

COPING, ACHIEVEMENT, AND PSYCHOLOGICAL ADJUSTMENT

**The Transferability of Coping on the Subjective Achievement and Psychological
Adjustment of Students and Recent Graduates: A Series of Dual-Domain Studies**

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General Abstract

Do the factors that help students attain desirable outcomes in university transfer to help them attain desirable outcomes upon work entry? The overarching goal of this dissertation is to examine the role of coping in helping university students and recent graduates maintain positive levels of achievement and psychological adjustment during the short- and long-term pursuit of their academic and career goals. Based on the extant literature on stress and coping, three studies document the achievement and psychological adjustment of young adults along theoretically relevant time points in their academic and career development.

Study 1 builds on prior findings from Chamandy and Gaudreau (2019) by bridging the academic and career strivings of 550 university students across two examination periods to consider the domain specificity and changing nature of the coping process. We first examined the contemporaneous interplay between perceived control, coping, goal progress, and burnout in both the academic and career domains. We then examined if these patterns translated at the longitudinal level. Results indicated that earlier coping predicted change in goal progress, but not in burnout, in both domains. In the career domain, earlier goal progress also predicted change in task-oriented coping, thus revealing a bidirectional effect. No cross-domain effects were supported. Overall, the associations between coping, goal progress, and burnout differed both within and across time and contexts.

Study 2 re-examined these associations among employees who had recently gone through the transition to work. In a two-wave longitudinal study, a sample of 153 recent graduates completed measures of appraisal, coping, goal progress, satisfaction, and burnout while retrospectively assessing their past experiences as university students and their current experiences at work. Results indicated that task-oriented coping in school was related to greater change in goal progress and satisfaction from school to work, whereas disengagement-oriented coping was related to greater change in burnout and to lower change in satisfaction. In turn,

change in task-oriented coping was related to lower work burnout, whereas change in disengagement-oriented coping was related to greater change in work burnout and to lower change in work satisfaction. The findings also revealed bidirectional effects across school and work. Finally, graduation grades were shown to be useful but insufficient for our understanding of successful adaptation in the workplace, thus proving new insights on the psychological mechanisms involved in both the successful transition from university to work and the short-term adaptation of recent graduates at work.

Study 3 takes a novel perspective on the experience of university students by testing a coping intervention involving hypothetical impediments to the pursuit of their career goals. In a two-wave randomized controlled study, 275 university students completed measures of transition-related controllability appraisals and school-related coping, satisfaction, burnout, and goal progress. The experimental condition elicited self-regulatory benefits by demonstrating group differences in the growth, decline, and follow-up levels, as well as in some of the associations between the intercepts and slopes of controllability appraisals, coping, satisfaction, and burnout. These findings indicate that a coping intervention can improve students' perception of the transition to work and promote a more positive university experience.

This thesis provided new knowledge on the role of coping in offering an advantage to university students on the job market beyond its role in facilitating goal progress and psychological adjustment. Our work opens the door to a long-term research agenda deemed necessary for practitioners and administrators with regards to the role of coping processes in the lives of university students during and beyond their post-secondary education. As a whole, the current dissertation makes theoretical, methodological, and empirical contributions to the coping and transition literature in social, educational, and organizational psychology.

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Statement of Co-Authorship

The three studies included in this doctoral dissertation were prepared in collaboration with my thesis advisor, Dr. Patrick Gaudreau. The first study, entitled “The Pursuit of Academic and Career Goals: A Dual-Domain Latent Change Score Model of Coping, Progress, And Burnout” has been published in the International Journal of Stress Management (2022). The second study, entitled “Coping from University to Work: The Transition and Short-Term Adaptation of Recent Graduates”, has been submitted for peer review. The third study, entitled “Promoting the Student Experience by Preparing for a Life After Graduation: A Small-Scale Coping Intervention”, has not yet been submitted for publication.

As a first author on all three manuscripts, my role consisted of developing the studies and conceptualizing the research questions and method, reviewing the literature, preparing and submitting ethical applications, recruiting participants and conducting longitudinal follow-ups, collecting data, managing and preparing the databases for analyses, analyzing and interpreting the data, and writing the manuscripts and preparing them for publication. As a second author, my thesis advisor Dr. Gaudreau, provided me with guidance on all aspects of the research projects, especially in the refinement of the research questions, theoretical rationales, and methods, the statistical analyses and their interpretation, and the revision and provision of feedback on the manuscripts.

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CHAPTER 1

General Introduction

General Introduction

Statement of the Problem: Transferability of Coping from Study to Work

Universities are mandated to provide high-quality education to students in order to maximize their knowledge and competencies prior to entering the labor market. It follows that a university education has the potential to enhance students' personal development and help them cultivate important skills that will facilitate their advancement toward desired career outcomes. Yet, is it the university's mandate to provide all life skills?

Over the past decades, a great proportion of job postings have been open to graduates from any discipline, reflecting a greater need for transferable skills (e.g., adaptability), rather than for degree-specific knowledge. This reality is evident in reports indicating that many university graduates are not well prepared for the workplace (Raybould & Sheedy, 2005), with few of them displaying the skills necessary for occupational success (Wood & Kaczynski, 2007; Lenarcic Biss & Pichette, 2018). Poor preparation can be problematic given that the quality of the transition from university to work can have many effects on an individual's psychosocial adjustment, including their well-being, employability, productivity, and job satisfaction (e.g., Akkermans et al., 2015; Hettich, 2010; Salmela-Aro & Vuori, 2015). Meanwhile, these outcomes also matter for economic and societal well-being. Yet, a life transition remains a period marked by high uncertainty, during which individuals have to bridge the gap between the familiar and the unknown (Wendlandt & Rochlen, 2008).

Employers agree that to succeed in today's global economy and to prepare students for the realities of the work environment, universities could improve on the broader skills that can generalize across disciplinary content knowledge and contexts (Barrie, 2006; Hilton, 2015). Consequently, universities are expected to equip their students with the abilities that will make

them competitive in the workforce (Appleby, 2018; Star & Hammer, 2008). On the one hand, the university's mandate is to optimize the acquisition of knowledge and competencies rather than to train individuals. On the other hand, universities should go beyond the simple transmission of knowledge to ensure that students acquire skills that can be useful both for learning and performing not only in school but also once on the job market.

We know that while students are striving to succeed in school, they are also building the foundation for their future career. Findings from a meta-analysis have shown that academic performance accounts for 2.4% of the variance in occupational performance criteria (e.g., income, job satisfaction; Samson et al., 1984; see also Roth et al., 1996). More recently, research has shown that while both ability (e.g., numerical ability, grade point average [GPA]) and non-ability (e.g., self-regulation, striving-orientation) composite factors were significant predictors of academic performance, only the non-ability composites predicted job performance (supervisory rating obtained from Coop Program; Kanfer et al., 2010). Moreover, research reviewing the predictive validity of 30 job selection methods showed that GPA holds an incremental value of less than 1% (Schmidt et al., 2016), suggesting that other factors are at play in predicting job performance. If indicators of academic success, such as grades and degree-specific knowledge, are useful but not sufficiently strong predictors of later success, then research efforts are needed to create bridges between educational and work psychology. Psychological variables (i.e., cognitive and behavioural factors) could play an underestimated role in the successful pursuit of personal strivings across the domains of school and work (Akkermans et al., 2015; Vuori & Toppinen-Tanner, 2015). Keeping both students and recent graduates in mind, the goal in this thesis is to document this dual challenge by reconciling both striving domains to provide predictors of short- and long-term success.

Research Goals

The overall aim of my doctoral research program is to better understand the role of coping as one of the key psychological factors in facilitating students' attainment of desired outcomes during the pursuit of their academic and career goals. The dissertation is divided in three main sections. The first section (Chapter 1) presents the theoretical backbone of my doctoral research.

The second section (Chapters 2-4) includes three studies designed to answer fundamental questions about the pursuit of academic and career goals and the role of coping in offering an advantage to university students while in school and to recent graduates once on the job market. Throughout, the research builds on the transactional theory of stress and coping proposed by Lazarus and Folkman (1984) and the recently developed dual-domain framework (Chamandy & Gaudreau, 2019). Coping is introduced as a key transferable skill capable of promoting desired outcomes in terms of *achievement* and of *psychological adjustment* among both students and recent graduates. In *Study 1*, students are assessed during two exam periods to capture the *domain specificity* and *changing nature* of the coping process during the simultaneous pursuit of their academic and career goals. In *Study 2*, the psychological mechanisms involved in both the successful transition from university to work and the short-term adaptation of recent graduates at work is investigated. *Study 3* describes a randomized control study designed to evaluate if students' beliefs about their capability to cope with the demands of their school-to-work transition can be targeted to promote more desirable appraisal of their transition as well as a more positive student experience. Finally, in Chapter 5, I discuss the implications of my research program, along with limitations and ideas for future research directions.

Stress, Appraisal, and Coping

Following a long research tradition that viewed stress as the body's physiological reaction to any demand that is placed on it (e.g., Cannon, 1929; Selye, 1936), psychological stress was later introduced to recognize that people differ in how they view and react to challenging events and situations (e.g., Endler & Magnusson, 1976; Lazarus, 1966). Herein, stress is viewed as a process whereby an individual perceives and responds to events that they appraise as demanding or threatening to their well-being (Lazarus & Folkman, 1984). Lazarus's transactional model of stress includes four key concepts. The *person-environment relationship* (transaction), which incorporates external demands (stressors) and individual characteristics (resources), can give rise to *perceived stress*. *Cognitive appraisal* and *coping processes* are two central mediators within this person-environment transaction. That is, the person-environment transaction is said to differentially relate to adaptation outcomes indirectly through how individuals appraise and cope with the demands of the situation (Lazarus, 1993).

Cognitive Appraisals

In the stress and coping theory proposed by Lazarus and Folkman (1984), cognitive appraisals represent the process of assessing an encounter with respect to its significance for the individual. According to Lazarus (1999), goals and goal hierarchies influence appraisal because individuals are more likely to appraise a situation as meaningful if it involves more important as opposed to less important goals for oneself. When a goal is at stake or the demands of the environment are cognitively appraised as exceeding personal resources, the individual will experience increased stress and decreased well-being (Lazarus & Folkman, 1984). A situation is not always inherently stressful; two individuals are likely to experience the same situation in very different manners depending on how they perceive the external demands and the personal

resources they hold to face those demands (Siemer et al., 2007). In the context of academic and work strivings, the situation may involve goals that are more personally significant for one person than for another, or one person may perceive to be better equipped than another to control the outcome of the situation. As such, the concept of *cognitive appraisal* is insightful to understand the variability of responses among individuals who experience a similar stressor and the reason why a given situation may be more stressful for certain people or may require a greater mobilization of resources to effectively cope with the situational demands.

The way students think and feel about their goals during stress-related situations can be organized into *primary* and *secondary* appraisals (Lazarus & Folkman, 1984). It is important to note that there is no precise order in which primary and secondary appraisals occur, despite what the terms suggest. Primary appraisal represents evaluations of the personal meaning that the individual attaches to an event and the significance that it may have for their goals, well-being, and resources. In school and at work, these resources can include time, ability, knowledge, and the availability of support networks. When this evaluative process pertains to an outcome that has already occurred, it can represent a stressful evaluation of harm/loss or a non-stressful evaluation of benefit, both of which refer to appraisals of undesirable and desirable outcomes, respectively. When a stressful evaluation pertains to an anticipatory outcome, it can represent challenge or threat (Lazarus, 2006). A threat appraisal implies potential damage and occurs when a situation is relevant to one's goals or well-being, but for which the individual perceives that the demands exceed one's resources. A challenge appraisal suggests opportunities for personal growth and occurs when a situation is interpreted as relevant to one's goal or well-being, as long as the person perceives opportunities to master and overcome the demands and obstacles encountered during the coping process (Lazarus & Folkman, 1984).

Challenge is referred as a stress appraisal because the person must mobilize resources to cope with obstacles in order to produce a desirable outcome and reduce the risk of harm (undesirable outcome), thus making challenge and threat a matter of degree rather than a matter of exclusivity (Lazarus & Folkman, 1987). The co-occurrence of challenge and threat appraisals is even more likely to occur when an anticipated situation is highly ambiguous or involves multiple outcomes for which an individual can see possibilities of both positive and negative consequences (Folkman & Lazarus, 1985). Whether more positive, negative, or mixed, appraisals give meaning to the demands of the situation and differentially relate to how the individual will cope with the source of stress (Pekrun et al., 2002). Hence, cognitive appraisals of challenge and threat are attached to and can be repositioned within a larger system of approach and avoidance motivational tendencies, respectively (Blascovich, 2008; Carver & Scheier, 1998).

The role of secondary appraisal is to assess how the situation or goal can be managed given one's resources (Lazarus & Folkman, 1984). It addresses the question "What can I do?" (Folkman, 1984) and the answer to this question is a key determinant of the coping actions an individual will use to deal with the goal-related demands or obstacles (Lazarus & Folkman, 1984). Perceived control – the extent to which a person perceives to have control over a specific situation – is among those beliefs that play a role in secondary appraisal (Folkman, 1984). The subjective evaluation of whether one's resources are adequate to exercise control over a situation and its outcome have been hypothesized to influence the kind of coping an individual will use in response to that situation (Compas et al., 1991; Folkman, 1984). Research on constructs of control such as learned helplessness, attribution theory, locus of control, perceived control, and self-efficacy have shown that people's beliefs about whether they can directly control outcomes

are strong predictors of their responses to these events (Ajzen, 2002; Bandura, 1989; Poulin & Heckhausen, 2007; Rotter, 1966; Skinner & Zimmer-Gembeck, 2010).

Perceived control can be stress reducing (Folkman, 1984). If the stressor relates to the pursuit of a valued goal, then perceived control can act as a motivational force that drives the person to approach the situation as a challenge (Skinner & Zimmer-Gembeck, 2010). Perceptions of control can thus hold motivational properties that foster information seeking, planning, and effort expenditure rather than uncertainty, avoidance, or disengagement (De Rijk et al., 1998; Schellenberg & Bailis, 2016). However, the belief that one can exercise control in a stressful transaction can also heighten threat (Folkman, 1984). For example, a person may perceive having control over a situation that is unpleasant for them, or exercising control over a stressful event may come at the expense of a valued goal. A long tradition of research on learned helplessness has examined the link between controllability and depression (e.g., Brown & Siegel, 1988), with some suggesting that depressive symptoms may precede self-blame and control attributions (e.g., Peterson et al., 1981). Despite the limited and mixed findings, some useful attempts have been made to differentiate and disentangle the many related variables used to define and operationalize the construct of control (e.g., Skinner, 1996). From there on, there is general consensus that beliefs about personal control (e.g., self-efficacy, causal attributions) and control appraisals (e.g., perceived situational control) represent different, albeit related, psychological constructs, both of which should be distinguished from actual control conditions. Namely, *actual control* represents objective conditions of controllability, outside of one's perceptions, whereas *general beliefs* are psychological resources (dispositional lens, lay theories) that can influence the fine-grained *situational appraisals* in the stress process (Bandura, 1997; Jerusalem & Schwarzer, 1992). In fact, self-efficacy is suggested to exert a strong influence on

situational appraisals and the ways in which an individual will cope with a stressful transaction (Park & Folkman, 1997).

For students and employees alike, a life transition is less a matter of change (i.e., actual control) than of one's own perception of the change (Schlossberg, 1984). The experience of every individual thus partially depends on their perception of the event. When the outcome of an event is difficult to predict accurately, individuals may experience an aversive state due to their inability to identify and plan the behaviours that will allow them to act efficaciously in a specific situation (Lazarus & Folkman, 1984; Milliken, 1987). As human beings whose basic needs include predictability and control, it is no surprise that some people report having a low tolerance for uncertainty (Dweck, 2017; Weissenstein et al., 2014). This is in part because humans seek to construct a meaningfully predictable world and uncertainty about internal or external events can disturb schemas about how to act (Hogg, 2016; Piaget, 1952; Wadsworth, 1996). As such, uncertainty has been proposed to act as a negative appraisal that can lead to greater psychological and physiological stress (Hirsh et al., 2012; Lazarus & Folkman, 1984; Peters et al., 2017; Sweet et al., 1999).

It is important to note, however, that some level of stress can have enhancing properties that motivate action (Crum, 2011; Park & Fenster, 2004; Struthers et al., 2000), especially in situations that are relevant to one's goals and for which there are perceptions of situational control (Bandura & Wood, 1989; Frazier et al., 2011; Poulin & Heckhausen, 2007). Hence, given that getting rid of academic and workplace stressors is simply not feasible, nor is it advisable (Jamieson et al., 2018), the processes involved in the successful management of external events must be considered as pivotal to successful development (Brammer, 1992; Dietrich et al., 2012; Nurmi et al., 2002; Schlossberg, 1984). It appears, then, that students could do a better job at

appraising and managing the academic and career demands they face along the way to achieving their goals, as they are ubiquitous to the experience of being a student and preparing for a career. Yet, there is little empirical evidence – from a transactional perspective (Lazarus & Folkman, 1984) – on the coping mechanisms involved in the successful navigation of academic and career-related demands in the context of the school-to-work transition. The examination of such processes – those that serve to help students succeed in school while at the same time better prepare for the eventualities of workplace entry – remain an important gap in the existing psychological literature.

What is Coping and Why is it Important?

Lazarus and Folkman (1984) defined coping as the constantly changing cognitive and behavioural efforts used to manage specific external and/or internal demands. The transactional nature of coping implies that individuals can modify their thoughts and behaviour according to the personal resources they hold (e.g., time, goals, experience, attitudes) and the changing demands of their environment. It follows that coping is an important aspect of overall self-regulation (Compas et al., 2014) and serves not only in response to distressing events, but also in the pursuit of developmental goals that typically involve many day-to-day challenges and opportunities for long-term growth (Heckhausen et al., 2010; Skinner & Pitzer, 2012). Students who pursue academic and career goals inevitably face obstacles in the striving process. Big or small, these obstacles may be appraised as meaningful and managed with the use of various coping strategies.

Distinguishing Task- and Disengagement-Oriented Coping. The conceptualization of coping distinguishes between two broad dimensions, namely task-oriented coping (i.e., persistence with goal-directed effort) and disengagement-oriented coping (i.e., withdrawal from

goal-directed effort; Carver & Connor-Smith, 2010; Gaudreau & Blondin, 2002; Lazarus, 2006; Tobin et al., 1989). According to this perspective, coping is a multidimensional construct that can be conceptualized hierarchically at three levels of analysis: coping instances, coping strategies, and coping dimensions (Skinner et al., 2003). At the lowest level are coping *instances* that represent coping behaviours or cognitions, such as “I made a list of things to do”. These instances represent the infinite real-time responses that individuals use to deal with specific stressful transactions. At the intermediate level are the coping *strategies* that organize these highly personal and situation-specific coping instances, such as “planning”. At the highest level are the coping *dimensions* that organize all the coping strategies that serve to fulfill a common goal in dealing with a stressor, such as “task-oriented coping”.

Within the large and intricate coping literature (Folkman & Moskowitz, 2004; Skinner et al., 2003), we can easily go back to the early works of Lazarus and Folkman (1984) who originally differentiated between problem- and emotion-focused coping. Problem- and emotion-focused coping reflect the functions of coping responses to either act on the source of stress in the environment or palliate negative emotions that arise from a stressful encounter or event (Lazarus & Folkman, 1984). These two forms of coping can be found at the heart of many coping theories and approaches (e.g., Compas et al., 2017; Folkman & Moskowitz, 2004; Skinner et al., 2003). Over the years, however, researchers have argued that the management of the stressor (i.e., task) and the management of the resulting emotions should be studied as coping functions that go hand in hand in the service of a common goal, rather than as two separable coping functions (Carver et al., 1989; Carver & Connor-Smith, 2010; Crocker et al., 2015; Gaudreau, 2018; Lazarus, 2006). As a result, researchers have directed their efforts toward the conceptualization of coping into two broader dimensions of action that integrate (1) the

approach of task demands and the *active* regulation of associated emotions, known as task-oriented coping (also called active coping), and (2) the *avoidance* of task demands and the *passive* regulation of associated emotions, known as disengagement-oriented coping (Ayers et al., 1996; Carver & Connor-Smith, 2010; Compas et al., 2001; Gaudreau & Blondin, 2002; Parker & Endler, 1992; Roth & Cohen, 1986; Skinner et al., 2003).

Task-oriented coping includes problem-focused coping and some forms of active emotion-focused coping. This coping dimension includes strategies such as planning, logical analysis, thought control, mental imagery, relaxation, effort expenditure, and support seeking. *Disengagement-oriented coping*, in contrast, involves efforts aimed at avoiding task demands and internal states by disengaging or distracting the self from goal-directed behaviour. This coping dimension includes strategies such as venting negative emotions, social distancing, mental distraction, and behavioural disengagement. Therefore, task-oriented coping includes responses that are oriented *toward* the source of stress or one's thoughts and emotions, whereas disengagement-oriented coping refers to responses that are oriented *away* from the stressor or one's thoughts and emotions.

The hierarchical conceptualization of coping has many methodological advantages (Skinner et al., 2003). First, the measurement of coping dimensions facilitates coping research by reducing the number of variables and the necessary statistical power that would otherwise be needed to analyze the many coping instances or strategies included in each dimension. Second, coping dimensions regroup highly correlated variables into a theoretically interpretable score that can reduce the likelihood of multicollinearity and suppression effects, which could both hide the true effect of coping on a given outcome or provide results that are inconsistent across samples (Iacobucci, 2010; MacKinnon et al., 2000). Third, coping strategies and coping dimensions

provide different but complementary viewpoints to help clinical psychologists and school counsellors understand how the coping strategies of a person are unique yet interrelated. At the intermediate level, the measurement of coping strategies still offers a more fine-grained understanding of the coping strengths and weaknesses of an individual. At the higher-order level, the resulting coping dimensions allow researchers to study their distinct function in the stress process. Despite the limited number of psychometrically sound hierarchically structured coping questionnaires (e.g., Ayers et al., 1996; Connor-Smith et al., 2000; Walker et al., 1997), organizing coping within a hierarchical framework is advantageous to create testable and theory-driven hypotheses.

