels of grit were significantly less likely to exhibit career decision distress than those low in both occupational engagement and grit. These findings shed light on the psychological and motivational mechanisms associated with adaptive career decision-making among individuals who have recently graduated from university.

Keywords: Occupational engagement; grit; future work self salience; career decision-making self-efficacy; career decision distress.

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Career Decision Self-Efficacy and Career Decision Distress: The Role of Occupational Engagement, Grit, and Future Work Self Salience Among Recent University Graduates

The word *career* comes from the word *vitae* in Latin, meaning “course of life” (*The Chicago Manual of Style*, 2017)—denoting a “life path” or “life journey” of continual vocational reinvention and adaptation. *Career* in this context can be understood as a journey of continual progression and growth within a desired vocation or various vocations over time. A career goes beyond what individuals “do as a job” and demarcates the steps or actions individuals undertake to grow and progress within a given vocational role, or set of vocational roles, over time (Krumboltz, Foley, & Cotter, 2013; Savickas, 1997, 2005). In this regard, the purpose of this “journey” or career process is to allow individuals to take an active role in the ways that they develop and realize their occupational or vocational pursuits (Krumboltz et al., 2013; Savickas, 2005). As individuals develop their careers, they make decisions and initiate actions that shape the vocational paths they pursue, which reciprocally shapes their vocational identities as well as circumstances in their environment (Lent & Brown, 2006). A career, therefore, refers to a complex and dynamic process of exploration, development, planning, and adaptation that individuals undertake to reinvent themselves in ways that facilitate progress and growth in a desired vocational role (or set of vocational roles) over their lifespan (Lent & Brown, 2006; Savickas, 1997, 2005; Savickas & Porfeli, 2012).

The need to develop one’s career becomes more pronounced upon graduating from university, as often, recent graduates are expected to make informed decisions about the ways they must go about developing their skills, competencies, abilities, and vocational identities to “fit” into a given career prospect (Blustein & Phillips, 1988;

Holland, 1997; King, 2004; Savickas, 1997, 2005; Savickas & Porfeli, 2012).

Contemporary career theories emphasize the importance of *adaptive* career decision-making processes in which individuals are expected to self-manage, self-direct, and self-monitor their careers (Blustein & Phillips, 1988; Bridgstock, 2009; King, 2004; Lent & Brown, 2006; Lent, Brown, & Hackett, 2000). In contrast to the traditional view of career decisions as monolithic, providing “one size fits all” solutions—contemporary approaches view career as a continual process of fine-tuning and readjustment of various decisions being made to facilitate the construction or realization of possible career prospects (Briscoe, Hall, & DeMuth, 2006; Hall, 1976; Savickas, 2005; Savickas & Porfeli, 2012). Making informed *and* adaptive career decisions is not only important, but crucial for young adults seeking to develop their careers and career identities (Brown & Strange, 1981; Savickas, 2005). As such, making informed and adaptive career decisions may help recent graduates to set a good foundation for the ways that they can go about developing their careers as well as managing their efforts to realize their desired career prospects (Savickas & Porfeli, 2012).

Deciding on possible career options, however, can be daunting, stressful, and distress-provoking for recent graduates (Creed & Blume, 2013). Young adults are often expected to seek out and explore career prospects with little or no support from outside sources (e.g., universities, colleges, organizations) (Betz, Klein, & Taylor, 1996; Creed, Patton, & Bartrum, 2002). This, in addition to limited career opportunities in the job market, could hinder the decisions they make regarding their career prospects, which in turn, can promulgate feelings of depression, helplessness, despair, self-blame, lack of purpose, stress, and lack of career commitment—negative psychosocial states related to

distress (Benton, Robertson, Tseng, Newton, & Benton, 2003; Creed, Hood, Praskova, & Makransky, 2016; Creed & Hughes, 2013). As such, young adults who remain undecided about their careers upon graduation are prone to heightened feelings of trepidation and apprehension and can remain in an internal psychological state of “inertia” concerning their career prospects for a prolonged period of time (Benton et al., 2003; Creed et al., 2016; Super & Knasel, 1981).

There is, however, evidence to suggest that individuals who immerse themselves in experiences and choices intended to enhance their understanding of their own interests and choices as well as the world of work—a set of behaviours known as occupational engagement (Krieshok, Black, & McKay, 2009)—may improve recent graduates’ career decision-making self-efficacy and lower feelings of career distress. Research on occupational engagement suggests that individuals who are occupationally engaged tend to experience a greater understanding of themselves in relation to possible career interests and pursue their career goals more actively (Kerr & McKay, 2007). Occupationally engaged individuals do this by being persistently engaged, evaluating their own views and progress in relation to their career aspirations on a regular basis, having the foresight of “what’s out there,” adapting to imminent changes despite fears, being mindful of their own strengths and limits in relation to their career prospects, and turning career challenges into opportunities (Krieshok et al., 2009).

It is reasonable to expect that recent graduates who are occupationally engaged (i.e., learning about career options and reflecting on their own skills in relation to those options) may have a clearer view of their “future work selves” (Strauss, Griffin, & Parker, 2012), which may, in turn, increase their confidence in making career decisions—

and decrease feelings of career distress—due to their ability to stick to their career goals. In other words, individuals who are deeply engaged in exploring and developing their own career paths, thoughtfully and experientially, will likely develop a clearer sense of who they hope to become in the future relative to those who are not as occupationally engaged (Strauss et al., 2012). Occupational engagement and a salient image of one's future work self may together affect one's confidence in making informed career decisions and help to reduce distress related to the career decision-making process.

Grit—a noncognitive trait characterized by the relentless pursuit of highly desirable goals over prolonged periods of time (Duckworth, Peterson, Matthews, & Kelly, 2007)—may also play a role in graduates' career decision-making confidence and feelings of career decision distress. Individuals with higher levels of grit demonstrate greater educational attainment, achievement, and performance—over and above the influence of intelligence alone (Duckworth et al., 2007). Grit also relates to increased persistence, deliberate practice, and performance within the academic context (Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011), as well as to greater work engagement within the organizational context (Suzuki, Tamesue, Asahi, & Ishikawa, 2015). In terms of the career context, emerging research indicates that individuals who are grittier also tend to make fewer career changes than those less gritty (Duckworth & Quinn, 2009) and are more confident in making career decisions (Vela, Sparrow, Whittenberg, & Rodriguez, 2018). Thus, it is possible that graduates who are occupationally engaged and are gritty are more likely to make career decisions with confidence and less likely to feel distressed about their decisions.

Very little research to date has empirically examined the role of occupational engagement on career decision-making outcomes (career decision-making confidence and career decision distress) and the variables that might potentially explain and influence these relations. According to the trilateral model of adaptive career decision-making (Krieshok et al., 2009), individuals make adaptive career decisions through intuitive and rational judgments, which are informed by occupational engagement (Krieshok et al., 2009). However, much of what is known about occupational engagement comes from counselling psychology and is based on practitioner observations and participants' subjective experiences (Krieshok et al., 2009). The empirical research on occupational engagement has been rather limited. In addition, very little is known about the possible psychological and motivational processes associated with adaptive decision-making that may influence individuals' career decision-making outcomes. Drawing on the trilateral model of adaptive decision-making, the current study examined the possible psychological and motivational processes associated with adaptive decision-making that may influence career decision-making confidence and career decision distress among university graduates—a group of individuals who may be prone to career stress, indecision, and hesitation (Creed & Hughes, 2013)—by looking at the role of occupational engagement on these career decision-making outcomes, as well as psychological mechanisms that may explain and influence these relations.

Statement of Purpose

The purpose of the current study was to examine the role of occupational engagement, grit, and future work self salience on recent university graduates' career decision confidence and career decision distress. Drawing from the trilateral model of

adaptive decision-making, the current study examined the influence of occupational engagement on graduates' career decision-making confidence and career decision distress and whether graduates' future work self salience potentially mediated the relations between occupational engagement and these career decision-making outcomes. The current study also examined the extent to which grit potentially moderated the relations between occupational engagement and career decision-making outcomes.

In this light, the current study investigated the following questions: (1) Does occupational engagement directly affect career decision confidence and career decision distress among recent university graduates? (2) Does future work self salience mediate the relations between occupational engagement and career decision confidence and career decision distress among recent university graduates? And finally, (3) does grit moderate the relations between occupational engagement and career decision confidence and career decision distress among recent university graduates?

By examining these questions, the current study hopes to expand scientific knowledge on adaptive career decision-making in general. The current study is likely to shed light on the possible effects of occupational engagement on graduates' career decision-making confidence and distress, as well the mediating effects of future work self salience and the moderating effects of grit—variables that to date, have not been looked at together within the context of career decision-making. Specifically, the mediation tests of future work self salience are likely to contribute to the empirical understanding of the mechanisms by which occupational engagement has an effect on career decision-making outcomes (confidence and distress), and moderation tests of grit are likely to contribute to the understanding of individual differences that might influence the relations between

occupational engagement and career decision-making outcomes. As such, the current study tested some of the propositions behind the trilateral model of adaptive career decision-making to extend our empirical understanding of the psychological mechanisms and individual differences associated with adaptive career decision-making.

Career Decision-Making Processes: Literature Review

There are numerous theoretical frameworks that focus on career development and how individuals go about exploring, planning, and developing their possible career pursuits. For instance, Holland's trait-factor theory (1973) proposes that individuals choose their careers or vocations based on how they fall in line with various personality dimensions (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional—RIASEC; Holland, 1973). As such, how individuals "fit" in a given career is determined by the extent to which their personality aligns with their career interests (Holland, 1973). In contrast, Super's life-stage theory (1992) takes more of a developmental approach, proposing that individuals' career development involves a lifelong process in which they assume different roles (life-space) at different stages (life-span) of their lives (Super, Savickas, & Super, 1996). Individuals embark on a lifelong career journey in which they develop the attitudes, interests, and needs associated with their self-concepts (Growth Stage: birth to 15 years of age), narrow their choices (Exploratory Stage: 15 to 24 years of age), explore their choices through experience (Establishment Stage: 25 to 44 years of age), sustain and make changes to their career situation (Maintenance Stage: 45 to 64 years of age), and manage their life after retiring from work (Decline Stage: 65 years of age and over; Super, 1992). As a result, self-concept develops through physical and mental maturation, observations of the world, identification with other working

individuals, and learned experiences over the lifespan (Super et al., 1996). As individuals gain experience, their self-concept changes and develops over time (Super, 1992).

More contemporary career theories focus on the person-environment-behaviour dynamics that facilitate career choice, decision-making, and development. According to social cognitive career theory (Lent et al., 2000), learning experiences shape individuals' beliefs in their ability to perform career-related tasks or actions (i.e., self-efficacy) as well as their beliefs in enacting behaviours that lead to outcomes they desire (i.e., outcome expectations) (Lent, 2011; Lent et al., 2000). Individuals' self-efficacy and outcome expectation beliefs subsequently shape their career-related interests, choices, and actions—and their eventual attainments (Lent et al., 2000). In turn, the actions and behaviours individuals undertake to obtain their career-related goals—as well as the circumstances under which they enact such behaviours—also shape their learning experiences (Lent et al., 2000). As such, individuals' agency over their career development and decision-making is continually shaped by the influence of personal attributes, environmental circumstances, and overt behaviour (Bandura, 1977, 1986, 2001; Lent, 2011; Lent et al., 2000).

Other social learning theories such as the planned happenstance theory (Mitchell, Levin & Krumboltz, 1999), shed light on how serendipitous circumstances or happenings can be seized by individuals and turned into opportunities that facilitate career development, choice, growth, and progress (Krumboltz, 1992, 2009). In this context, the skills, interests, choices, knowledge, and attitudes that individuals form regarding themselves and their possible career choices emanate from various chance or unplanned experiences that shape their vocational behaviour and decision-making (Krumboltz,

2009). Therefore, individuals who create career opportunities from unplanned events do not depend on deterministic forces or “fate.” Rather, they take it upon themselves to use such serendipitous events to their advantage in order to create and advance their career paths (Krumboltz, 1992; Mitchell et al., 1999). Both social cognitive career theory and planned happenstance theory highlight the agentic role of individuals in shaping their own careers and decisions—and how learned experiences shape their personal agency as well (Bandura, 1986, 2001; Krumboltz, 1992, 2009; Mitchell et al., 1999).

Career construction theory (Savickas, 1997) sheds light on the subjective career narratives individuals create to make meaningful vocational decisions and adapt to work roles (Savickas, 1997). According to this theory, individuals derive meaning from past (e.g., memories), present (e.g., experiences), and future (e.g., goals) states that transform them from being actors of their career journey to playing an active role in the “career narrative” they create (Savickas, 1997, 2005). These informational, experiential, and behavioural processes subsequently facilitate vocational decision-making, as individuals make use of self-knowledge, knowledge of the world, and career knowledge to adapt to imminent career changes over the career span (Savickas, 2005). In becoming adaptable, individuals plan for their futures accordingly (i.e., concern), take responsibility for their career decisions and actions (i.e., control), explore and consider possible career options (i.e., curiosity), and design their careers and life roles with assurance (i.e., confidence) (Savickas, 1997, 2019; Savickas & Porfeli, 2012). Because career adaptability involves informational (e.g., career knowledge), experiential (e.g., self-knowledge), and behavioural (e.g., adaptive behaviours) processes that facilitate decision-making, Krieshok and colleagues (2009) used the construct as a foundation to introduce the

central component of the trilateral model of adaptive career decision-making—occupational engagement—which also involves behaviours that facilitate self-knowledge and world-knowledge to make career decisions (Cox, Bjornsen, Krieshok, & Liu, 2016).

Trilateral Model of Adaptive Career Decision-Making

According to the trilateral model of adaptive career decision-making, career decision-making involves both intuitive and rational judgments (Krieshok et al., 2009). Good, adaptive career decisions are based on both thinking and feeling. Also central to the trilateral model of adaptive career decision making is the concept of occupational engagement. When people are truly and deeply engaged in exploring and developing their own career paths, thoughtfully and experientially, the ultimate decision is better—more adaptive (Krieshok et al., 2009). *Intuitive judgments* are rooted in affect-based cognitions (Krieshok et al., 2009). Intuitive judgments involve unconscious, implicit, and reflexive mechanisms to arrive at a given decision (Epstein, 1994; Krieshok et al., 2009; Lieberman, 2003). These judgments may include making decisions based on perceived person-organization fit (Edwards, 1996), personal values (Ashford & Black, 1996), preferences or interests (Feldman & Whitcomb, 2005), or perceived competence (Swanson & Tokar, 1991). *Rational judgments* are rooted in reason-based cognitions (Krieshok, 2001; Krieshok et al., 2009; Parsons, 1909). Such judgments involve conscious, explicit, and reflective mechanisms for arriving at a given decision (Chown, 1959; Epstein, 1994; Krieshok et al., 2009; Lieberman, 2003). Rational judgments may include making decisions based on ample career knowledge (Krieshok et al., 2009), perceived skills or abilities (Feldman & Whitcomb, 2005), and perceived career stability or mobility (Swanson & Tokar, 1991). Both intuitive and rational

judgments play a pivotal role in how individuals arrive at making their career or vocational decisions, as well as the ways they can go about developing a strong vocational identity (Krieshok et al., 2009).

The foundation and the third component of the model, occupational engagement, is the behavioural mechanism by which intuitive and rational judgments optimize adaptive career decision-making (Krieshok et al., 2009). Occupational engagement consists of two subcomponents: Enrichment and exploration. *Enrichment* refers to individuals' involvement in tasks that amplify knowledge of themselves, the world, and of themselves in relation to the world in order to make adaptive decisions (Cox, Krieshok, Bjornsen, & Zumbo, 2015; Krieshok et al., 2009). *Exploration*, on the other hand, refers to the use of gathered information to arrive at a given decision (Cox et al., 2015; Krieshok et al., 2009). Enrichment can be conceptualized as a *trait*, remaining relatively stable across the career span (Krieshok et al., 2009). In contrast, exploration can be understood as a *state* in which individuals explore their options until a decision is made (Cox et al., 2015; Krieshok et al., 2009). As a result, the decisional processes of enrichment and exploration expand individuals' knowledge of themselves, the world, and of themselves in relation to their world by allowing them to play an active role in the decisions they make concerning their vocational or career prospects, as well as the vocational identity they develop over the career span (Krieshok et al., 2009).

Early career researchers believed that career decisions should be rooted primarily in reason-based judgments (Parsons, 1909) that relate to individuals' knowledge of themselves and their knowledge of the world of work (Krieshok, 2001; Krieshok et al., 2009). Under this scope, career decisions that are made by individuals follow volitional

and conscious processes (Chown, 1959; Krieshok, 2001) consisting of methodical reasoning, deliberate vocational introspection, and pragmatic thinking—processes perceived as “untainted” by affective underpinnings (Phillips, 1997). Thus, to an extent, some researchers contend that career decision-making involves a conscious, reason-driven process involving little affective regard (Osipow, 1983).

There is some evidence to suggest that when making career decisions, doing so in rational terms (i.e., making decisions based on one’s perceived confidence in performing various skills) can help to narrow down individuals’ career choices, more so than intuitive terms (i.e., making decisions based on desires and interests). In an experimental study assessing the effects of career framing on young adults’ vocational choices, Feldman and Whitcomb (2005) found that individuals who framed their vocational choices in terms of abilities/skills (i.e., pragmatic-based career framing) narrowed their career choices more than those who framed their vocational choices in terms of interests (i.e., intuitive-based framing). They also found that those who employed inclusion decision-making approaches (i.e., made decisions based on careers they considered pursuing), narrowed their career options more than those who employed exclusion decision-making approaches (i.e., made decisions based on careers they did not consider pursuing) (Feldman & Whitcomb, 2005). Thus, it appears that to some extent, looking at career prospects in rational terms (i.e., “what one *can* do in a given career”)—as opposed to looking at career prospects in intuitive terms (i.e., “what one *wants* to do in a given career”)—can help individuals to narrow down their vocational choices (Feldman & Whitcomb, 2005). However, the “narrowing down” of career choices does not necessarily imply that the choices being made are better; rather, it just implies that

rational-based decision-making allows individuals to narrow down their career choices from many to a few.

Other researchers postulate that career decision-making involves a dynamic process of *both* rational thinking and experiential sense-making functioning simultaneously (Epstein, 1994). Rather than viewing the career decision-making process as stringent and pragmatic, researchers who employ a cognitive-experiential self-theory lens (Epstein, 1994) view the career decision-making process as an iterative process in which information is gathered and synthesized via experiential- and reason-driven pathways (Epstein, 1994). When individuals make sense of career-relevant information, they can organize and use such information in ways that facilitate informed decision-making and shape the quality of career decisions they make (Epstein, 1994; Holland, 1997; Kahneman, 2003).

In terms of the career decision-making process, individuals can employ an array of systematic and intuitive pathways to make informed decisions concerning their career pursuits (Greenhaus, Hawkins, & Brenner, 1983; Greenhaus & Sklarew, 1981; Soelberg, 1967), especially in the wake of uncertain career situations or conditions that may threaten their perceived confidence (Gati, 1986; Savickas, 2005; Savickas & Porfeli, 2012). Individuals can improve their career decision-making, career development, and job seeking by engaging in rational-intuitive processes that encompass introspection, self-reflection, and goal-setting (Soelberg, 1967; Super et al., 1996). When individuals introspect on their desired career prospects, plan accordingly, explore their career choices, and commit to realizing such choices, they further improve their career decision-making and make their career prospects attainable (Holland, 1997; Soelberg, 1967; Super

et al., 1996). This dynamic process of vocational introspection, self-reflection, and goal setting—which involves a combination of rational and intuitive decision-making pathways—can in turn facilitate how individuals synthesize career knowledge as well as how they go about planning and developing their careers (Gati & Tikotzki, 1989; Holland, 1997; Power & Aldag, 1985).

The trilateral model of adaptive career decision-making was used in this study to extend empirical research on adaptive career decision-making processes—given that research on this model has been rather limited. This model is likely to further empirical understanding on how occupational engagement—the behaviours individuals undertake to actively immerse in experiences and choices that facilitate understanding of their own strengths and interests and the world of work (Cox et al., 2016; Krieshok et al., 2009)—potentially affects career decision-making outcomes among recent university graduates. Empirical research on the trilateral model of adaptive career decision-making is also extended in this study by examining whether future work self salience mediates the relations between occupational engagement and career decision-making outcomes, and the extent to which grit potentially moderates these relations. Many career theories put more focus on the rational-based decisional processes facilitating vocational behaviour and decision-making than on intuitive-based decisional processes (Krieshok, 2001; Osipow, 1983; Phillips, 1997). In this regard, this study draws from the trilateral model of adaptive career decision-making to examine how exploration-based (i.e., rational-oriented) and enrichment-based (i.e., intuitive-oriented) behaviours—encapsulated within occupational engagement—affect adaptive career decision-making outcomes. Therefore, this study contends that the trilateral model of adaptive career decision-making is well-

suited for contemporary careers—which are less about making a single career decision and more about flexibility, adaptability, and being mindful of the kinds of careers or vocational arrangements that “fit.”