A majority of researchers agree on the hierarchical conceptualization of the coping construct (see Skinner et al., 2003). It offers a parsimonious way of studying the functional homogeneity and distinctiveness of each level of analysis as well as their links to adaptive processes. However, a pervasive problem with typical approaches to the structural analysis of items designed to measure coping is their tendency to provide insufficient empirical support (i.e., model fit) due to the inherent complexity of hierarchical factor structures. The coping inventory for academic strivings (CIAS; Thompson, 2015) is a questionnaire that was developed to measure how students manage the range of demands relevant to their academic goals (Thompson, 2015). During its development, the scores of the CIAS were shown to have good reliability (i.e., internal consistency and test-retest reliability) and validity (i.e., factorial, divergent, convergent, incremental, predictive; Thompson, 2015) within the student population. In particular, support was found for the incremental validity of the two dimensions of coping in the prediction of academic outcomes over and above a general measure of coping (i.e., the Brief COPE), thus suggesting that the CIAS measures specific cognitions and behaviours that are not

captured by general coping. Support was also provided for the concurrent and predictive validity of the CIAS by showing significant positive associations between task-oriented coping and challenge appraisal, situational control, emotional control, self-efficacy, positive affect, and academic satisfaction, both contemporaneously and prospectively, three weeks after exams (Thompson, 2015). Positive contemporaneous and prospective associations were also found for autonomous goal motivation and goal progress, respectively. Disengagement-oriented coping showed significant positive associations with perceived stress, test anxiety, fear of failure, controlled goal motivation, negative affect, and dropout intention.

Past research on the hierarchical structure of the CIAS provided evidence of acceptable factorial and construct validity. However, recent advances in factor analyses now enable researchers to identify areas of model misfit to investigate whether model misfit is simply due to small cross-loadings or residual correlations, or if substantive model misspecifications are responsible of creating large incoherencies between the proposed model and the empirical data (Muthén & Asparouhov, 2012). In a recent study, Chamandy and Gaudreau (2022a) performed a Bayesian confirmatory factor analysis. As usual, the fit of the hierarchical factor model was inferior to the fit of a regular factor model in which strategies are correlated together without being organized into coping dimensions. However, results indicated that the sources of model misfit were inconsequential, trivial, and largely due to the fact that the hierarchical factor model replaces 55 correlations by 11 second-order loadings. This hierarchical model is therefore parsimonious as it provided a useful and sufficient account for how coping strategies related with one another. As noted by Lazarus (1999), “we should have learned by now that the same act may have more than one function and usually does [...] however seductive it may seem, coping functions and strategies should never be thought of in either-or terms, but as complex

interconnected thoughts and actions aimed at improving the trouble relationship with the environment” (p. 123-124). Together, our findings showed that each coping strategy can be used to primarily conceptualize one coping dimension. Small and trivial cross-loadings (when accumulating across many sets of intercorrelations) appears to be the main cause of model misfit when comparing the hierarchical coping model to a model in which coping strategies are all inter-correlated without being reorganized into larger coping dimensions.

Overall, research has provided evidence for the utility of a hierarchical model that distinguishes task- and disengagement-oriented coping as distinct families or dimensions of coping that are distinctively predicted by *cognitive appraisals* and associated with indicators of *adjustment* and *achievement*. For the remainder of my dissertation, the words *task-oriented coping* and *disengagement-oriented coping* are meant to designate studies that have looked at task- and disengagement-oriented coping strategies or as task- and disengagement-oriented coping as broader dimensions. Hence, I use the label *task-oriented coping* to refer to studies looking at problem-focused coping, engagement coping, active emotion-focused coping, and any other synonyms used in the literature to capture my operational definition of task-oriented coping. In contrast, I use the label *disengagement-oriented coping* to refer to studies looking at avoidance coping, passive/inactive emotion-focused coping, and any other synonyms used in the literature to capture my operational definition of disengagement-oriented coping.

Coping and Coping Effectiveness

In daily parlance, people use the word coping to describe a successful or desirable coping outcome. In psychological science, coping refers to the effort or an attempt to cope rather than to the effectiveness of this attempt (e.g., Lazarus & Folkman, 1984). Coping effectiveness is an empirical question. The effectiveness of a coping strategy largely depends on the nature of the

response (e.g., task- vs. disengagement-oriented strategies), life domain in which it is used, situational opportunities and constraints, and the characteristics of the individual (Heckhausen, 1997; Lazarus & Folkman, 1984; Skinner et al., 2003). Hence, generalizations about the functional/adaptive or dysfunctional/maladaptive value of any form of coping cannot be made without considering the person and the context in which it takes place.

A coping dimension is said to be effective when it relates to and improves consequential outcomes (e.g., psychological health, physical health, social functioning, performance).

Accordingly, coping effectiveness can be understood as “the degree to which a coping strategy or combination of strategies is or are successful in promoting successful adaptation” (Crocker et al., 2015, p. 52; Lazarus & Folkman, 1984). Among students and employees, achievement and psychological adjustment are critical outcomes for successful adaptation and development (Aldwin, 2007; Heckhausen et al., 2010). Importantly, the ways in which students manage the demands of their personal strivings will affect not only their academic and professional achievements, but also their short- and long-term psychological adjustment (Klug & Maier, 2015).

Coping and Achievement. Achievement is multidimensional and it can be conceptualized using external (objective) standards of achievement and internal (subjective) standards of achievement. When we speak of success in popular culture, we often think of wealth and social status. In the school and work domains, success often refers to program admission, grades, educational attainment, employment in one’s domain of expertise, promotions, or monetary earning. For example, grade point average remains a widely used measure to benchmark students and make important administrative decisions (e.g., admission, probation, bursaries). This is also true for salary among employees. Such objective measures of

achievement, however, do not take into consideration the idiosyncratic nature of the personal goals pursued by an individual (e.g., Hsee & Abelson, 1991). For example, two students with the exact same grades (e.g., B) may have totally attained or totally unattained their academic goal, thus leading to increases in positive and negative affect, respectively (Wiese, 2007). For that reason, it is pivotal to consider achievement in ways that reflect on the individuals' personal standards and denote the attainment of personally desired outcomes, such as goal progress, goal attainment, and satisfaction with one's performance.

Cross-sectional and prospective associations between coping and achievement are well established in academic and work settings. In particular, *task-oriented coping* has been shown to positively and significantly relate to subjective indicators of academic achievement, such as academic goal progress (Chamandy & Gaudreau, 2019; Garriott & Nisle, 2018; Gaudreau et al., 2012; Soucy Chartier et al., 2011). At work, task-oriented coping has been related to subjective indicators of job achievement, such as self-rated job performance (Armstrong-Stassem, 1994; Rabenu et al., 2016; Shimazu & Schaufeli, 2007; Shimazu et al., 2010). Although most research has examined the contemporaneous associations between task-oriented coping and subjective achievement, there is some evidence to support their prospective association over a four-week interval in relation to an examination period (Gaudreau et al., 2012; Thompson, 2015) and over a 1-year period in relation to general work stress (Shimazu & Schaufeli, 2007).

Similar patterns of results have been found with objective indicators of academic achievement, such as grades (Alarcon et al., 2013; Cohen et al., 2008; Edwards & Trimble, 1992; Endler et al., 1994; Gareau et al., 2018; Saklofske et al., 2012; Schellenberg & Bailis, 2016; Thomas et al., 2017; Vizoso et al., 2018, 2019; Zeidner, 1995). At work, task-oriented coping has also been associated with objective indicators of job achievement, such as supervisor ratings

and job finding (Brown et al., 2005; Körner et al., 2015). Although most of these studies relied on a cross-sectional design, the grades or performance ratings set as outcome variables are typically obtained prospectively from schools or supervisors at the end of a given period (year, semester, quarter). Overall – and despite some lack of significant association in some studies (Thomas et al., 2017; Whatley et al., 1998) – ample evidence exists to support that task-oriented coping matters to predict and understand achievement in both the educational and work domains.

The relationship between *disengagement-oriented coping* and achievement appears less consistent and potentially more complex. Specifically, in some cases, disengagement-oriented coping has been shown to negatively and significantly relate to subjective (Gareau et al., 2018; Gaudreau et al., 2012; Soucy Chartier et al., 2011) and objective indicators of academic achievement (Alarcon et al., 2013; Edwards & Trimble, 1992; Cohen et al., 2008; Thomas et al., 2017; Whatley et al., 1998) as well as subjective indicators of job performance (Rabenu et al., 2016). In other cases, negative, albeit non-significant, associations have been found with subjective (Gaudreau et al., 2012; Chamandy & Gaudreau, 2019) and objective indicators of academic achievement (Endler et al., 1994; Thomas et al., 2017; Schellenberg & Bailis, 2016) and with subjective (Shimazu & Schaufeli, 2007; Shimazu et al., 2010) and objective indicators of job achievement (Brown et al., 2005; Körner et al., 2015). The reasons for these inconsistencies may lie in the level of analysis with which the data is examined. In particular, a daily diary study examining the between- and within-person associations between coping and academic goal progress indicated that task-oriented coping was positively related to goal progress at the between-person level, whereas disengagement-oriented coping was not (Thompson, 2015). At the within-person level, however, task- and disengagement-oriented

coping were positively and negatively related to goal progress, respectively. These findings suggest that achievement may be lower on days when a person uses *more* disengagement-oriented coping than their typical average. Likewise, recent research has shown that the effect of disengagement-oriented coping on academic performance depends on the individuals' profile of coping usage and suggests that a person who uses disengagement-oriented strategies to a *larger* extent will exhibit lower performance and more symptoms of burnout than someone who uses a more balanced combination of disengagement- and task-oriented coping (Green et al., 2019). Despite the lack of significant association in some studies, empirical evidence indicates that disengagement-oriented coping can either be detrimental or at least not significantly useful to promote the achievement of students and employees.

Coping and Psychological Adjustment. Even more research has examined the relationship between coping and the psychological adjustment of students and employees. In school, the use of *task-oriented coping* strategies has been shown to positively relate to indicators of psychological adjustment such as life satisfaction (Saklofske et al., 2012), academic satisfaction (Boileau et al., 2020; Gaudreau et al., 2015), positive affect (Blouin-Hudon et al., 2016; Saklofske et al., 2012), psychological well-being (Aspinwall & Taylor, 1992; Keech et al., 2018; Perera & DiGiacomo, 2015), and academic adjustment (Leong et al., 1997), and negatively to symptoms of burnout such as cynicism and exhaustion (Vizoso et al., 2019). Task-oriented coping has also been shown to positively relate to indicators of psychological adjustment in the work setting, such as organizational identification (Amiot et al., 2006), job satisfaction (Amiot et al., 2006; Terry et al., 1996), and adjustment (Armstrong-Stassem, 1994), and negatively to symptoms of burnout (Boyd et al., 2009; Hyojung Shin et al., 2014; Laschinger et al., 2015; Zhao & Ding, 2020).

The use of *disengagement-oriented coping* strategies has been shown to negatively relate to indicators of psychological adjustment, such as life satisfaction (Saklofske et al., 2012), academic satisfaction (Boileau et al., 2020; Gaudreau et al., 2015), positive affect (Blouin-Hudon et al., 2016; Saklofske et al., 2012), and academic adjustment among students (Aspinwall & Taylor, 1992; Leong et al., 1997; Perera & DiGiacomo, 2015), and job satisfaction, psychological well-being (Terry et al., 1996), and organizational identification among employees (Amiot et al., 2006). Disengagement-oriented coping has also shown positive associations with symptoms of burnout and depression among students (Deary et al., 2003; Vizoso et al., 2019; Whatley et al., 1998) and employees (Boyd et al., 2009; Zhao & Ding, 2020). Although most research relied on cross-sectional designs, there is evidence to support the prospective associations between coping and psychological adjustment across several days (Boileau et al., 2020) and weeks (Perera & DiGiacomo, 2015) during a semester. Although research so far has been informative for researchers and practitioners in exposing the psychological consequences associated with the differential roles of coping in the school and work contexts, less research has investigated the coping mechanisms put in place by university students when simultaneously coping with the demands of their academic and career goals.

Coping with The Pursuit of Academic and Career Goals

An area that has received little research attention is the anticipation and experience of preparing for a life after graduation. As university students experience demanding school-related situations, they must also begin to think about and pursue the goals that will open the door to their desired post-graduation life. Future events can be an important source of stress, particularly when they are perceived as uncertain or ambiguous, or when the person perceives having limited control over the outcome (Monat et al., 1972). In such cases, stress can be viewed as the

anticipation of adversity in goal-related efforts (Carver & Connor-Smith, 2010) or the anticipation of demands that exceed personal resources (Lazarus & Folkman, 1984).

This period of anticipation does not necessarily involve being exposed to a stressor *per se*, but can impact the physiological and psychological responses of an individual in the same way (de Berker et al., 2016; Tomaka et al., 1993), thereby hindering the goal pursuit and psychological adjustment of the person (Dietrich et al., 2012; Muraven & Baumeister, 2000; Rettie et al., 2021). Furthermore, students' perception of post-graduation life has been suggested to be tainted by a sense of uncertainty and void compared to their short-term obligations and their well-defined academic lives as students (Chamandy, 2016). The demands of university may force some students to invest most of their resources (time, effort) in the management of school-related tasks. This imbalance of resource allocation can prevent students from preparing for and efficiently pursuing their career goals. This perspective supports previous research indicating that the senior year transition is marked by mixed emotions, ranging from positive feelings of achievement such as hope, pride, and optimism, to negative feelings such as desperation, uncertainty, and stress (Bonaccio et al., 2014; Overton-Healy, 2010).

Although setting the right academic and career goals and conducting an effective job search are often primary concerns for career counselors, students and soon-to be graduates also face a host of challenges as they strive to manage the day-to-day responsibilities and demands associated with the completion of their degree. That is, students are expected to succeed in school while at the same time navigate the pressure to develop the specific career plans that will dictate where they will be in the immediate future; All of this, despite still being unfamiliar with the precise opportunities, challenges, and culture of the workforce. Therefore, the university

experience represents a process of change that requires ongoing adaptation, which cannot be adequately understood without considering students' career strivings.

Despite the potential challenges associated with the pursuit of academic and career goals, students and employees can exert a certain degree of control over how they appraise and manage changing situations (Amiot et al., 2006; Dietrich et al., 2012; Gomes et al., 2013; Körner et al., 2015; Monat et al., 1972). For example, research in the work context has demonstrated the negative consequences of people's appraisal of uncertainty about organizational change on job satisfaction and turnover intentions across a four-week interval (Rafferty & Griffin, 2006; see also Bordia et al., 2004). In particular, the use of task-oriented coping strategies has been shown to predict a higher chance of finding a job over one year whereas disengagement-oriented coping predicted a lower income (Körner et al., 2015). Furthermore, a longitudinal study examining employees three and 24 months after the implementation of a merger found that their perceived self-efficacy (a control belief) about their capability to deal with the merger predicted greater use of prospective task-oriented coping, and stress appraisal predicted both a greater use of task- and disengagement-oriented coping (Amiot et al., 2006). In turn, task-oriented coping was related to higher levels of job satisfaction and identification with the merged organization, whereas disengagement-oriented coping was related to lower organizational identification. Hence, these findings support Lazarus & Folkman's (1984) framework, suggesting that coping mediates the appraisal–outcome relationship.

In a similar vein, a three-wave study spanning the first semester of students' transition to university examined if coping could predict changes in transition related indicators of successful adaptation (Amiot et al., 2008). Task-oriented coping one month into university was found to relate to an increase in students' academic motivation, identification as a university student, and

well-being from beginning to end of the semester. In contrast, disengagement-oriented coping was related to a decrease in both academic motivation and well-being.

Although no research has examined task- and disengagement-oriented coping during the simultaneous pursuit of academic and career goals (except Chamandy & Gaudreau, 2019) or during the transition from university to work, there is some evidence to suggest a spillover in burnout symptoms from school to work. In a sample of students who were followed from their final year at university into their first two years at work, it has been found that school-related symptoms of exhaustion and cynicism predicted work-related symptoms of exhaustion and cynicism, respectively. Overall, the transactional model of stress and coping is deemed to provide a valuable framework from which to study how coping with goal-related demands can relate to the short- and long-term achievement and psychological adjustment of students and recent graduates. Research is therefore needed to focus on bridging the gap between school and work strivings to better understand the psychological factors that could contribute to helping students prepare for their post-graduate transition while they are still actively engaged in the pursuit of their academic strivings.

Coping with the Current State of Affairs

Coping can vary across contexts, situations, and time (Gaudreau & Miranda, 2010). The transactional nature of coping implies that individuals can modify their behaviour according to the changing demands of their environment. This view of coping relies on a process-oriented approach that centers around three methodological conditions (Lazarus & Folkman, 1984; 1987). First, coping should be measured as actual situation-specific coping efforts rather than solely as dispositional tendencies that generalize across all areas of life. Second, to better understand and evaluate coping, its antecedents, and its outcomes, coping should be measured in a particular

context or situation. Third, because a process implies change, coping should be measured across different time points and contexts. Therefore, the situation or context, as appraised by the person, is important in shaping the coping process (e.g., Compas et al., 1988; Folkman et al., 1986; Peacock & Wong, 1996).

Individuals can use coping across all spheres of their lives, providing an array of different situations, contexts, and life domains in which it can be studied. Despite the mounting empirical evidence supporting the differential roles of coping in the lives of students and employees, relatively little longitudinal research has adopted a transactional point of view to study coping across time and contexts. Recent efforts have begun to embrace the necessity to incorporate multiple goals in the study of goal striving and successful adaptation (Gaudreau et al., 2015; see also Carraro & Gaudreau, 2011, 2015). Notably, a cross-sectional study examining the school- and sport-related coping of high school student-athletes revealed that coping in school and coping in sports had unique associations with context-specific satisfaction, even while controlling for general life satisfaction (Gaudreau et al., 2015). Although this dual-domain approach to studying goal pursuit has opened the door to the study of coping across multiple life domains (see also Carraro & Gaudreau, 2015), research efforts are still needed to bridge the gap between the academic and career strivings of university students. My goal, with this dissertation, is to build upon the transactional theory of stress and coping (Lazarus & Folkman, 1984) through the lens of the educational and organizational literature by examining coping as a process that can bridge academic and career strivings across time and contexts.

The School and Work Contexts

Life transitions are demanding, and the one from school to work can represent a period of high stress and ambiguity for some individuals (Sugarman, 2010). Unlike the transition from

high school to university, entry into the workplace represents a relatively clear demarcation from one's past identity, roles, independence, relationships, and lifestyle. It is also a time marked by uncertainty about the future – a future that can involve great change and little predictability (Brammer, 1992; Hettich, 2010).

We can compare the university and workplace settings on many levels to identify their similarities and differences. On the one hand, both environments are similar in that they involve related goals and experiences (Ballad et al., 2018). First, they can represent components of a broader self-regulatory system, with overarching goals that guide more immediate pursuits needed to facilitate the attainment of desired outcomes (Kruglanski et al., 2018; Stock & Cervone, 1990). Research indicates that people may prefer actions that enable progress toward multiple goals over actions that enable progress toward a single goal, presumably because they have greater value (Kruglanski et al., 2013). For example, the pursuit of a university education can represent a multifinal mean that serves in the attainment of both a degree and future employment. If the attainment of a university degree is perceived as instrumental for the attainment of a desired career, then educational pursuits have incentive value that can hold self-regulatory advantages (Neal et al., 2017; Riediger & Freund, 2004; Tabachnick et al., 2009). Second, both contexts of school and work are similar in that they involve achievement-related goals. They involve performance standards in relation to professional aspirations that individuals strive to achieve. Post-secondary education typically serves to provide students with a foundation of knowledge and experiences for future employment by connecting educational and work settings.

On the other hand, the academic and work settings can be argued to be very different, making the transition between both domains challenging. First, although both achievement-

related, both contexts differ in the amount of structure and feedback provided. University is typically defined as a structured learning environment with course syllabi that outline each objective and measure of performance. Students regularly complete assignments and tests on which they are provided an indication of their performance. Tasks in the workplace are generally different in that they often arise unexpectedly, and people are offered limited guidance and feedback. This relative lack of structure and direction can be challenging and frustrating for new graduates and may leave them feeling unsupported. Second, both students and employees can be required to work independently or cooperatively and be subjected to individual performance ratings. However, contrary to students who are accustomed to being evaluated individually, employees tend to focus on getting results for the client or the organization while being evaluated for the good of the collective group. Therefore, there is a need for new graduates to be adaptable in the face of change – whether this change relates to new demands, roles, expectations, uncertainty, or the acquisition of new skills.

The Psychology of Transitions

According to Schlossberg (1984), a transition is any event, or non-event, that results in changed relationships, routines, assumptions, and roles. Most theorists define transitions as an integral aspect of human development that involves a challenge to personal transformation and growth (for a review see Anderson et al., 2012). Although the onset of a transition may be linked to one identifiable event (i.e., graduation), transitions can be understood more accurately as a process that unfolds over time (Bridges, 1986; Schlossberg, 2011). Part of the complexity of life transitions is that they generally involve anticipated change (i.e., graduation, the necessity to seek employment) but also more ambiguous change (e.g., geographical location, roles, and workplace culture; Anderson et al., 2012). Anticipated events allow individuals to predict the

change, anticipate their options, and plan, whereas unanticipated and more ambiguous events do not (Schlossberg, 1984). As such, the uncertainties and resulting stress experienced by students are likely to be more specific to the ambiguous changes or events that await them in the future. This assumption has been supported by qualitative studies among senior year students and recent graduates (Chamandy, 2016; Nonglait & Myrthong, 2021; Perrone & Vickers, 2003; Yazedjian et al., 2010). Hence, although a university education brings challenges and periods of high demands, students perceive the transition between school and work as moving from a predictable path – one they have been following for nearly two decades – to a future filled with opportunities and paths to be created and made their own.

Building upon Bandura's seminal work (1989), the social cognitive career theory was developed to understand the processes through which people change and regulate their own behaviour in response to specific achievement-driven situations (Lent et al., 1994). The theory is based on a reciprocal determinism model that emphasizes cognitive, behavioural, and contextual factors as fundamental determinants of the varying outcomes achieved in educational and career pursuits. Goal mechanisms and coping processes are among these factors (Dix & Savickas, 1995). In the social cognitive career theory, coping self-efficacy represents a person's belief about their ability to cope efficiently with life challenges and is critical to whether a person feels confident in their ability to perform the actions necessary for goal attainment (Bandura, 1989; Green, 2017). People's beliefs in their capacity to manage environmental demands influence how they will approach novel or difficult situations and the thought processes, affective states, motivation, and behavioural responses they will experience when faced with stressors (Jerusalem & Schwarzer, 1992). While academic self-efficacy is a key component of the cognitive and behavioural efforts needed for both academic retention and academic performance, the theory also emphasizes the self-regulation of

effort as an important element in the achievement of long-term goals (Neal et al., 2017).