Career Decision-Making Self-Efficacy

When individuals learn the “know how” of using career knowledge to their advantage, they can develop the confidence for making career decisions and managing career tasks accordingly (Betz et al., 1996; Taylor & Betz, 1983). *Career decision-making self-efficacy*, a form of the self-efficacy construct (Bandura, 1977, 1986), refers to the belief individuals have in their ability to make career decisions (Taylor & Betz, 1983). According to social cognitive theory (Bandura, 1986), individuals’ self-efficacy expectations (i.e., their beliefs and confidence in their ability to effect actions and decisions) influence the efforts, decisions, and actions they undertake to complete a given task or obtain an objective (Creed, Patton, & Watson, 2002). Individuals’ sense of self-efficacy is funded by their enactive mastery, meaning that their self-efficacy largely stems from their experience in using career knowledge as well as experiential knowledge to their advantage (Bandura, 1986; Lent et al., 2000). Although career decision-making self-efficacy is a predictor of various positive outcomes that include career exploration (Blustein, 1989), career maturity (Luzzo, 1995), and career stability (Gianakos, 1999), little research has looked at the specific adaptive career decision-making processes that may contribute to the development of career decision-making self-efficacy. In this light, adaptive decision-making processes such as occupational engagement may influence graduates’ perceived confidence in making career decisions.

Individuals who are self-efficacious concerning their career decisions tend to gather, evaluate, and use career information in ways that facilitate informed career decision-making and reduce career indecision (Betz et al., 1996; Lent & Brown, 2013; Nauta, Kahn, Angell, & Cantarelli, 2002; Taylor & Betz, 1983). Individuals with high career decision-making self-efficacy tend to experience less career distress (Creed & Blume, 2013; Creed & Hood, 2014; Vignoli, 2015), a healthier sense of well-being (Creed, Muller, & Patton, 2003), and engage in more career exploration and planning tasks (Creed, Patton, & Prideaux, 2007).

Further, individuals with high career decision-making self-efficacy also tend to exhibit greater perceived control over their career exploration and planning efforts as well as experience reduced feelings of distress and anxiety associated with career indecision (Betz et al., 1996; Lent, 2011; Taylor & Betz, 1983; Vignoli, 2015; Weinstein, Healey, & Ender, 2002). This could be, in large part, because individuals resort to managing emotional reactions associated with career indecision (e.g., feelings of distress, anxiety, helplessness, disorientation, lack of purpose, etc.) in effective ways (Creed & Blume, 2013; Pouyaud, Vignoli, Dosnon, & Lallemand, 2012). In addition, individuals with high levels of career decision-making self-efficacy have a strong sense of adequacy for knowing how to use career knowledge to their advantage as well as for exploring and pursuing their career prospects (Bandura, 2006; Saks, 2006; Saks & Ashforth, 1999; Savickas, 2005; Yang & Gysbers, 2007). Thus, graduates who make career decisions with confidence also have greater perceived control over their career decision-making, career exploration, and planning efforts because they understand the “know how” of

using career knowledge to their advantage (Betz et al., 1996; Lent, 2011; Lent & Brown, 2013; Taylor & Betz, 1983).

Career Decision Distress

Within the scope of adaptive career decision-making, university graduates may experience increased career decision distress, especially when they are undecided about their career pursuits (Creed et al., 2016). *Career decision distress*, a specific form of distress, refers to feelings of discomfort associated with individuals' career indecision (Creed et al., 2016). Individuals who remain undecided about their career prospects, especially during specific transitions (e.g., during the university-to-work transition), tend to experience increased feelings of distress—in part because being undecided about what career or job prospects they wish to pursue may induce psychological and emotional discomfort (Blustein, Ellis, & Devenis, 1989; Creed et al., 2016; Fuqua, Newman, & Seaworth, 1988; Fuqua, Seaworth, & Newman, 1987). As individuals transition from late adolescence to early adulthood over their university trajectory—a developmental phase in which young adults look to develop and establish their career or vocational identity (Gottfredson, 1981; Larson, Toulouse, Ngumba, Fitzpatrick, & Heppner, 1994; Super, 1955)—they might feel “compelled” to explore, commit, and foreclose their career choices during this time, which in turn might lead to increased trepidation (Larson et al., 1994). A sense of career *indecision*, therefore, may hinder individuals' confidence for making career decisions (Taylor & Betz, 1983) by promulgating and accentuating feelings of trepidation, helplessness, misdirection, blame, depression, despair, distress, or hesitation about making career decisions (Creed et al., 2016), constructing possible career trajectories (Larson et al., 1994), or developing a career identity (Weinstein et al., 2002).

In psychological research, career distress is intricately related to career indecision (Blustein et al., 1989; Creed & Blume, 2013; Creed et al., 2016; Fuqua et al., 1987, 1988; Holland, 1997; Krumboltz, 1992, 2009; Savickas, 2005; Taylor & Betz, 1983), suggesting that a reciprocal linear relation exists between these variables. This appears to be so because career decision distress is often measured in relation to career indecision, not by itself (Creed & Blume, 2013; Fuqua et al., 1987). In this light, research shows that when levels of career decision confidence increase, levels of career distress tend to decrease (Creed & Blume, 2013; Taylor & Betz, 1983; Yang & Gysbers, 2007). Alternatively, when levels of career *indecision* increase, levels of career distress tend to increase as well (Fuqua et al., 1987, 1988; Kimes & Troth, 1974; Daniels, Clifton, Perry, Mandzuk, & Hall, 2006). Because much of the research looking at the relation between career indecision and career decision distress has been cross-sectional in nature—meaning that the relation between career decision or indecision and career distress has been measured and captured at a specific point in time (Field, 2013)—it cannot be determined with certainty as to whether career indecision influences career distress, or vice versa (Fuqua et al., 1987). Notwithstanding, the bulk of research on career decision distress indicates that it is intricately related to career indecision (Fuqua et al., 1987, 1988).

Career decision distress also relates to other variables associated with career indecision and career choice commitment (Blustein et al., 1989). A recent examination of the prevalence of psychological distress among university students worldwide over the last 30 years, indicated that distress had longstanding negative effects on university students' psychosocial wellness, health behaviours, and adjustment (Sharp & Theiler,

2018). In addition, it was also found that within the context of career transitions, the highest levels of reported distress among university students were related to poor academic and career goal clarity, as well as to poor academic and career goal execution (Sharp & Theiler, 2018; University of Leicester, 2002). Other research also shows that career distress is related to a lack of perceived control (Weinstein et al., 2002), inadequate career knowledge (Fuqua et al., 1987), as well as to poor career planning (Erikson, 1968), poor career exploration (Skorikov, 2007a), preparation (Skorikov, 2007b), high career compromise (i.e., giving up career goals to avoid threatening situations or dissatisfaction; Creed & Gagliardi, 2015; Creed & Hughes, 2013; Gottfredson, 1981), and to a lack of career choice commitment (Blustein et al., 1989). Thus, it seems as though levels of career distress are prevalent during situations in which individuals may lack the career knowledge, self-directedness, or the self-determination needed to realize their career prospects (Creed & Hughes, 2013).

When the career path upon graduating university looks uncertain or “grim,” individuals may feel less competent for making career decisions or exerting the psychological stamina needed to obtain and realize their career prospects (Brown & Strange, 1981). An internal state of uncertainty and indecision about their career prospects (Creed et al., 2002), a weaker vocational identity, and an inability to address career obstacles effectively may impede their chances for developing their careers (Larson et al., 1994), and consequently, increase sentiments of distress (Creed & Gagliardi, 2015). In addition, when individuals hold to high levels of pessimistic attitudes, they tend to experience low levels of career decision knowledge and school achievement, and high levels of career indecision and psychological distress (Creed et al.,

2002). Individuals who do not know what their career pursuits are, do not have a clear career direction to embark on after graduation, and hold to pessimistic attitudes (especially after graduating from university), are prone to heightened career indecision and distress (Creed et al., 2016; Kimes & Troth, 1974).

Alternatively, there is evidence to suggest that having a strong belief in effecting career decisions and holding optimistic views can attenuate career indecision. Creed, Patton, and Bartrum (2004) found that individuals who were more optimistic, less pessimistic, held favourable views of themselves (i.e., had high levels of self-esteem), and were aware of internal (i.e., foresaw intrapersonal threats to career mobility) and external (i.e., foresaw situational threats to career mobility; Swanson & Tokar, 1991) career hurdles, also made career decisions with more confidence as well as experienced less career indecision. They also found that career decision-making self-efficacy and optimism had the strongest effects on career indecision, respectively (Creed et al., 2002)—implying that individuals' career decision-making confidence is a key contributor for reducing levels of career indecision (Creed et al., 2004; Creed et al., 2007; Taylor & Betz, 1983).

Despite this, little research has looked at the variables that can potentially mitigate feelings of career decision distress—a variable intricately associated with career indecision (Creed & Blume, 2013; Creed et al., 2016; Taylor & Betz, 1983; Yang & Gysbers, 2007). The bulk of the research on career decision distress has focused on its relation to career indecision (Creed et al., 2016; Fuqua et al., 1987) and less so on the possible variables that have direct or indirect effects for lessening career decision distress. Though there is some research to suggest that high levels of optimism (Creed et

al., 2004) and career decision-making self-efficacy relate to lower levels of career indecision (Creed & Hood, 2014; Creed et al., 2004; Creed et al., 2007; Taylor & Betz, 1983), little research has looked at how individuals' occupational engagement (Cox et al., 2015; Krieshok et al., 2009) may affect career decision confidence and career distress—and how these effects might possibly be explained by graduates' future work self salience.

Within the context of the trilateral model of adaptive career decision-making (Krieshok et al., 2009), future work self salience can be seen as a mediator that might explain the relation between occupational engagement and adaptive career decision-making among recent graduates. As graduates take on and reflect upon new experiences and gather career information (i.e., they become occupationally engaged) to make adaptive career decisions (Cox et al., 2015; Krieshok et al., 2009), they may crystalize their future work selves (Strauss et al., 2012)—which in turn may improve adaptive career decision-making outcomes. Thus, future work self salience may serve as a mediator that explains the influence of occupational engagement on graduates' adaptive career decision-making.

Future Work Self Salience

Future work self salience refers to the mental representations individuals hold of their hoped for future selves in relation to their work or career (Markus & Nurius, 1986; Strauss et al., 2012). Future work self salience can be conceptualized as a form of prospection-specific (i.e., future-focused) possible self that influences individuals' current behaviour in ways that facilitate the attainment of an imagined future (Oyserman & James, 2011; Strauss et al., 2012; Taber & Blankemeyer, 2015). A part of the overall

self-system or self-concept (Strauss et al., 2012), future work selves incorporate mental representations or self-schemas that affect how individuals process information, self-regulate, and behave to realize their work or career pursuits (Hoyle & Sherrill, 2006; Markus & Wurf, 1987). In this context, future work self salience relates to goal-setting processes that improve performance and motivation (Latham & Locke, 2006). That is, similar to goal-setting processes in which individuals make conscious decisions to pursue and realize their desired goals (Latham & Locke, 2006), individuals with salient future work selves also make conscious decisions to commit to their goals and use what they know to pursue and realize their career prospects (Taber & Blankemeyer, 2015).

Future work self salience is part of the larger “self-system” or self-concept (Oyserman & James, 2011) but at the same time, it differs from it. Although part of the self-concept, which is concerned with individuals’ *overall* knowledge and evaluations concerning themselves in relation to their world in general (Campbell, 1990; Campbell et al., 1996; Oyserman & James, 2011), future work self salience differs from generalized self-concept in that the former is future-focused, specific to work, and beneficial for directing and regulating motivation (Strauss et al., 2012). On the other hand, the latter can incorporate other forms of selves (e.g., true self, ought self; Higgins, 1987; Higgins, Roney, Crowe, & Hymes, 1994) that are not necessarily future-focused and work-specific (Oyserman & James, 2011).

Future work self is reinforced by future-focused motivational mechanisms that involve self-discrepant processes, which enable individuals to regulate how they set career goals and create alternate pathways to attaining them (Bandura, 2001; Strauss et al., 2012). Functioning as “self-guides” (Orellana-Damacela, Tindale, & Suárez-

Balcázar, 2000), self-discrepancies allow individuals to evaluate the congruency or disparity between their current state (i.e., current self) and where they hope to be concerning their vocation in the future (i.e., ideal future work self; Bandura, 2001). When individuals compare their current self to their future work selves, they notice discrepancies they can use as a source for anticipating and regulating their efforts to realize their imagined future (Bandura, 2001). As such, these discrepancies or “gaps” regulate the degree to which individuals set viable career goals and direct their behaviour to realizing their imagined ideal future work self (Strauss et al., 2012).

Future work self is also influenced by individuals’ active identity construction (Dunkel, 2000)—a process that may be influenced by occupational engagement. When changes in career roles occur, individuals may initiate behaviours geared to explore and enrich their awareness of themselves, the world of work, and their place in the world to make vocational decisions—which in turn may influence how they construct their identity and efforts to attain their hoped-for future (Dunkel, 2000). When individuals continually “reinvent” themselves, their motivation to realize a desired future intensifies (Strauss et al., 2012). As such, individuals who take part in behaviours that facilitate the gathering of information and experience of the world at large to make meaningful and informed decisions (i.e., are occupationally engaged) (Cox et al., 2016) may subsequently engage in a continual “reinvention” of themselves to amass more experiential knowledge of themselves and the world to make their future career aspirations a reality (Cox et al., 2016). Occupational engagement, therefore, can permit individuals to have ample flexibility in shaping their future selves (Cross & Markus, 1991), which in turn can affect

the proactive actions they undertake to realize their desired future (Strauss et al., 2012) and the identity they construct over the career span (Dunkel, 2000).

Individuals' future work selves are also influenced by future-focused thinking (Suddendorf & Corballis, 2007). As a form of episodic prospection in which individuals foresee who they wish to become prior to experiencing it (Atance & O'Neill, 2001), individuals who have a clear future "snapshot" of who they hope to be in the future (i.e., are future focused) are more likely to make accurate predictions concerning what they must do to make their possible future possible (Strauss et al., 2012). In relation to career or vocation possibilities, individuals who visualize or foresee who they hope to become in the future tend to develop alternate pathways to making their prospective career aspirations possible (Taylor, Pham, Rivkin, & Armor, 1998). In other words, individuals with a more salient view of their future work selves are more likely to take forethoughtful risks, set difficult but attainable goals, alter their courses of action to realize their future endeavours, and have an amplified sense regarding their vocational or work aspirations, which in turn impact the actions they undertake to proactively shape their career (Strauss et al., 2012; Taber & Blankemeyer, 2015).

Future work self salience differs from the constructs of career commitment (i.e., individuals' attitudes concerning their vocation or career; Blau, 1985), and career aspirations (i.e., individuals' desire to realize their vocation or career pursuits; O'Brien, 1996). Specifically, future work self is not restricted to a particular career or vocation, whereas career commitment is (Blau, 1985). In addition, future work self is explicitly focused on the future selves individuals imagine concerning their career, whereas career commitment is focused on their *current* sense of commitment (Strauss et al., 2012).

Future work self also differs from career aspirations in that the former might involve images of macro transitions (e.g., transitioning from school to work) that regulate what individuals must do to adapt well to possible changes (Louis, 1980) as well as modulate how they go about planning their careers (Meara, Day, Chalk, & Phelps, 1995), whereas the latter is restricted to formal career progression geared to realizing possible career pursuits (Strauss et al., 2012).

Research to date indicates that future work self salience predicts career planning and proactive career behaviours (Strauss et al., 2012). In a series of studies conducted by Strauss and colleagues (2012) that investigated the distinctiveness of future work self salience from other similar constructs (i.e., career commitment, career aspirations, future orientation) and its possible influence on proactive career behaviours, it was found that future work self salience was indeed factorially distinct from career commitment, career aspirations, and future orientations, and that it had an initial effect on graduate students' proactive career behaviour as well as a lagged effect six months later (Strauss et al., 2012). In a similar fashion, Taber and Blankemeyer (2015) found that among a sample of 113 university students, future work self salience had a positive influence on career planning and proactive career behaviours—specifically, on proactive skill development and proactive career networking—with career confidence and career curiosity explaining these effects, respectively (Taber & Blankemeyer, 2015). In this light, the research on future work self salience indicates that the construct can improve individuals' career planning and proactive career behaviours—either directly or indirectly (i.e., through individuals' belief in their abilities to effect career tasks and their career inquisitiveness; Savickas, 2005; Savickas & Porfeli, 2012).

In this regard, the current study asserts that adaptive career decision-making processes can contribute to university graduates' career decision-making outcomes. Specifically, occupational engagement is likely to affect career decision-making outcomes through future work self salience. University graduates who are occupationally engaged are more likely to foresee their hoped for work selves with more clarity (i.e., have a clear idea of know who they hope to be in the future), which in turn is likely to increase their career decision-making self-efficacy (Bandura, 2001; Meara et al., 1995; Strauss et al., 2012; Taber & Blankemeyer, 2015; Taylor et al., 1996). Similarly, university graduates who are occupationally engaged are more likely to have a more salient future work self, which in turn is likely to decrease career decision distress. As individuals become occupationally engaged, they may see their future work selves with more clarity—and this may help them to manage emotional reactions or disturbances accordingly (Taber & Blankemeyer, 2015), especially when making decisions about their career prospects. In this light, occupational engagement may also protect against “negative” career decision-making outcomes such as career decision distress—with future work self salience mediating this relation.

Occupational Engagement

Occupational engagement refers to the behaviours individuals undertake to actively immerse themselves in the world of work and engage in a reflective process intended to help them evaluate the fit between a given career path and their strengths and interests (Krieshok et al., 2009). To be occupationally engaged suggests that individuals take the onus on themselves to explore their possible career prospects by weighing their options via conscious and unconscious judgments (Krieshok, 2001; Krieshok et al.,

2009), and by getting actively involved in the decision-making process (Krieshok et al., 2009; Cox et al., 2015). In so doing, individuals resort to making more substantive (e.g., informed yet flexible evaluations) rather than superficial (e.g., ambiguous and “face value” evaluations) decisions concerning their careers or vocations (Bargh & Barndollar, 1996; Krieshok, 2001).

In some ways, occupational engagement is similar to proactive career behaviour (i.e., the proactive actions individuals take to manage and advance their careers; Claes & Ruiz-Quintanilla, 1998; Seibert, Kraimer, & Crant, 2001; Strauss et al., 2012). Both occupational engagement and proactive career behaviour aim at facilitating individuals’ career development. However, both behavioural constructs differ in terms of the specificity of the career decisions or actions that are taken. Occupational engagement is concerned with “big picture” *and* “narrow picture” metacognitive processes (i.e., via the interplay of intuitive, rational, and occupational engagement decisional processes) that facilitate present *and* prospective decision-making (Cox et al., 2015; Krieshok et al., 2009). Alternatively, proactive career behaviour is concerned with exerting specific career behaviours (e.g., making career action plans, furthering one’s career skills and knowledge, consulting with others about their career prospects, and networking; Strauss et al., 2012) that facilitate present career outcomes (Brown, Cober, Kane, Levy, & Shalhopp, 2006; Seibert, Crant, & Kraimer, 1999; Strauss et al., 2012; Tolentino, Garcia, Lu, Restubog, Bordia, & Plewa, 2014).

Research on occupational engagement demonstrates that it relates to students’ dispositions, as well as to career and achievement variables. In a study looking at the associations between occupational engagement and the Big Five personality factors (i.e.,

openness to experience, conscientiousness, extraversion, agreeableness, neuroticism or emotional instability; Costa & McCrae, 1992) among gifted students, McKay, Kerr, Hansen, and Krieshok (2008) found that occupational engagement positively related to openness to experience, extraversion, and conscientiousness (McKay et al., 2008).

Evidence also indicated that high levels of occupational engagement were associated with high grade point average (GPA), enhanced personal development, and strong vocational identity among college students (Cox, 2008)—suggesting that occupational engagement relates to career success, well-being, and achievement outcomes (Gonyea, Kish, Kuh, Muthiah, & Thomas, 2003).