On the one hand, empirical studies consistently demonstrate that self-efficacy is related to various performance outcomes (e.g., Stajkovic & Luthans, 1998). In educational psychology, self-efficacy beliefs have been identified as important non-cognitive predictors of academic performance among university students, even above and beyond more traditional cognitive indicators such as intelligence and standardized tests (e.g., Jung et al., 2017). Furthermore, a meta-analysis examining the psychological correlates of university students' academic performance revealed that performance self-efficacy was the strongest of 50 correlates of GPA ($r^+ = .59$), which included three demographic factors, five traditional measures of cognitive capacity or prior academic performance, and 42 non-intellective constructs (personality traits, motivational factors, self-regulatory learning strategies, students' approaches to learning, and psychosocial contextual influences; Richardson et al., 2012). Academic self-efficacy ($r^+ = .31$) and grade goal ($r^+ = .35$) showed medium effects, while intelligence showed a smaller effect ($r^+ = .20$).

On the other hand, self-regulatory and coping strategies also play an important role in performance, such as effort regulation ($r^+ = .32$), time and study management ($r^+ = .22$), and help seeking ($r^+ = .15$; Richardson et al., 2012). What is more, high school GPA and standardized test scores (SAT/ACT) were shown to collectively explain 22% of the variance in GPA, while effort regulation, academic self-efficacy, and grade goal accounted for 28% of the variance in GPA, thus explaining an additional 6% of the variance over and above the more traditional cognitive predictors of performance. Hence, less stable motivational and self-regulatory factors are non-negligible predictors of student success. Taken together, past theoretical and empirical research in the field of educational and career development has enabled researchers to view the transition

to university and again from university to work as change to which people must adapt in order to succeed, rather than a mere decision-making and goal-setting process. How people pursue their goals and respond to ongoing change should play a significant role in how they will adjust and make progress in their quest to meeting the demands of changing conditions (Brammer, 1992; Lazarus & Folkman, 1984).

This Doctoral Dissertation

The overarching goal of this doctoral thesis is to better understand the role of coping as a transferable psychological factor that can prevent, or permit, students and recent graduates to successfully pursue their academic goals as well as successfully prepare for, transition, and adapt to work entry. To achieve this goal, preliminary research established the relevance studying a dual-domain framework of academic and career strivings to examine the role of coping across life domains. Based on this study, three original empirical studies further the notion that task- and disengagement-oriented coping contribute to our understanding of the processes involved in the subjective achievement and psychological adjustment of students and recent graduates.

Preliminary Research on the Dual-Domain Model of Coping

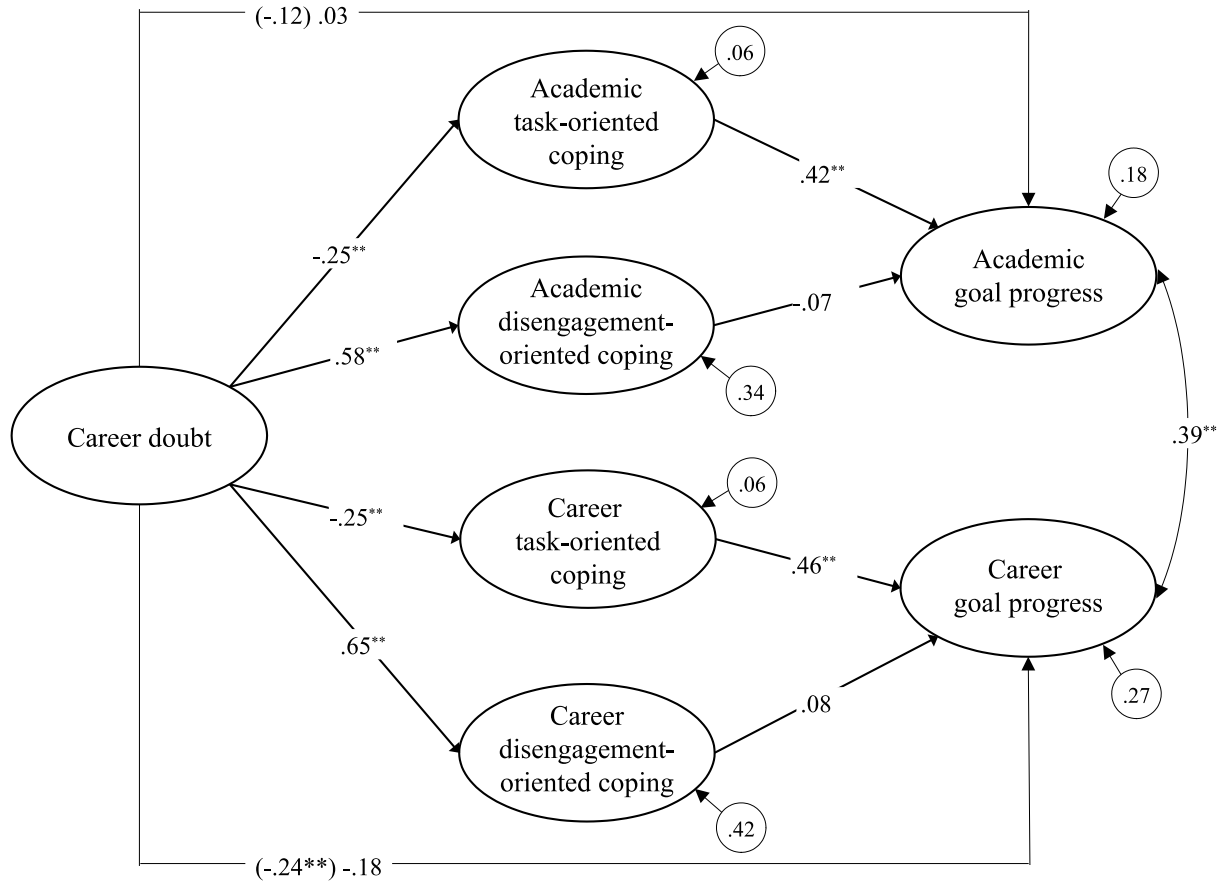
So far, there is ample evidence to suggest that coping plays an important role for one's psychological adjustment in both the school and work context. Little is known, however, about the role of coping for predicting the psychological adjustment and subjective achievement of students while in school and preparing for a life after graduation. To address this gap a preliminary study published by Chamandy & Gaudreau (2019) proposed a dual-domain framework to better understand the experience of students during the simultaneous pursuit of their academic and career goals. The cross-sectional study ($N = 234$) investigated the role of students' career doubt in relation to the coping and progress they made toward the achievement

of both their academic and career goals. First, configural, metric, and scalar invariance was supported across domains, suggesting that coping and goal progress were reliably measured across contexts. This is a prerequisite to ensure that coping can be reliably compared across the school and career strivings of students (Vandenberg & Lance, 2000). Second, as shown in Figure 1.1, results of structural equation modeling indicated that career doubt was negatively associated with academic- and career-related task-oriented coping which, in turn, were respectively positively associated with academic- and career-related goal progress. In contrast, career doubt was positively associated with academic- and career-related disengagement-oriented coping which, in turn, were not significantly associated with academic- and career-related goal progress. As a result, task-oriented coping – but not disengagement-oriented coping – mediated the association between career doubt and goal progress. Hence, results of within-domain paths indicated that the less doubt students experienced about their career goals, the more likely they were to manage school- and career-related stressors in a task-oriented manner and make progress toward the achievement of both their academic and career goals.

The dual-domain framework is useful to differentiate within-domain and between-domain effects. Results of Chamandy and Gaudreau (2019) revealed a pattern of within-domain effects in which school coping influences school achievement whereas career coping influences career achievement. On the one hand, no supportive evidence was found for *cross-domain*, or between-domain effects of coping. More precisely, school coping did not relate to career achievement whereas career achievement did not relate to school achievement. Hence, the coping dimensions measured in one domain were shown to be stronger predictors of the goal progress made in that respective domain.

Figure 1.1

Dual-Domain Model of Coping and Progress for Academic and Career Goals Taken from Chamandy & Gaudreau, (2019).



Note. All parameters are standardized, and total effects are presented in parentheses.

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

On the other hand, the *spillover* paths can be theoretically insightful to further our understanding of a complex goal system in which future goals can influence proximal self-regulation and vice versa (Miller & Brickman, 2004). In line with theoretical models that link cognition to behaviour (e.g., Bandura, 1989; Lazarus & Folkman, 1984; Lent et al., 1994), cognitive factors (e.g., career doubt, challenge appraisal) can bring a sense of purpose that spills over through motivational pathways to predict academic choices or behaviours. As such, in the dual-domain framework of Chamandy and Gaudreau (2019), career doubt was found to spillover to the proximal levels of the goal hierarchy by relating to more immediate academic and career strivings (Wiese, 2007). These findings indicate that the ways in which students feel about their career choices or appraise their school-to-work transition can be detrimental not only to their career strivings, but also to their academic ones (e.g., more disengagement and less task-oriented coping and goal progress).

This preliminary study (Chamandy & Gaudreau, 2019) represents a first empirical attempt to bridge the gap between the academic and career strivings of university students from a transactional perspective. In moving forward, this study revealed the promises and the utility of studying a dual-domain model of coping for academic and career strivings, as evidenced by the *within-domain* associations and the *spillover* influence of career doubt on the coping strategies and progress made by university students while in school and preparing for a life after graduation. While the proposition of this first study has opened the door to original insights in the coping literature, the coping construct has been argued to be better understood as a process that not only varies across contexts, but that also changes over time. The doctoral thesis addresses this latter limitation by applying the dual-domain framework to the longitudinal examination of academic and career strivings.

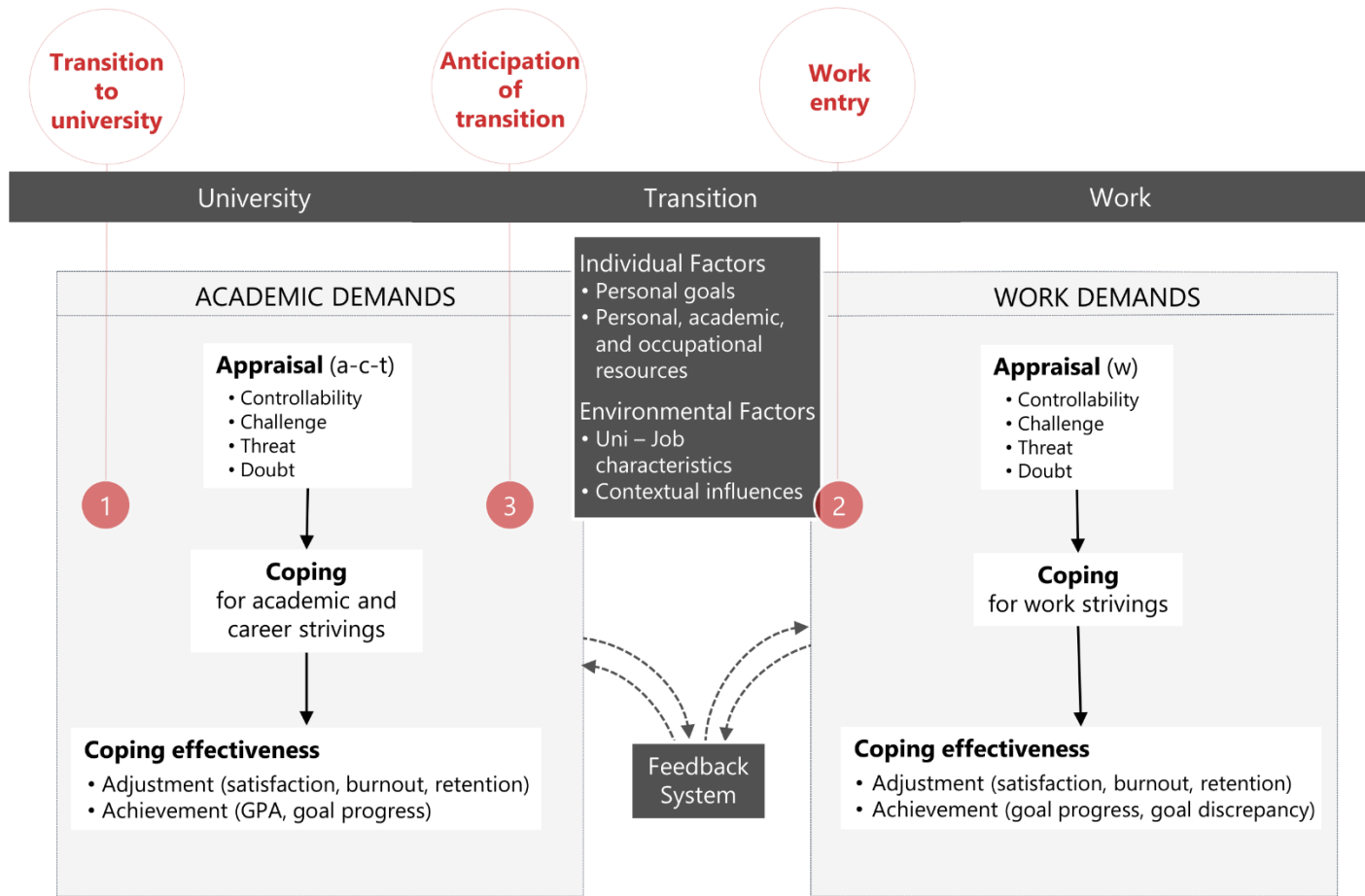
Research Questions

Three research questions emerge from prior work: 1) What are the *domain specificity* and *changing nature* of the coping process during university students' simultaneous pursuit of personal academic and career goals? 2) What are the coping mechanisms and processes involved in both graduates' transition from school to work and their short-term adaptation at work? 3) Can a coping intervention promote more desirable appraisals of the school-to-work transition, and in turn, a more positive academic experience?

To answer these questions, three longitudinal studies document a) the relationships between control appraisals, coping, and goal progress at the same level of specificity via two goal domains as well as burnout as a consequential outcome specific to students in the university context; b) the spillover effects from school to work and the relationships between challenge and threat appraisal, coping, goal progress, satisfaction, and burnout among recent graduates; c) the impact of scenarios targeting transition-related goals, barriers, and self-regulatory selves, which raises the potential for interventions among the student population. The three studies are presented below, each under the form of a scientific article, within a respective chapter. Figure 1.2 presents the conceptual framework for the dual-domain model of academic and career strivings.

Figure 1.2

Conceptual Framework for The Dual-Domain Model of Academic and Career Strivings



Note. The red portion represents the sensitive time-points addressed by Studies 1-3 of the thesis.

CHAPTER 2**The Pursuit of Academic and Career Goals: A Dual-Domain Latent Change Score Model
of Coping, Progress, and Burnout**

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Abstract

In this study ($N = 550$), we relied on a dual-domain framework in which the academic and career strivings of university students were separately measured at two points in time to consider the domain specificity and changing nature of the coping process. We first examined the contemporaneous interplay between perceived control, coping, goal progress, and burnout. We then examined if these effects would translate at the longitudinal level. Using bivariate latent change scores, we created a model in which earlier levels of perceived control and coping in a particular domain would respectively explain change in coping and outcomes in that same domain. To rule out alternative cross-domain and bidirectional hypotheses, we then built upon this model to test (a) a model in which we added spillover paths to examine whether the within-domain effects could also take place across the academic and career domains and (b) a model in which we added paths in the reversed direction to elucidate the direction of the within-domain effects under study. Results of longitudinal analyses indicated that earlier use of task- and disengagement-oriented coping predicted change in goal progress, but not in burnout, in both the academic and career domains. In the career domain, earlier levels of goal progress also predicted change in task-oriented coping, thus revealing a bidirectional effect. No cross-domain effects were supported. Overall, results indicated that the associations between coping, goal progress, and burnout differed both within and across time and contexts.

Keywords: task- and disengagement-oriented coping, goal progress, school burnout, latent change scores, university students

Supplemental materials: <https://doi.org/10.1037/str0000247.supp>

The Pursuit of Academic and Career Goals: A Dual-Domain Latent Change Score Model of Coping, Progress, and Burnout

University students invest a significant amount of time and energy to meet the requirements of their academic courses. While striving to fulfill these demands, students also pursue the goals that will allow them to build the foundation for their future career (Lent et al., 2002). These academic and career strivings alone are often accompanied by significant sources of stress (Salmela-Aro & Vuori, 2015). Some students will embrace these experiences to learn and thrive, while others will experience lower academic performance, lower program completion, and lower psychological adjustment (Amirkhan & Kofman, 2018; Garriott & Nisle, 2018; van der Zanden et al., 2018). Of importance, these consequential life outcomes can follow new graduates onto the workplace (Hakanen et al., 2008).

Goals play a crucial role in adaptive self-regulation throughout the life span (Austin & Vancouver, 1996). Social cognitive career theory (Bandura, 1989; Lent et al., 1994) was developed to understand the pursuit of academic and career goals and the processes through which people change and regulate their own behavior in response to particular achievement-driven situations. The theory emphasizes cognitive, behavioral, and contextual factors as fundamental determinants of the varying outcomes achieved in educational and career pursuits. Goal mechanisms and coping processes are among these factors (Dix & Savickas, 1995).

Findings from a recent longitudinal study indicated that educational and career goals are of highest priority, compared to relational and financial goals, for students in their senior year of high school and again in their fourth year of university (Yau et al., 2021). Additionally, coping has long been argued to be a process that changes over time and varies across contexts (Lazarus & Folkman, 1984). Although research examining the dynamics of multiple goal processes and

coping in response to developmental goals is not new (e.g., Dix & Savickas, 1995; Havighurst, 1953; Super, 1957), past studies have focused on contemporaneous associations (cross-sectional designs) while paying insufficient attention to the domain-specific nature of students' coping.

Building upon a dual-domain approach of academic and career strivings (e.g., Chamandy & Gaudreau, 2019), the purpose of this investigation was to examine the role of university students' goal appraisal and coping strategies in ensuring goal progress and psychological adjustment across the semester. Our first goal was to consider the domain specificity of the coping process. Therefore, we relied on a dual-domain framework in which perceived control, coping, and goal progress were separately measured for the academic and career domains. Our second goal was to account for the changing nature of coping, goal progress, and burnout over two points in a given semester. Therefore, we relied on a short-term prospective/longitudinal design. We followed students during a period that mirrors the earlier weeks of the semester—when students set goals for themselves and prepare for their midterm exams (T1)—and the later weeks of the semester—when students juggle the various demands of preparing for and taking their final set of exams (T2). As university students have yet to enter the job market, our dual-domain model focused on school burnout, which was proposed to be influenced by both academic- and career-related coping. This longitudinal dual-domain approach to studying academic and career goals aims to enhance our limited understanding of how the variables under study operate both within and across time and contexts.

Coping With Goal-Related Demands

University students are constantly gauging what they need to accomplish (e.g., study six chapters within the next 2 days) in order to achieve desired outcomes (e.g., pass the exam). The demands associated with the pursuit of multiple goals can represent a source of stress for

university students. Based on the early work of Lazarus and Folkman (1984), stress can be understood as a process that involves a transactional relationship between the person and the demands of the environment. Within this transaction are cognitive appraisals or the subjective evaluation of situational demands. Primary appraisal is concerned with the personal significance of these demands based on what is at stake for one's goals. Secondary appraisal is concerned with the evaluation of one's coping resources (e.g., time, ability, experience, attitude) for reducing or mastering the demands of the situation. Perceived control is a secondary appraisal that represents the extent to which a person perceives oneself as being able to successfully control or overcome the situation (Lazarus, 2006). Importantly, this sense of control is thought to influence a person's coping actions (Endler et al., 2000) independently from the objective control conditions that may have contributed to those perceptions (Weiner, 1985).

Students respond to the daily demands associated with their personal goals through coping—a deliberate process involving cognitive and behavioral efforts in response to specific internal or external demands that deplete or exceed personal resources (Lazarus & Folkman, 1984). Coping responses aim to reduce the gap between demands and available resources, and thereby reduce perceived stress and any associated negative emotions (Lazarus, 2006). In addition, change has been argued to be the essence of stress, coping, and adaptation (Folkman & Lazarus, 1985). Accordingly, coping is part of an adaptation process in which people mobilize and direct thoughts, behaviors, and emotions to meet the demands of changing conditions and facilitate movement toward their goals (Aspinwall & Taylor, 1992; Compas et al., 2001; Folkman & Lazarus, 1985). Researchers have supported the link between appraisal and coping in both domains of school (Schellenberg & Bailis, 2016) and work (Ben-Zur & Michael, 2007), thus suggesting that perceived control is a psychological factor that can extend to the kind of

coping actions people will use in response to specific achievement-driven demands.

The Role of Coping for the Attainment of Desirable Outcomes

Students can use a variety of strategies to cope with changing demands. Lazarus and Folkman (1984) originally differentiated between problem- and emotion-focused coping, which respectively reflect the coping responses that serve to act on the source of stress in the environment and those that serve to palliate negative emotions that arise from a stressful encounter. Over the years, two broader dimensions of action that incorporate problem- and emotion-focused coping have received a great deal of theoretical and empirical scrutiny (Ayers et al., 1996; Compas et al., 2001; Roth & Cohen, 1986). On the one hand, task-oriented coping (TOC) involves responses aimed at approaching and actively managing external demands and the resulting thoughts and emotions (e.g., planning, analyzing the situation). On the other hand, disengagement-oriented coping (DOC) involves responses aimed at avoiding external demands and distracting oneself from the resulting thoughts and emotions (e.g., venting negative emotions; Gaudreau & Blondin, 2002; Skinner et al., 2003). Researchers have found support for the usefulness of differentiating between TOC and DOC, as the two dimensions are distinctively predicted by cognitive appraisals and associated with indicators of adjustment and achievement.

A coping dimension is said to be effective when it relates to and improves consequential outcomes (e.g., psychological health, social functioning). The effectiveness of a coping strategy largely depends on the nature of the demands and life domain in which it is used, as well as the situational opportunities and constraints and characteristics of the individual (Heckhausen et al., 2010; Lazarus & Folkman, 1984). As much as the presence of high demands does not inevitably result in negative outcomes, no single way of coping holds the key to successful adaptation. In educational and organizational psychology, achievement and psychological adjustment can be

taken as consequential outcomes that characterize successful adaptation (Lent et al., 2002).