Within the context of working adults as well, occupational engagement appears to relate to demographic and personality variables associated with job satisfaction and performance outcomes. Scott (2006) devised an occupational engagement scale that measured individuals' job involvement (i.e., being focused and getting involved in one's current job) and job curiosity (i.e., keeping up to date with job-related information) within the context of work. The evidence showed that job involvement positively related to age, education, earnings, job satisfaction, extraversion, openness to experience, agreeableness, and conscientiousness (Noble, 2008)—demographic and personality variables related to job satisfaction and performance outcomes. Alternatively, job involvement negatively related to emotional instability (Noble, 2008)—implying that individuals who exhibit less emotional instability also tend to be more involved in their job. Job curiosity, on the other hand, negatively related to age, job satisfaction, and agreeableness, but positively related to openness to experience (Noble, 2008). Thus, it

appears as though occupational engagement is related to some demographic and personality variables associated with job satisfaction and performance.

There is also research to suggest that occupational engagement can be learned. Cox and colleagues (2006) examined how career interventions (i.e., three 50-minute career workshops) facilitated within a university orientation course would impact career development outcomes. They found that career interventions had a moderate effect on occupational engagement, vocational identity, and career decision-making self-efficacy (Cox et al., 2006). In another intervention aimed at promoting college attendance among at-risk high school students over a two-week period, Krieshok and Conrad (2005) found that levels of occupational engagement increased as a result of the intervention (Krieshok & Conrad, 2005). Similarly, Kerr and McKay (2007) found that gifted students who attended Counseling Laboratory for the Exploration of Optimal States (CLEOS) project interventions reported higher levels of occupational engagement than those among the wait-list control group (Kerr & McKay, 2007). Specifically, those who attended the CLEOS interventions reported greater attentiveness to their own personal needs, increased interest, a more refined understanding of themselves in relation to their possible career interests, and greater career goal task engagement (Kerr & McKay, 2007; McKay et al., 2008). In a nutshell, occupational engagement has shown to be an important career development outcome that yields an array of career benefits among students thus far (Cox et al., 2006; Kerr & MacKay, 2007; Krieshok & Conrad, 2005; McKay et al., 2008).

Occupational Engagement, Future Work Self Salience, and Career Decision-Making Outcomes

Given that occupational engagement predicts vocational identity, academic major satisfaction, vocational competence, and general education attainment among college students (Cox et al., 2015)—outcomes associated with career decision-making and development—it is possible that occupational engagement might relate to and predict graduates' future work self salience. As graduates get actively involved in making viable career decisions, they might also develop a stronger sense of who they hope to become in the future regarding their career or work (Cox et al., 2015; Strauss et al., 2012). Thus, it would be expected that graduates who engage their career prospects more actively are more likely to report higher levels of future work self salience.

Occupational engagement can also have a direct effect on career decision confidence as well because as graduates get actively involved in their career prospects (Krieschok et al., 2009)—especially after graduation—this is likely to affect the confidence they exhibit when making decisions about their possible career pursuits. Thus, it would be expected that graduates who are more occupationally engaged are also likely to report higher levels of career decision-making self-efficacy or confidence.

Similarly, occupational engagement can have a direct effect on graduates' career decision distress—as being actively engaged in the career development process (Cox et al., 2015; Krieschok et al., 2009) might reduce feelings of distress associated with career indecision (e.g., self-blame, lack of purpose, perceived pressure to select a career; Creed et al., 2016) as well as apprehensive tendencies (Noble, 2008). Given that occupational engagement encapsulates reflexive, reflective, and adaptive approaches that facilitate

career decision-making, career exploration, and career planning (Cox et al., 2015; Krieshok et al., 2009; Taylor & Betz, 1983), it is possible that occupational engagement can attenuate career decision distress by allowing graduates to engage in behaviours that foster informed decision-making. As university graduates engage in making adaptive and informed decisions about their possible career pursuits (Krieshok et al., 2009), doing so can alleviate sentiments associated with career distress (e.g., indecision, uncertainty, lack of purpose, lack of career compromise and commitment, etc.). Thus, it would be expected that graduates who are more occupationally engaged are also likely to report lower levels of career decision distress.

Hypothesis 1. Occupational engagement will positively relate to future work self salience and career decision-making self-efficacy, and negatively relate to career decision distress.

Mediating Effects of Future Work Self Salience on the Relations Between Occupational Engagement and Career Decision-Making Outcomes

It is further proposed that occupational engagement can have an indirect effect on graduates' career decision self-efficacy through future work salience. As graduates engage actively in their career prospects after graduation, they can develop a clearer "picture" of their future selves in relation to their career or vocational aspirations (Strauss et al., 2012), which in turn may increase their belief or confidence in making decisions concerning their prospective careers (Taber & Blankemeyer, 2015).

It is also possible that occupational engagement can indirectly affect graduates' career decision distress through future work self salience. As graduates actively engage in their career prospects, they can develop a clearer view of who they hope to be in the

future concerning a career prospect by regulating their efforts as well as their emotional reactions to attaining their career aspiration (Bandura, 2001; Strauss et al., 2012). This in turn can alleviate feelings of distress, apprehension, or uncertainty associated with the career decision-making process. In this light, it would be expected that the influence of occupational engagement on career distress is likely to be mediated through future work self salience.

Hypothesis 2. Future work self salience will mediate the relations between occupational engagement and career decision-making self-efficacy, as well as between occupational engagement and career decision distress.

Grit

Grit can also influence the relationship between graduates' occupational engagement and career decision confidence, as well as career decision distress. A noncognitive personal strength, *grit* refers to individuals' enduring perseverance and passion for achieving long-term goals (Duckworth & Quinn, 2009; Duckworth et al., 2007), characterized by perseverance of effort and consistency of interest (Duckworth & Quinn, 2009). *Perseverance of effort* is defined as individuals' tendency to exert, intensify, and sustain their effort in the face of difficult situations or events (Fite, Lindeman, Rogers, Voyles, & Durik, 2017). *Consistency of interest*, on the other hand, is defined as individuals' ability to remain arduously focused on a clear goal over prolonged periods of time (Datu, Yuen, & Chen, 2017; Duckworth & Quinn, 2009; Fite et al., 2017). Perseverance of effort positively relates to GPA, openness to experience (Duckworth & Quinn, 2009), and conscientiousness (Credé, Tynan, & Harms, 2017; Fite et al., 2017). Alternatively, consistency of interest positively relates to conscientiousness

(though to a lesser extent than perseverance of effort; Credé et al., 2017; Fite et al., 2017), self-control (Suzuki et al., 2015), and negatively relates to career changes (Duckworth & Quinn, 2009). Taken together, “effort” and “interest” subcomponents of grit amplify the psychological endurance, intensity, and tenacity individuals exert and sustain to pursue and obtain their long-term goals (Duckworth et al., 2007).

Grit is related to conscientiousness—one of the Big Five personality factors predicting performance and attainment outcomes across various work and life domains (Barrick & Mount, 1991; Costa & McCrae, 1992; Credé et al., 2017). Although both conscientiousness and grit relate to other self-regulatory characteristics that include self-reliance, self-directedness, industriousness and organization, and self-control (Duckworth et al., 2007), grit differs from conscientiousness in that it is concerned with exerting the psychological endurance and stamina needed to obtain goals over long periods of time, whereas conscientiousness is concerned with exerting the persistence needed to achieve proximal, short-term goals (Duckworth et al., 2007). Therefore, a key distinction between conscientiousness and grit therein lies in the length of time as well as in the prolonged effort and ambition it takes to pursue and obtain a strongly desired goal (Duckworth & Quinn, 2009; Duckworth et al., 2007).

The predictive effects of grit vary according to the task being performed or the situation being faced (Tedesqui & Young, 2018). Datu, Yuen, and Chen (2017) examined the psychometric validity of the Triadic Model of Grit Scale (TMGS) on a sample of 150 Filipino students—a scale measuring three subcomponents of grit (persistence of effort, consistency of interest, and adaptability to situations) with other social-cognitive constructs. They found that perseverance of effort and adaptability to

situations (and not consistency of interest) significantly related to greater levels of academic self-efficacy (i.e., individuals' beliefs in their ability to perform academic tasks), talent development self-efficacy (i.e., individuals' beliefs in their ability to develop their talent), and career exploration self-efficacy (i.e., individuals' beliefs in their ability to explore career options), even after accounting for the effects of age, gender, social desirability, and conscientiousness (Datu et al., 2017). Conversely, Duckworth and Quinn (2009) found that consistency of interest predicted education progression and career changes over and above the effects of the Big Five personality traits—implying that individuals who are grittier also tend to progress further in their education and make fewer lifetime career changes than those less gritty (Duckworth & Quinn, 2009). In this light, the evidence indicates that in some cases, grit may have stronger predictive effects than conscientiousness on task performance requiring sustained effort, adaptation to change, and refined focus over lengthy periods of time (Lee & Sohn, 2017; Tedeschi & Young, 2018), especially during the career transition process after graduation.

Grit can also impact perseverance during difficult situations. In a study looking at the experimental effects of grit on perseverance in difficulties, Lucas and colleagues (2015) found that grittier individuals were less willing than those less gritty to quit when doing a difficult task (even though they had the option to quit), and more willing to risk losing monetary gains to “stay the course.” Grittier individuals also had stronger positive emotions and expectations than those less gritty, which in turn positively affected (i.e., mediated) their persistence and effort when doing a difficult task (Lucas, Gratch, Cheng, & Marsella, 2015). These experimental findings indicate that although grit has a strong effect on persistence in difficulties, this effect depends on failure (Duckworth et al., 2007;

Lucas et al., 2015). More specifically, grittier individuals tend to persist more arduously than those less gritty *when* they are failing (Lucas et al., 2015). Gritty individuals do this by using their “fear of failing” as a motivational mechanism to modulate or direct their efforts and persistence when facing strenuous situations (Datu et al., 2017; Duckworth et al., 2007; Lucas et al., 2015). In the context of career exploration and development processes, individuals who are gritty are more likely than those less gritty to engage in deliberate behaviours that facilitate perseverance when career setbacks are imminent and exert the psychological stamina to “stay the course” when the going gets tough (Lucas et al., 2015).

Grit, Career Decision-Making Self-Efficacy, and Career Decision Distress

Psychological evidence of the relations between grit and career decision-making self-efficacy indicates that grit *can* positively influence this career decision-making variable. In a recent study that examined the relations between grit, curiosity, and career decision self-efficacy, Vela and colleagues (2018) found that high levels of grit and curiosity among Mexican college students related to higher levels of career decision self-efficacy—implying that students who pursue their career goals with effort and consistency and keep an open mindset when evaluating career options, also tend to demonstrate greater confidence in making career decisions (Vela et al., 2018). These findings also align with those of Datu and colleagues (2017), who found that perseverance of effort and adaptability to situations (two of three components of the triadic model of grit) predicted greater academic self-efficacy, career exploration self-efficacy, and talent development self-efficacy among Filipino university students (Datu et al., 2017). Perseverance of effort and adaptability to situations accounted for 15% of the

variance in academic self-efficacy, 14% of the variance in talent development self-efficacy, and 16% of the variance in career exploration self-efficacy, even after controlling for age, gender, year level of study, social desirability, and conscientiousness (Datu et al., 2017).

In addition, Lee and Sohn (2017) found that among 253 Korean students, high levels of grit related to greater career preparation behaviour and stronger major-career congruence, after controlling for the Big Five personality variables. This would imply that gritty individuals tend to enact behaviours that facilitate their career decision-making and progress (Lee & Sohn, 2017). They also tend to make viable links between what they are studying academically and their career prospects (Lee & Sohn, 2017). That is to say, gritty individuals tend to “scope in” on their career prospects and subsequently evaluate how their academic major fits into realizing such prospects as they get closer to graduation (Lee & Sohn, 2017).

Despite these emerging findings, much of the research on grit and careers has been conducted in samples from collectivist cultures (e.g., Mexican, Filipino, Korean samples). Although these relations have not yet been examined in samples from individualistic cultures (e.g., US, Canada, United Kingdom, Australia, New Zealand), similar findings could be expected because in general, and across cultures, university graduates tend to focus their efforts on developing their career path and identity upon graduating from university and thereafter. As such, just as with students in collectivist cultures, gritty university graduates in individualistic cultures are also likely to exhibit greater confidence in making career decisions (Vela et al., 2018), persist more arduously in the wake of difficulties (Datu et al., 2017), make fewer career changes (Duckworth &

Quinn, 2009), perform more career actions, and make stronger connections between what they have studied in university and their career prospects (Lee & Sohn, 2017).

Gritty graduates might form stronger links between what they have studied in university and how their area of study relates to their possible career pursuits upon graduation (Lee & Sohn, 2017). That is, graduates with high grit are more likely to persist in their efforts to realize their career goals after graduation more arduously, and as such, alter their courses of action accordingly when career setbacks occur—or when alternative courses of actions fail (Lucas et al., 2015). Moreover, gritty graduates may be more reluctant to quit in their pursuit of realizing their career prospects (Duckworth et al., 2011; Lucas et al., 2015), which in turn may bolster their career decision-making self-efficacy by permitting them to devise courses of action or alternatives that decrease their chances for failure in the wake of imminent setbacks or changes. In sum, graduates who exhibit grit may exhibit greater confidence in making career decisions and play a more active role in enacting tasks that facilitate the acquisition of such career goals (Vela et al., 2018).

It is also possible that grit can act as a protective factor for career decision distress as well. Gritty university graduates may draw upon their self-regulatory abilities to manage emotional disturbances over the course of the career goal acquisition process and find ways to alter their courses of action to alleviate feelings of distress (Fite et al., 2017; Kleiman, Adams, Kashdan, & Riskind, 2013). In addition, those with high grit are likely to have practical knowledge in terms of knowing where to go and what to do in the wake of imminent failure or uncertainty—thus allowing them to deal with emotional discomfort or distress accordingly. Their reluctance to give up on their career goals may

only intensify their efforts to realize such goals and “keep the course” despite imminent setbacks, changes, or failures (Lucas et al., 2015)—in large part because they may consider the acquisition of their career goals as essential for constructing their career and identity accordingly after graduating from university.

Moderating Effects of Grit on the Relations Between Occupational Engagement and Career Decision-Making Outcomes

In this light, this study postulates that graduates who are occupationally engaged are likely to make career decisions with more confidence, *especially* when they exhibit high grit. As graduates are occupationally engaged in their career prospects and persevere arduously in realizing their career goals, they are more likely to exhibit greater confidence in making career decisions. Thus, it would be expected that graduates who exhibit high levels of occupational engagement and high levels of grit are likely to report greater career decision-making self-efficacy. In other words, an interaction of higher levels of occupational engagement and grit is likely to predict higher levels of career decision-making self-efficacy.

In a similar fashion, graduates who are occupationally engaged are less likely to experience career decision distress especially when they exhibit high grit. Graduates who are occupationally engaged in their career efforts and persist in realizing their career goals might demonstrate less trepidation concerning their career decisions because they might have a better understanding of *what* career prospects they would like to consider and *how* they intend to realize them (Cox et al., 2015; Krieschok et al., 2009). Further, graduates who are engaged in their vocational prospects and persist even in the face of setbacks, may develop the self-regulatory abilities needed to alter courses of action when

needed or manage emotional disturbances accordingly over the career goal acquisition process (Fite et al., 2017; Kleiman et al., 2013). As such, they are more likely to keep trying until they realize their career goals (Lucas et al., 2015) and know where to go and what to do when career hurdles appear along the way (Datu et al., 2017; Vela et al., 2018). In other words, “engaged and gritty” graduates are more likely to exhibit perceived control and agency over the decisions and actions they undertake (Cox et al., 2015; Duckworth & Quinn, 2009; Vela et al., 2018). Therefore, it would be expected that graduates who exhibit high levels of occupational engagement and high levels of grit are likely to report lower career decision distress. Put another way, an interaction of higher levels of occupational engagement and grit is likely to predict lower levels of career decision distress.

Hypothesis 3. The relation between occupational engagement and career decision-making outcomes (self-efficacy and distress) will be moderated by grit. In other words, the predicted positive relation between occupational engagement and career decision-making self-efficacy will be stronger among those high in grit, and weaker among those low in grit. The predicted negative relation between occupational engagement and career decision distress will be stronger among those high in grit and weaker among those low in grit.

Conceptual Research Model

The hypothesized relations were tested using a moderated mediation model (Hayes, 2015; refer to Figures 1 and 2). A *direct effect moderated mediation model* examines the interaction effect of a focal predictor and a moderating variable on the outcome variable and examines the indirect effect of the predictor on the outcome

variable through a mediating variable (Hayes, 2015). In this study, the *focal predictor* was occupational engagement and the *outcomes* were career decision-making self-efficacy and career distress. The *mediator* was future work self salience and the *moderator* was grit. The *covariates*—which were controlled for—included age, GPA, conscientiousness, emotional instability, and openness to experience. This decision was made based on the possibility that maturation-based variables (e.g., age, GPA) might influence the effects of self-determinative strengths (e.g., grit) on performance and decisional outcomes (Duckworth et al., 2007). In addition, some of the Big Five personality factors relate to occupational engagement (Krieshok et al., 2009) and grit (Duckworth & Quinn, 2009) to varying degrees as well. Thus, the influence of age, GPA, and some personality variables were controlled for to partial out any “noise” that might affect the predictor-outcome relations.

Figure 1. Direct effect moderated mediation model predicting career decision-making self-efficacy.

Figure 2. Direct effect moderated mediation model predicting career decision distress.

Method

Type of Research Design

This study consisted of a *retrospective recall research design*. This form of research design facilitates the examination of relational links by permitting respondents to think back on their experiences in relation to particular variables being examined and subsequently allowing researchers to assess these possible relations thoroughly (Beckett, DaVanzo, Sastry, Panis, & Peterson, 2001). When answering the majority of the questions in the present survey, respondents were asked to first “think back to the graduating year of their undergraduate degree” and to respond from that perspective.

Participants

A sample of 300 participants was recruited through Amazon Mechanical Turk (MTurk) panels (Cheung, Burns, Sinclair, & Sliter, 2017), online services that partner with researchers and organizations to collect data from individuals who have previously agreed to be contacted for such studies (Cheung et al., 2017). Of these 300 participants, about 151 (50.3%) identified as male, 145 (48.3%) as female, two (0.7%) as gender-fluid, and two (0.7%) as “other.” The majority of participants were of Caucasian ethnicity (61.3%), followed by those of Asian (9.7%), Hispanic (9.3%), African-Canadian/African-American (7.7%), African (6.7%), Biracial and “Other” (2%), Multiracial (1%), and Indigenous (0.3%) ethnicity. Participants’ ages ranged from 18 to 62 years, with an average age of 31.31 years ($SD = 7.42$).

About one-third of participants had earned either a Bachelor of Science (BSc; 35%), or Bachelor of Arts (BA; 30%) degree. A small percentage had earned a Bachelor of Computer Science (10%). Participants also reported as having obtained their

undergraduate degree/diploma within 25 months to 36 months (18.3%), 49 months and 60 months (17%), 37 months to 48 months (16.3%), 13 months to 24 months (15.3%), 7 months to 12 months (15.3%), or 61 months or more (9%) of completing the online survey. About 31.3% of participants indicated that they had *not* been unemployed since graduating from university. Alternatively, about 23.7% indicated that since graduating from university, they were unemployed for less than three months; 15.3% were unemployed for a period of 4 to 6 months; and 15% for a period of 7 to 12 months.

Procedure

To determine eligibility for the study, participants were asked to indicate whether or not (1) they had obtained a bachelor's degree from a university in North America (Canada or the US), and whether or not (2) they had graduated within the last five years (from 2014 to present; see Appendix B). If they met these inclusion criteria, participants were asked to provide their informed consent (Appendix A), were directed to the online survey, and told how they would be compensated through MTurk for their participation. If they did not meet these criteria, participants were redirected to the debriefing page (see Appendix D) and were not compensated for the study.

The survey was described to participants as examining the adaptive decision-making processes that influence individuals' career decision-making confidence and career decision distress after graduating from university (see Appendix A). The survey was comprised of main measures, secondary measures, and demographic information. One attention check was included in the survey to assess participant attentiveness.

In the main measures section, participants were asked to think back to the graduating year of their undergraduate degree and to rate (a) their degree of active

engagement or involvement in their career prospects (occupational engagement), (b) how salient their hoped-for future work self was at that time (future work self salience), (c) their degree of confidence in making career decisions and performing career tasks (career decision-making self-efficacy), and (d) the extent to which they felt distressed about making a career decision (career decision distress).

In the secondary measures section, participants rated the degree of persistence they exert when pursuing a desired goal (grit). They also rated their dispositional tendencies in relation to some of the Big Five personality traits (conscientiousness, neuroticism or emotional instability, and openness to experience). Finally, participants were asked to provide their demographic information (e.g., gender, age, ethnicity, GPA). On average, the survey took about 15.6 minutes (*Mdn* = 12.9 minutes) to complete.

Measures

Occupational engagement. Occupational engagement was measured using the Occupational Engagement Scale—Students (OES-S; Krieschok, Black, & McKay 2009), which is comprised of 14 items (see Appendix C—Main Measures). Participants were asked to think back to the graduating year of their undergraduate degree and to rate how they identified with some statements associated with their career choices. Phrases were adapted to using past tense to align with the retrospective nature of this study. Higher scores indicated higher levels of occupational engagement. Items were measured on a 5-point Likert scale from 1 (*not at all like me*) to 5 (*very much like me*). Examples of items included “I talked about my career choices with family or friends” and “I had contact with people working in fields I found interesting.” This measure has shown good internal

consistency, with alpha at .85 (Cox, 2008). In this study, the scale yielded excellent internal consistency, with $\alpha = .90$.

Future work self salience. Future work self salience was measured using the 5-item Future Work Self Salience Scale (Strauss, Griffin, & Parker, 2012) (see Appendix C—Main Measures). Participants were asked to think back to the graduating year of their undergraduate degree, imagine their hoped-for future selves for the next few years, and rate their degree of mental clarity or salience concerning the future work self that they had imagined. Phrases were adapted to using past tense to align with the retrospective nature of this study. Higher scores indicated a clearer or more salient future work self. Items were measured on 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of items included “The mental picture of my future work self in my graduating year was very clear” and “I was very clear about who and what I wanted to become in my future work in my graduating year.” This measure has shown good to excellent internal consistency, with alphas ranging between .84 and .92 (Strauss et al., 2012). In this study, the scale yielded excellent internal consistency, with $\alpha = .93$.

Career decision-making self-efficacy. Career decision-making self-efficacy was measured using the 25-item Career Decision-Making Self-Efficacy Scale—Short Form (CDMSES-SF; Betz, Klein, & Taylor, 1996) (see Appendix C—Main Measures). Participants were asked to think back to the graduating year of their undergraduate degree and rate how confident they felt in doing various career tasks. Phrases were adapted to using past tense to align with the retrospective nature of this study. There were five items that measured each of the five subcomponents of career decision-making self-efficacy (occupational information, self-appraisal, goal selection, planning, and problem-solving).

Higher scores indicated higher levels of career decision-making self-efficacy. Items were measured on 5-point Likert scale from 1 (*no confidence at all*) to 5 (*complete confidence*). Sample items include “Find out the employment trends for an occupation over the next 10 years” (occupational information item) and “Persistently work at your career goal even when you got frustrated” (problem solving item). One item under occupational information, “Find information *in library* about occupations you were interested in,” was adapted to “Find information *online* about occupations you were interested in” so that it aligned with the conventional methods young adults currently use when searching for career information. Overall, this measure has shown excellent consistency, with alphas ranging between .93 to .94 (Creed, Patton, & Watson, 2002). Subscales have also shown acceptable internal consistencies, with alphas ranging between .70 and .74 for occupational information, .72 and .77 for self-appraisal, .73 and .74 for goal selection, .78 and .79 for planning, and .70 and .75 for problem-solving, respectively (Creed et al., 2002). In this study, the overall scale yielded excellent internal consistency, with $\alpha = .95$.

Career decision distress. Career decision distress was measured using the 9-item Career Distress Scale (Creed, Hood, Praskova, & Makransky, 2016) (see Appendix C—Main Measures). Participants were asked to think back to the graduating year of their undergraduate degree and rate their degree of felt career decision distress. Phrases were adapted to using past tense to align with the retrospective nature of this study. Higher scores indicated higher levels of career distress. Items were measured on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) and included, “I felt stress or pressure to select a satisfying career” and “I didn’t have the special talents to

follow my first career choice.” This measure has shown good internal consistency, with alpha at .87 (Creed et al., 2016). In this study, the scale yielded excellent internal consistency, with $\alpha = .92$.

Grit. Grit was measured by using the Short Grit Scale (Grit-S; Duckworth & Quinn, 2009), comprised of eight items (see Appendix C—Secondary Measures). Participants were asked to rate their degree of interest and effort in pursuing their goals. Four items measured the consistency of interest subcomponent of grit, and four items measured the perseverance of effort subcomponent. Higher scores indicate higher levels of grit. Items were measured on a 5-point Likert scale from 1 (*not like me at all*) to 5 (*very much like me*). Sample items include “I finish whatever I begin” (perseverance of effort) and “I often set a goal but later choose to pursue a different one” (consistency of interest – reverse coded). Overall, this measure has shown acceptable to good consistency, with alphas ranging between .73 and .83 (Duckworth & Quinn, 2009). Subscales have also shown somewhat acceptable to acceptable internal consistencies, with alphas ranging between .73 and .79 for consistency of interest and between .60 and .78 for perseverance of effort (Duckworth & Quinn, 2009). In this study, the overall scale yielded good internal consistency, with $\alpha = .80$.

Personality variables. Personality variables (conscientiousness, neuroticism/emotional instability, and openness to experience) were assessed using the 27-item adapted Big Five Inventory (BFI; John & Srivastava, 1999) (see Appendix C—Secondary Measures). Extraversion and agreeableness were omitted (thus shortening the original measure from 44 items to 27 items) because these two variables tend to have weak-to-modest associations with occupational engagement (Noble, 2008) and grit

(Duckworth & Quinn, 2009), and as such, were not likely to influence the predictor-outcome relations being examined. Items were measured on a 5-point Likert scale from 1 (*disagree strongly*) to 5 (*agree strongly*). In past research, subscales have shown good internal consistency, with alphas at .82 for conscientiousness, .84 for neuroticism (i.e., emotional instability), and .81 for openness to experience, respectively (John & Srivastava, 1999). In this study, the scales for conscientiousness, emotional instability, and openness to experience yielded good internal consistencies, with alphas of .85, .84, and .76, respectively.

Age. Age was measured, as reported by participants (see Appendix C—Demographic Information). Average age was 31.31 years ($SD = 7.42$), with a median of 30.

Grade point average. GPA was measured in the form of the standard letter grades (along with their respective percentages) that participants obtained upon graduating university (see Appendix C—Demographic Information). There were 12 possible categories, ranging from 1 to 12 (1 = A+ [90–100%], 2 = A [85–89%], 3 = A– [80–84%], 4 = B+ [77–79%], 5 = B [73–76%], 6 = B– [70–72%], 7 = C+ [67–69%], 8 = C [63–66%], 9 = C– [60–62%], 10 = D+ [57–59%], 11 = D [53–56%], 12 = D– 50–52%]). These categories were then recoded to reflect the standard GPA grading format (1 = D– 50–52%), 2 = D [53–56%], 3 = D+ [57–59%], 4 = C– [60–62%], 5 = C [63–66%], 6 = C+ [67–69%], 7 = B– [70–72%], 8 = B [73–76%], 9 = B+ [77–79%], 10 = A– [80–84%], 11 = A [85–89%], 12 = A+ [90–100%]). Average GPA was 10.03 ($SD = 1.88$), equivalent to an A– letter grade.

Results

Preliminary Analyses

Descriptive and regression statistics were conducted using the Statistical Package for the Social Sciences [SPSS], software version 25.0 (IBM Corp. Released 2017). Moderated mediation analyses were performed using PROCESS Macro (Preacher & Hayes, 2008).

Data cleaning. An initial 399 respondents met the inclusion criteria of having obtained a bachelor's degree from a university in North America (Canada or the US) within the last five years (from 2014 to present). Thirty-eight participants did not answer the attention check correctly, and 53 participants completed the survey in five minutes or less. These cases were excluded from the initial sample, yielding a sample size of 308 cases.

Extreme outliers and case diagnostics. Following Tabachnick and Fidell's (2007) suggestion, cut-off limits above and below ± 3.29 standard deviation units were used to detect extreme outliers for each variable. Six extreme outliers above 3.29 *SD* were found within the age variable and eight extreme outliers that exceeded 3.29 *SD* were found within the GPA variable.

Mahalanobis Distances assessed the extent to which the inclusion of extreme multivariate outliers affected the regression parameters when the hypothesized predictor (occupational engagement), moderator (grit), the interaction term (occupational engagement $\times$ grit), mediator (future work self salience), and covariates (age, GPA, conscientiousness, emotional instability, openness to experience) were included in the regression model. Prior to regression analyses, predictors (occupational engagement,

grit, occupational engagement x grit,¹ future work self salience, age, GPA, conscientiousness, emotional instability, openness to experience) were mean-centered to facilitate interpretability of results (Gordon, 2010). Based on a chi-square distribution at $p = .001$ and $df = 9$ (based on nine variables that were entered as predictors in the model—occupational engagement, grit, occupational engagement x grit, future work self salience, age, GPA, conscientiousness, emotional instability, openness to experience), a chi-square value of 27.88 was used as the cut-off criterion for excluding multivariate outliers. A series of regression analyses were conducted separately on career decision-making self-efficacy and career decision distress outcomes and were performed with and without the multivariate outliers to assess how they affected the model parameters. Eight cases were found to exceed the cut-off limit and were thus excluded from the dataset.² This yielded a final sample size of 300 cases, which was used to perform all subsequent analyses.

Given that the age covariate showed a rather large range (i.e., range between 18 and 62 years), multiple regression analyses were conducted with and without those aged 18 to 22 years to assess potential differences in regression estimates.³ Regression analyses conducted separately on career decision-making self-efficacy and career decision distress revealed little change in regression estimates when those aged 18 to 22

¹ Occupational engagement and grit were mean-centered before calculating the interaction term. The interaction term was calculated by multiplying the mean-centered predictor (occupational engagement) and moderator (grit) together.

² When regression analyses were performed without the eight multivariate outliers, the fit of the model improved.

³ It is possible that some participants may have obtained their undergraduate degree at a later stage in life, but less likely that those aged between 18 and 22 years had obtained their undergraduate degree within this age range. Thus, it was important to assess how regression estimates would change when those aged between 18 and 22 years were included or excluded from analyses. Regression analyses indicated very little change in regression estimates when these cases were excluded. Given this little difference, cases of those aged between 18 and 22 years were kept in subsequent analyses.

years were excluded from analyses. As such, it was decided to keep those aged between 18 and 22 years in subsequent analyses.

Missing data. One case in the age variable appeared to be missing completely at random (MCAR). This was the only missing case among the variables of interest (i.e., age, GPA, conscientiousness, emotional instability, openness to experience, occupational engagement, grit, future work self salience, career decision-making self-efficacy, career decision distress). Little's MCAR test assessed whether this case was missing completely at random. A non-significant chi-square value ($p > .05$) would indicate that the case was missing at random (Little, 1988). The test revealed a non-significant chi-square value of 250.72, $df = 267$, $p = .76$, indicating that the case in the age variable was missing completely at random.

Independence. Durbin-Watson tests (Durbin & Watson, 1951) examined whether residuals in the regression were independent. Values from the tests approximated 2, indicating evidence for independence (independence can be assumed when values of the tests approximate 2; Field, 2013).

Linearity. Linear relations between occupational engagement and grit on future work self salience, career decision-making self-efficacy, and career decision distress were assessed using *zpred vs. zresid* plots and scatterplots. Linearity between predictors and outcomes could be assumed if residuals were relatively scattered throughout the plots. *zpred vs. zresid* plots and scatterplots indicated that the standardized residuals within future work self salience, career decision-making self-efficacy, and career decision distress outcomes were distributed approximately normally (residuals were relatively scattered throughout the plots). Thus, linearity was assumed.

Normality and homoscedasticity. A series of multiple regression analyses tested the assumption of normality and homoscedasticity for career decision-making self-efficacy, career decision distress, and future work self salience. Prior to regression analyses, predictors (occupational engagement, grit, occupational engagement x grit, future work self salience, age, GPA, conscientiousness, emotional instability, openness to experience) were mean-centered to facilitate interpretation of results (Gordon, 2010). These variables were entered as predictors and career decision-making self-efficacy and career decision distress were treated as outcomes.⁴ To test normality and homoscedasticity within future work self salience, occupational engagement, grit, occupational engagement x grit, age, GPA, conscientiousness, emotional instability, and openness to experience were entered as predictors and future work self salience was treated as an outcome.⁵

Histograms for career decision-making self-efficacy and career decision distress demonstrated relatively symmetrical distributions, indicating that standardized residuals for these two outcomes were normally distributed. Similarly, histograms for future work self salience exhibited relatively symmetrical distributions, demonstrating that standardized residuals approximated a normal distribution. Given these patterns, it was concluded that the assumption of normality was met.

Probability-Probability (P-P) and Quantile-Quantile (Q-Q) plots from these analyses indicated a relatively normal distribution of residuals from predictors and covariates on the career decision-making self-efficacy and career decision distress

⁴ Regression analyses were performed separately on each of the two outcomes.

⁵ Predictors were mean-centered. The original future work self salience variable (non-centered variable) was entered as outcome in the multiple regression analysis.

outcomes (residuals within each outcome clustered along the regression line of best fit), indicating that residuals within the outcomes were relatively homoscedastic at different levels of the predictors and covariates. To test homoscedasticity within future work self salience, occupational engagement, grit, occupational engagement x grit, age, GPA, conscientiousness, emotional instability, openness to experience were entered as predictors and future work self salience as outcome. P-P and Q-Q plots for future work self salience indicated a slight deviation from normal (some of the residuals deviated slightly from the regression line of best fit, although most clustered along the line). Further, the residuals within future work self salience were found to be relatively normally distributed (as illustrated in histograms). Given these patterns, it was concluded that the assumption of homoscedasticity was met.

Multicollinearity. Tolerance and Variance Inflation Factor (VIF) statistics tested for the assumption of multicollinearity among the hypothesized predictors (occupational engagement, grit, occupational engagement x grit, future work self salience) and covariates (age, GPA, conscientiousness, emotional instability, openness to experience) of the model. To test this, multiple regression analyses were performed on career decision-making self-efficacy and career decision distress separately (hypothesized predictors and covariates were mean-centered). According to Field (2013), tolerance values below 0.2 and VIF values over 10 tend to indicate the presence of multicollinearity (i.e., predictors are highly related; Field, 2013). Tolerance and VIF among all predictors and covariates indicated values over 0.2 and under 10 respectively, indicating that multicollinearity was not violated.

Correlations and Descriptive Statistics

Means, standard deviations, ranges, and correlations⁶ of hypothesized predictors, outcomes, and covariates are depicted in Table 1. As expected, the hypothesized predictors in the model—occupational engagement (predictor), grit (moderator), and future work self salience (mediator)—were significantly and positively correlated with one another (i.e., r s were between .17 and .56). In addition, the hypothesized predictors (occupational engagement, grit, future work self salience) were each significantly and positively correlated with career decision-making self-efficacy to varying degrees (i.e., r s were between .25 and .68) and negatively correlated with career decision distress to varying degrees (i.e., r s were between $-.12$ and $-.63$). Finally, most of the covariates (age, GPA, conscientiousness, emotional instability, openness to experience) were significantly correlated with variables in the model (i.e., r s were between $-.63$ and .73). In sum, the pattern of bivariate correlations was generally in line with the hypothesized model.

⁶ According to Cohen (1992), correlations of .10, .30, and .50 indicate weak, moderate, and strong magnitudes, respectively.

Table 1

Means, standard deviations, and correlations of measured variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Occupational engagement	—									
2. Grit	.17**	—								
3. Future work self salience	.56***	.17**	—							
4. Career decision-making self-efficacy	.68***	.25***	.64***	—						
5. Career decision distress	-.12*	-.63***	-.21***	-.24***	—					
6. Age ^a	-.01	.08	.16**	.05	-.10	—				
7. GPA	.15*	.20**	.05	.12*	-.17**	-.06	—			
8. Conscientiousness	.12*	.73***	.12*	.21***	-.63***	.08	.25***	—		
9. Emotional instability	-.15**	-.57***	-.20***	-.24***	.67***	-.13*	-.12*	-.57***	—	
10. Openness to experience	.53***	.11*	.43***	.50***	-.03	.01	.08	.17**	-.21***	—
<i>M</i>	3.65	3.44	3.74	3.62	2.98	31.31	10.03	3.86	2.72	3.88
<i>SD</i>	0.65	0.68	1.05	0.66	0.98	7.42	1.88	0.75	0.85	0.70
Range	1–5	1–5	1–5	1–5	1–5	18–62	1–12	1–5	1–5	1–5

Note. $N = 300$. ^a $n = 299$.*. $p < .05$, two-tailed. **. $p < .01$, two-tailed. ***. $p < .001$, two-tailed.

Analytic Strategy

Moderated mediation models were tested by using “Model 5” of PROCESS Macro (Preacher & Hayes, 2008). According to Hayes (2015), evidence for mediation can be established if the indirect effect of the predictor (occupational engagement) on each outcome (career decision-making self-efficacy and career distress) through the mediator (future work self salience) differs from zero. Specifically, if 95% Ordinary Least Squares (OLS) confidence intervals (based on 10,000 bootstrap samples) do not cross over zero, evidence for mediation can be established (Hayes, 2015). To generate bootstrapped samples of model estimates, the bootstrapped process is repeated 10,000 times to determine the upper and lower confidence interval limits at 95% (i.e., setting upper and lower limits at the 2.5th and 97.5th percentiles of the distribution, respectively). As such, confidence intervals that did *not* cross over zero indicated evidence for the indirect effect of occupational engagement on career decision-making self-efficacy and career decision distress through future work self salience.

Mediation effects were qualified by assessing the direct effect of occupational engagement on career decision-making self-efficacy and career decision distress, denoted by path c_1' (Hayes, 2015). The direct effect of grit on career decision-making outcomes is denoted by path c_2' (Hayes, 2015). In addition, the effect of occupational engagement on future work self salience (denoted by path a_1) and the effect of future work self salience on career decision-making self-efficacy and career decision distress (denoted by path b_1) were used to assess the indirect effect (Hayes, 2015; Preacher & Hayes, 2008).

To examine moderation effects on the two outcomes, the predictor (occupational engagement) and moderator (grit) were mean centered (i.e., their respective means

became zero). Following this, moderation effects were analyzed at low (1 *SD* below zero or the mean) and high (1 *SD* above zero or the mean) levels of occupational engagement and grit. As such, the interaction effect of occupational engagement and grit on career decision-making self-efficacy and career decision distress were analyzed at low and high levels of the predictor and moderator. A statistically significant ($ps < .05$) interaction term (occupational engagement $\times$ grit) is evidence for the moderation effect (Hayes, 2015). The effect of the occupational engagement $\times$ grit interaction term on career decision-making self-efficacy and career decision distress is denoted by path c_3' .

Influence of Occupational Engagement on Future Work Self Salience and Career Decision-Making Outcomes

Hypothesis 1. Occupational engagement will positively relate to future work self salience and career decision-making self-efficacy, and negatively relate to career decision distress.

Two direct effect moderated mediation analyses⁷ assessed the relations between occupational engagement, future work self salience, and each outcome (see paths a_1 and c_1' in Figures 3 and 4). Covariates (age, GPA, conscientiousness, emotional instability, openness to experience) were entered in these analyses to control for their possible influence on the tested model.⁸ Regression coefficients (i.e., unstandardized B coefficients) assessed the degree to which occupational engagement related to the mediator (future work self salience) and the outcomes of interest (career decision-making

⁷ The two moderated mediation analyses performed were based on $N = 299$. This was due to listwise deletion of one case with missing data.

⁸ Path coefficients of covariates are denoted by subscripts a_2 to a_6 (for path a) and b_2 to b_6 (for path b) in Tables 2 and 3.

self-efficacy, career decision distress). As shown in Tables 2 and 3, the statistical significance of individual regression coefficients was assessed using *t*-tests (Field, 2013).