Achievement is pivotal for students and employees and mounting empirical evidence has provided support for the associations between coping and achievement in the educational and work domains. In particular, TOC and DOC have been reported, respectively, to positively and negatively relate to indicators of objective achievement such as exam grades, course grades, and cumulative grade point average (Alarcon et al., 2013; Gareau et al., 2018). Although some research failed to provide support for such associations (Cohen et al., 2008; Struthers et al., 2000), it appears that grade point average remains a widely used measure to benchmark students. However, such measures typify the cumulative achievement taken at the end of a period (e.g., semester, year) and do not take into consideration the idiosyncratic nature of the personal goals pursued by each student. Furthermore, students can pursue both academic and other developmentally important goals. Earning a good grade (i.e., A) does not inherently mean that a student will feel like they have performed sufficiently well on a task, just as much as earning an objectively lower mark (i.e., B) does not mean that a student will be unsatisfied with the progress made on their academic goals. Goal progress—which can be studied across life domains—offers a useful level of analysis to understand the personal and subjective progress students feel they are making toward the attainment of personally valued outcomes (Wiese, 2007).

Although research on coping and *subjective achievement* remains scarce, there is empirical evidence to suggest that TOC and DOC are respectively related to positive and negative outcomes in the educational and work domains. In particular, research has supported the positive links between TOC and goal progress in university (Chamandy & Gaudreau, 2019; Garriott & Nisle, 2018; Soucy Chartier et al., 2011), as well as self-reported performance at work (Shimazu et al., 2010). DOC, in contrast, has shown negative (Soucy Chartier et al., 2011) and

sometimes nonsignificant associations with academic goal progress and self-rated job performance (Chamandy & Gaudreau, 2019; Gaudreau et al., 2012; Shimazu et al., 2010).

Psychological adjustment is a cardinal feature of individuals' successful adaptation in achievement-driven contexts for which coping plays a pivotal role (Aspinwall & Taylor, 1992; Lent et al., 2002; Wiese, 2007). TOC and DOC have been respectively shown to positively and negatively relate to indicators of psychological adjustment, such as well-being (Amiot et al., 2008), academic satisfaction (Gaudreau et al., 2015), positive affect (Saklofske et al., 2012), academic adjustment (Leong et al., 1997), and job satisfaction (Amiot et al., 2006).

Burnout was originally defined as a syndrome encountered among employees who face an imbalance between job demands and available resources (Demerouti et al., 2001; Maslach & Jackson, 1981). Such imbalance can also be experienced by university students. Indeed, having to manage the demands of school while preparing for a life after graduation can leave some students at risk of experiencing symptoms of burnout—a state of physical, emotional, and mental exhaustion that results from long-term involvement in situations that are experienced as stressful or emotionally demanding (Maslach & Jackson, 1981; Salmela-Aro & Vuori, 2015). The propensity to develop symptoms of burnout is likely to vary according to one's coping responses. A recent meta-analysis revealed that symptoms of burnout are negatively associated with TOC and positively associated with DOC among employees (Shin et al., 2014). A longitudinal study conducted with students showed similar findings (Deary et al., 2003), indicating that TOC and DOC may respectively optimize and hinder the ways in which individuals adapt to the demands of school and work. Notably, burnout has been shown to exhibit moderate to high stability over a 12- and 36-month period (Deary et al., 2003; Hakanen et al., 2008), suggesting that symptoms of school burnout may begin in university and persist when graduates begin their careers. Overall,

ample evidence indicates that coping significantly predicts achievement and psychological adjustment among students, but less is known about whether school- and career-related coping efforts both uniquely contribute to these associations.

The Present Study

We begin by testing our proposed hypotheses at the cross-sectional level before estimating a series of bivariate latent change score models. This approach was deemed valuable for two reasons (see Spector, 2019). First, it provides the opportunity to support (or not) the findings of past research, most of which was conducted with cross-sectional designs. Second, by presenting results of both cross-sectional and latent change score models, we contribute to the growing body of literature (e.g., McArdle & Nesselrode, 1994; O’Laughlin et al., 2018) illustrating that inferences from contemporaneous associations may substantially differ from conclusions based on longitudinal change analyses, thus encouraging researchers to use caution when attempting to use cross-sectional data to estimate longitudinal processes.

In the first model, we tested the hypothesized *contemporaneous associations* (first structural model [SM1]; cross-sectional examination of longitudinal data) between perceived control, coping, progress, and burnout. Both T1 and T2 variables were estimated for the academic and career domains and paths were estimated at each time point to examine how the variables were contemporaneously related within each measurement occasion. Based on results of past research (Chamandy & Gaudreau, 2019; Schellenberg & Bailis, 2016), we expected within-domain effects in which perceived control and coping in a particular domain would respectively relate to coping and progress in that same domain. Our research *hypotheses* within the academic and career domains for the *contemporaneous model* are as follow: *H1*: At T1,

perceived control¹ will relate (a) positively to TOC and (b) negatively to DOC. *H2*: At T1 and T2, TOC will relate (a) positively to goal progress and (b) negatively to burnout. *H3*: At T1 and T2, DOC will relate (a) negatively (significantly or not) to goal progress and (b) positively to burnout.

We then moved on to a *unidirectional model of latent change scores* (second structural model [SM2]) to test the proposed relationships at the longitudinal level with an approach that better reflects the changing nature of the coping process (McArdle, 2009). In line with our first model, we expected within-domain effects in which T1 perceived control and coping in a particular domain would respectively explain change (Δ) in coping and progress in that same domain. Our research *hypotheses* within the academic and career domains for the *unidirectional latent change score model* are as follow: *H4*: Given the changing demands and stressors involved in the pursuit of academic and career goals, TOC, DOC, progress, and burnout will change from T1 to T2. *H5*: T1 variables will relate to their respective change score. *H6*: T1 perceived control will relate (a) positively to Δ TOC and (b) negatively to Δ DOC. *H7*: T1 TOC will relate (a) positively to Δ Progress and (b) negatively to Δ Burnout. *H8*: T1 DOC will relate (a) negatively (significantly or not) to Δ Progress and (b) positively to Δ Burnout.

Tests of Alternative Models

Goal motivation and stress processes have been argued to differ across situations and life domains and to consequently be stronger predictors of outcomes in their respective domain (i.e., matching domain effects; Lazarus & Folkman, 1984; Vallerand, 1997). Nonetheless, research focusing on work-life balance has provided ample empirical support for cross-domain effects (i.e., spillover effects), suggesting that stress processes in a particular life domain (e.g., role overload at work) can result in desirable or undesirable effects in another life domain (e.g.,

¹ Perceived control was only measured at T1 and was therefore not included in the associations at T2.

family satisfaction, Ford et al., 2007). At the cross-sectional level, spillover effects have been tested but unsupported among the student population across the academic and physical activity domains (e.g., Carraro & Gaudreau, 2011; Gaudreau et al., 2015) and across the academic and career domains (Chamandy & Gaudreau, 2019). At the longitudinal level, spillover effects have been supported but solely across domain-specific engagement (school or work) and life satisfaction (general), rather than across two particular life domains (Upadyaya & Salmela-Aro, 2017).

To rule out *alternative cross-domain hypotheses* (third structural model [SM3]), we built upon SM2 to test a model in which we added eight spillover paths from perceived control in one domain to Δ TOC and Δ DOC in the other domain and from TOC and DOC in one domain to Δ Progress in the other domain. We expected that perceived control (T1) for a particular goal (e.g., academic) would influence the change in coping made in response to the demands of this particular goal (e.g., academic) more strongly than the change in coping made in response to the demands of other goal domain (e.g., career). Similarly, we expected that coping (T1) made in response to the demands of a particular goal (e.g., academic) would influence the change in goal progress made on this particular goal (e.g., academic) more strongly than the change in goal progress made in other goal domain (e.g., career). Accordingly, we tested the following *alternative cross-domain hypotheses* for the unidirectional latent change score model: *H9*: T1 perceived control in one domain will relate (a) positively to Δ TOC and (b) negatively to Δ DOC in the other domain. *H10*: T1 TOC in one domain will relate positively to Δ Progress in the other domain. *H11*: T1 DOC in one domain will relate negatively to Δ Progress in the other domain.

Theories of human behavior (see Carver & Scheier, 1998) postulate that self-regulation is a complex adaptive system that is able to regulate thoughts and behaviors through feedback

mechanisms. According to this view, self-regulation does not occur through a unidirectional sequence of independent events, but rather through a mechanism that can prompt individuals to modify and monitor their behavior for future action. Although bidirectional and reciprocal effects have been supported empirically, some inconsistencies remain (e.g., Lent et al., 2009), and no research to date has examined such hypotheses in a dual-domain framework of coping, goal progress, and burnout. Therefore, we tested a *bidirectional model of latent change scores* to test the associations of our model in both the hypothesized and reversed direction (fourth structural model [SM4]) and rule out alternative directional hypotheses. We compared a series of model restrictions to examine the predictive effects of each variable at an earlier stage on the change of the other variables (e.g., do earlier levels of coping predict change in goal progress or earlier levels of goal progress predict change in coping?). We tested the following *alternative directional hypotheses* within the academic and career domains for the bidirectional latent change score model: *H12*: T1 goal progress will relate (a) positively to Δ TOC and (b) negatively (significantly or not) to Δ DOC. *H13*: T1 burnout will relate (a) negatively to Δ TOC and (b) positively to Δ DOC.

Method

Participants and Procedure

T1 and T2 data collections each coincided with an exam period to represent instances of high academic demands (i.e., 5 weeks apart). A total of 557 undergraduate students from a Canadian university participated in the study². They were recruited through an online research participation system and were offered one point in their introductory course for their participation at T1 and \$10 at T2. The study was approved by a university research ethics

² Assuming medium effects (e.g., Schellenberg & Bailis, 2016; Chamandy & Gaudreau, 2019), with $\alpha = .05$, 80% power, and 16 latent variables, we needed at least 329 participants at each time point. To account for possible attrition, we aimed to recruit 500 participants.

committee and all participants provided written informed consent at T1.

Of the 557 participants, two participants were excluded because they did not report any goals. The final sample for our analyses ($N = 555$; 82.9% female)³ were between the ages of 17 and 50 years ($M = 19.64$, $SD = 4.16$), the majority of which were 25 and younger (93.3%). Participants identified as White (53.8%), Asian Canadian (22.7%), African Canadian (6.5%), Arabic (5.1%), Hispanic (1.5%), and Indigenous (1.5%), whereas 7.8% identified as “Other” and 1.1% did not provide a response. Finally, participants (44.2%) reported working outside of school for an average of 12.36 hr per week.

Measures

Score reliability was examined with coefficient H . Coefficient H (Hancock, 2001) is a measure of construct reliability computed from the standardized factor loadings estimated in confirmatory factor analysis.

Academic and Career Goals (T1)

Participants were asked to report two important and specific goals they wished to pursue—one for each of the two life domains. The two goals provided a reference point for students to evaluate their own domain-specific coping responses and progress at T1 and T2. Goals were defined as “something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at” (Koestner et al., 2008, p. 1206). At T2, participants were reminded of their academic and career goals by email prior to completing online measures of coping, goal progress, and burnout.

Perceived Control for Academic and Career Goals (T1)

Appraisal of perceived control over academic and career goals were separately

³ Supplementary analyses were conducted to test for differences in gender and ethnic background across study variables. Overall, results indicated that females made significantly less progress than males (see Supplemental Material for more detail).

measured with a subset of the Stress Appraisal Measure (SAM; Peacock & Wong, 1990). Participants responded to four items (e.g., “Do I have what it takes to do well in this goal?”) using a scale from 1 (*Not at all*) to 5 (*Extremely*). Measurement reliability was good for the perceived control subscale, with $H = .89$ ($\lambda = .78-.83$) in the academic domain and $H = .91$ ($\lambda = .80-.90$) in the career domain.

Coping with Academic and Career Strivings (T1 and T2)

Coping with academic and career goals were separately measured with the Coping Inventory for Academic Strivings (CIAS-22; Gaudreau & Blondin, 2002), which was adapted to career strivings (Chamandy & Gaudreau, 2019). The 22 items of each inventory measured seven coping strategies organized within the TOC dimension (planning, logical analyses, thought control, mental imagery, relaxation, effort, support seeking) and four coping strategies organized within the DOC dimension (behavioral disengagement, mental distraction, venting, social distancing). Sample items include “I put effort in my goal,” “I tried to picture myself successfully completing my goal” for TOC and “I expressed my annoyance with my goal,” “I diverted my attention from my goal” for DOC. All items were rated using a scale from 1 (*Does not correspond at all*) to 5 (*Corresponds totally*).

Due to the large number of items and multidimensional nature of the coping construct, coping dimensions were modeled using the domain-representative approach to item parceling (Little et al., 2013). That is, two parcels were respectively created for each of the four latent variables of coping. The first parcel was created with the first item of each strategy of the corresponding coping dimension and the second parcel was created with the second item of each strategy of that same dimension. Measurement reliability was excellent for TOC in the academic $H = .95$ ($\lambda = .93-.93$) and career $H = .97$ ($\lambda = .93-.93$) domains at T1, and $H = .93$ (λ

= .92–.92) and $H = .96$ ($\lambda = .92–.95$) at T2. Similarly, measurement reliability was excellent for DOC in the academic $H = .95$ ($\lambda = .82–.89$) and career $H = .96$ ($\lambda = .83–.95$) domains at T1, and $H = .97$ ($\lambda = .86–.95$) and $H = .96$ ($\lambda = .90–.94$) at T2.

Academic and Career Goal Progress (T1 and T2)

Progress for academic and career goals were separately measured with five items (e.g., “rate the extent to which you moved forward in the pursuit of your goal”; Carraro & Gaudreau, 2015). Items were rated using a scale from 1 (*Not at all*) to 7 (*Totally*). Measurement reliability was excellent in the academic $H = .98$ ($\lambda = .87–.93$) and career $H = .99$ ($\lambda = .87–.95$) domains at T1 and in the academic $H = .98$ ($\lambda = .89–.96$) and career $H = .99$ ($\lambda = .91–.96$) domains at T2.

School Burnout (T1 and T2)

Burnout was measured with the School Burnout Inventory (SBI; Salmela-Aro et al., 2009). The inventory comprises nine items measuring three factors of school burnout: exhaustion at school (e.g., “I feel overwhelmed by my schoolwork”), cynicism about the meaning of school (e.g., “I feel lack of motivation in my schoolwork and often think of giving up”), and sense of inadequacy as a student (e.g., “I often have feelings of inadequacy in my schoolwork”). All items were rated using a scale from 1 (*Not at all agree*) to 7 (*Totally agree*). Burnout was also modeled using item parceling to create three parcels. Measurement reliability was excellent at T1 $H = .96$ ($\lambda = .88–.91$) and T2 $H = .95$ ($\lambda = .89–.90$).

Overview of the Analyses

Structural equation modeling with Mplus Version 8.4 was used for the analyses (Muthén & Muthén, 1998–2019). Standard errors and fit indices were corrected for nonnormality, and missing data was handled using robust full maximum likelihood (FIML). Typical fit indices

were used to evaluate and compare model fit (e.g., comparative fit index [CFI], Tucker–Lewis index [TLI], root-mean-square error of approximation [RMSEA]). Values $>.95$ for CFI and TLI and $<.06$ for RMSEA and $<.08$ for standardized root-mean-square residual (SRMR) were deemed a good fit (Hu & Bentler, 1999). Nested models were compared using the scaled chi-square difference test ($\Delta\text{MLR}\chi^2$; Satorra & Bentler, 2001). Given that differences in $\text{MLR}\chi^2$ should be interpreted with caution due its sample size sensitivity, a significant $\Delta\text{MLR}\chi^2$ ($p < .05$) combined with a $\Delta\text{CFI} \geq .01$ and $\Delta\text{RMSEA} \geq .015$ had to be observed to reject the null hypothesis of invariance (Cheung & Rensvold, 2002).

A series of *measurement models* was tested to assess the factorial validity of our dual-domain model and estimate error-free correlations between latent variables. In all models, each indicator loaded on its respective factor and autocorrelated residuals were freely estimated across time and domain. Furthermore, we tested for invariance⁴ of factor loadings and intercepts of indicators across time to determine if indicators that measure the same construct hold the same meaning across measurement occasions.

Four *structural models* were tested. In a *first model* (SM1), we examined the hypothesized contemporaneous within-domain associations between perceived control, coping, goal progress, and burnout at the cross-sectional level for T1 and T2. In the subsequent models, we examined the hypothesized associations at the longitudinal level by using a statistical method that allows to test questions about change directly from two-occasion data (latent change score modeling; McArdle & Nesselroade, 1994). Rather than calculating differences from the raw data, we created latent change score variables (Δ) represented by an unobserved change score defined by its T2 factor fixed to 1. Change is thus part of the score at T2 that is not identical to the score at T1 (McArdle, 2009). In addition, this model included autoregression

⁴ We also tested for equality of loadings (MM2) and intercepts (MM3) across domains (see Supplemental Table S1).

paths from T1 to T2 variables fixed to 1 and the estimation of paths from T1 variables to their respective change score. In a *second structural model* (SM2), we examined a latent change score model in which we tested unidirectional parameters within the academic and career domains⁵. Within each domain, *perceived control* was a time-invariant predictor of Δ TOC and Δ DOC, and T1 TOC and T1 DOC were set to predict Δ Progress and Δ Burnout. Overall, this approach allowed us to estimate the amount of change, the change that is dependent on earlier levels of that construct, and the change that is dependent on earlier levels of another construct. Alternatively, in a *third structural model* (SM3), we built upon SM2 to examine a latent change score model that tested unidirectional parameters both within and across the academic and career domains. In a *fourth structural model* (SM4), we built upon SM2 by adding bidirectional parameters—from goal progress and burnout to both TOC and DOC within the academic and career domains—to test whether earlier levels in goal progress and burnout would predict change in coping. Finally, using SM4, we examined more closely the directionality of each hypothesized coping– outcome relationship. Namely, we tested the predictive effects of each variable at an earlier stage on the latent change score of the other variable ($X_{T1} \rightarrow \Delta Y$ and $Y_{T1} \rightarrow \Delta X$) and then added parameter constraints to evaluate which variable was the best predictor of change (X_{T1} or Y_{T1} or both or none; for a detailed description of this method, see McArdle, 2009).

Results

Preliminary Analyses

Of the 555 university students at T1, 335 completed the questionnaire at T2 (60% retention). Results of attrition analyses indicated that participants who completed T1 did not

⁵ Intercorrelations were respectively estimated for T1 perceived control, coping, goal progress, and burnout as well as for change in these variables.

significantly differ from those who completed both T1 and T2 on the sociodemographic ($ps > .07$) and latent variables ($ps > .17$) at T1. Overall, missing data were considered to be random and further analyses were conducted on a sample of 555 participants.

The data were screened for outliers by first visually examining response patterns and bivariate scatterplots and then calculating the Mahalanobis distance to identify potential multivariate outlying cases. Participants were excluded from the analyses ($n = 5$)⁶ if they were considered an outlier in both the visual examination of the data and the Mahalanobis critical value (critical cutoff $\chi^2 = 86.66$, $df = 50$, $p < .001$). A final sample of 550 university students was retained for the main analyses.

Fit indices for all measurement models are presented in Supplemental Table S1. The hypothesized measurement model (MM1), which included all latent variables across time and domains, provided acceptable fit and was therefore kept for subsequent analyses⁷. Latent means at T1 and T2 revealed significant small to moderate declines in TOC (both domains) and goal progress (career domain), and small significant increases in DOC (both domains) and burnout over time. These mean changes showed significant values of variance, which indicates that individuals differed in the change they exhibited over time. Test–retest correlations revealed moderate rank-order stability for each repeated measure, suggesting that some students differed in their relative position on the distribution of scores across time. Descriptive statistics are shown in Table 2.1, including means and variances for all change, T1, and T2 latent variables, as well as Cohen's d latent mean differences and test–retest correlations. Bivariate correlations between the variables included in our analyses are shown in Table S2.2.

⁶ The latent change structural model was tested with and without the removal of the five participants. Although the overall model fit and parameter estimates did not change significantly, removing the outliers was deemed more conservative and subsequent analyses were thus conducted without these participants.

⁷ The structural models were estimated with equality constraints on the factor loadings across T1 and T2.

Cross-Sectional Model with Contemporaneous Associations at T1 and T2

In the first structural model (SM1), we tested the hypothesized contemporaneous effects for the academic and career domains at T1 and T2. This model provided an acceptable fit, although the SRMR was high ($>.08$). Fit indices for Structural Models 1–4 are presented in Table 2.2 and standardized path coefficients from SM1 are reported in Figure 2.1. In this model, some of the hypothesized associations for the academic and career domains were supported at both T1 and T2, whereas others were only partially supported.

In support of H1, academic- and career-related perceived control were related positively to TOC and negatively to DOC at T1. At T1 and T2, TOC was positively and significantly associated with goal progress in the academic and career domains (H2a). Of particular interest, H2b was partially supported: At T1, TOC was not significantly associated with burnout in the academic nor the career domain. At T2, however, TOC was *negatively* and significantly associated with burnout when used in the academic domain, whereas contrary to H2b, TOC was *positively* and significantly associated with burnout when used in the career domain. Furthermore, DOC was negatively related to academic and career goal progress at T2, but these associations were not statistically significant at T1, thus partially supporting H3a. Academic DOC was positively and significantly associated with burnout at T1 and T2, but contrary to H3b, these associations were not supported in the career domain. The overall pattern of these

Table 2.1*Descriptive Statistics of Study Variables Measured at Time 1 and Time 2*

	Time 1		Time 2		ΔM	$\Delta\sigma^2$	Cohen's <i>d</i>	<i>r</i>
	<i>M</i>	σ^2	<i>M</i>	σ^2				
<u>Academic domain</u>								
Control	4.07**	0.53**						
TOC	3.61**	0.31**	3.46**	0.39**	-0.14**	0.24	-0.24	.65**
DOC	2.29**	0.36**	2.29**	0.36**	0.13**	0.26	0.22	.69**
Goal progress	2.42**	0.47**	2.42**	0.47**	-0.05	1.59	-0.04	.56**
Burnout	3.67**	0.42**	3.67**	0.42**	0.25**	1.02	0.21	.69**
<u>Career domain</u>								
Control	3.94**	0.67**						
TOC	3.67**	0.42**	3.42**	0.59**	-0.25**	0.42	-0.37	.59**
DOC	3.42**	0.59**	1.95**	0.46**	0.14**	0.40	0.20	.63**
Goal progress	1.95**	0.46**	2.10**	0.59**	-0.23*	1.84	-0.16	.60**

Note. Control = perceived control, TOC = task-oriented coping, DOC = disengagement-oriented coping. Δ = latent change, Cohen's *d* = Cohen's *d* difference between latent means at Time 1 and Time 2, *r* = test-retest correlation.