Table 2

Mediation assessing the indirect effect of occupational engagement on career decision-making self-efficacy

		Future Work Self Salience (<i>M</i>)				Career Decision-Making Self-Efficacy (<i>Y</i>)		
		<i>B</i> (<i>SE</i>)	<i>t</i>	95% CI		<i>B</i> (<i>SE</i>)	<i>t</i>	95% CI
Occupational Engagement (<i>X</i>)	$a_1 \rightarrow$	.73 (.09)***	8.25	0.56, 0.91	$c_1' \rightarrow$	.41 (.05)***	8.07	0.31, 0.51
Grit (<i>W</i>)					$c_2' \rightarrow$	.08 (.06)	1.40	−0.03, 0.19
Occupational Engagement x Grit (<i>X</i> x <i>W</i>)					$c_3' \rightarrow$	.06 (.06)	1.10	−0.05, 0.17
Future Work Self Salience (<i>M</i>)					$b_1 \rightarrow$	.22 (.03)***	7.31	0.16, 0.28
Age (<i>U</i> ₁)	$a_2 \rightarrow$	.02 (.01)**	2.95	0.01, 0.03	$b_2 \rightarrow$	−.001 (.004)	−0.36	−0.01, 0.01
GPA (<i>U</i> ₂)	$a_3 \rightarrow$	−.02 (.03)	−0.70	−0.07, 0.03	$b_3 \rightarrow$	.004 (.01)	0.24	−0.02, 0.03
Conscientiousness (<i>U</i> ₃)	$a_4 \rightarrow$	−.03 (.08)	−0.39	−0.19, 0.13	$b_4 \rightarrow$	.02 (.05)	0.40	−0.08, 0.12
Emotional Instability (<i>U</i> ₄)	$a_5 \rightarrow$	−.12 (.07)	−1.65	−0.26, 0.02	$b_5 \rightarrow$	.01 (.04)	−0.25	−0.09, 0.07
Openness to Experience (<i>U</i> ₅)	$a_6 \rightarrow$	.26 (.08)**	3.15	0.10, 0.42	$b_6 \rightarrow$	.11 (.04)*	2.50	0.02, 0.19
Constant	$i_M \rightarrow$	2.49 (.61)***	4.07	1.29, 3.70	$i_Y \rightarrow$	2.36 (.05)***	7.05	1.70, 3.02
			$R^2 = .36$				$R^2 = .59$	
			$F(6, 292) = 27.91, p < .001$				$F(9, 289) = 45.89, p < .001$	

Table 3

Mediation assessing the indirect effect of occupational engagement on career decision distress

		Future Work Self Salience (<i>M</i>)				Career Decision Distress (<i>Y</i>)		
		<i>B</i> (<i>SE</i>)	<i>t</i>	95% CI		<i>B</i> (<i>SE</i>)	<i>t</i>	95% CI
Occupational Engagement (<i>X</i>)	<i>a</i> ₁ →	.73 (.09)***	8.25	0.56, 0.91	<i>c</i> ₁ ' →	-.01 (.07)	-0.17	-0.16, 0.13
Grit (<i>W</i>)					<i>c</i> ₂ ' →	-.25 (.08)**	-3.04	-0.41, -0.09
Occupational Engagement x Grit (<i>X</i> x <i>W</i>)					<i>c</i> ₃ ' →	-.35 (.08)***	-4.23	-0.51, -0.19
Future Work Self Salience (<i>M</i>)					<i>b</i> ₁ →	-.14 (.04)**	-3.13	-0.22, -0.05
Age (<i>U</i> ₁)	<i>a</i> ₂ →	.02 (.01)**	2.95	0.01, 0.03	<i>b</i> ₂ →	-.001 (.005)	-0.20	-0.01, 0.01
GPA (<i>U</i> ₂)	<i>a</i> ₃ →	-.02 (.03)	-0.70	-0.07, 0.03	<i>b</i> ₃ →	-.001 (.02)	-0.05	-0.04, 0.04
Conscientiousness (<i>U</i> ₃)	<i>a</i> ₄ →	-.03 (.08)	-0.39	-0.19, 0.13	<i>b</i> ₄ →	-.35 (.08)***	-4.68	-0.50, -0.20
Emotional Instability (<i>U</i> ₄)	<i>a</i> ₅ →	-.12 (.07)	-1.65	-0.26, 0.02	<i>b</i> ₅ →	.44 (.06)***	7.84	0.33, 0.55
Openness to Experience (<i>U</i> ₅)	<i>a</i> ₆ →	.26 (.08)**	3.15	0.10, 0.42	<i>b</i> ₆ →	.28 (.06)***	4.37	0.15, 0.40
Constant	<i>i</i> _{<i>M</i>} →	2.49 (.61)***	4.07	1.29, 3.70	<i>i</i> _{<i>Y</i>} →	2.63 (.48)***	5.43	1.68, 3.58
				<i>R</i> ² = .36				
				<i>F</i> (6, 292) = 27.91, <i>p</i> < .001				

In line with hypothesis 1 and shown in Figure 3, those with high levels of occupational engagement also tended to have a more salient future work self, $B = .73$, $t(292) = 8.25$, $p < .001$, and higher levels of career decision-making self-efficacy, $B = .41$, $t(289) = 8.07$, $p < .001$. Contrary to hypothesis 1, occupational engagement did not significantly relate to career decision distress, $B = -.01$, $t(289) = -0.17$, $p = .87$. As such, these findings imply that after controlling for covariates, recent university graduates who are occupationally engaged tend to have a more salient view of their future work selves and exhibit a greater sense of confidence when making career decisions than those who are not occupationally engaged. As shown in Figure 4, distress about career decisions was not influenced by occupational engagement. Hypothesis 1 was partially supported.

Unexpectedly, grit was not significantly related to career decision-making self-efficacy, $B = .08$, $t(289) = 1.40$, $p = .16$ (see path c_2' in Figure 3), but was negatively associated with career decision distress, $B = -.25$, $t(289) = -3.04$, $p = .003$ (see path c_2' in Figure 4). In other words, while grit did not seem to influence graduates' feelings of self-efficacy about career decision-making, gritty graduates were less likely to be distressed about career decisions than those lower on the grit scale.

Figure 3. Direct effect moderated mediation model predicting career decision-making self-efficacy. Unstandardized beta coefficients (with standard errors in parentheses) are provided for each path. Statistically significant coefficients are indicated with asterisks (*).

*, $p < .05$. **, $p < .01$. ***, $p < .001$.

Figure 4. Direct effect moderated mediation model predicting career decision distress.

Unstandardized beta coefficients (with standard errors in parentheses) are provided for each path. Statistically significant coefficients are indicated with asterisks (*).

*, $p < .05$. **, $p < .01$. ***, $p < .001$.

Mediating Effects of Future Work Self Salience on the Relations Between Occupational Engagement and Career Decision-Making Outcomes

Hypothesis 2. Future work self salience will mediate the relation between occupational engagement and career decision-making self-efficacy, as well as between occupational engagement and career decision distress.

The two direct effect moderated mediation analyses revealed partial support for hypothesis 2. In line with hypothesis 2, there was a significant indirect effect of occupational engagement on career decision-making self-efficacy through future work self salience, $B = .22$, CIs 95% [0.16, 0.28] (see paths a_1 , b_1 , and c_1 ' in Figures 3 and 4). Bootstrapped confidence intervals at 95% did not cross over zero, indicating evidence for partial mediation (see Table 2 for more details). However, the same was not the case for the mediating effect of future work self salience on the relation between occupational engagement and career decision distress. Because the latter mediating effect was non-significant, it was not explored further.⁹ In sum, these findings imply that after controlling for covariates, high levels of occupational engagement tend to increase future work self salience, which in turn tend to increase career decision-making confidence among recent university graduates. However, occupational engagement does not appear to have an indirect effect on career decision distress through future work self salience among recent university graduates. Hypothesis 2 was partially supported.

⁹ For mediation to be evident, occupational engagement must predict career decision distress along path c_1 '; occupational engagement must predict future work self salience along path a_1 ; future work self salience must predict career decision distress along path b_1 ; and occupational engagement must predict career decision distress less strongly when future work self salience is included in the model (Baron & Kenny, 1986; Field, 2013; Hayes, 2015). Occupational engagement did not significantly predict career decision distress along path c_1 ', and as such, evidence for mediation was not established.

Moderating Effects of Grit on the Relations Between Occupational Engagement and Career Decision-Making Outcomes

Hypothesis 3. The relation between occupational engagement and career decision-making outcomes (self-efficacy and distress) will be moderated by grit.

In other words, the predicted positive relation between occupational engagement and career decision-making self-efficacy will be stronger among those high in grit, and weaker among those low in grit. The predicted negative relation between occupational engagement and career decision distress will be stronger among those high in grit and weaker among those low in grit.

Interaction effects of occupational engagement and grit on the career decision-making outcomes in the direct effect moderated mediation analyses revealed partial support for hypothesis 3. The occupational engagement $\times$ grit interaction term was assessed at low (1 standard deviation below zero or the mean) and high (1 standard deviation above zero or the mean) levels of grit (see Table 4). Occupational engagement and grit were mean centered to calculate the interaction term before analyses were conducted. Contrary to hypothesis 3, grit did not significantly moderate the effect of occupational engagement on career decision-making self-efficacy, $B = .06$, $t(289) = 1.10$, $p = .27$ (see path c_3' in Figure 3), but in line with hypothesis 3, grit did significantly moderate the effect of occupational engagement on career decision distress, $B = -.35$, $t(289) = -4.23$, $p < .001$ (see path c_3' in Figure 4).¹⁰ As hypothesized, the predicted

¹⁰ Moderation can still take place, even when the original relation between the predictor and outcome is not statistically significant. This is because when moderation is evident, the predictor affects the outcome somewhere in the distribution of the moderator—even in instances when the predictor does not have a significant effect on the outcome at the onset (Hayes, 2018; Tabachnick & Fidell, 2012). Although the original relation between occupational engagement and career decision distress was not significant, it became significant when grit moderated the relation.

negative relation between occupational engagement and career decision distress was significantly stronger among those high in grit, $B = -.25$, $t(289) = -2.66$, $p = .008$, and weaker among those low in grit, $B = .22$, $t(289) = 2.46$, $p = .02$. Simple effects on each outcome variable were assessed at 1 standard deviation below ($-1\ SD = -0.65$) and above ($1\ SD = 0.65$) zero or the mean of occupational engagement, and at 1 standard deviation below ($-1\ SD = -0.68$) and above ($1\ SD = 0.68$) zero or the mean of grit (see Table 5). Simple slope line graphs illustrate these trends (see Figures 5 and 6). In sum, these findings indicate that when controlling for covariates, there appears to be no difference between recent graduates who are occupationally engaged and exhibit high grit and those who are less occupationally engaged and exhibit less grit in relation to decision-making self-efficacy (Figure 5). Alternatively, recent university graduates who are occupationally engaged and exhibit high grit tend to experience less career decision distress than those who are less occupationally engaged and exhibit low grit (Figure 6). Hypothesis 3 was partially supported.

Table 4

Direct effects of occupational engagement across levels of grit on career decision-making self-efficacy and career decision distress

Moderator	Level	SD values	Career Decision-Making Self-Efficacy ^a			Career Decision Distress		
			<i>t</i>	Conditional		<i>t</i>	Conditional	
				Direct Effect	SE		Direct Effect	SE
Grit	Low (−1 SD)	−0.68	5.83	.37	.06	2.46	.22*	.09
	High (+1 SD)	0.68	7.00	.45	.07	−2.66	−.25**	.09

Note. *N* = 299. ^a Moderation effect of occupational engagement and grit on career decision-making self-efficacy was not statistically significant.

*, *p* < .05. **, *p* < .01. ***, *p* < .001.

Table 5

Simple effects of occupational engagement and grit on career decision-making self-efficacy and career decision distress

Occupational Engagement	Grit	Career Decision-Making Self-Efficacy	Career Decision Distress
		<i>M</i>	<i>M</i>
−0.65 (−1 <i>SD</i>)	−0.68 (−1 <i>SD</i>)	3.31	3.02
0.65 (+1 <i>SD</i>)	−0.68 (−1 <i>SD</i>)	3.79	3.31
−0.65 (−1 <i>SD</i>)	0.68 (+1 <i>SD</i>)	3.37	2.99
0.65 (+1 <i>SD</i>)	0.68 (+1 <i>SD</i>)	3.96	2.67

Note. $N = 299$. Values under career decision-making self-efficacy and career decision distress outcomes represent averages at 1 standard deviation below or above zero or the mean of occupational engagement and grit, respectively.

Figure 5. Simple effects of occupational engagement and grit on career decision-making self-efficacy. Simple effects are calculated at 1 standard deviation below and above zero or the mean of occupational engagement and grit, respectively.

Figure 6. Simple effects of occupational engagement and grit on career decision distress.

Simple effects are calculated at 1 standard deviation below and above zero or the mean of occupational engagement and grit, respectively.

Summary of Results

Although the findings did not provide overwhelming and consistent evidence for moderated mediation on career decision-making self-efficacy and career decision distress, there were some findings that aligned with the formulated hypotheses. Students who were occupationally engaged felt more confident about their abilities to engage in career decision-making (versus those lower in engagement), but distress about career decisions was not affected by occupational engagement, providing partial support for the first hypothesis. The positive occupational engagement-career decision-making self-efficacy relation was significantly mediated by future work self salience. In other words, having a strong and salient view of one's future work self at least partially explains the positive relation between occupational engagement and career decision-making self-efficacy, providing partial support for the second hypothesis. Students' grit levels did not affect the relation between occupational engagement and career decision-making self-efficacy, but did significantly moderate the negative relation between occupational engagement and career decision distress. The more occupationally engaged students were in their last year of university, the less distress they experienced about making a career decision, and this was particularly the case for those high in grit, offering partial support for the third hypothesis.

In a nutshell, the evidence indicates that after controlling for covariates, recent university graduates who are occupationally engaged tend to have a clearer, more salient view of their future work selves and demonstrate greater confidence when making career decisions. In addition, their sense of future work self salience tends to explain the relation between occupational engagement and career decision-making self-efficacy, such

that those who are occupationally engaged tend to have a clearer vision of their future work selves, which in turn is related to their sense of career decision-making confidence. Finally, recent university graduates who are occupationally engaged *and* gritty tend to experience the lowest levels of career decision distress. The combination of occupational engagement and trait-level grit seems to protect against the potential negative experience of career decision distress. Together, these findings extend our empirical understanding of the psychological and motivational processes associated with adaptive career decision-making among individuals who have recently graduated from university.

Discussion

The purpose of the current study was to examine the relative influence of occupational engagement, grit, and future work self salience on recent university graduates' career decision confidence and career decision distress. Drawing on the trilateral model of adaptive career decision-making (Krieshok et al., 2009), this study examined (a) the influence of occupational engagement on career decision-making confidence and career decision distress, (b) whether future work self salience mediated the relations between occupational engagement and these career decision-making outcomes among recent university graduates, and (c) the extent to which grit might moderate the relationship between occupational engagement and career decision-making outcomes. According to the trilateral model of adaptive decision-making (Krieshok et al., 2009), an *adaptive* career decision is based on both rational (thinking) and intuitive (feeling) processes which are informed by occupational engagement. Occupational engagement refers to actively immersing oneself in the world of work and engaging in a reflective process intended to help one evaluate the fit between particular types of jobs/work and one's strengths, values and interests. Overall, the evidence from this study provided some support for (and evidence for an extension of) this theoretical model.

Future Work Self Salience and Career Decision-Making Outcomes: The Role of Occupational Engagement

Perhaps not surprisingly, occupational engagement was positively related to future work self salience. Those with higher levels of self-reported occupational engagement also tended to have a clearer vision of themselves and their work situation five years into the future. Occupational engagement in this respect appears to act as a

behavioural mechanism that shapes how individuals imagine themselves to be in the future. More specifically, this suggests that individuals who initiate occupationally engaging behaviours that foster adaptive career exploration and enrichment, are more likely to develop a clearer image of who they hope to become in the future. This stresses the importance of occupational engagement, as it seems that occupationally engaging behaviours can crystallize how individuals construct their identity and their future work selves (Dunkel, 2000). Indeed, the experience of trying out different work roles and reflecting on the fit of different possibilities is central to the notion of occupational engagement.

Not only did occupational engagement seem to contribute positively to future work self salience, but the present study also found evidence for a link with actual career decision making behaviours. Graduates who were occupationally engaged also reported more confidence in their ability to make career decisions. This finding implies that occupational engagement can reinforce the beliefs individuals have in their ability to make career decisions by facilitating how they gather and make sense of career information, identify the career prospects that they desire, choose their goals, plan their career paths, and solve problems to make sound career decisions (Betz et al., 1996). Occupational engagement may boost feelings of self-efficacy by increasing exposure to career knowledge and actual career experiences which may also contribute to enactive mastery (Bandura, 1986; Lent et al., 2000). As individuals make use of their knowledge and experiences to enrich and explore their career prospects, individuals can subsequently use this information to perform tasks or make decisions that align with occupationally engaging behaviours (Bandura, 1986; Lent et al., 2000). As a result, occupationally

engaging behaviours can have a positive impact on the confidence and perceived control individuals exhibit when making career decisions (Creed et al., 2007; Lent, 2011).

Contrary to research expectations, occupational engagement was not associated with career decision distress. That this relationship did not emerge is somewhat in contrast with previous findings that aspects of occupational engagement (i.e., job involvement) are negatively associated with emotional instability—a more global personality variable associated with distress (Noble, 2008). The lack of evidence regarding the predictive influence of occupational engagement on career decision distress could be due to the nature of the relationship between occupational engagement and career decision distress. Occupational engagement appears to be strongly related to individuals' career decision-making confidence, which encompasses a decisional process (Bandura, 1986, 2001; Lent, 2011; Lent et al., 2000). However, it appears as though occupational engagement has little or no contribution in protecting against career decision distress, an outcome related to feelings of uncertainty (Creed et al., 2016). Occupational engagement may be more closely aligned with adaptive decisional outcomes that require active career exploration and development (e.g., self-efficacy), relative to outcomes related to emotional well-being and uncertainty (e.g., career decision distress). Although career decision-making self-efficacy and distress were initially viewed as the adaptive and maladaptive side of a single continuum, it may be more useful to think of them as independent dimensions of career decision-making, one related to confidence and know-how (Epstein, 1994; Kahneman, 2003), and the other more emotionally-focused (Salovey & Mayer, 1990; Santos, Wang, & Lewis, 2018; Valach, Young, & Lynam, 1996).

The lack of association between occupational engagement and career decision distress might also indicate that variables other than occupational engagement better predict career decision distress. For instance, career decision-making self-efficacy and optimism have been found to have strong protective effects on career indecision, a variable intricately related to career distress (Creed et al., 2002). In the current study, career decision-making self-efficacy was entered as an outcome variable and not as predictor variable. Thus, it is possible that if examined as predictor, career decision-making self-efficacy could serve as a stronger predictor of career decision distress. Alternatively, proactive orientation (i.e., individuals' tendencies to behave in ways that effect change, influence situations, and anticipate setbacks; Seibert et al., 2001) may be worth examining in future as a potential predictor of career decision distress. Evidence shows that proactive orientation relates positively to career adaptability (Tolentino et al., 2014), another variable that could protect against career decision distress. In future research, these relations could be explored by examining how and when optimism and proactive orientation potentially affect practically-focused and emotionally-focused aspects of career decision-making.

Occupational Engagement and Career Decision-Making Self-Efficacy: Future Work Self Salience as a Motivational Mechanism

In the present study, future work self salience significantly mediated the relationship between occupational engagement and career decision-making self-efficacy. This suggests that recent university graduates who are occupationally engaged are more likely to exhibit confidence when making career decisions, in part, *because* they have a salient view of their future work selves. Others have suggested that having a clear and

detailed image of one's future work self acts as a future-focused motivational mechanism or "career self-guide" (Strauss et al., 2012; Taber & Blankemeyer, 2015) that regulates individuals' occupationally engaging behaviours and the sense of confidence they exhibit in making informed career decisions. Specifically, individuals' salient future work selves appear to regulate how they make use of self-knowledge and knowledge of the world to explore and enrich their possible career paths, which in turn tends to reinforce the confidence they exhibit in their ability to make career decisions (Strauss et al., 2012; Taber & Blankemeyer, 2015). Students who take advantage of experiential learning opportunities in university, for example, are actively occupationally engaged. Such experiences have the potential to give them greater access to both self-knowledge (e.g., "Do I like this work?" "Am I good at this work?" "Can I see myself doing this work in the future?") and knowledge of specific types of work and work environments. Such experiences certainly provide material with which to conjure up a clearer image of the future work self, which may contribute not only to confidence about eventual career decisions, but also to a better understanding of the steps they must take to realize their career goals, and imagined future selves (Atance & O'Neill, 2001; Bandura, 2006; Carver & Scheier, 1982, 2002; Taber & Blankemeyer, 2015).

The Combined Influence of Occupational Engagement and Grit on Career Decision Distress

In the present study, the role of grit was strongest with respect to distress outcomes. Recent university graduates who were occupationally engaged *and* gritty had the lowest levels of career decision distress. This suggests that grit may act as a protective factor against career decision distress—especially when individuals embark on

occupationally engaging behaviours that require emotional regulation (Salovey & Mayer, 1990), sustained persistence (Fite et al., 2017), and adaptation (Datu et al., 2017) to attain their highly desired career goals (Duckworth & Gross, 2014). In this regard, individuals who are occupationally engaged and gritty may be better able to “press on” because they consider the attainment of their career goals as essential for developing their careers and career identities (Lee & Sohn, 2017). In evaluating the desirability of their career goals, individuals who are occupationally engaged and gritty may be better able to manage their emotional reactions accordingly and keep them in check over the goal pursuit process (Duckworth & Gross, 2014). Grit, may, therefore, have the strongest protective effect on career decision distress when individuals embark on occupationally engaging behaviours that require emotional regulation, adaptation, and sustained persistence.

Taken together, the evidence from the present study offers some interesting insights into the career exploration and decision-making process for recent graduates. Active occupational engagement in the form of exploring and “trying on” work roles and being open to exploring new opportunities, as well as having a clear vision of one’s self in a future work role both seemed to feed students’ confidence and self-efficacy in an uncertain world of career decisions. Such engagement and ability to imagine the future may fuel students’ strategic goal pursuit efforts. Moreover, persistent tendencies (grit) seem to play a role primarily for those who are already digging in to the work of exploring and trying on careers. The “occupationally engaged” are faced with inevitable ups and downs as they pursue career goals requiring their sustained persistence and adaptation. The most gritty among them, also experience the lowest levels of career

decision distress, perhaps because grit and engagement together help to keep negative emotions in check in the goal pursuit process.

Limitations and Future Directions

The current study is not without its limitations. Cross-sectional research designs prohibit researchers from making a determination about the specific causal direction of their effects, and inferences about causality should be approached with caution. In this study, the working theory is that the behaviours associated with occupational engagement feeds into a more salient view of the future work self, which in turn, increases confidence in career decision-making. Given the correlational nature of this study, it is equally possible that students with more confidence in their ability to make career decisions tend to seek out occupation information and experiences (e.g., get occupationally engaged). Although not definitive on cause-effect direction, the current study does provide a “snapshot” of the relational trends that exist between psychological and motivational processes and adaptive career decision-making outcomes during the transition from school to work.

Given the retrospective recall nature of this study, it is also possible that individuals may have remembered their experiences more or less favourably than they actually experienced them (Morling, 2012). For instance, it is possible that some graduates may have rated themselves more favourably in the occupational engagement measure because they reported their *current* levels, rather than *past* levels, of occupational engagement. Similarly, possible recollection gaps between how graduates remembered their experiences and how they actually experienced them may have affected how high (or low) they rated themselves in measures of grit, future work self

salience, career decision-making self-efficacy, and career decision distress. To help rule out memory bias, future research may employ a prospective longitudinal design to examine the possible causal effects of these variables and how they progress and/or change over time (Field, 2013; Morling, 2012). With a design such as this, researchers may gain a better understanding of the specific direction of the effects of the psychological and motivational processes involved in adaptive career decision-making outcomes, while limiting possible sources of bias (e.g., memory bias). Such findings would help researchers to establish temporal precedence which may contribute not only to our theoretical understanding but may also help practitioners to properly structure career-related interventions (Field, 2013).

The present research was also limited in terms of its scope. The model tested represents just some of many relational paths that may exist within the larger framework of the trilateral model of adaptive career decision-making. Future examinations of the trilateral model may benefit from an exploration of other possible links (antecedents and consequences) between occupational engagement and career decision outcomes. Possible antecedents of occupational engagement might include individuals' proactivity (i.e., individuals' tendencies to effect change, take ownership of their actions, and influence situations; Seibert et al., 1999), self-determined motivation (i.e., individuals' external or internal motivations for doing a given task; Ryan & Deci, 2000), and perceived control (i.e., individuals' perceptions of control over their efforts; Rotter, 1966). Possible consequences following career decision-making may include how quickly individuals found a career-related job after graduating from university or whether their career-related job aligns with the type of undergraduate degree they obtained at graduation.

A final limitation worth noting is that the current model did not explicitly include a measure of the intuitive and rational components of the trilateral model of adaptive career decision-making. Given that these two concepts—along with occupational engagement—are central components of the trilateral model (Cox et al., 2016; Krieshok et al., 2009), it will be important for future researchers to find a way to operationalize and measure them, so they too, may be examined in a more fulsome test of the trilateral model. For instance, it is possible that rational and intuitive processes may moderate the relations between occupational engagement and career decision-making outcomes, such that individuals who rely on rational or intuitive judgments only exhibit less confidence in making career decisions or exhibit more career distress, relative to those who rely on both. Future research should expand on this by including rational and intuitive processes into the model to assess how this rational-intuitive dialectic (Cox et al., 2016) affects career decision-making outcomes.

Trilateral Model of Adaptive Career Decision-Making: Theoretical Contributions

The findings from the current study provide some theoretical insights that align with the trilateral model of adaptive career decision-making and also suggest ways that the model may be tested in the future. The trilateral model stresses the need for individuals to make adaptive career decisions that are rational and intuitive—and informed by occupational engagement (Krieshok et al., 2009). Empirical tests of the trilateral model are rather limited, with most of the existing literature based primarily on practitioner observations, subjective experiences, and narrative accounts from counselling psychology (Krieshok et al., 2009). Few empirical studies have attempted to test the theoretical underpinnings of this model. The primary empirical contribution to date has

been a handful of studies focused on developing a measure of occupational engagement (Cox, 2008; Cox et al., 2015; Krieshok et al., 2009; Noble, 2008; Scott, 2006). In this regard, the current study is one of the first to go beyond measure development to examine other assumptions contained within the model. Specifically, finding empirical support for a relationship between occupational engagement and career decision-making confidence and distress represents a significant contribution to the existing literature on this model, and to the area of career development more broadly. In addition, this study is the first to provide empirical evidence of the mediating effect of future work self salience and the moderating effects of grit on the relations between occupational engagement and career decision-making outcomes—thus shedding light on the contributing role of psychological mechanisms and persistent tendencies on the practically-focused as well as the emotionally-focused aspects of career decision-making. In future research, researchers and practitioners can build on this by investigating other psychological mechanisms, individual differences, and circumstances relating to the adaptive career decision-making process in the school-to-work transition.

Trilateral Model of Adaptive Career Decision-Making: Practical Implications

The findings of the current study may also have some practical implications for researchers and practitioners, especially within the fields of career counselling and coaching. For instance, practitioners may be able to teach their clients how to behave in occupationally engaging ways, and perhaps to help them identify past instances of occupational engagement. In identifying these experiences, practitioners can help clients to understand how to identify and use information about themselves, their experiences in the world of work and beyond, and to connect these sources of information to make

fruitful career decisions (Cox et al., 2015). The results of this study suggest the importance of practitioners working with clients to find and explore experiential activities that promote occupational engagement. For instance, asking clients to reflect on “what they know” and “what they have experienced” can promote occupationally engaging behaviours by allowing them to reflect on the possible ways they can enrich and explore their careers, so that they make decisions that are adaptive, informed, and grounded in realistic expectations (Cox et al., 2015). Having clients think about and specify ways that they can use employability skills, knowledge of labour market trends, networking opportunities, previous work experience, and their interests to make better decisions about their careers are all ways of building occupationally engaging behaviours as well as career decision-making confidence (Cox et al., 2015; Krieshok et al., 2009). Asking career counseling clients to identify occupationally engaging behaviours can also shed light on possible barriers preventing them from engaging and/or setting realistic expectations to overcome potential setbacks (Cox et al., 2015; Krieshok, 2001). In understanding these barriers, practitioners can collaborate with their clients to implement steps directed at overcoming such barriers and promoting occupationally engaging behaviours as well as career decision-making confidence (Carver & Scheier, 2002; Gollwitzer, 1990; Koestner, Lekes, Powers, & Chicoine, 2002).

Another potential practical implication of the current study’s findings is related to the importance of future work self salience in predicting positive career decision outcomes. A strong and clear sense of self as a future worker was associated with greater confidence in career decision making. By asking their clients to describe their ideal future work self in as much detail as possible, and helping them to refine this image,

practitioners can help them to crystallize the image of who they hope to be in the future and teach strategies for how to reach that specific goal (Atance & O'Neill, 2001).

Another practical implication of the future work self finding may be in using the future work self as a standard of comparison and motivational tool. Indeed, practitioners could ask clients to make comparisons between their current selves and their imagined future work selves. Understanding where they are at in relation to their imagined future work selves can build confidence, as discrepancies between the “current self” and “future self” regulate what clients do and the decisions they make to get closer to realizing their ideal future state (Bandura, 2001; Carver & Scheier, 1982; Strauss et al., 2012; Taber & Blankemeyer, 2015). Paying attention to the actual-ideal discrepancy can have motivational benefits, as clients gain a better understanding about the tasks they need to perform or the decisions they need to make to close the gap and get closer to realizing their imagined future work selves (Bandura, 1986, 2006; Carver & Scheier, 1982, 2002; Strauss et al., 2012).

The findings of the present study also suggest the importance of grit, particularly as it relates to mitigating career decision distress. It may be possible to cultivate some characteristics of grit behaviour with the support of practitioners. There has been some debate as to whether grit can be learned. Grit has traditionally been conceptualized as a trait and research on whether individuals can learn to be gritty is still in its early stages (Willingham, 2016). It may be possible, however, to promote some characteristics of gritty behaviour by encouraging clients to understand the reasons for why they might be committed to their career goals. Given that gritty individuals exhibit strong commitment for attaining their long-term goals (Duckworth & Quinn, 2009; Duckworth et al., 2007),

practitioners could ask their clients about the underlying reasons for why they might stay committed to achieving their long-term career goals. In understanding *why* they are committed to their career goals, clients could potentially make links between their career goals and the personal meaning and purpose they draw from such goals—which in turn could reinforce the self-efficacy, motivation, and persistence they might exhibit to attain them (Kleiman et al., 2013).

Gritty behaviour may also be promoted by encouraging clients to interpret and deal with failure in adaptive ways. Viewing failure in a positive light could promote persistence and goal-directed behaviour, and even protect against distress (Haratsis, Hood, & Creed, 2015; Lucas et al., 2015; Seligman, 1998). Clients who view failure as a “learning curve” rather than as complete loss are more likely to press forward with their career efforts despite setbacks or failure, re-adjust their career efforts when they fail, and exhibit a strong sense of control over the decisions and actions they undertake (Duckworth & Quinn, 2009; Lucas et al., 2015; Patton, Bartrum, & Creed, 2004). In this regard, practitioners could encourage their clients to reframe their failure in a positive light and subsequently ask them to think of adaptive strategies that they might employ to overcome such failure. In understanding how failure could be seen as a “learning opportunity,” clients could learn to use failure as a possible motivational mechanism that reinforces the persistence they might exhibit when the going gets tough (Lucas et al., 2015).

In sum, there are a number of potential practical implications to be drawn from the results of the current study. By adding to the empirical research on adaptive career decision-making, this work also has the potential to contribute to the “toolbox” available

to practitioners wishing to employ evidence-based techniques to promote career readiness and adaptive career decision-making. Techniques could include (a) reflecting on insight and experience to promote occupationally engaging behaviours (Krieshok et al., 2009), (b) understanding how future work self imagining can facilitate goal-directed behaviour and career decision-making (Strauss et al., 2012), and (c) promoting gritty behaviour through commitment (Kleiman et al., 2013) and failure reframing (Lucas et al., 2015). These techniques could potentially be effective in promoting adaptive career decision-making confidence and protecting against career decision distress among prospective and recent university graduates.

Conclusion

Limited career opportunities in the labour market and expectations imposed on recent graduates to make their own career decisions can make the career decision-making process a stressful and anxiety-provoking task (Creed et al., 2002). In this light, embarking on occupationally engaging behaviours that are grounded in thinking and feeling and that promote adaptive decision-making (Krieshok et al., 2009) can play a crucial role on the confidence recent graduates may exhibit in making career decisions and the ways they may cope with career decision distress. Evidence of the current study reveals that recent graduates who embark on occupationally engaging behaviours appear to exhibit more confidence in making career decisions. In addition, the influence of recent graduates' occupational engagement on career decision-making confidence appears to be explained by how clearly they imagine their future selves to be in relation to their possible career paths (Strauss et al., 2012). The evidence also shows that recent graduates who are occupationally engaged and gritty appear to experience less career

decision distress than those who are both low in occupational engagement and grit. This implies that grit may protect against career decision distress when recent graduates are occupationally engaged in career goal pursuits that require emotional regulation (Santos et al., 2018), sustained persistence (Fite et al., 2017), and adaption (Datu et al., 2017) to attain their highly desired career goals (Duckworth & Gross, 2014).

The current study advances empirical knowledge about the trilateral model of adaptive career decision-making by shedding light on the relative influence of occupational engagement on career decision-making outcomes, as well as some of the psychological mechanisms and individual differences that affect these relations. The findings of the current study can provide a good “snapshot” of the relational trends taking place over the career decision-making process from school to work. Researchers and practitioners can extend these findings by investigating other psychological mechanisms, individual differences, and circumstances relating to the adaptive career decision-making process at the school-to-work transition. A better understanding of this process could help researchers and practitioners alike to devise or employ evidence-based strategies that promote career self-management behaviours among young adults transitioning from university to work. This way, young adults can potentially learn to develop their own career paths and career identities accordingly—and to make wise and informed decisions about possible career paths—before and during this important transition.

References

- Ashford, S. J., & Black, J. S. (1996). Proactivity during organizational entry: The role of desire for control. *Journal of Applied Psychology, 81*, 199–214.
doi:10.1037/0021-9010.81.2.199
- Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in Cognitive Sciences, 5*, 533–539. doi:10.1016/S1364-6613(00)01804-0
- Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavioural change. *Psychological Review, 84*, 191–215. doi:10.1037/0033-295X.84.2.191
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology, 4*, 359–373.
doi:10.1521/jscp.1986.4.3.359
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1–26. doi:10.1146/annurev.psych.52.1.1
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science, 1*, 164–180. doi:10.1111/j.1745-6916.2006.00011.x
- Bargh, J. A., & Barndollar, K. (1996). The unconscious as repository of chronic goals and motives. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action*. New York: Guilford Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 5*, 1173–1182.
doi:10.1037/0022-3514.51.6.1173

- Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1–26.
doi:10.1111/j.1744-6570.1991.tb00688.x
- Beckett, M., DaVanzo, J., Sastry, N., Panis, C., & Peterson, C. (2001). The quality of retrospective data: An examination of long-term recall in a developing country. *The Journal of Human Resources*, 36(3), 593–625. doi:10.2307/3069631
- Benton, S. A., Robertson, J. M., Tseng, W. C., Newton, F. B., & Benton, S. L. (2003). Changes in counseling center client problems across 13 years. *Professional Psychology: Research and Practice*, 34, 66–72. doi:10.1037/0735-7028.34.1.66
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the career decision-making self-efficacy scale. *Journal of Career Assessment*, 4, 47–57. doi:10.1177/106907279600400103
- Blau, G. J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, 58, 277–288. doi:10.1111/j.2044-8325.1985.tb00201.x
- Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. *Journal of Vocational Behavior*, 35(2), 194–203.
doi:10.1016/0001-8791(89)90040-7
- Blustein, D. L., Ellis, M. V., & Devenis, L. E. (1989). The development and validation of a two-dimensional model of the commitment to career choices process. *Journal of Vocational Behavior*, 35, 342–378. doi:10.1016/0001-8791(89)90034-

- Blustein, D. L., & Phillips, S. D. (1988). Individual and contextual factors in career exploration. *Journal of Vocational Behavior*, 33(2), 203–216. doi:10.1016/0001-8791(88)90056-5
- Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development*, 28, 31–44. doi:10.1080/07294360802444347
- Briscoe, J. P., Hall, D. T., & DeMuth, R. L. F. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior*, 69(1), 30–47. doi:10.1016/j.jvb.2005.09.003
- Brown, D. J., Cober, R. T., Kane, K., Levy, P. E., & Shalhopp, J. (2006). Proactive personality and the successful job search: A field investigation with college graduates. *Journal of Applied Psychology*, 91, 717–726. doi:10.1037/0021-9010.91.3.717
- Brown, G. S., & Strange, C. (1981). The relationship of academic major and career choice status to anxiety among college freshmen. *Journal of Vocational Behavior*, 19(3), 328–334. doi:10.1016/0001-8791(81)90067-1
- Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology*, 59, 538–549. doi:10.1037/0022-3514.59.3.538
- Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavellee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology*, 70, 141–156. doi:10.1037/0022-3514.70.1.141

- Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality–social, clinical, and health psychology. *Psychological Bulletin*, 92, 111–135. doi:10.1037/0033-2909.92.1.111
- Carver, C. S., & Scheier, M. F. (2002). On the structure of behavioral regulation. In M. Boekaerts, M. Zeidner, & P. R. Pintrich (Eds.), *Handbook of self-regulation* (pp. 41–84). San Diego, CA: Academic Press.
- Cheung, J. H., Burns, D. K., Sinclair, R. R., & Sliter, M. (2017). Amazon Mechanical Turk in organizational psychology: An evaluation and practical recommendations. *Journal of Business and Psychology*, 32(4), 347–361. doi:10.1007/s10869-016-9458-5
- Chown, S. M. (1959). Personality factors in the formation of occupational choice. *British Journal of Educational Psychology*, 29, 23–33. doi:10.1111/j.2044-8279.1959.tb01471.x
- Claes, R., & Ruiz-Quintanilla, S. A. (1998). Influences of early career experiences, occupational group, and national culture on proactive career behavior. *Journal of Vocational Behavior*, 52, 357–378. doi:10.1006/jvbe.1997.162
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159. doi:10.1037/0033-2909.112.1.155
- Costa, P. T., Jr., & McCrae, R. R. (1992). NEO PI-R professional manual. Odessa, FL: Psychological Assessment Resources.
- Cox, D. W. (2008). *The operationalization of occupational engagement and validation of the Occupational Engagement Scale for Students* (Unpublished doctoral dissertation). University of Kansas, Lawrence.