* $p < .05$. ** $p < .001$.

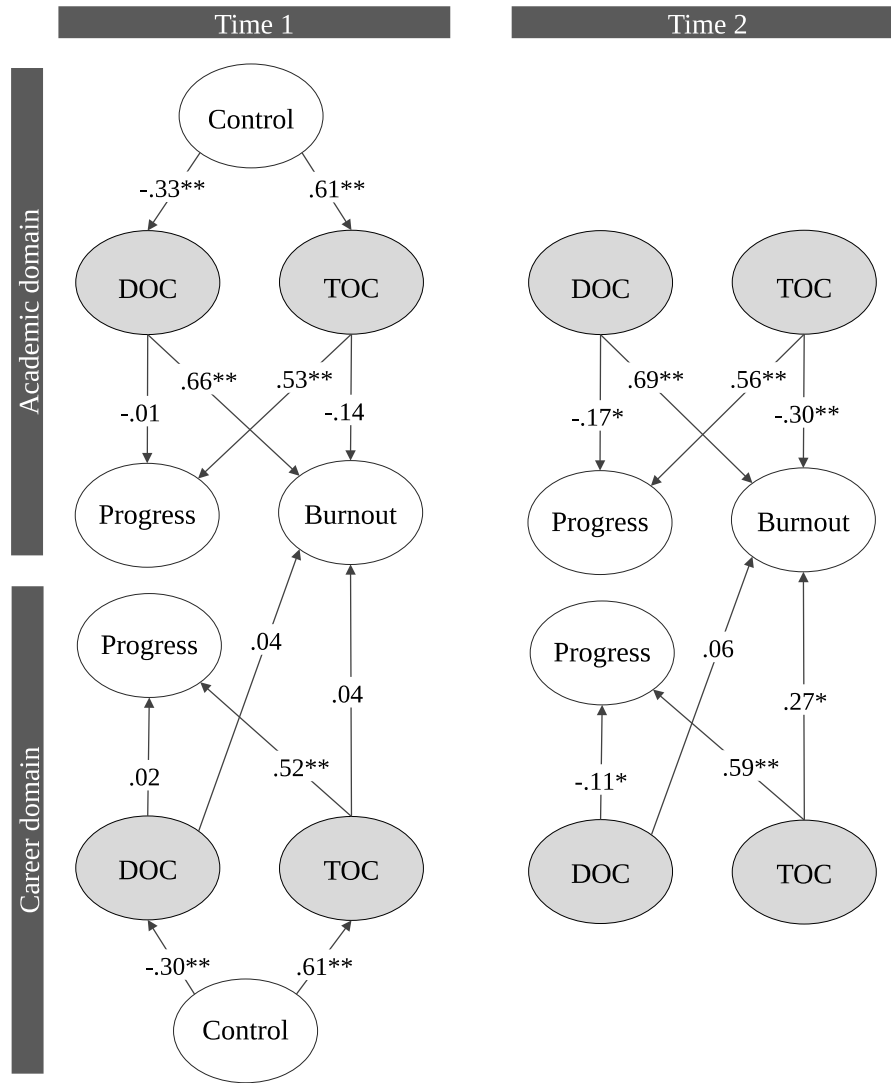
Table 2.2*Fit Indices for Structural Models 1-4*

Model	χ^2	<i>df</i>	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI
SM1 CSM – Contemporaneous Within-Domain	1765.54	1072	.965	.960	.107	.034	[.031, .037]
SM2 LCSM – Unidirectional Within-Domain	1579.41	1070	.974	.971	.058	.029	[.026, .032]
Alternative Models							
SM3 LCSM – Unidirectional Cross-Domain	1567.73	1062	.975	.971	.056	.029	[.026, .032]
SM4 LCSM – Bidirectional Within-Domain	1563.04	1062	.975	.971	.053	.029	[.026, .032]

Note. CS = Cross-sectional model, LC = Latent change score model.

Figure 2.1

Cross-Sectional Analysis of Longitudinal Data with Standardized Regression Coefficients



Note. The academic and career domains at Time 1 and Time 2 were estimated in the same model.

Control = perceived control, TOC = task-oriented coping, DOC = disengagement-oriented coping, Progress = goal progress.

* $p < .05$. ** $p < .001$.

relationships indicates that perceived control is associated with coping behaviors that can differentially relate to goal progress and burnout—both at different time points during a given semester and across the academic and career domains.

Latent Change Score Models

Unidirectional Within-Domain Latent Change Score Model

This first latent change score model (SM2) provided a good fit to the data. Fit indices for structural models are reported in Table 2.2 and standardized path coefficients from SM2 are reported in Figure 2.2. In this model, our hypotheses were partly supported.

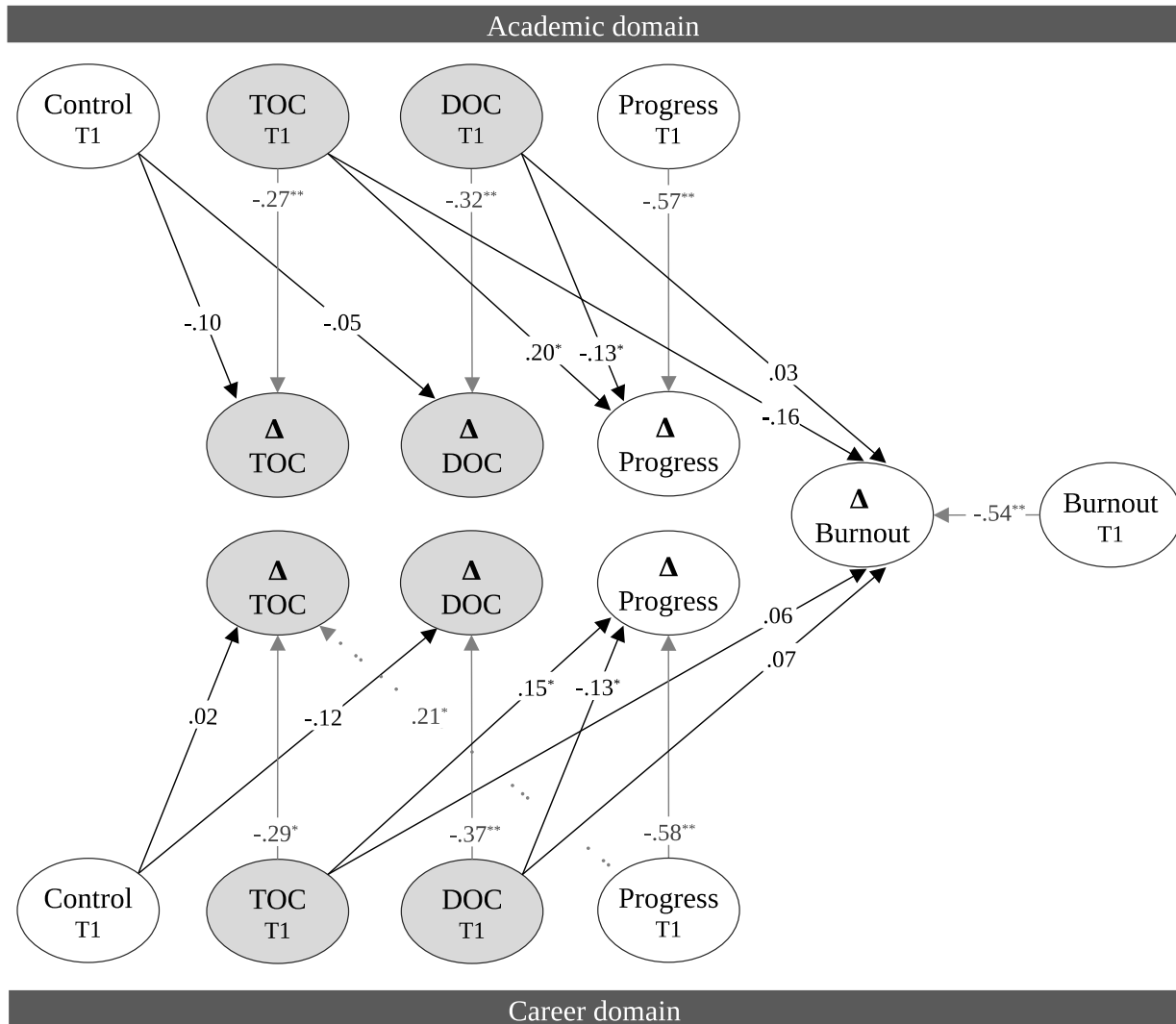
Specifically, the intercept of Δ TOC was negative and statistically significant in the academic and career domains, suggesting that TOC significantly diminished over time (H4). T1 TOC was a significant predictor of Δ TOC in both the academic and career domains (H5)⁸, but perceived control was not (contrary to H6). The intercept of Δ DOC was positive and statistically significant in the academic and career domains, suggesting that DOC significantly increased over time (H4). T1 DOC was a significant predictor of Δ DOC in both the academic and career domains (H5), but perceived control was not (contrary to H4).

The intercept of Δ Progress was negative and statistically significant but, contrary to H4, only in the career domain. Hence, goal progress significantly diminished over time in the career domain but remained stable in the academic domain. T1 goal progress significantly predicted Δ Progress in both domains (H5). Notably, T1 TOC positively predicted Δ Progress (H7a) and T1 DOC negatively predicted Δ Progress (H8a) in both domains. The intercept of Δ Burnout was positive and statistically significant, suggesting that symptoms of burnout significantly

Figure 2.2

⁸ The association between a T1 variable and a latent change variable should not be interpreted as an absolute increase or decrease in the endogenous variable, but rather as a greater or lower tendency toward change following high initial levels, despite the mean change (e.g., increase, decrease) between T1 and T2.

Bivariate Latent Change Score Model with Standardized Regression Coefficients



Note. Solid black lines represent unidirectional paths from SM2. The dotted grey line shows the significant reversed path from SM4. Intercorrelations between Time 1 variables and change variables were tested but omitted for clarity. Control = perceived control, TOC = task-oriented coping, DOC = disengagement-oriented coping, Progress = goal progress, T1 = Time 1, Δ = latent change.

* $p < .05$. ** $p < .001$.

increased over time (H4). Finally, T1 burnout significantly predicted Δ Burnout (H5) but, contrary to H7b–H8b, T1 coping (TOC and DOC) did not predict Δ Burnout.

Alternative Latent Change Score Models: Specificity and Direction of Effects

Cross-Domain Model. To elucidate the specificity of the effects between the domain-specific variables in our longitudinal model, we added paths to SM2 to examine whether the within-domain effects would also take place from the academic to the career domain and from the career to the academic domain. The addition of eight cross-domain associations provided good fit but did not significantly improve the fit of the model (see Table 2.2). Results indicated that none of the spillover paths were statistically significant, thus H9–H11 were not supported. That is, T1 control, TOC, and DOC in a particular goal domain did not significantly relate to Δ TOC, Δ DOC, and Δ Progress in the other goal domain.

Bidirectional Model. To elucidate the direction of the effects between the variables in our proposed model, we tested a fourth structural model (SM4) in which we added paths to SM2 to examine whether T1 goal progress and burnout would respectively predict Δ TOC and Δ DOC. As seen in Table 2.2, SM4 provided a significant improvement in model fit.

Based on this model, we evaluated more specifically which of the two constructs in each set of parameters could be the leading indicator of change. The significant reversed path from SM4 is presented with a dotted arrow in Figure 2.2. As seen from the results of model comparisons presented in Table S2.3, H12a was supported for the career domain but not for the academic domain. Hypotheses H12b and H13a–b were not supported. That is, for the academic domain, results provided support for the effects from T1 TOC and T1 DOC to Δ Progress, but not for the effects in the opposite direction. For the career domain, results provided support for the effect from T1 TOC to Δ Progress and from T1 goal progress to Δ TOC, thus providing

evidence for a bidirectional effect between the two constructs. For DOC, the findings solely provided support for a unidirectional effect from T1 DOC to Δ Progress. Finally, contrary to our hypotheses, results (not reported) revealed that coping and burnout are not related across time and may thus be better understood contemporaneously at each time point.

Discussion

Time- and Domain-Specific Processes

A first goal of this study was to rely on a dual-domain framework to examine the *domain specificity* of the coping process by testing a series of contemporaneous associations between perceived control, coping, goal progress, and burnout in both the academic and career domains (SM1). For the most part, the findings supported our hypotheses. Namely, students who perceived having greater control over the outcome of their goals were more likely to engage in TOC and less likely to engage in DOC. In turn, TOC and DOC were differentially associated with both goal progress and burnout. As expected, academic and career TOC related to greater goal progress across both time points. Of particular interest, some contemporaneous associations differed across life domains and time points. In support of our hypotheses, DOC directed toward academic goals was related to greater burnout throughout the semester. Contrary to our hypotheses, however, this association was not observed when DOC was used in response to career goals. Given that career-related pursuits are a long-term project, these findings suggest that temporarily disengaging from career goals may not be as consequential as disengaging from academic goals for which outcomes are more proximal (Lent et al., 2002). As such, academic goals may require immediate and continuous actions over the course of a semester, particularly during times of high academic demands, whereas career goals may not.

In support of the inconsistent findings in the literature concerning the relationship

between DOC and achievement, our findings indicated that academic and career DOC were significantly related to lower goal progress, but only at T2. Again, later in the semester (T2), task coping (TOC) began to play a significant role in the psychological adjustment of students. That is, academic TOC was related to *lower* burnout while career TOC was unexpectedly related to *greater* burnout. On the one hand, the differential role of TOC across goal domains and time points supports the necessity for goal adjustment as demands and resources change (Brandtstädter, 2009). In this study, the carefully selected time points, each reflecting specific academic demands during the semester, illustrate why such contemporaneous effects differ with the passage of time. Namely, the protective role of academic TOC and the debilitating role of career TOC each become more apparent on their psychological adjustment as students are managing the heightened demands of their final exam period. On the other hand, the same coping strategies that relate to lower burnout when used to respond to academic demands can relate to greater burnout when used to respond to career demands. The consideration of two goal domains illustrates how directing too much effort toward a related, albeit secondary, life domain can become problematic near the end of the semester when the workload and accumulated fatigue limits available time and resources. These findings illustrate the importance of studying how coping associated with life goals outside the academic domain influences the psychological adjustment of students at different points in time during a semester.

Longitudinal Processes

A second goal of this study was to examine the *changing nature* of coping, goal progress, and burnout to determine if the contemporaneous effects that were observed at each time point could be replicated at the longitudinal level. In support of our hypotheses, academic

and career coping changed significantly from T1 to T2. Although burnout and career goal progress also changed significantly, this was not true for academic goal progress. The findings from our unidirectional latent change score model (SM2) revealed that earlier levels of coping, progress, and burnout helped predict change in these variables. Moreover, change variables were predicted by earlier levels of the other variables in our model. Students who used greater task-coping (TOC) earlier in the semester were more likely to exhibit changes in their academic and career goal progress over time. The opposite was true for students who used greater disengagement (DOC) earlier in the semester. Contrary to our hypotheses and the findings of our cross-sectional model, T1 perceived control was not a significant predictor of change in coping nor was T1 coping a predictor of change in burnout.

Alternative hypotheses of cross-domain effects in our unidirectional latent change score model were not supported: The coping made in response to the demands of a particular goal influenced the progress made on this particular goal more strongly than the progress made on the other goal domain. Therefore, interventions focused on coping with the demands of the academic domain should promote outcomes limited to the domain of academic strivings, whereas interventions focused on coping with the demands of the career domain should promote outcomes limited to the domain of career strivings. Taken together, these findings highlight the strength of this approach, which allows researchers to decipher between specific and general effects (dual domain) and between contemporaneous and changing effects (longitudinal).

To dive deeper into our findings, we explored a model with different directions of change as an attempt to rule out alternative hypotheses or find support for rarely studied bidirectional influences. Accordingly, our findings provided support for a plausible reciprocal relationship

between TOC and goal progress in the career domain, with both variables at an earlier stage predicting change in the other variable. Based on theories of self-regulation (Bandura, 1989; Carver & Scheier, 1998), a bidirectional association between TOC and career goal progress suggests that feedback mechanisms take place over time to reduce discrepancies between actual and desired end states. Students proactively guide their actions by setting challenging goals and by making efforts to fulfill them. In doing so, students gain skills and resources to achieve desired outcomes (Lent et al., 2002). Goal progress provides critical feedback on one's actions, and the positive feedback rendered by making significant progress can help students feel more efficacious when faced with similar situations in the future. As such, T1 goal progress could signal a successful selection of self-regulatory strategies, thereby explaining subsequent increases in TOC. The presence of this bidirectional effect in the career domain, but not in the academic domain, could signal the varying level of proximity of each goal outcome (Lent et al., 2002). That is, academic goals are more proximal, and the effects of self-regulatory processes may be more immediate for academic strivings than for career strivings.

Contrary to our a priori expectations, coping and burnout were not found to be significantly related over time. Examining the separate dimensions of burnout could have expanded our knowledge of associations and elucidated different results for exhaustion, cynicism, and sense of inadequacy. However, given the contribution of our research and the complex effects under study, adopting a total score approach to burnout symptoms was deemed most appropriate (Brenninkmeijer & VanYperen, 2003). Essentially, our findings suggest that the effects of coping may operate differently for burnout than they do for goal progress. We propose two alternative explanations for these differences. First, TOC facilitates goal progress, which in turn facilitates TOC. Active engagement creates a goal synergy of effective self-

regulation in which efforts to cope lead to goal success, which reinforces one's effort to cope (Bandura, 1989). Goal progress is therefore a developmental process. In contrast, earlier coping does not predict change in burnout, perhaps because individuals need to engage in sustained coping effort for it to produce long-term developmental changes.

Second, goals remain consistent across time, which could explain that earlier coping toward a goal predicts subsequent change in goal progress. In contrast, the underlying demands that characterize an initial bout of burnout may not generalize to subsequent episodes of burnout, which could explain that initial coping may not predict significant change in burnout. Taken together, it would be reasonable to believe that changes in coping could predict subsequent levels of burnout. As such, further examination of students' achievement trajectories (i.e., weekly diary) is necessary to improve our capacity to understand and eventually intervene to promote both the progress and psychological adjustment of students during their personal pursuits.

Implications

Coping behaviors and the place they take within the lives of university students have been the center of a growing body of research over the past decades. In the present study, we replicate current findings at the cross-sectional level and then estimate a series of bivariate latent change score models to better elucidate the longitudinal processes in the relationships under investigation. By incorporating the academic and career pursuits of students across two examination time points, these models provided a more complete analytic framework for testing a wide range of hypotheses that cannot be tested in cross-sectional and longitudinal models alone.

The intricacy of comparing contemporaneous and longitudinal processes can be noted as

we observe that change depends on prior levels of that same variable. Self-regulatory processes, although situational, are not isolated events that occur independently from one another across time. Students self-regulate whenever they adapt their actions and related emotions to situational requirements, and this adaptation develops over time and situations (Carver & Scheier, 1998). The mechanisms that help explain how students manage their academic and career goals while facing the demands of their first set of exams may subsequently influence these same mechanisms as they prepare for and take their final set of exams. Our latent change score models, then, illustrate how our variables influence each other through a process that occurs contemporaneously over time (i.e., what I do now has consequences that relate to outcomes now and the same contemporaneous effects may replicate themselves in the future) rather than solely across time (i.e., what I do now directly relates to an outcome in the future).

Limitations and Future Research

First, as with any longitudinal research, caution must be taken with respect to making causal inferences from our findings. Although the longitudinal design improves on previous coping research among university students, causal explanations can only be made possible in experimental designs (Podsakoff & Podsakoff, 2019). For example, to understand the effects of TOC and DOC in the promotion of achievement and psychological adjustment, lab or field experiments could be designed to intervene on the coping strategies of students (i.e., the factors proposed to cause changes in student success).

Second, longitudinal data with more than two time points would provide researchers with the opportunity to extend the latent change score technique (Serang et al., 2019) and test models of sequential change, identify reciprocal relationships within the data, and separate within- from between-person effects. For example, a cohort study would be useful to follow

students over the course of their undergraduate degree and clarify the exact mechanisms by which the variables in our model operate over time. Students who are at a later stage of their degree may have accumulated greater academic resources (study skills, progress, self-efficacy) and may, consequently, exhibit different patterns of relationships between coping, goal progress, and burnout during periods of high academic demands. Moreover, following students weekly would provide more precise information on the rate at which these developmental effects operate over time. Third, in future research, incorporating more than one measurement of perceived control would allow us to evaluate whether it would be more appropriate to treat it as a construct that changes over time and whether it is an antecedent or consequence of coping, progress, and burnout in our model (Skinner & Pitzer, 2012). Likewise, examining primary appraisal (threat, challenge) rather than solely perceived control as a predictor of coping could have expanded our knowledge of associations at the longitudinal level (Schellenberg & Bailis, 2016).

Finally, to enhance the generalizability of our findings, future research is needed to include larger, more representative samples of male students. Although beyond the scope of this study, such research could provide useful information on gender differences within the students' population and the distinct social and/or stress processes that respectively explain different striving outcomes (e.g., Creed et al., 2015). Moreover, goals are inherently personal and subjective. The inclusion of other variables such as perfectionistic strivings could provide a conceivable explanation for the gender differences in goal progress observed in our data. For example, women may hold higher personal standards than men (Damian et al., 2017), which would explain why they report having made less progress than their male counterparts.

Conclusion

The statistical method used in this study offers a unique perspective on the dual-domain pursuits of university students and illustrates how coping and goal progress can be understood beyond their contemporaneous associations. Notably, our findings provide researchers with information that is useful to not only untangle the complexity of longitudinal structural equation models but also understand how cross-sectional results can translate, or fail to translate, at the longitudinal level. Overall, the present research contributes to the literature by showing that the relationship between coping and career goal progress is bidirectional: Both variables at an earlier stage relate to change in the other variable. This synergy exemplifies how latent change score models provide the opportunity to detect a developmental process that generates a combined effect greater than the sum of its separate effects. Extending on this method, a closer investigation of the proposed model over longer periods of time remains a needed endeavor to identify the proper period at which students must begin to invest more time and effort in preparing for their transition to work. Ultimately, the information provided by this research will ensure that researchers, practitioners, and administrators secure scientifically sound information with regard to the role of coping processes in the lives of university students for the proper regulation of their personal goals throughout as well as beyond their postsecondary education.