- Cox, D. W., Bjornsen, A. L., Krieschok, T. S., & Liu, Y. (2016). Occupational engagement and academic major satisfaction: Vocational identity's mediating role. *The Career Development Quarterly*, 64, 169–180. doi:10.1002/cdq.12049
- Cox, D. W., Krieschok, T. S., Bjornsen, A. L., & Zumbo, B. D. (2015). Occupational Engagement Scale–Student: Development and initial validation. *Journal of Career Assessment*, 23(1), 107–116. doi:10.1177/1069072714523090
- Cox, D. W., Rasmussen, K. L., Jacobson, J. D., Wells, K. J., Rettew, J. G., Sirridge, K., et al. (2006). Effects of an intervention to increase students' level of occupational engagement. San Francisco: Poster presented at the annual convention of the American Psychological Association.
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality & Social Psychology*, 113, 492–511. doi:10.1037/pspp0000102
- Creed, P. A., & Blume, K. (2013). Compromise, well-being, and action behaviours in young adults in career transition. *Journal of Career Assessment*, 21, 3–19. doi:10.1177/1069072712453830
- Creed, P. A., & Gagliardi, R. (2015). Career compromise, career distress, and perceptions of employability: The moderating roles of social capital and core self-evaluations. *Journal of Career Assessment*, 23(1), 20–34. doi:10.1177/1069072714523082
- Creed, P. A., & Hood, M. (2014). Disengaging from unattainable career goals and reengaging in more achievable ones. *Journal of Career Development*, 41(1), 24–42. doi:10.1177/0894845312471195

- Creed, P. A., Hood, M., Praskova, A., & Makransky, G. (2016). The Career Distress Scale: Using Rasch measurement theory to evaluate a brief measure of career distress. *Journal of Career Assessment, 24*(4), 732–746.
doi:10.1177/1069072715616126
- Creed, P. A., & Hughes, T. (2013). Career development strategies as moderators between career compromise and career outcomes in emerging adults. *Journal of Career Development, 40*, 146–163. doi:10.1177/0894845312437207
- Creed, P. A., Muller, J., & Patton, W. (2003). Leaving high school: The influence and consequences for psychological well-being and career-related confidence. *Journal of Adolescence, 26*(3), 295–311. doi:10.1016/S0140-1971(03)00015-0
- Creed, P. A., Patton, W., & Bartrum, D. (2002). Multidimensional properties of the LOT–R: Effects of optimism and pessimism on career and wellbeing related variables in adolescents. *Journal of Career Assessment, 10*, 42–61.
doi:10.1177/1069072702010001003
- Creed, P. A., Patton, W., & Bartrum, D. (2004). Internal and external barriers, cognitive style, and career development variables of focus and indecision. *Journal of Career Development, 30*(4), 277–294. doi:10.1177/089484530403000404
- Creed, P. A., Patton, W., & Prideaux, L.-A. (2007). Predicting change over time in career planning and career exploration for high school students. *Journal of Adolescence, 30*, 377–392. doi:10.1016/j.adolescence.2006.04.003

- Creed, P. A., Patton, W., & Watson, M. B. (2002). Cross-cultural equivalence of the Career Decision-Making Self-Efficacy Scale–Short Form: An Australian and South African comparison. *Journal of Career Assessment, 10*(3), 327–342. doi:10.1177/10672702010003004
- Cross, S. E., & Markus, H. R. (1991). Possible selves across the life span. *Human Development, 34*, 230–255. doi:10.1159/000277058
- Daniels, L. M., Clifton, R. A., Perry, R. P., Mandzuk, D., & Hall, N. C. (2006). Student teachers' competence and career certainty: The effects of career anxiety and perceived control. *Social Psychology of Education, 9*, 405–423. doi:10.1007/s11218-006-9000-0
- Datu, J. A. D., Yuen, M., & Chen, G. (2017). Development and validation of the Triadic Model of Grit Scale (TMGS): Evidence from Filipino undergraduate students. *Personality and Individual Differences, 114*, 198–205. doi:10.1016/j.paid.2017.04.012
- Duckworth, A. L., & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Research, 23*(5), 319–325. doi:10.1177/0963721414541462
- Duckworth, A. L., Kirby, T. A., Tsukayama, E., Berstein, H., & Ericsson, K. A. (2011). Deliberate practice spells success: Why grittier competitors triumph at the National Spelling Bee. *Social and Personality Science, 2*(2), 174–181. doi:10.1177/1948550610385872

- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. doi:10.1037/0022-3514.92.6.1087
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (GRIT-S). *Journal of Personality Assessment*, 91(2), 166–174. doi:10.1080/00223890802634290
- Dunkel, C. S. (2000). Possible selves as a mechanism for identity exploration. *Journal of Adolescence*, 23(5), 519–529. doi:10.1006/jado.2000.0340
- Durbin, J., & Watson, G. S. (1951). Testing for serial correlation in least squares regression, II. *Biometrika*, 38, 159–177. doi:10.2307/2332325
- Edwards, J. R. (1996). An examination of competing versions of the person–environment fit approach to stress. *Academy of Management Journal*, 39, 292–339. doi:10.2307/256782
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, 49(8), 709–724. doi:10.1037/0003-066X.49.8.709
- Erikson, E. (1968). *Identity: Youth and crisis*. New York, NY: Norton.
- Feldman, D. C., & Whitcomb, K. M. (2005). The effects of framing vocational choices on young adults' sets of career options. *Career Development International*, 10(1), 7–25. doi:10.1108/13620430510577600
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th Ed.). London, UK: Sage Publications.

Fite, R. E., Lindeman, M. I. H., Rogers, A. P., Voyles, E., & Durik, A. M. (2017).

Knowing oneself and long-term goal pursuit: Relations among self-concept clarity, conscientiousness, and grit. *Personality and Individual Differences*, 108, 191–194. doi:10.1016/j.paid.2016.12.008

Fuqua, D. R., Newman, J. L., & Seaworth, T. B. (1988). Relation of state and trait anxiety to different components of career indecision. *Journal of Counseling Psychology*, 35(2), 154–158. doi:10.1037/0022-0167.35.2.154

Fuqua, D. R., Seaworth, T. B., Newman, J. L. (1987). The relationship of career indecision and anxiety: A multivariate examination. *Journal of Vocational Behavior*, 30(2), 175–186. doi:10.1016/0001-8791(87)90017-0

Gati, I. (1986). Making career decisions: A sequential elimination approach. *Journal of Counseling Psychology*, 33(4), 408–417. doi:10.1037/0022-0167.33.4.408

Gati, I., & Tikotzki, Y. (1989). Strategies for collection and processing of occupational information in making career decisions. *Journal of Counseling Psychology*, 36(4), 430–439. doi:10.1037/0022-0167.36.4.430

Gianakos, I. (1999). Patterns of career choice and career decision-making self-efficacy. *Journal of Vocational Behavior*, 54(2), 244–258. doi:10.1006/jvbe.1998.1668

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 1–2, pp. 53–92). New York, NY: Guilford Press.

- Gonyea, R. M., Kish, K. A., Kuh, G. D., Muthiah, R. N., & Thomas, A. D. (2003). College Student Experiences Questionnaire: Norms for the Fourth Edition. Bloomington, IN: Indiana University Center for Postsecondary Research, Policy, and Planning.
- Gordon, R. A. (2010). *Regression analysis for the social sciences*. New York, NY: Routledge.
- Gotfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28(6), 545–579. doi:10.1037/0022-0167.28.6.545
- Greenhaus, J. H., Hawkins, B. L., & Brenner, O. C. (1983). The impact of career exploration on the career decision-making process. *Journal of College Student Personnel*, 24(6), 495–502.
- Greenhaus, J. H., & Sklarew, N. D. (1981). Some sources and consequences of career exploration. *Journal of Vocational Behavior*, 18(1), 1–12. doi:10.1016/0001-8791(81)90025-7
- Hall, D. T. (1976). *Careers in organizations*. Glenview, IL: Scott Foresman.
- Haratsis, J. M., Hood, M., & Creed, P. A. (2015). Career goals in young adults: Personal resources, goal appraisals, attitudes, and goal management strategies. *Journal of Career Development*, 42(5), 431–445. doi:10.1177/0894845315572019
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50(1), 1–22. doi:10.1080/00273171.2014.962683

- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York, NY: The Guilford Press.
- Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, 94(3), 319–340. doi:10.1037/0033-295X.94.3.319
- Higgins, E. T., Roney, C. J. R., Crowe, E., & Hymes C. (1994). Ideal versus ought predilections for approach and avoidance distinct self-regulatory systems. *Journal of Personality and Social Psychology*, 66(2), 276–286. doi:10.1037/0022-3514.66.2.276
- Holland, J. L. (1973). *Making Vocational Choices: A theory of careers*. Prentice-Hall.
- Holland, J. L. (1997). *Making Vocational Choices: A theory of vocational personalities and work environments* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Hoyle, R. H., & Sherrill, M. R. (2006). Future orientation in the self-system: Possible selves, self-regulation, and behavior. *Journal of Personality*, 74, 1673–1696. doi:10.1111/j.1467-6494.2006.00424.x
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York, NY: Guilford Press.
- Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58(9), 697–720. doi:10.1037/0003-066X.58.9.697

Kerr, B., & McKay, R. (2007). Counseling laboratory for the exploration of optimal states: First findings. Presented to the 54th annual convention of the national association for gifted children. Minneapolis, MN, November 9, 2007.

Kimes, H. G., & Troth, W. A. (1974). Relationship of trait anxiety to career decisiveness.

Journal of Counseling Psychology, 21(4), 277–280. doi:10.1037/h0037611

King, Z. (2004). Career self-management: Its nature, causes, and consequences.

Journal of Vocational Behavior, 65, 112–133. doi:10.1016/S0001-8791(03)00052-6

Kleiman, E. M., Adams, L. M., Kashdan, T. B., & Riskind, J. H. (2013). Gratitude and grit indirectly reduce the risk of suicidal ideations by enhancing meaning in life: Evidence for a mediated moderation model. *Journal of Research in Personality*, 47, 539–546. doi:10.1016/j.jrp.2013.04.007

Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology*, 83, 231–244. doi:10.1037/0022-3514.83.1.231

Krieshok, T. S. (2001). How the decision-making literature might inform career center practice. *Journal of Career Development*, 27(3), 207–216. doi:10.1177/089484530102700307

Krieshok, T. S., Black, M. D., & McKay, R. A. (2009). Career decision making: The limits of rationality and the abundance of non-conscious processes. *Journal of Vocational Behavior*, 75(3), 275–290. doi:10.1016/j.jvb.2009.04.006

- Krieshok, T. K., & Conrad, S. M. (2005). Promoting college attendance in at risk high school seniors. Chicago: Poster presented at the international counseling psychology conference.
- Krumboltz, J. D. (1992). The wisdom of indecision. *Journal of Vocational Behavior*, 41(3), 239–244. doi:10.1016/0001-8791(92)90025-U
- Krumboltz, J. D. (2009). The happenstance learning theory. *Journal of Career Assessment*, 17(2), 135–154. doi:10.1177/1069072708328861
- Krumboltz, J. D., Foley, P. F., & Cotter, E. W. (2013). Applying the happenstance learning theory to involuntary career transitions. *The Career Development Quarterly*, 61, 15–26. doi:10.1002/j.2161-0045.2013.00032.x
- Larson, L. M., Toulouse, A. L., Ngumba, W. E., Fitzpatrick, L. A., & Heppner, P. P. (1994). The development and validation of Coping With Career Indecision. *Journal of Career Assessment*, 2(2), 91–110. doi:10.1177/106907279400200201
- Latham, G. P., & Locke, E. A. (2006). Enhancing the benefits and overcoming the pitfalls of goal setting. *Organizational Dynamics*, 35(4), 332–340. doi:10.1016/j.orgdyn.2006.08.008
- Lee, S., & Sohn, Y. W. (2017). Effects of grit on academic achievement and career-related attitudes of college students in Korea. *Social Behavior and Personality*, 45(10), 1629–1642. doi:10.2224/sbp.6400
- Lent, R. W. (2011). Career-life preparedness: Revisiting career planning and adjustment in the new workplace. *The Career Development Quarterly*, 61, 2–14. doi:10.1002/j.2161-0045.2013.00031.x

- Lent, R. W., & Brown, S. D. (2006). Integrating person and situation perspectives on work satisfaction: A social-cognitive view. *Journal of Vocational Behavior*, 69, 236–247. doi:10.1016/j.jvb.2006.02.006
- Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60, 557–568. doi:10.1037/a0033446
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counselling Psychology*, 47, 36–49. doi:10.1037//0022-0167.47.1.36
- Lieberman, M. D. (2003). Reflective and reflexive judgment processes: A social cognitive neuroscience approach. In J. P. Forgas, K. R. Williams, & W. von Hippel (Eds.), *Social judgments: Implicit and explicit processes* (pp. 44–67). New York: Cambridge University Press.
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83, 1198–1202. doi:10.2307/2290157
- Louis, M. R. (1980). Career transitions: Varieties and commonalities. *Academy of Management Review*, 5(3), 329–340. doi:10.2307/257108
- Lucas, G. M., Gratch, J., Cheng, L., & Marsella, S. (2015). When the going gets tough: Grit predicts costly perseverance. *Journal of Research in Personality*, 59, 15–22. doi:10.1016/j.jrp.2015.08.004

- Luzzo, D. A. (1995). The relative contributions of self-efficacy and locus of control to the prediction of career maturity. *Journal of College Student Development, 36*, 61–66.
- Markus, H. R., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954–969. doi:10.1037/0003-066X.41.9.954
- Markus, H. R., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology, 38*, 299–337. doi:10.1146/annurev.ps.38.020187.001503
- McKay, R. A., Kerr, B. A., Hansen, R., & Krieshok, T. S. (2008). Increasing career engagement in creatively gifted students. Boston, MA: Poster presented at the annual convention of the American Psychological Association.
- Meara, N. M., Day, J. D., Chalk, L. M., & Phelps, R. E. (1995). Possible selves: Applications for career counseling. *Journal of Career Assessment, 3*, 259–277. doi:10.1177/106907279500300402
- Mitchell, K. E., Levin, A. S., & Krumboltz, J. D. (1999). Planned happenstance: Constructing unexpected career opportunities. *Journal of Counseling and Development, 77*(2), 115–124. doi:10.1002/j.1556-6676.1999.tb02431.x
- Morling, B. (2012). *Research methods in psychology: Evaluating a world of information*. New York, NY: Norton.
- Nauta, M. M., Kahn, J. H., Angell, J. W., & Cantarelli, E. A. (2002). Identifying the antecedent in the relation between career interests and self-efficacy: Is it one, the other, or both? *Journal of Counselling Psychology, 49*, 290–301. doi:10.1037//0022-0167.49.3.290

- Noble, M. S. (2008). The Occupational Engagement Scale for Employed Adults—Revised (OES–EA–R): Further validation and correlations with personality and Holland code type. Unpublished doctoral dissertation, University of Kansas, Lawrence, Kansas.
- O’Brien, K. M. (1996). The influence of psychological separation and parental attachment on the career development of adolescent women. *Journal of Vocational Behavior*, 48, 257–274. doi:10.1006/jvbe.1996.0024
- Orellana-Damacela, L. E., Tindale, R. S., & Suárez-Balcázar, Y. (2000). Decisional and behavioral procrastination: How they relate to self-discrepancies. *Journal of Social Behavior and Personality*, 15(5), 225–238.
- Osipow, S. H. (1983). *Theories of career development* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Oyserman, D., & James, L. (2011). Possible identities. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (Vol. 1): *Structure and process* (pp. 117–145). New York, NY: Springer. doi:10.1007/978-1-4419-7988-9_6
- Patton, W., Bartrum, D. A., & Creed, P. A. (2004). Gender differences for optimism, self-esteem, expectations, and goals in predicting career planning and exploration in adolescents. *International Journal for Education and Vocational Guidance*, 4, 193–209. doi:10.1007/s10775-005-1745-z
- Parsons, F. (1909). *Choosing a vocation*. Boston: Houghton Mifflin.

- Phillips, S. D. (1997). Toward an expanded definition of adaptive decision making. *The Career Development Quarterly*, 45(3), 275–287. doi:10.1002/j.2161-0045.1997.tb00471.x
- Pouyaud, J., Vignoli, E., Dosnon, O., & Lallemand, N. (2012). Career adapt-abilities scale-France form: Psychometric properties and relationships to anxiety and motivation. *Journal of Vocational Behavior*, 80, 692–697. doi:10.1016/j.jvb.2012.01.021
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. doi:10.3758/BRM.40.3.879
- Power, D. J., & Aldag, R. J. (1985). Soelberg's job search and choice model: A clarification, review, and critique. *The Academy of Management Review*, 10(1), 48–58. doi:10.2307/258211
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, 1–28. doi:10.1037/h0092976
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54–67. doi:10.1006/ceps.1999.1020
- Saks, A. M. (2006). Multiple predictors and criteria of job search success. *Journal of Vocational Behavior*, 68, 400–415. doi:10.1016/j.jvb.2005.10.001
- Saks, A. M., & Ashforth, B. E. (1999). Effects of individual differences and job search behaviours on the employment status of recent university graduates. *Journal of Vocational Behavior*, 54, 335–349. doi:10.1006/jvbe.1998.1665

- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9(3), 185–211. doi:10.2190/DUGG-P24E-52WK-6CDG
- Santos, A., Wang, W., & Lewis, J. (2018). Emotional intelligence and career decision-making difficulties: The mediating role of career decision self-efficacy. *Journal of Vocational Behavior*, 107, 295–309. doi:10.1016/j.jvb.2018.05.008
- Savickas, M. L. (1997). Career adaptability: An integrative construct for life-span, life-space theory. *The Career Development Quarterly*, 45(3), 247–259. doi:10.1002/j.2161-0045.1997.tb00469.x
- Savickas, M. L. (2005). The theory and practice of career construction. In R. W. Lent, & S. D. Brown (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42–70). Hoboken, NJ: John Wiley & Sons.
- Savickas, M. L. (2019). *Career counseling* (2nd ed.). Washington, DC: American Psychological Association. doi:10.1037/0000105-000
- Savickas, M. L., & Porfeli, E. J. (2012). Career Adapt-Abilities Scales: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80, 661–673. doi:10.1016/j.jvb.2012.01.011
- Scott, R. T. (2006). The occupational engagement scale for employed adults (ORS EA): Initial validation and development. Unpublished doctoral dissertation, University of Kansas, Lawrence.
- Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84(3), 416–427. doi:10.1037/0021-9010.84.3.416

- Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology, 54*(4), 845–874. doi:10.1111/j.1744-6570.2001.tb00234.x
- Seligman, M. E. P. (1998). *Learned optimism*. New York: Pocket Books.
- Sharp, J., & Theiler, S. (2018). A review of psychological distress among university students: Pervasiveness, implications and potential points of intervention. *International Journal for the Advancement of Counselling, 1–20*. doi:10.1007/s10447-018-9321-7
- Skorikov, V. B. (2007a). Adolescent career development and adjustment. In V. B. Skorikov and W. Patton (Eds.), *Career development in childhood and adolescence* (pp. 237–254). Rotterdam, the Netherlands: Sense.
- Skorikov, V. B. (2007b). Continuity in adolescent career preparation and its effects on adjustment. *Journal of Vocational Behavior, 70*, 8–24. doi:10.1016/j.jvb.2006.04.007
- Soelberg, P. O. (1967). Unprogrammed decision making. *Industrial Management Review, 8*(2), 19–29. Retrieved from <http://proxy.library.carleton.ca/login?url=https://search-proquest-com.proxy.library.carleton.ca/docview/1302984008?accountid=9894>
- Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *Journal of Applied Psychology, 97*(3), 580–598. doi:10.1037/a0026423

- Suddendorf, T., & Corballis, M. C. (2007). The evolution of foresight: What is mental time travel, and is it unique to humans? *Behavioral and Brain Sciences*, 30(3), 299–313. doi:10.1017/S0140525X07001975
- Super, D. E. (1955). The dimensions and measurement of vocational maturity. *Teachers College Record*, 57, 151–163.
- Super, D. E. (1992). Toward a comprehensive theory of career development. In D. H. Montross & S. J. Shinkman (Eds.), *Career development: Theory and practice*. Springfield, IL: Charles C. Thomas.
- Super, D. E., & Knasel, E. G. (1981). Career development in adulthood: Some theoretical problems and a possible solution. *British Journal of Guidance & Counseling*, 9, 194–201. doi:10.1080/03069888108258214
- Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 121–178). San Francisco, CA: Jossey-Bass.
- Suzuki, Y., Tamesue, D., Asahi, K., & Ishikawa, Y. (2015). Grit and work engagement: A cross-sectional study. *PLoS One*, 10(9), 1–11. doi:10.1371/journal.pone.0137501
- Swanson, J. L., & Tokar, D. M. (1991). College students' perceptions of barriers to career development. *Journal of Vocational Behavior*, 38(1), 92–106. doi:10.1016/0001-8791(91)90020-M
- Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Belmont, CA: Thomson Brooks/Cole.

- Tabachnick, B. G., & Fidell, L. S. (2012). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Taber, B. J., & Blankemeyer, M. (2015). Future work self and career adaptability in the prediction of proactive career behaviors. *Journal of Vocational Behavior*, 86, 20–27. doi:10.1016/j.jvb.2014.10.005
- Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63–81. doi:10.1016/0001-8791(83)90006-4
- Taylor, S. E., Pham, L. B., Rivkin, I. D., & Armor, D. A. (1998). Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist*, 53, 429–439. doi:10.1037/0003-066X.53.4.429
- Tedesqui, R. A. B., & Young, B. W. (2018). Comparing the contribution of conscientiousness, self-control, and grit to key criteria of sport expertise development. *Psychology of Sport & Exercise*, 34, 110–118. doi:10.1016/j.psychsport.2017.10.002
- Tolentino, L. R., Garcia, P. R. J. M., Lu, V. N., Restubog, S. L. D., Bordia, P., & Plewa, C. (2014). Career adaptation: The relation of adaptability to goal orientation, proactive personality, and career optimism. *Journal of Vocational Behavior*, 84(1), 39–48. doi:10.1016/j.jvb.2013.11.004
- University of Chicago. (2017). *The Chicago manual of style* (17th ed.). Retrieved from <https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Usage/faq0126.html>
- University of Leicester (2002). Student psychological health project. Leicester: University of Leicester. Retrieved from <http://www2.le.ac.uk/offices/ssds>.

- Valach, L., Young, R. A., & Lynam, M. J. (1996). Family health-promotion projects: An action-theoretical perspective. *Journal of Health Psychology, 1*(1), 49–63. doi:10.1177/135910539600100105
- Vela, J. C., Sparrow, G. S., Whittenberg, J. G., & Rodriguez, B. (2018). The role of character strengths and importance of family on Mexican American college students' career decision self-efficacy. *Journal of Employment and Counseling, 55*, 16–26. doi:10.1002/joec.12070
- Vignoli, E. (2015). Career indecision among older French adolescents: The specific role of general trait anxiety and future school and career anxiety. *Journal of Vocational Behavior, 89*, 182–191. doi:10.1016/j.jvb.2015.06.005
- Weinstein, F. M., Healey, C. C., & Ender, P. B. (2002). Career choice anxiety, coping, and perceived control. *The Career Development Quarterly, 50*, 339–349. doi:10.1002/j.2161-0045.2002.tb00582.x
- Willingham, D. T. (2016). Ask the cognitive scientist: “grit” is trendy, but can it be taught? *American Educator, 40*(2), 28–44. Retrieved from <https://www.aft.org/sites/default/files/ae-summer2016willingham.pdf>
- Yang, E., & Gysbers, N. C. (2007). Career transitions of college seniors. *The Career Development Quarterly, 56*, 157–170. doi:10.1002/j.2161-0045.2007.tb00028.x

Appendix A—Consent Information

Informed Consent Form

Present study

The Role of Occupational Engagement, Persistent Tendencies, and Future Work Self on Recent Graduates' Career Decision-Making Confidence and Career Decision Distress.

Please read the following information that describes the study and your rights as a participant. The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement and to help you determine whether you wish to participate in the study. The informed consent is also an understanding that you may withdraw at any point in the study without any penalty.

Purpose

The aim of this study is to examine the adaptive career decision-making processes that influence individuals' career decision-making confidence and career decision distress after graduating from university.

Task requirements

The survey will take about 15 minutes to complete. To participate, you must have graduated with a bachelor degree from a university in Canada or the U.S.A. within the last 5 years (2014 – present). If you meet the eligibility criteria and agree to complete the survey, you will be asked questions about your degree of engagement and persistence, as well as your confidence and distress when making career decisions. You will also be asked questions about your personal characteristics, university education, and career status after graduation.

MTurk version: Compensation

All participants will receive \$0.60 USD upon entering the validation code in the window.

Potential risks/discomfort

There are no known risks associated with completing this survey. If you feel any discomfort or distress at any point, you may choose to skip specific questions. The information at the end of the study provides contact information for support services that you may contact if you feel any discomfort and would like to speak with someone.

Right to withdraw

Your participation in this survey is voluntary and you have the right to end your participation at any time for any reason. If you choose to withdraw, simply skip all of the questions until the last page. After the last question, please select “quit.” Given that your survey responses are anonymous, it will not be possible for you to withdraw your answers after the survey has been submitted.

Anonymity/Confidentiality

Your participation in this study is strictly confidential. Your IP address will not be recorded by the researchers. The data will be removed from the Qualtrics server by April 2020 and stored on a password-protected computer at Carleton University. The anonymized data will be kept for future reference and will be used in academic publications and presentations. Your data will be stored and protected by Carleton University, but may be disclosed via a court order or data breach.

Research personnel

The following people are involved in this study and may be contacted anytime if you have questions or concerns:

Dr. Bernadette Campbell Department of Psychology, Carleton University Email: Bernadette.Campbell@Carleton.ca	Graduate Research Assistant Rene Guardado Department of Psychology, Carleton University Email: reneguardado@cmail.carleton.ca
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This study has received clearance by the Carleton University Research Ethics Board-B (Clearance # 106070). Should you have any ethical concerns with the study, please contact Dr. Natasha Artemeva (Vice-Chair, Carleton University Research Ethics Board-B), by phone at 613-520-2600 ext. 4085 or email at ethics@carleton.ca.

By selecting “Save and continue,” you consent to participate in the research study as described above.

Appendix B—Inclusion Criteria

Inclusion Questions

1. Have you completed a four-year undergraduate degree or equivalent?

☐ Yes

☐ No

2. Have you graduated from a North American university (Canada or U.S.A.) within the last five years (2014 to present)?

☐ Yes

☐ No

Appendix C—Measures

PART 1: Main Measures**Occupational Engagement Scale—Student (OES–S; Krieshok, Black, & McKay, 2009)**

Thinking back to the graduating year of your undergraduate degree, rate how strongly you identify with the following statements about your career choices.

- 1 = Not at all like me
- 2 = Not like me
- 3 = Somewhat like me
- 4 = Like me
- 5 = Very much like me

1. I talked about my career choices with family or friends.
2. I was actively involved in groups or organizations.
3. I had contact with people working in fields I found interesting.
4. I gained hands-on experience that I thought I could use in the future.
5. I volunteered in an area that I found interesting.
6. I attended lectures, exhibits, and community events.
7. I took part in a variety of activities to see where my interests lied.
8. I asked people in social settings about what they did for a living or what they were interested in doing.
9. I visited places I was interested in working at so I could learn more about them.
10. I attended presentations or talks related to a career I found interesting.
11. I pursued opportunities in life because I just knew they would come in handy.
12. I worked with teachers or staff on activities other than coursework (committees, orientation, student life activities, etc.).
13. I did lots of things that were interesting to me.
14. I had meaningful conversations with students of a different ethnicity.

Overall reliability $\alpha = .85$ (Cox, 2008).

Future Work Self Salience (Strauss et al., 2012)

Mentally travel back to the graduating year of your undergraduate experience and think about what you thought your future work self was going to look like in the next few years. With this mental image in mind, rate how clear your future work self was for you during your graduating year.

1 = Strongly disagree

2 = Disagree a little

3 = Neither agree nor disagree

4 = Agree a little

5 = Strongly agree

1. This future in my graduating year was very easy for me to imagine.
2. The mental picture of my future work self in my graduating year was very clear.
3. I could easily imagine my future work self in my graduating year.
4. I was very clear about who and what I wanted to become in my future work in my graduating year.
5. The type of future I wanted in relation to my work was very clear in my mind during my graduating year.

Overall reliability alpha for the five items = .92 (Strauss, Griffin, & Parker, 2012).

Career Decision-Making Self-Efficacy Scale–Short Form (CDMSES–SF; Betz, Klein, & Taylor, 1996)

Thinking back to the graduating year of your undergraduate degree, rate how confident you felt in doing the following career tasks.

- 1 = No confidence at all
- 2 = Very little confidence
- 3 = Moderate confidence
- 4 = Much confidence
- 5 = Complete confidence

Occupational Information (alphas ranging between .70 and .74)

- 1. Talk with a person already employed in the field you were interested in.
- 2. Find information about universities and colleges.
- 3. Find information online about occupations you were interested in. (^in library)
- 4. Find out about the average yearly earnings of people in an occupation.
- 5. Find out the employment trends for an occupation over the next 10 years.

Self-Appraisal (alphas ranging between .72 and .77)

- 1. Define the type of lifestyle you wanted to live.
- 2. Determine what your ideal job would be.
- 3. Decide what you valued most in an occupation.
- 4. Accurately assess your abilities.
- 5. Figure out what you were and were not ready to sacrifice to achieve your career goals.

Goal Selection (alphas ranging between .73 and .74)

- 1. Choose a career that would fit your interests.
- 2. Choose a career that would fit your preferred lifestyle.
- 3. Select one career from a list of potential careers you were considering.
- 4. Select one occupation from a list of potential occupations you were considering.
- 5. Make a career decision and then not worry about whether it was right or wrong.

Planning (alphas ranging between .78 and .79)

- 1. Prepare a good resume.
- 2. Identify employers, firms, institutions relevant to your career possibilities.
- 3. Successfully manage the job interview process.
- 4. Make a plan of your goals for the next 5 years.
- 5. Determine the steps you needed to take to successfully attain your chosen career.

Problem Solving (alphas ranging between .70 and .75)

- 1. Persistently work at your career goal even when you got frustrated.
- 2. Determine the steps to take if you were having trouble studying for part of your chosen career.
- 3. Change occupations if you were not satisfied with the one you enter.

4. Change careers if you did not like your first choice.
5. Identify some reasonable career alternatives if you were unable to get your first choice.

Overall reliability alphas ranging between .93 and .94 (Creed, Patton, & Watson, 2002).

^ = Word or phrase that was adapted.

Career Distress Scale (Creed, Hood, Praskova, & Makransky, 2016)

Thinking back to the graduating year of your undergraduate degree, rate how strongly you agree with the following statements about your career choices.

1 = Strongly disagree

2 = Disagree

3 = Neither agree nor disagree

4 = Agree

5 = Strongly agree

1. I often felt down or depressed about selecting a career.
2. I thought that I should make a career decision as soon as possible, but I couldn't and this made me anxious.
3. I felt stress or pressure to select a satisfying career.
4. I frequently blamed myself for something I did or did not do in selecting a career.
5. I tended to smooth over any career problem and pretended it did not exist.
6. I often felt that my life lacked much purpose.
7. I often hoped that problems I had in selecting a career would just disappear.
8. I didn't have the special talents to follow my first career choice.
9. An influential person didn't approve of my career choice, which hindered me from seeking that career.

Reliability alpha = .87 (Creed, Hood, Praskova, & Makransky, 2016).

PART 2: Secondary Measures

Short Grit Scale (Grit-S; Duckworth & Quinn, 2009)

Below are some statements related to pursuing goals and persistence. For each, rate how well the statement describes you. Be honest – there are no right or wrong answers!

Consistency of Interest (alphas ranging from .73 to .79)

1. I often set a goal but later choose to pursue a different one.*
2. I have been obsessed with a certain idea or project for a short time but later lost interest.*
3. I have difficulty maintaining my focus on projects that take more than a few months to complete.*
4. New ideas and projects sometimes distract me from previous ones.*

Perseverance of Effort (alphas ranging from .60 to .78)

5. I finish whatever I begin.
6. Setbacks don't discourage me.
7. I am diligent.
8. I am a hard worker.

Overall reliability alphas ranging between .73 to .83 (Duckworth & Quinn, 2009).

Scoring:

For questions 1, 2, 3, and 4 assign the following points (reversed scored):*

- 1 = Very much like me
- 2 = Mostly like me
- 3 = Somewhat like me
- 4 = Not much like me
- 5 = Not like me at all

For questions 5, 6, 7, and 8 assign the following points:

- 5 = Very much like me
- 4 = Mostly like me
- 3 = Somewhat like me
- 2 = Not much like me
- 1 = Not like me at all

Add up all the points and divide by 8. The maximum score on this scale is 5 (extremely gritty), and the lowest score on this scale is 1 (not at all gritty).

Adapted Big Five Inventory (BFI; John & Srivastava, 1999)
(Extraversion and Agreeableness Omitted)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please rate the extent to which you agree or disagree with each of the following statements.

- 1 = Disagree strongly
- 2 = Disagree a little
- 3 = Neither agree nor disagree
- 4 = Agree a little
- 5 = Agree strongly

I see myself as someone who ...

- 1. Does a thorough job. (C)
- 2. Is depressed, blue. (N)
- 3. Is original, comes up with new ideas. (O)
- 4. Can be somewhat careless. (C_R)
- 5. Is relaxed, handles stress well. (N_R)
- 6. Is curious about many different things. (O)
- 7. Is a reliable worker. (C)
- 8. Can be tense. (N)
- 9. Is ingenious, a deep thinker. (O)
- 10. Tends to be disorganized. (C_R)
- 11. Worries a lot. (N)
- 12. Has an active imagination. (O)
- 13. Tends to be lazy. (C_R)
- 14. Is emotionally stable, not easily upset. (N_R)
- 15. Is inventive. (O)
- 16. Perseveres until the task is finished. (C)
- 17. Can be moody. (N)
- 18. Values artistic, aesthetic experiences. (O)
- 19. Does things efficiently. (C)
- 20. Remains calm in tense situations. (N_R)
- 21. Prefers work that is routine. (O_R)
- 22. Makes plans and follows through with them. (C)
- 23. Gets nervous easily. (N)
- 24. Likes to reflect, play with ideas. (O)
- 25. Has few artistic interests. (O_R)
- 26. Is easily distracted. (C_R)
- 27. Is sophisticated in art, music, or literature. (O)

E = Extraversion (alpha = .88). A = Agreeableness (alpha = .79). C = Conscientiousness (alpha = .82). N = Neuroticism (alpha = .84). O = Openness to Experience (alpha = .81). Overall reliability alpha = .83 (John & Srivastava, 1999). R = Reversed scored.

PART 3: Demographic Information

The following questions designed to provide us with some basic information about you.

Personal Information

What gender do you identify with?

- ☐ Male
- ☐ Female
- ☐ Trans
- ☐ Gender-fluid
- ☐ Other

What is your age?

_____ years

What is your ethnicity? (Select a choice that applies)

- ☐ Caucasian
- ☐ Asian
- ☐ African
- ☐ African-Canadian/African-American
- ☐ Hispanic
- ☐ Middle Eastern
- ☐ Indigenous
- ☐ Biracial
- ☐ Multiracial
- ☐ Other

Education

What was your academic Major? Please select a choice from the possible choices below.

- ☐ Psychology
- ☐ Neuroscience
- ☐ Sociology
- ☐ Anthropology
- ☐ Child Studies
- ☐ Gender studies
- ☐ Political Science
- ☐ Law
- ☐ Criminology
- ☐ Human Rights
- ☐ Social Work
- ☐ Computer Science

- ☐ Commerce
- ☐ International Business
- ☐ Nursing
- ☐ Biological Science
- ☐ Engineering
- ☐ Mathematics
- ☐ Architecture
- ☐ Natural Science
- ☐ Geography
- ☐ Geomatics
- ☐ History
- ☐ English
- ☐ Music
- ☐ Other: _____

What undergraduate degree/certificate did you earn?

- ☐ Bachelor of Arts (BA)
- ☐ Bachelor of Commerce (BComm)
- ☐ Bachelor of Science (BSc)
- ☐ Bachelor of Engineering (BEng)
- ☐ Bachelor of Social Work (BSW)
- ☐ Bachelor of Nursing (BSN)
- ☐ Bachelor of Environmental Studies
- ☐ Bachelor of Environmental Science
- ☐ Bachelor of Computer Science
- ☐ Other: _____

Please select your current approximate grade point average (GPA) or your GPA at the time of graduation.

- ☐ A+ (90-100%)
- ☐ A (85-89%)
- ☐ A- (80-84%)
- ☐ B+ (77-79%)
- ☐ B (73-76%)
- ☐ B- (70-72%)
- ☐ C+ (67-69%)
- ☐ C (63-66%)
- ☐ C- (60-62%)
- ☐ D+ (57-59%)
- ☐ D (53-56%)
- ☐ D- (50-52%)

How many months has it been since you finished your undergraduate degree or diploma?

- ☐ Less than 3 months
- ☐ 4 months to 6 months
- ☐ 7 months to 12 months
- ☐ 13 months to 24 months
- ☐ 25 months to 36 months
- ☐ 37 months to 48 months
- ☐ 48 months to 60 months
- ☐ 61 months or more

Did you enroll in a degree, certification, or professional program after graduating from your undergraduate degree/diploma?

- ☐ Yes
- ☐ No

If yes, what type of additional program are you (or did you) enrolled in?

- ☐ Master's Degree
- ☐ Doctorate in Philosophy (PhD)
- ☐ Other: _____

Select the statement that best describes why you decided to pursue additional post-secondary education:

- ☐ My job of interest required additional education
- ☐ I was unemployed
- ☐ I was underemployed
- ☐ I wanted a higher salary
- ☐ I wanted to make a career change

Have you gained any work experience related to your undergraduate degree/certificate?
If so, how did you gain this experience?

- ☐ Co-op placement
- ☐ Practicum
- ☐ Internship
- ☐ Field experience
- ☐ Student teaching
- ☐ Applied research projects
- ☐ Community-based service
- ☐ I did not gain any experience

Have you been **unemployed** since graduating from university? If so, for how long?

- ☐ Less than 3 months
- ☐ 4 months to 6 months
- ☐ 7 months to 12 months
- ☐ 13 months to 24 months
- ☐ 25 months to 36 months
- ☐ 37 months to 48 months
- ☐ 48 months to 60 months
- ☐ 61 months or more
- ☐ I have not been unemployed

Current Employment

What is your **current** employment situation? Select a choice that applies to you.

- ☐ I am unemployed
- ☐ I have a part-time job
- ☐ I have a full-time job

What is your current job title?

How satisfied are you with your current job?

- ☐ I am very dissatisfied
- ☐ I am dissatisfied
- ☐ I am neither satisfied nor dissatisfied
- ☐ I am satisfied
- ☐ I am very satisfied

Do you think that your current job aligns with the **undergraduate degree or certificate** that you earned in university? Please select from one of the following choices.

- ☐ My current job **does not** align with my undergraduate degree or diploma
- ☐ My current job **somewhat** aligns with my undergraduate degree or diploma
- ☐ My current job **closely** aligns with my undergraduate degree or diploma
- ☐ My current job **strongly** aligns with my undergraduate degree or diploma

In a similar fashion, do you think that your current job aligns with the **career interests** you had when you graduated from university? Please select from one of the following choices.

- ☐ My current job **does not** align with the career interests I had when I graduated from university
- ☐ My current **somewhat** aligns with the career interests I had when I graduated from university
- ☐ My current job **closely** aligns with the career interests I had when I graduated from university
- ☐ My current job **strongly** aligns with the career interests I had when I graduated from university

Appendix D—Debriefing Information

Debriefing for the Study

The Role of Occupational Engagement, Persistent Tendencies, and Future Work Self on Recent Graduates' Decision-Making Confidence and Career Decision Distress.

Thank you for your time! Please read this information to find out more about the study. Please take note of the URL for this webpage so that you can revisit it at a later time if you have questions or concerns.

What are we trying to learn in this research?

The world of work has become increasingly demanding, ever-changing, and uncertain—a reality that can make career decision-making and development difficult for young adults looking to develop their careers after graduating from university. Faced with this, young adults may find themselves undecided about what they would like to do, which may lead to strong feelings of distress about such career indecision. To deal with this, young adults need to embark on adaptive career decision-making processes that can improve their confidence in making career decisions and reduce their career decision distress. Using a retrospective recall research design, we asked you to tell us about your sense of occupational engagement and persistence in achieving your long-term goals. We also asked you to tell us about your views on your hoped-for future work self, your sense of confidence in making career decisions, and your felt career distress. Lastly, you were asked to tell us about who you are, as well as your education and employment. We hope that the information you have provided will help us understand *the adaptive career decision-making processes that influence individuals' career decision-making confidence and career decision distress after graduating from university*.

Why is this important to scientists or the general public?

As the world of work is increasingly changing, such changes have led to a rise in the possible career paths individuals can undertake. Within such a reality, expectations are placed on the individual to play an active role in constructing, developing, and making decisions about the possible careers they wish to pursue upon graduating from university.

This research will help us to examine the adaptive career decision-making processes that affect career decision-making and career decision distress after graduating from university. Ultimately, we hope that the results of this research will provide young adults with a good understanding of the ways that adaptive career decision-making processes improve individuals' career decision-making confidence and lower career decision distress.

In addition, this research can shed light on the adaptive career decision-making processes that buffer against career decision distress, which in turn may be used to develop evidence-based vocational training or interventions that promote career readiness among students about to graduate from university.

Where can I learn more?

To learn more about occupational engagement, persistence, future work self, and career decision-making, please see:

<http://www.univcan.ca/universities/facts-and-stats/>
<http://www.univcan.ca/universities/facts-and-stats/value-liberal-arts-quick-facts/>
<https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2017388-eng.htm>
<https://angeladuckworth.com>
<https://student.unsw.edu.au/blocks-career-decision-making>
<https://www.theglobeandmail.com/report-on-business/graduates-face-an-unwelcoming-job-market-when-they-get-out-of-school/article31703528/>

Is there anything I can do if I found filling out this survey to be emotionally upsetting?

Yes. If you feel any distress or anxiety after participating in this study, please feel free to contact a local crisis/distress centre or call a distress helpline:

Canada: 866-531-2600
U.S.A.: 800-273-8255

What if I have questions later?

If you have any remaining concerns, questions, or comments about this study, please feel free to contact Dr. Bernadette Campbell at the Department of Psychology, Carleton University, Bernadette.Campbell@carleton.ca, phone: 613-520-2600, ext. 4080 or Graduate Research Assistant Rene Guardado, reneguardado@cmail.carleton.ca

Should you have any ethical concerns about this study please contact Dr. Natasha Artemeva, Vice-Chair, Carleton University Research Ethics Board–B (by phone at 613-520-2600 ext. 4085 or email at ethics@carleton.ca).

This study has received clearance by the Carleton University Research Ethics Board–B (Clearance # 106070).

Again, thank you for participating in this research!

For maximum confidentiality, please close this window.