References

- Alarcon, G. M., Edwards, J. M., & Clark, P. C. (2013). Coping strategies and first year performance in postsecondary education. *Journal of Applied Social Psychology, 43*(8), 1676–1685. <https://doi.org/10.1111/jasp.12120>
- Amiot, C., Terry, D., Jimmieson, N., & Callan, V. (2006). A longitudinal investigation of coping processes during a merger: Implications for job satisfaction and organizational identification. *Journal of Management, 32*(4), 552–574. <https://doi.org/10.1177/0149206306287542>
- Amiot, C. E., Blanchard, C. M., & Gaudreau, P. (2008). The self in change: A longitudinal investigation of coping and self-determination processes. *Self and Identity, 7*(2), 204–224. <https://doi.org/10.1080/15298860701580793>
- Amirkhan, J. H., & Kofman, Y. B. (2018). Stress overload as a red flag for freshman failure and attrition. *Contemporary Educational Psychology, 54*, 297–308. <https://doi.org/10.1016/j.cedpsych.2018.07.004>
- Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology, 63*(6), 989–1003. <https://doi.org/10.1037/0022-3514.63.6.989>
- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin, 120*(3), 338–375. <https://doi.org/10.1037/0033-2909.120.3.338>
- Ayers, T. S., Sandler, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of*

- Personality*, 64(4), 923–958. <https://doi.org/10.1111/j.1467-6494.1996.tb00949.x>
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44, 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>
- Ben-Zur, H., & Michael, K. (2007). Burnout, social support, and coping at work among social workers, psychologists, and nurses: The role of challenge/control appraisals. *Social Work in Health Care*, 45(4), 63–82. https://doi.org/10.1300/J010v45n04_04
- Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research*, 14(1–2), 52–62. <https://doi.org/10.1016/j.alcr.2009.03.002>
- Brenninkmeijer, V., & VanYperen, N. (2003). How to conduct research on burnout: Advantages and disadvantages of a unidimensional approach in burnout research. *Occupational and Environmental Medicine*, 60(Suppl. 1), i16–i20. https://doi.org/10.1136/oem.60.suppl_1.i16
- Carraro, N., & Gaudreau, P. (2011). Implementation planning as a pathway between goal motivation and goal progress for academic and physical activity goals. *Journal of Applied Social Psychology*, 41(8), 1835–1856. <https://doi.org/10.1111/j.1559-1816.2011.00795.x>
- Carraro, N., & Gaudreau, P. (2015). Predicting physical activity outcomes during episodes of academic goal conflict: The differential role of action planning and coping planning. *Personality and Social Psychology Bulletin*, 41(9), 1291–1305. <https://doi.org/10.1177/0146167215594121>
- Carver, C. S., & Scheier, M. (1998). *On the self-regulation of behavior*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139174794>

- Chamandy, M., & Gaudreau, P. (2019). Career doubt in a dual-domain model of coping and progress for academic and career goals. *Journal of Vocational Behavior, 110*(Part A), 155–167. <https://doi.org/10.1016/j.jvb.2018.11.008>
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5
- Cohen, M., Ben-Zur, H., & Rosenfeld, M. J. (2008). Sense of coherence, coping strategies, and test anxiety as predictors of test performance among college students. *International Journal of Stress Management, 15*(3), 289–303. <https://doi.org/10.1037/1072-5245.15.3.289>
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87–127. <https://doi.org/10.1037/0033-2909.127.1.87>
- Creed, P. A., Wamelink, T., & Hu, S. (2015). Antecedents and consequences to perceived career goal–progress discrepancies. *Journal of Vocational Behavior, 87*, 43–53. <https://doi.org/10.1016/j.jvb.2014.12.001>
- Damian, L. E., Stoeber, J., Negru-Subtirica, O., & Băban, A. (2017). On the development of perfectionism: The longitudinal role of academic achievement and academic efficacy. *Journal of Personality, 85*(4) 565–577. <https://doi.org/10.1111/jopy.12261>
- Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing, 43*(1), 71–81. <https://doi.org/10.1046/j.1365-2648.2003.02674.x>

- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*(3), 499–512.
<https://doi.org/10.1037/0021-9010.86.3.499>
- Dix, J. E., & Savickas, M. L. (1995). Establishing a career: Developmental tasks and coping responses. *Journal of Vocational Behavior, 47*(1), 93–107.
<https://doi.org/10.1006/jvbe.1995.1031>
- Endler, N. S., Speer, R. L., Johnson, J. M., & Flett, G. L. (2000). Controllability, coping, efficacy, and distress. *European Journal of Personality, 14*(3), 245–264.
[https://doi.org/10.1002/1099-0984\(200005/06\)14:3<245::AID-PER375>3.0.CO;2-G](https://doi.org/10.1002/1099-0984(200005/06)14:3<245::AID-PER375>3.0.CO;2-G)
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*(1), 150–170. <https://doi.org/10.1037/0022-3514.48.1.150>
- Ford, M. T., Heinen, B. A., & Langkamer, K. L. (2007). Work and family satisfaction and conflict: A meta-analysis of cross-domain relations. *Journal of Applied Psychology, 92*, 57–80. <https://doi.org/10.1037/0021-9010.92.1.57>
- Gareau, A., Chamandy, M., Kljajic, K., & Gaudreau, P. (2018). The detrimental effect of academic procrastination on subsequent grades: The mediating role of coping over and above past achievement and working memory capacity. *Anxiety, Stress, and Coping, 31*(1), 1–14. <https://doi.org/10.1080/10615806.2018.1543763>
- Garriott, P. O., & Nisle, S. (2018). Stress, coping, and perceived academic goal progress in first-generation college students: The role of institutional supports. *Journal of Diversity in Higher Education, 11*(4), 436–450. <https://doi.org/10.1037/dhe0000068>
- Gaudreau, P., & Blondin, J.-P. (2002). Development of a questionnaire for the assessment of

- coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise*, 3(1), 1–34. [https://doi.org/10.1016/S1469-0292\(01\)00017-6](https://doi.org/10.1016/S1469-0292(01)00017-6)
- Gaudreau, P., Carraro, N., & Miranda, D. (2012). From goal motivation to goal progress: The mediating role of coping in the self-concordance model. *Anxiety, Stress, and Coping*, 25(5), 507–528. <https://doi.org/10.1080/10615806.2011.628015>
- Gaudreau, P., Gunnell, K. E., Hoar, S. D., Thompson, A., & Lelièvre, J. (2015). Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport Exercise and Performance Psychology*, 4(2), 140–152. <https://doi.org/10.1037/spy0000032>
- Hakanen, J., Schaufeli, W., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work and Stress*, 22(3), 224–241. <https://doi.org/10.1080/02678370802379432>
- Hancock, G. R. (2001). Effect size, power, and sample size determinants for structured means modeling and MIMIC approaches to between-groups hypothesis testing of means on a single latent construct. *Psychometrika*, 66, 373–38. <https://doi.org/10.1007/BF02294440>
- Havighurst, R. J. (1953). *Human development and education*. Longmans, Green.
- Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review*, 117(1), 32–60. <https://doi.org/10.1037/a0017668>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <https://doi.org/10.1080/10705519909540118>
- Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality*, 76(5),

- 1201–1230. <https://doi.org/10.1111/j.1467-6494.2008.00519.x>
- Lazarus, R. S. (2006). *Stress and emotion: A new synthesis*. Springer
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
https://doi.org/10.1007/978-1-4419-1005-9_215
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, *45*(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>
- Lent, R. W., Brown, S. D., Talleyrand, R., McPartland, E. B., Davis, T., Chopra, S. B., Alexander, M. S., Suthakaran, V., & Chai, C.-M. (2002). Career choice barriers, supports, and coping strategies: College students' experiences. *Journal of Vocational Behavior*, *60*(1), 61–72. <https://doi.org/10.1006/jvbe.2001.1814>
- Lent, R. W., Taveira, M., Sheu, H.-B., & Singley, D. (2009). Social cognitive predictors of academic adjustment and life satisfaction in Portuguese college students: A longitudinal analysis. *Journal of Vocational Behavior*, *74*(2), 190–198.
<https://doi.org/10.1016/j.jvb.2008.12.006>
- Leong, F. T. L., Bonz, M. H., & Zachar, P. (1997). Coping styles as predictors of college adjustment among freshmen. *Counselling Psychology Quarterly*, *10*(2), 211–220.
<https://doi.org/10.1080/09515079708254173>
- Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcels controversy needn't be one. *Psychological Methods*, *18*(3), 285–300.
<https://doi.org/10.1037/a0033266>
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. <https://doi.org/10.1002/job.4030020205>

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, *60*, 577–605.

<https://doi.org/10.1146/annurev.psych.60.110707.163612>

McArdle, J. J., & Nesselroade, J. R. (1994). Using multivariate data to structure developmental change. In *Life-span developmental psychology: Methodological contributions* (pp. 223–267). Lawrence Erlbaum.

Muthén, L. K., & Muthén, B. O. (1998–2019). *Mplus user's guide* (8th ed.). Muthén & Muthén.

O'Laughlin, K. D., Martin, M. J., & Ferrer, E. (2018). Cross-sectional analysis of longitudinal mediation processes. *Multivariate Behavioral Research*, *53*(3), 375–402.

<https://doi.org/10.1080/00273171.2018.1454822>

Peacock, E. J., & Wong, P. T. P. (1990). The stress appraisal measure (SAM): A multi-dimensional approach to cognitive appraisal. *Stress Medicine*, *6*(3), 227–236.

<https://doi.org/10.1002/smi.2460060308>

Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strengths, limitations, and recommendations for improving publishability. *The Leadership Quarterly*, *30*(1), 11–33.

<https://doi.org/10.1016/j.leaqua.2018.11.002>

Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist*, *41*(7), 813–819. <https://doi.org/10.1037/0003-066X.41.7.813>

Saklofske, D. H., Austin, E. J., Mastoras, S. M., Beaton, L., & Osborne, S. E. (2012).

Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success.

Learning and Individual Differences, 22(2), 251–257.

<https://doi.org/10.1016/j.lindif.2011.02.010>

Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School burnout inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment*, 25(1), 48–57. <https://doi.org/10.1027/1015-5759.25.1.48>

Salmela-Aro, K., & Vuori, J. (2015). School engagement and burnout among students: Preparing for work life. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable working lives: Managing work transitions and health throughout the life course* (pp. 51–64). Springer. https://doi.org/10.1007/978-94-017-9798-6_4

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66, 507–514. <https://doi.org/10.1007/BF02296192>

Schellenberg, B. J. I., & Bailis, D. S. (2016). The two roads of passionate goal pursuit: Links with appraisal, coping, and academic achievement. *Anxiety, Stress, and Coping*, 29(3), 287–304. <https://doi.org/10.1080/10615806.2015.1036047>

Serang, S., Grimm, K. J., & Zhang, Z. (2019). On the correspondence between the latent growth curve and latent change score models. *Structural Equation Modeling*, 26(4), 623–635. <https://doi.org/10.1080/10705511.2018.1533835>

Shimazu, A., Schaufeli, W. B., & Taris, T. W. (2010). How does workaholism affect worker health and performance? The mediating role of coping. *International Journal of Behavioral Medicine*, 17, 154–160. <https://doi.org/10.1007/s12529-010-9077-x>

Shin, H., Park, Y. M., Ying, J. Y., Kim, B., Noh, H., & Lee, S. M. (2014). Relationships between coping strategies and burnout symptoms: A meta-analytic approach.

Professional Psychology, Research and Practice, 45(1), 44–56.

<https://doi.org/10.1037/a0035220>

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping.

Psychological Bulletin, 129(2), 216–269. <https://doi.org/10.1037/0033-2909.129.2.216>

Skinner, E. A., & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.),

Handbook of research on student engagement (pp. 21–44). Springer US.

https://doi.org/10.1007/978-1-4614-2018-7_2

Soucy Chartier, I., Gaudreau, P., & Fecteau, M.-C. (2011). From dispositional affect to academic goal attainment: The mediating role of coping. *Anxiety, Stress, and Coping*,

24(1), 43–58. <https://doi.org/10.1080/10615801003725360>

Spector, P. E. (2019). Do not cross me: Optimizing the use of cross-sectional designs. *Journal of*

Business and Psychology, 34, 125–137. <https://doi.org/10.1007/s10869-018-09613-8>

Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in*

Higher Education, 41, 581–592. <https://doi.org/10.1023/A:1007094931292>

Super, D. E. (1957). *The psychology of careers. An introduction to vocational development*.

Harper & Brothers.

Upadyaya, K., & Salmela-Aro, K. (2017). Developmental dynamics between young adults' life satisfaction and engagement with studies and work. *Longitudinal and Life Course*

Studies, 8(1), 20–34. <https://doi.org/10.14301/llcs.v8i1.398>

- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In (Vol. 29, pp. 271–360). *Advances in experimental social psychology*. Academic Press.
[https://doi.org/10.1016/S0065-2601\(08\)60019-2](https://doi.org/10.1016/S0065-2601(08)60019-2)
- van der Zanden, P. J. A. C., Denessen, E., Cillessen, A. H. N., & Meijer, P. C. (2018). Domains and predictors of first-year student success: A systematic review. *Educational Research Review, 23*, 57–77. <https://doi.org/10.1016/j.edurev.2018.01.001>
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*(4), 548–573. <https://doi.org/10.1037/0033-295X.92.4.548>
- Wiese, B. S. (2007). Successful pursuit of personal goals and subjective well-being. In B. R. Little, K. Salmela-Aro, & S. D. Phillips (Eds.), *Personal project pursuit: Goals, action, and human flourishing* (pp. 301–328). Lawrence Erlbaum.
- Yau, P. S., Shane, J., & Heckhausen, J. (2021). Developmental goals during the transition to young adulthood. *International Journal of Behavioral Development, 45*(6), 475–483.
<https://doi.org/10.1177/01650254211007564>

Supplementary Materials

Sample Characteristics

Given that more than half of the sample identified as female and/or White, we tested a model in which we regressed all study variables at T1 on gender (coded as female = 1 and male = -1) and ethnic background (coded as White = 1 and other = -1). No significant differences in the parameter estimates were observed once gender and ethnic background were accounted for in the model. Ethnic background did not significantly relate to the study variables, whereas gender was significantly related to both academic ($B = -0.17$, 95% CI [-.290, -.054], $p = .004$) and career goal progress ($B = -0.21$, 95% CI [-.344, -.076], $p = .002$), suggesting that females made significantly less progress than males. The proposed models were tested without the inclusion of these covariates.

Measurement Models

Values $> .95$ for CFI and TLI and $< .06$ for RMSEA and $< .08$ for SRMR were deemed a good fit (Hu & Bentler, 1999) and nested models were compared using the scaled chi-square difference test ($\Delta MLR\chi^2$; Satorra & Bentler, 2001). A significant $\Delta MLR\chi^2$ ($p < .05$), combined with a $\Delta CFI \geq .01$ and $\Delta RMSEA \geq .015$ had to be observed to reject the null hypothesis of invariance (Cheung & Rensvold, 2002). Fit indices for all measurement models are presented in Table S1. The hypothesized measurement model (see MM1), which included all latent variables across time and domains, provided acceptable fit. Two alternative models (MM1b, merging coping factors across life domains and MM1c, merging goal progress factors across life domains) were tested but ruled out because they provided worse fit to the data. The hypothesized measurement model was therefore kept for subsequent analyses.

Adding cross-domain equality constraints on the loadings (MM2) and intercepts (MM3) of the academic and career domain did not worsen the fit of the model (see Table S1). As seen in MM4, adding longitudinal equality constraints on the loadings did not worsen the fit of the model whereas adding longitudinal equality constraints on the intercepts (MM5) resulted in a significant scaled $\Delta MLR\chi^2$ test. However, other indices of model fit (ΔCFI and $\Delta RMSEA$; Cheung & Rensvold, 2002) did not reach threshold to suggest we should reject the null hypothesis of invariance⁹. This scalar invariance model was therefore deemed sufficient to provide an unbiased estimate of latent change score variables.

⁹ Modification indices were nonetheless examined. We tested a model in which constraints on the intercepts of the second indicator of burnout and the first indicator of academic and career goal progress were released. This partial scalar invariance model (MM5_b) retained the majority of constraints per factor and did not provide a worse fit compared to MM4 (see Table S1).

Table S2.1*Fit Indices for Confirmatory Factor Analysis and Measurement Invariance Across Time and Domains*

Model	χ^2	<i>df</i>	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	Contrast	Δdf	$\Delta\chi^2$	Δ CFI	Δ RMSEA	<i>p</i>
MM1 Hypothesized factors	1465.12	1012	.977	.972	.026	.029	[.025, .032]						
MM1 _b Combined coping	2155.12	1074	.946	.938	.037	.043	[.040, .045]	1 _b vs. 1	62	641.46	-.031	.014	< .001
MM1 _c Combined progress	4503.40	1064	.827	.801	.061	.077	[.074, .079]	1 _c vs. 1	52	1588.79	-.15	.048	< .001
<u>Domain invariance</u>													
MM2 Equal loadings	1482.83	1027	.977	.973	.028	.028	[.025, .032]	2 vs. 1	15	20.79	< .001	-.001	.144
MM3 Equal intercepts	1504.51	1042	.977	.973	.028	.028	[.025, .032]	3 vs. 2	15	21.65	< .001	< .001	.117
<u>Time invariance</u>													
MM4 Equal loadings	1481.55	1026	.977	.973	.027	.028	[.025, .032]	4 vs. 1	14	15.20	< .001	-.001	.364
MM5 Equal intercepts	1534.21	1040	.975	.971	.028	.029	[.026, .032]	5 vs. 4	14	47.74	-.002	.001	< .001
MM5 _b Partial equal intercepts	1496.43	1037	.977	.973	.027	.028	[.025, .032]	5 _b vs. 4	11	14.99	< .001	< .001	.183

Note. In MM5_b (partial scalar invariance), we tested a model in which the constraints on the intercepts of the second indicator of burnout and the first indicator of both academic and career goal progress were released. Progress = goal progress.

Table S2.2*Error-free Correlations Between Study Variables at Time 1 and Time 2*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Control a-T1	—														
2. Control c-T1	.80*	—													
3. TOC a-T1	.61*	.55*	—												
4. TOC a-T2	.39*	.43*	.65*	—											
5. TOC c-T1	.54*	.63*	.86*	.56*	—										
6. TOC c-T2	.41*	.50*	.59*	.84*	.59*	—									
7. DOC a-T1	-.36*	-.36*	-.32*	-.21*	-.30*	-.20*	—								
8. DOC a-T2	-.33*	-.25*	-.23*	-.27*	-.18*	-.28*	.69*	—							
9. DOC c-T1	-.34*	-.34*	-.17*	-.09	-.11*	-.10	.77*	.56*	—						
10. DOC c-T2	-.33*	-.28*	-.22*	-.16*	-.17*	-.16*	.57*	.78*	.63*	—					
11. Burnout T1	-.39*	-.38*	-.35*	-.25*	-.32*	-.20*	.75*	.54*	.59*	.45*	—				
12. Burnout T2	-.35*	-.32*	-.30*	-.31*	-.25*	-.22*	.54*	.77*	.44*	.61*	.69*	—			
13. Progress a-T1	.53*	.46*	.55*	.42*	.50*	.46*	-.18*	-.22*	-.06	-.11*	-.27*	-.31*	—		
14. Progress a-T2	.44*	.44*	.40*	.63*	.39*	.59*	-.23*	-.36*	-.13*	-.22*	-.36*	-.46*	.56*	—	
15. Progress c-T1	.44*	.50*	.49*	.39*	.54*	.49*	-.14*	-.16*	-.03	-.08	-.20*	-.27*	.73*	.49*	—
16. Progress c-T2	.39*	.47*	.34*	.54*	.37*	.67*	-.21*	-.30*	-.12*	-.19*	-.27*	-.38*	.54*	.72*	.60*

Note. TOC = task-oriented coping, DOC = disengagement-oriented coping, Progress = goal progress, Control = perceived control, a = academic, c = career, T1 = Time 1, T2 = Time 2.

* $p < .05$.

Table S2.3*Model Fit and Comparison of Different Hypotheses of Interrelations Between Coping and Goal Progress*

Parameter	Academic domain						Career domain					
	χ^2	<i>df</i>	Contrast	$\Delta\chi^2$	Δdf	<i>p</i>	χ^2	<i>df</i>	Contrast	$\Delta\chi^2$	Δdf	<i>p</i>
<u>TOC and Progress</u>												
a. No parameter estimated	1176.809	731					1184.875	731				
b. TOC _{T1} → Δ Progress	1168.117	730	b vs. a	9.764	1	.002	1178.20	730	b vs. a	7.030	1	.008
c. Progress _{T1} → Δ TOC	1176.286	730	c vs. a	0.523	1	.470	1171.077	730	c vs. a	10.785	1	.001
d. Bidirectional	1167.969	729	d vs. a	9.691	2	.008	1167.969	729	d vs. a	15.318	2	<.001
<u>DOC and goal progress</u>												
a. No parameter estimated	1173.362	731					1171.585	731				
b. DOC _{T1} → Δ Progress	1168.379	730	b vs. a	5.221	1	.022	1167.864	730	b vs. a	3.475	1	.062
c. Progress _{T1} → Δ DOC	1172.881	730	c vs. a	0.402	1	.526	1171.687	730	c vs. a	0.096	1	.757
d. Bidirectional	1167.969	729	d vs. a	5.547	2	.062	1167.969	729	d vs. a	3.579	2	.167

Note. TOC and DOC across the academic and career domains were tested in the same model (Ferrer & McArdle, 2010). a. = paths between TOC/DOC and goal progress are constrained to zero in both directions, b. = path from TOC/DOC to goal progress is estimated while the path from goal progress to TOC/DOC is constrained to zero, c. = while the path from goal progress to TOC/DOC is estimated while the path from TOC/DOC to goal progress is constrained to zero, d. = paths between TOC/DOC and goal progress are estimated in both directions. Each model was tested while taking into account the other sets of parameters in the model. TOC = task-oriented coping, DOC = disengagement-oriented coping, Progress = goal progress, Δ = latent change score variable.

References

- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 9, 233–255. https://doi.org/10.1207/S15328007SEM0902_5
- Ferrer, E., & McArdle, J. J. (2010). Longitudinal modeling of developmental changes in psychological research. *Current Directions in Psychological Science*, 19, 149–154. <https://doi.org/10.1177/0963721410370300>

Postface

Methodological Remarks

Latent change score modeling offers an advantage over traditional difference score analysis by producing a reliable latent change score across measurement occasions. Instead of calculating the change score using simple subtraction, the latent change score model specifies change through the creation of an unmeasured latent variable that represents the difference between the levels of error-free scores. Latent change scores are equivalent to slope estimates in latent growth models when the mean difference is constrained to be equal across time points. Furthermore, latent change score models and cross-lag models both account for random measurement error by using multiple indicators at each time point. Change in latent change score models differ from so called “change” in cross-lag models in that the latter is represented by the residual variables in autoregressions, whereas the former is measured through the creation of unmeasured latent change variables.

In this study, latent change score models were estimated based on the established prerequisite conditions for the estimation of longitudinal data (examination of factorial invariance and stability or lack thereof). First, for the purpose of this study, the measurement of coping for academic strivings and coping for career strivings should each capture the specificities inherent to the coping actions in their respective domain. However, their measurement should also maintain the same meaning across goal domains (i.e., coping holds the same meaning despite being measured in different domains) as well as across time within a particular domain (i.e., coping holds the same meaning despite being measured at different time

points). That is, observed variations in coping can be the mere reflection of measurement error¹⁰, which is why stringent empirical test of factorial invariance are crucial to the study of coping. If measurement invariance does not hold in such models, any difference found between domains or time points cannot be unambiguously interpreted¹¹. Establishing measurement invariance includes the hierarchical process of testing for equal structure, equal factors loadings, equal indicator intercepts, and equal residuals. Testing the equality of factor loadings across measurements (domains, time) is a necessary but insufficient condition for attributing score differences to latent differences in the construct. The goal of intercept invariance is to assess whether the mean difference between measurements (domains, time) on a particular indicator can be accounted for by mean differences on the factor that a scale is supposed to measure.

In this study, confirmatory factor analysis offered a useful platform to evaluate and support the longitudinal and cross-domain invariance of latent constructs. Namely, *configural invariance* indicated that the conceptual core of the coping construct did not qualitatively differ across time or contexts. *Metric invariance* indicated that the conceptual meaning of the coping dimensions remained consistent across time and contexts. Finally, *scalar invariance* indicated that item scores were invariant and that measurement biases were longitudinally and contextually consistent. These findings imply that coping can be measured reliably across goal domains and measurement points and hold implications for the unbiased estimation of rank-order and normative stability as well as for the examination of structural change processes.

Second, notwithstanding the known biases associated with self-report measures,

¹⁰ Parker, J. D., Endler, N. S., & Bagby, R. M. (1993). If it changes, it might be unstable: Examining the factor structure of the Ways of Coping Questionnaire. *Psychological Assessment*, 5(3), 361–368. <https://doi.org/10.1037/1040-3590.5.3.361>

¹¹ Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3(1), 4–70.

particularly in cross-sectional designs, the biases most likely to affect the results in our data were those that pertain to the domain-specific nature of our measures. That is, administering the same questionnaire across multiple domains can introduce common method bias due to contextual item priming effects¹² (from one construct to another within each domain and from one construct in a domain to that same construct in the other domain). The correlated uniqueness model has often been recommended as an approach that accounts for shared method variance by allowing the errors of the same indicator to correlate over time and/or across domains¹³ (i.e., autocorrelated errors). Accordingly, the models tested in this study included the estimation of autocorrelated errors. The downfall of this method is that it treats method effects as part of the error variable. The addition of a common method factor is therefore recommended as a way to incorporate a separate unmeasured factor that accounts for the method variance, thereby separating the shared indicator-specific variance from the error variance³. Despite this advantage, researchers often favour autocorrelated errors due to the complexity of modeling method bias at the measurement level and the tendency for such models to be unidentified¹⁴ (e.g., single- or multiple-method-factor approaches).

To further explore the Time 1 data, I followed Podsakoff and colleagues' (2003) recommendation to model method bias at the measurement level¹⁵ (for a discussion on bifactor models¹⁶). In a first model, I created two unmeasured factors that respectively accounted for

¹² Podsakoff, P. M., MacKenzie, S. B., Jeong-Yeon Lee, & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>

¹³ Marsh, H. W., & Hau, K.-T. (1996). Assessing goodness of fit. *Journal of Experimental Education, 64*(4), 364-390. <https://doi.org/10.1080/00220973.1996.10806604>

¹⁴ Geiser, C., & Lockhart, G. (2012). A comparison of four approaches to account for method effects in latent state-trait analyses. *Psychological Methods, 17*(2), 255-283. <https://doi.org/10.1037/a0026977>

¹⁵ Hamaker, E. L., Nesselroade, J. R., & Molenaar, P. C. M. (2007). The integrated trait-state model. *Journal of Research in Personality, 41*(2), 295-315. <https://doi.org/10.1016/j.jrp.2006.04.003>

¹⁶ Reise, S. P. (2012). Invited paper: The rediscovery of Bifactor Measurement Models. *Multivariate Behavioral Research, 47*(5), 667-696. <https://doi.org/10.1080/00273171.2012.715555>

shared variance within the academic and career domains (each factor loaded on all items of one domain). This method allowed me to control for the common method variance effect in each domain and provide unbiased estimates of the associations between the variables respective to each striving domain. In a second model, I created construct-specific factors that respectively accounted for shared variance in perceived control, coping, and goal progress (each factor loaded on all items of one construct). These latter factors accounted for the variance that could be attributed to responding twice to the same items. Model fit and comparisons for these different models can be found in Table P2.1. Overall, the additional method factors¹⁷ did not significantly alter model fit or the parameter estimates, indicating that response bias was evenly distributed across factor items. Furthermore, the data were not affected by common method bias and responses were not significantly altered as a result, thereby supporting the methodological relevance and empirical utility of including two goal striving domains within our models.

¹⁷ Although the latent method factor technique has the advantage of allowing researchers to control for the effects of an unmeasured latent method factor, it can also capture irrelevant trait variance in addition to systematic method variance. The marker method is an alternative approach that incorporates a measured construct that is believed to be a function of the shared method variance. That is, the variance shared between the marker (e.g., a variable that is unrelated to the criterion variables) and the other variables (e.g., academic and career goal progress) would be hypothesized to represent common method variance (Podsakoff et al., 2003).

Table P2.1*Fit Indices for Confirmatory Factor Analysis with Method Factors*

Model	χ^2	df	CFI	TLI	SRMR	RMSEA		Contrast	Δdf	$\Delta\chi^2$	ΔCFI	$\Delta RMSEA$	p
						RMSEA	90% CI						
Article 0													
TOC, DOC, goal progress													
1. Baseline model	246.66	120	.951	.937	.036	.067	[.055, .079]						
2. Domain-specific common factor model	243.04	117	.951	.936	.031	.068	[.056, .080]	2 vs 1	3	4.62	< .001	-.001	.202
Article 1													
Perceived control, TOC, DOC, goal progress, burnout													
1. Baseline model	646.31	271	.961	.953	.025	.050	[.045 .055]						
2. Domain-specific common factor model	644.91	269	.960	.952	.025	.050	[.045 .055]	2 vs 1	2	0.32	.001	< .001	.854
3. Construct-specific common factor model	648.09	268	.960	.951	.025	.051	[.046 .056]	3 vs 1	3	0.21	.001	-.001	.975

Notes. Loadings are held equal within each method factor because models in which method factors have unequal loadings do not converge. Method factor intercorrelations are fixed to 0 for convergence purposes. Baseline models without method factors are equivalent to models in which method factor loadings are fixed to 0. A significant $\Delta MLR\chi^2$ ($p < 0.05$), combined with a $\Delta CFI \geq .01$ and $\Delta RMSEA \geq .015$ had to be observed to reject the null hypothesis of invariance¹⁸.

¹⁸ Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 9, 233–255. https://doi.org/10.1207/S15328007SEM0902_5

CHAPTER 3

**Coping from University to Work: The Transition and Short-Term Adaptation of Recent
Graduates**

Melodie Chamandy and Patrick Gaudreau

Chamandy, M., & Gaudreau, P. (2021). Coping from university to work: The transition and short-term adaptation of recent graduates. *University of Ottawa*.

Abstract

The quality of the transition from university to work holds important implications for individuals and organizations at large. We designed a two-wave longitudinal study in which a sample of students who recently graduated ($N = 153$) retrospectively assessed their past experiences as university students and their current experiences in the work domain (T1) to capture an initial phase of change during the transition from school to work. We reassessed their current work-related experiences four weeks later (T2) to capture their short-term adaptation to work. Although short, the longitudinal design allowed to counter cross-sectional shortcomings. Using bivariate latent change score analysis, we examined the associations between appraisal, coping, goal progress, satisfaction, and burnout. Results indicated that task-oriented coping in school was positively related to change in goal progress and satisfaction from school to work. Disengagement-oriented coping was positively related to change in burnout and negatively related to change in satisfaction. In turn, change in task-oriented coping from school to work was negatively related to subsequent work burnout. Change in disengagement-oriented coping was positively and negatively related to subsequent burnout and satisfaction at work, respectively. Results also indicated that initial threat appraisal at work was positively related to subsequent disengagement-oriented coping. This study implemented an original design that helped understand the psychological mechanisms involved in both the successful transition from university to work and the short-term adaptation of recent graduates in the work domain. Our results indicate that the coping processes that are associated to positive outcomes in school are similar to those that help new graduates successfully transition and adapt to the workplace.

Keywords: Task- and disengagement-oriented coping, appraisal, burnout, goal progress, satisfaction, latent change scores, recent graduates, school-to-work transition

Coping from University to Work: The Transition and Short-Term Adaptation of Recent Graduates

During their education and immediately after, students and newly graduates must navigate various demands and obstacles on their way to achieving their educational and career goals. Once students master the role of being a student, they must transition to an entirely different setting with different roles that demand new skills and adaptation. During their education, many students focus on their grades, but academic performance (e.g., grade point average) is a surprisingly weak predictor of students' successful transition onto the job market (van Dierendonck & van der Gaast, 2013). Most of the challenges associated with university and work entry involve change that puts new demands on a person (Hettich, 2010). How people appraise the personal significance of this change and the effectiveness of their coping responses should determine how they adjust and make progress in their quest to meet the demands of changing conditions (Brammer, 1992; Lazarus & Folkman, 1984).

For many university students, the idea of eventually transitioning from school to work is seen as a threatening and stressful forthcoming experience (Marshall & Symonds, 2021). Among students, the experience of stress has been associated with poor academic performance, including lower grade point average (GPA; Amirkhan & Kofman, 2018), academic goal progress (Garriott & Nisle, 2018; Gaudreau et al., 2012), and higher dropout rates (Tinto, 1998). It has also been associated with poor psychological adjustment, including lower academic satisfaction and higher depression and burnout (e.g., Gibbons, 2010). Of importance, these consequential life outcomes have shown moderate stability over time (Deary et al., 2003; Hakanen et al., 2008; Moore et al., 2020), indicating that they can follow students during their transition onto the workplace. Moreover, researchers have argued that coping skills learned earlier can be mobilized during

periods of change to help people manage the demands of the situation (e.g., Bandura, 1989; Brammer, 1992). It follows that the ways in which students cope with the demands of their educational goals may have effects that extend to both their transition from school to work and their short-term adaptation once on the job market.

Although coping processes have been shown to be pivotal for optimal human functioning across a range of life domains (Skinner & Zimmer-Gembeck, 2016), little is known about the antecedents and consequences of the coping processes by which new graduates enter and thrive in the workforce. The overarching goal of this study was to examine if distinct coping processes, while students were still in university, are differentially associated with a successful transition from university to work (in terms of promoting satisfaction, goal progress, and preventing burnout), while examining how coping during this transition relates to short-term adaptation in the work domain. Our conceptual model is displayed in Figure 3.1.

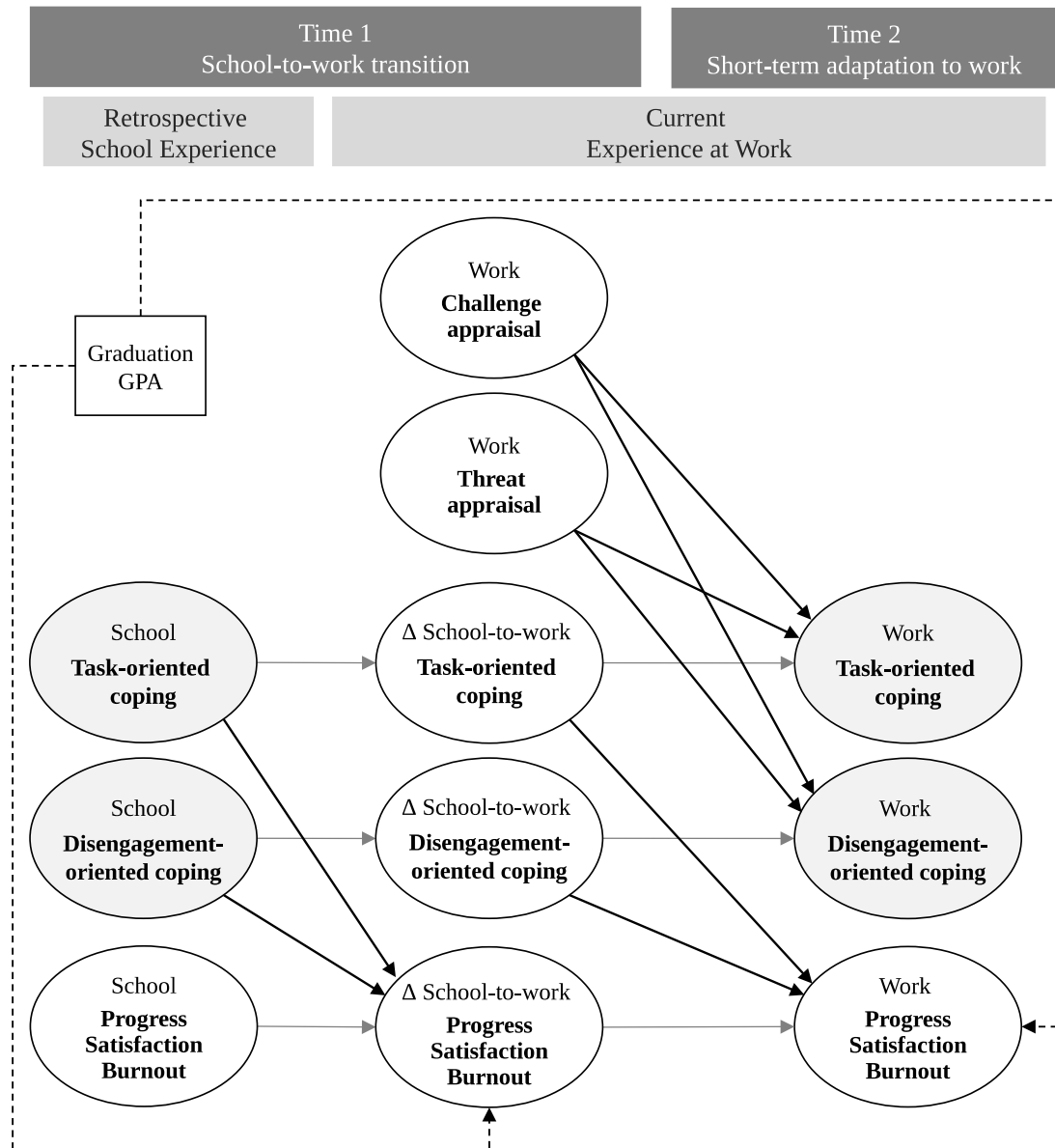
The Coping Process

The pursuit of developmental goals requires people to self-regulate in order to reach desired outcomes (Heckhausen et al., 2010). According to the transactional model of stress and coping (Lazarus & Folkman, 1984), coping strategies can be defined as the “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.” (Lazarus and Folkman, 1984, p. 141). Coping responses are therefore critical to the day-to-day challenges and opportunities involved in the pursuit of developmental goals within and across many life domains (Chamandy & Gaudreau, 2019; Brandtstädter, 2009; Skinner & Pitzer, 2012).

Individuals can use a variety of strategies to cope with changing demands. Lazarus and Folkman (1984) originally differentiated between two functions of coping: problem- and

Figure 3.1

Conceptual Model Illustrating Recent Graduates' School to Work Transition and Short-term Adaptation to Work



Note. Latent change scores represent change from school to work. Δ = latent change, TOC = task-oriented coping, DOC = disengagement-oriented coping, GPA = graduation grade point average. T1 variables of coping, progress, satisfaction, and burnout as well as intercorrelations between T1, T2, and change variables were omitted for clarity.

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

emotion-focused. Problem-focused coping reflects the coping responses that serve to alter the problem by acting on the source of stress in the environment, whereas emotion-focused coping reflects those that serve to palliate the negative emotions that arise from a stressful encounter by minimizing or distancing oneself from the problem. More recently, researchers have reconceptualized coping into two broader dimensions of action that each integrates the two functions of coping (see Skinner et al., 2003). Task-oriented coping (TOC) involves responses directed *toward* the stressor and the resulting thoughts and emotions as an attempt to solve, eliminate, or reduce the source of stress. Disengagement-oriented coping (DOC) involves thoughts and behaviors that are directed *away* from the stressor and the resulting thoughts and emotions as an attempt to ignore or avoid dealing with the source of stress (Ayers et al., 1996; Compas et al., 2001; Gaudreau & Blondin, 2002; Roth & Cohen, 1986).

The transactional model of stress and coping proposes that cognitive appraisals play an important role in the stress and coping process. Cognitive appraisals represent the subjective interpretation of events through which a person assesses an encounter with respect to its personal meaning (primary appraisal), as well as with respect to how it can be managed (secondary appraisal; Lazarus & Folkman, 1984). A primary appraisal of threat implies that a situation has the potential to cause damage and occurs when the demands appear to exceed one's resources (e.g., skills, ability, time, money). A primary appraisal of challenge suggests opportunities for personal growth and occurs when the person perceives a potential to master or overcome the demands and obstacles encountered during the demanding transaction (Lazarus & Folkman, 1984). Accordingly, appraisals give meaning to the stressful situations and differentially relate to how the individual tends to cope with the situation (Pekrun et al., 2002).

Researchers have showed that cognitive appraisals are distinctively associated with TOC and DOC, which respectively serve different purposes in the prediction of consequential school

(Chamandy & Gaudreau, in press; Schellenberg & Bailis, 2016) and work outcomes (Ben-Zur & Michael, 2007; Terry & Jimmieson, 2003). A demanding transaction that is appraised as a threat beyond one's control, or as a challenge that can be overcome, is likely to respectively predict the use of DOC and TOC (Ben-Zur & Michael, 2007). In achievement-driven contexts, coping strategies that directly address the stressful situation (TOC) are likely to predict desirable outcomes (e.g., achievement, psychological adjustment, social functioning) whereas avoiding or withdrawing from the stressful situation (DOC) is likely to predict undesirable outcomes (e.g., burnout, anxiety). As such, coping efforts are not inherently effective or ineffective. Coping effectiveness requires that a coping dimension relates to and improves outcomes that are consequential in a given context. Overall, it appears that TOC and DOC are distinctively associated with indicators of coping effectiveness in the educational and work contexts.

The Attainment of Desirable Outcomes

School and work are achievement-driven contexts in which grades, salary, and occupational prestige are widely used measures to benchmark the success of students and employees. Meta-analyses have examined the relations between GPA and both job performance (Roth et al., 1996) and salary (Roth et al., 1998). Although findings from these studies indicate that GPA predicts initial job performance (average corrected correlation of .49), this effect tends to diminish over time and become non-significant over a six-year period (.12). Likewise, GPA was shown to predict starting salary (.30) but not salary growth over time (.05). Grades of university students appear necessary but insufficient to understand their success during the school-to-work transition and beyond.

Organizational researchers have for long struggled with the definition of occupational success. Job performance is difficult to operationalize because indicators of job or task success likely depend on job and task characteristics (see Spurk et al., 2019). This challenge is amplified

when trying to estimate stability and/or change in performance from the school context to the job market. University students may have attained important academic goals (e.g., prepare for the job market) without necessarily attaining A+ performances in their courses. Similarly, recent graduates may have made significant progress on their career goals without necessarily having secured their dream job or being recognized as a star performer. The importance of considering subjective career success (e.g., job satisfaction) is further supported by research demonstrating its role in predicting change in objective career success (e.g., monthly income), and not the reverse (Abele & Spurke, 2009a). As such, the idiosyncratic nature of academic and career success requires further empirical attention to help unpack the extent to which academic success in the university context translates to occupational success once on the job market.

Personal goals offer a meaningful unit of analysis to define idiosyncratic success within and across different goal domains (Wiese, 2007). Graduating with an above average GPA is potentially good enough for many university students to feel competent, satisfied, and prepared to face the challenges of the job market. Finding a good, well-paid, and gratifying job is potentially sufficient to help many graduates feel like they are making significant progress in the pursuit of their career aspirations. Not everyone needs to graduate “*Cuma sum laude*” or to be the “rookie of the year” in order to feel successful, accomplished, and satisfied with their academic and occupational lives. As articulated by Judge and colleagues (1995, p. 4), “subjective career success reflects peoples’ feelings of accomplishment and satisfaction with their career”. Goal progress and satisfaction are meaningful criteria because they take into account the personal standards and level of aspirations of each individual. As such, they both offer a useful level of analysis to understand the personal experiences of new graduates as they are moving toward the attainment of personally valued career outcomes (Abele & Spurk, 2009; Wiese, 2007).

Transitioning into the job market can be taxing and employers should be on the lookout when newly hired employees are experiencing symptoms of burnout (Aspinwall & Taylor, 1992; Terry & Jimmieson, 2003). Burnout, originally defined as a syndrome encountered among employees who face an imbalance between job demands and available resources (Demerouti et al., 2001; Maslach & Jackson, 1981), has become an increasingly recognized phenomenon among the student population (Salmela-Aro et al., 2009). Accordingly, student and workers alike who remain involved in situations that are stressful or emotionally demanding can experience a state of physical, emotional, and mental exhaustion (Schaufeli & Greenglass, 2001, p. 501). Furthermore, burnout can exhibit moderate to high stability over a 12- to 36-month period among students and workers, respectively (Deary et al., 2003; Hakanen et al., 2008), suggesting that symptoms of burnout can follow new graduates upon work entry.

Moving out of school is often perceived as a major life transition, daunting or exciting. In that context, the transition from university to work is often depicted as a period of change during which both students and recent graduates are likely to experience fluctuations in psychological adjustment (e.g., reduction in symptoms of burnout and depression, increase in positive affect; Haase et al., 2012; Robins et al., 2018). Meanwhile, venturing out of school to finally get into the job market can be anticipated and lived as a gratifying experience that really marks the passage from youth into adulthood. Yet, little is known about the role of coping in how life satisfaction and symptoms of burnout fluctuate during the transition from university to work and immediately after.

Some people are more likely to experience difficulties at school and during the transition from university to work. Cross-sectional and prospective research with university students has provided empirical support for the differential roles of TOC and DOC for subjective achievement and psychological adjustment in the contexts of school. In particular, TOC has been

linked positively with goal progress (Chamandy & Gaudreau, 2019; Garriott & Nisle, 2018), subjective goal achievement (Soucy Chartier et al., 2011), academic adjustment (Leong et al., 1997; Saklofske et al., 2012), and school satisfaction (Boileau et al., 2020; Gaudreau et al., 2015), and negatively with symptoms of burnout, such as depersonalization and emotional exhaustion (Luo et al., 2016; Shin et al., 2014; Vizoso et al., 2019). DOC has shown negative (and sometimes non-significant; Chamandy & Gaudreau, 2019; Gaudreau et al., 2012) associations with goal progress (Chamandy & Gaudreau, in press; Gaudreau et al., 2012), subjective goal achievement (Soucy Chartier et al., 2011), and school satisfaction (Boileau et al., 2020; Gaudreau et al., 2015), and positive associations with school burnout (Luo et al., 2016; Vizoso et al., 2019; Shin et al., 2014). Similar results have been found with employees in the work domain. At work, TOC has been linked positively with job satisfaction and self-reported performance (Amiot et al., 2006; Armstrong-Stassem, 2003; Boyd et al., 2009; Shimazu et al., 2010), and negatively with dropout and burnout (Boyd et al., 2009; Shin et al., 2014). DOC has shown non-significant associations with self-rated job performance (Shimazu et al., 2010) and positive associations with burnout at work (Boyd et al., 2009; Shin et al., 2014). Overall, many studies seem to indicate that TOC and DOC strategies may respectively optimize and hinder the ways in which individuals manage the demands of school and work.

The Present Study

A successful school-to-work transition is important for the welfare and socioeconomic development of university students (Marshall & Symonds, 2021). However, little is known about the extent to which their academic experience prepare them for the upcoming demands of the job market. On the one hand, both educational and work environments involve achievement-driven demands. As such, we can anticipate that effective coping while at school could set the wheel in motion and prepare students for a smooth and successful transition to the job market. On the

other hand, the academic and work domains involve entirely different settings with roles that demand new skills and adaptation (Elfering et al., 2007; Sugarman, 2010). Hence, little is known about the continuity and discontinuity of coping during the transition from university to work.

As showed in Figure 3.1, we position coping as a self-regulatory mechanism involved in both the *transition from school to work* and the *short-term adaptation to the work domain*. We designed a study in which participants (retrospectively) assessed their past experiences as university students and their current experiences in the work domain (T1) to capture an initial phase of change during the transition from school to work. We reassessed their current work-related experiences four weeks later (T2) to capture their short-term adaptation to work. In this study, we tested (a) if the recall of school-related coping of recent graduates can predict changes in goal progress, burnout, and satisfaction during the transition from school to work, (b) if changes in coping during the transition can predict short-term adaptation to work in terms of work-related goal progress, satisfaction, and burnout, and (c) the role of cognitive appraisals and (d) graduation GPA in these relationships.

First, we hypothesized that recalled school-related TOC relates to increased goal progress and satisfaction and decreased burnout during the transition from school to work. Reported School-related DOC was hypothesized to relate to decreased goal progress and satisfaction and increased burnout during this transition. Second, the amount of change experienced during the transition was used to predict short-term adaptation to work at T2. We hypothesized that change in TOC during the transition relates to lower burnout and higher satisfaction and goal progress at T2. For example, a positive association between change in TOC and T2 burnout would indicate that a larger reduction in TOC relates to higher burnout. In contrast, change in DOC during the transition should relate to higher burnout and lower satisfaction and goal progress at T2. For example, a negative association between change in DOC and T2 burnout would indicate that a

larger reduction in DOC relates to lower burnout. Finally, we hypothesized that work-related challenge and threat appraisal during the transition (T1) would relate to higher subsequent TOC and DOC (T2), respectively. Based on extant literature on the link between school and work success (Roth et al., 1996; 1998), our model included graduation GPA as a covariate in order to control for potential carryover effects of academic success on the successful adaptation of students once on the job market (van Dierendonck, & van der Gaast, 2013).

Method

Procedure and Participants

We used a two-wave longitudinal design with a time lag of four weeks. At T1, participants retrospectively reported on their past academic experience. At T1 and T2, they reported on their ongoing work-related experience. We recruited recent graduates who (a) completed at least an undergraduate degree, (b) were no longer full-time students, (c) graduated within less than 24 months, (d) began their first post-graduation employment within less than 24 months¹⁹, (e) were still working at their first post-graduation employment, and (f) worked full or part time. We recruited participants on Prolific Academic, an online crowdsourcing platform on which registered members can complete online surveys in exchange of a fair monetary compensation. Participants received a compensation of £3.50 and £0.98 to participate in T1 and T2. The study was approved by the University of Ottawa research ethics committee.

The sample for our analyses ($N = 153$; 55.9% male) were between the ages of 20 and 47 years ($M = 25.79$, $SD = 4.01$), the majority of which were 30 and younger (91.5%). Participants identified as White (74.34%), Asian (11.18%), Hispanic (8.55%), Black (1.97%), Arabic (0.66%), and Indigenous (0.66%), whereas 0.66% identified as “Other” and 0.66% did not provide a response. Participants resided in Europe (72.6%), North America (22.6%), and South

¹⁹ We originally aimed to recruit participants who had graduated in the past 12 months and who had been working at their first-post graduation employment within less than 6 months, but very few met these criteria.

America (4.8%). Most (65.8%) worked full-time in various occupations, such as processing, manufacturing, and utilities (24.8%), business, finance, and administration (15.7%), social science, education, and government service (11.1%), health (10.5%), natural and applied sciences (9.2%), sales and service (7.8%), management (5.9%), art, culture, recreation, and sport (5.2%), primary industry (4.6%), and trades, transport, and equipment operators (1.31%). Among these participants, 7.4% were self-employed, 73% worked 35 hours or more per week, and 8.2% worked more than 11 hours of overtime per week. In addition to having a bachelor (90%) or college (10%) degree, 10.7% also reported having a graduate degree. More than half graduated (56.6%) and began working (69.7%) within a year. Participants made a salary below \$35,000 (58.55%), between \$35,000 and \$50,000 (15.79%), over \$50,000 (16.5%), or did not provide an answer (9.2%).

Measures

At T1, participants were asked to report an important and specific *academic goal* they pursued while in school and a *career goal* they were currently pursuing at work. Their academic and career goals provided a reference point for participants to report on the variables related to their retrospective school pursuits (T1) and their current work pursuits (T1, T2). Hence, coping, goal progress, satisfaction, and burnout were respectively measured three times: retrospectively for the context of school (T1) and twice for the context of work (T1, T2). Composite reliability (Omega, ω) for each measure can be found in Table 3.2.

Coping was respectively measured for the context of school and for the context of work using The Coping Inventory for Academic Striving (CIAS-22; Gareau et al., 2018; Gaudreau & Blondin, 2002), which was also adapted for the work domain (Chamandy & Gaudreau, 2019). The inventories were composed of 22 items measuring seven coping strategies organized within the TOC dimension (i.e., planning, logical analyses, thought control, mental imagery, relaxation,

effort, and seeking support) and four coping strategies organized within the DOC dimension (i.e., behavioral disengagement, mental distraction, venting, and social distancing). All items were rated using a scale from 1 (*Does not correspond at all*) to 5 (*Corresponds totally*). Due to the large number of items, coping dimensions were modeled by combining item indicators into parcels (Little et al., 2013). That is, two parcels were respectively created for each of the six latent variables of coping. The first parcel was created with the first item of each strategy of the corresponding coping dimension and the second parcel was created with the second item of each strategy of that same dimension. This scale has shown good reliability estimates among university students for the pursuit of their academic and career goals (e.g., Chamandy & Gaudreau, 2019; Gareau et al., 2018; Gaudreau et al., 2012).

Goal progress was respectively measured for the context of school and for the context of work. Participants rated five items (e.g., “Please rate the extent to which you progressed on your goal”) on a scale from 1 (*Not at all*) to 7 (*Totally*; Carraro & Gaudreau, 2015; Dugas et al., 2012). Goal progress was modeled using item parceling to create three parcels (the item with the highest loading was used to create the single-item parcel). This scale has shown excellent reliability estimates among employees (Khan et al., 2020).

Satisfaction was respectively measured for the context of school and for the context of work with eight items from the Multidimensional Students’ Life Satisfaction Scale (Huebner, et al., 1998). Participants were asked to rate the extent to which each statement referred to their feelings toward their prior school strivings (i.e., when they were still students) and their current work strivings (i.e., in their current role as employees) using a scale from 1 (*Not at all*) to 7 (*Totally*). Sample items for the work domain are as follow: “I look forward to going to work”, “I wish I didn't have to go to work”. Three items were reverted to create positively valanced scores of satisfaction. Satisfaction was modeled by creating three parcels. This subscale has shown

good reliability estimates for school satisfaction among university students (Boileau et al., 2020).

Burnout was respectively measured for the context of school and for the context of work with nine items adapted from both the School Burnout Inventory (SBI; Salmela-Aro, et al., 2009) and the Bergen Burnout Inventory (BBI; Salmela-Aro et al., 2011), rated on a scale from 1 (*Not at all*) to 7 (*Totally*). The measure included three subscales: exhaustion (e.g., I feel overwhelmed by my work), cynicism about the meaning of school/work (e.g., I feel lack of motivation in my work and often think of leaving), and sense of inadequacy (e.g., I often have feelings of inadequacy in my work). A variable of total burnout was modeled using item parceling to create three parcels. The scales have shown good reliability estimates among university students (Salmela-Aro et al., 2009) and employees (Salmela-Aro et al., 2011).

Work-related *appraisals* were measure at T1. *Challenge appraisal* of work demands (i.e., evaluating one's personal resources as outweighing goal demands) was measured using the challenge-skill balance subscale from the Flow State Scale (Jackson & Marsh, 1996). *Threat appraisal* of work demands (i.e., evaluating goal demands as outweighing one's personal resources) was measured using an adapted version of the threat appraisal subscale from the Stress Appraisal Measure (Peacock & Wong 1990). Each subscale was composed of four items rated on a scale from 1 (*Not at all*) to 5 (*Totally*). These subscales have shown good reliability estimates among workers and students (e.g., Schellenberg & Baillis, 2016).

GPA was assessed by asking participants to report their cumulative grade point average upon graduation, on a scale from 1 (*F*) to 13 (*A+*). *Workload* was measured as a control variable at T1 and T2 with the job demand subscale from the Job Overload scale (Caplan et al., 1980; Fields, 2013). Participants rated four items (e.g., How often is there a great deal to be done?) on a scale from 1 (*Rarely*) to 5 (*Often*). This scale has shown good reliability estimates among workers (Sargent & Terry, 1998).

Overview of Analyses

Structural equation modeling using Mplus version 8.4 (1998-2019) was used for the analyses (Muthén & Muthén, 2019). Standard errors and fit indices were corrected for non-normality and missing data was handled using robust full maximum likelihood (FIML). Typical fit indices were used to evaluate and compare model fit. Values $> .90$ but closer to $.95$ for CFI and TLI and $< .06$ for RMSEA and $< .08$ for SRMR were deemed a good fit (Hu & Bentler, 1999). Nested models were compared using the scaled chi-square difference test (Satorra & Bentler, 2001). A significant $\Delta MLR\chi^2$ ($p < 0.05$), combined with a $\Delta CFI \geq .01$ and $\Delta RMSEA \geq .015$ had to be observed to reject the null hypothesis of invariance (Cheung & Rensvold, 2002).

A first *measurement model* was tested to assess the factorial validity of our proposed model and estimate error-free correlations between latent variables. Each indicator loaded on its respective factor and auto-correlated residuals were freely estimated across time and domains (McArdle & Grimm, 2010). In two additional measurement models, we tested for equality of factor loadings and intercepts of indicators across the three measurements of each construct.

Given model complexity and sample size, we tested three separate *structural models* to specifically examine goal progress (Model 1), satisfaction (Model 2), and burnout (Model 3). These models included school- and work-related variables measured at T1 and subsequent work levels in coping, goal progress, satisfaction, and burnout measured at T2. We incorporated latent change variables of TOC, DOC, goal progress, satisfaction, and burnout to depict individual differences in the change of recent graduates during the transition from school to work. Latent change variables were represented by an unobserved change score defined by its T1 work-related factor fixed to 1 (McArdle & Grimm, 2010). We included auto-regression paths from retrospective to T1 variables fixed to 1 and the estimation of paths from retrospective school-related variables to their respective change variable. Specifications of the latent change scores

can be found in our open access syntax codes (shorturl.at/egxIY).

We included paths from school-related coping to change in the outcome variables, which in turn were set to predict short-term adaptation to work (i.e., T2 work-related TOC, DOC, goal progress, satisfaction, and burnout) while accounting for their respective change and T1 level. Work-related challenge and threat appraisals at T1 were included as predictors of T2 coping. GPA was included as a covariate and was set to predict all change and T2 variables.

Finally, an alternative model was examined for each of the three models to test the directionality of the proposed relationships. Namely, we built on Models 1-3 to add paths in which the school-related outcomes (goal progress, satisfaction, burnout) predicted (a) cognitive appraisals at T1 and (b) change in coping from school to work. We also examined the three models with and without the inclusion of workload as a control variable at T1 and T2.

Results

Preliminary Analyses

Of the 157 participants at T1, 150 completed the T2 questionnaire (95.5% retention). At T2, 10 participants no longer held the same employment. Rather than exclude these participants, we kept their T1 responses and removed their follow-up from the analyses. Results of attrition analyses indicated that participants who completed T1 did not significantly differ from those who completed both questionnaires on the sociodemographic and latent variables ($ps > .167$). Overall, missing data was considered to be random and further analyses were conducted without excluding these participants.

Participants were excluded from the analyses if they were considered an outlier in both the visual examination of the data (response patterns, bivariate scatterplots) and the Mahalanobis critical value (cut-off $\chi^2 = 82.72$, $df = 47$, $p < .001$). Of the 157 participants, four participants

were excluded and a final sample of 153 university students was retained for the main analyses²⁰.

Main Analyses

Measurement Models

A measurement model was estimated with all study variables: retrospective school-related coping, goal progress, satisfaction, and burnout (T1), challenge and threat appraisal (T1), and work-related coping, goal progress, satisfaction, and burnout (T1, T2). As seen in Table 3.1, this measurement model provided acceptable fit. Bivariate correlations are shown in Table 3.2²¹.

Adding equality constraints on the factor loadings did not significantly worsen the chi-square test: $\Delta\text{MLR}\chi^2 = 19.892$, $\Delta df = 16$, $p = .225$, $\Delta\text{CFI} = .001$, $\Delta\text{RMSEA} = .003$, whereas adding equality constraints on the intercepts of the indicators significantly worsened the chi-square test: $\Delta\text{MLR}\chi^2 = 56.641$, $\Delta df = 16$, $p < .001$, $\Delta\text{CFI} = -.007$, $\Delta\text{RMSEA} = .002$. However, a decrease of .007 (ΔCFI) and an increase of .002 (ΔRMSEA) did not reach threshold to suggest we should reject the null hypothesis of invariance ($\Delta\text{CFI} < .01$ and $\Delta\text{RMSEA} < .015$; Cheung & Rensvold, 2002). We therefore kept all equality constraints on the intercepts and this measurement model was retained to estimate the structural models. In each model, intercorrelations were respectively estimated for retrospective, change, and T2 variables. Descriptive statistics are shown in Table 3.3.

Structural Models

As seen in Table 3.1, the structural models for goal progress and burnout each provided good fit to the data. Conversely, the three reverted items of satisfaction may have contributed to a slightly poorer albeit acceptable fit. Standardized coefficients for the three models are presented in Table 3.4.

²⁰ The structural models were tested with and without the removal of the four participants. Although the overall model fit and parameter estimates did not change significantly, removing the outliers was deemed more conservative and subsequent analyses were thus conducted without these participants.

²¹ GPA is not part of the measurement models but is included in Table 2 as well as in the structural models.

Table 3.1*Model Fit and Comparison of Measurement and Structural Models*

Models	MLR χ^2	<i>df</i>	CFI	TLI	RMSEA	RMSEA 90% CI	Contrast	Δdf	Δ MLR χ^2	<i>p</i>
Measurement Models										
a. Configural	1175.48	859	.946	.932	.049	[.042, .056]				
b. Equal loadings	1195.39	875	.945	.932	.049	[.042, .056]	b vs a	16	19.892	.225
c. Equal intercepts	1250.92	891	.938	.925	.051	[.045, .058]	c vs a	16	56.641	< .001
Structural Models										
d. Goal progress	494.01	354	.953	.942	.051	[.040, .061]	-			
e. Satisfaction	561.61	354	.929	.913	.062	[.052, .071]	-			
f. Burnout	459.65	354	.963	.954	.044	[.032, .055]	-			
Alternative Models										
g. Goal progress	522.89	358	.944	.932	.055	[.044, .065]	g vs d	4	30.401	< .001
h. Satisfaction	601.73	358	.917	.899	.067	[.057, .076]	h vs e	4	36.047	< .001
i. Burnout	487.54	358	.955	.945	.049	[.037, .059]	i vs f	4	25.781	< .001

Note. Goal progress, satisfaction, and burnout were examined in separate structural models. Alternative models include reversed paths from school outcomes (goal progress, satisfaction, burnout) to both T1 appraisal (challenge and threat) and change in coping (Δ TOC and Δ DOC) during the transition to work.

Table 3.2

Bivariate Correlations Between Study Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Challenge _{wT1}	.85																
2. Threat _{wT1}	-.39**	.82															
3. TOC _{sT1}	.36**	.03	.91														
4. TOC _{wT1}	.50**	-.02	.74**	.90													
5. TOC _{wT2}	.46**	-.04	.62**	.71**	.90												
6. DOC _{sT1}	-.33*	.45**	-.30*	-.21*	-.27*	.88											
7. DOC _{wT1}	-.39**	.69**	-.04	-.25*	-.26*	.55**	.85										
8. DOC _{wT2}	-.24*	.60**	-.08	-.10	-.07	.59**	.60**	.85									
9. Goal progress _{sT1}	.34**	-.24*	.29*	.24*	.24*	-.15*	-.29**	-.14	.94								
10. Goal progress _{wT1}	.50**	-.17	.37**	.40**	.39**	-.21*	-.19	-.23*	.26*	.96							
11. Goal progress _{wT2}	.44**	-.19*	.40**	.43**	.58**	-.23**	-.25*	-.05	.33*	.49**	.96						
12. Satisfaction _{sT1}	.21*	-.03	.52**	.36**	.47**	-.50**	-.22*	-.31*	.13	.22*	.26*	.91					
13. Satisfaction _{wT1}	.33**	-.16	.33**	.47**	.45**	-.41**	-.52**	-.31*	.18*	.43**	.43**	.44**	.93				
14. Satisfaction _{wT2}	.32*	-.14	.30*	.35**	.44**	-.54**	-.39**	-.45	.21*	.42**	.41**	.50**	.76**	.93			
15. Burnout _{sT1}	-.13	.33**	-.18	-.04	-.16	.73**	.42**	.51**	-.05	-.06	-.15	-.57**	-.39**	-.44**	.93		
16. Burnout _{wT1}	-.38**	.65**	-.07	-.17	-.22*	.46**	.82**	.51**	-.19*	-.21*	-.29**	-.11	-.58**	-.41**	.42**	.94	
17. Burnout _{wT2}	-.34**	.53**	-.14	-.18*	-.24*	.57**	.59**	.77**	-.14	-.32**	-.24*	-.27*	-.48**	-.59**	.50**	.70**	.95
18. GPA _{sT1}	-.13	.01	-.19*	-.09	-.15	.20	-.01	.02	-.21*	-.11	-.08	-.18	.08	-.05	.13	-.18	.06

Note. TOC = task-oriented coping, DOC = disengagement-oriented coping, GPA = graduation grade point average. s = school, w = work.

Composite reliability Omega (ω) is presented on the diagonal.

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

Table 3.3*Descriptive Statistics of Study Variables*

Variables	T0		T1		T2		T0-T1		T1-T2	
	<i>M</i>	σ^2	<i>M</i>	σ^2	<i>M</i>	σ^2	<i>d</i>	<i>r</i>	<i>d</i>	<i>r</i>
Threat appraisal	–	–	2.47	0.74	–	–				
Challenge appraisal	–	–	3.72	0.39	–	–				
TOC	3.26	0.36	3.47	0.32	3.41	0.24	0.36**	.74**	-0.12	.71**
DOC	2.52	0.47	2.24	0.47	2.35	0.37	-0.40**	.55**	0.16	.60**
Goal progress	5.32	1.54	4.54	1.64	4.30	1.53	-0.62**	.26*	-0.19*	.49**
Satisfaction	4.51	1.53	4.43	1.85	4.41	1.56	-0.06	.44**	-0.02	.76**
Burnout	3.72	1.50	2.88	1.78	2.86	1.38	-0.65**	.42**	-0.02	.70**
GPA	10.28	3.06	–	–	–	–				

Note. TOC = task-oriented coping, DOC = disengagement-oriented coping. Δ = latent change, *d* = Cohen's *d* difference between latent means, *r* = test-retest correlation. GPA = graduation grade point average. Mean GPA is equivalent to B+ (75-79%).

p* < .05. *p* < .001.

Table 3.4*Standardized Estimates for Models of Goal Progress, Satisfaction, and Burnout*

Variables	Model 1 Goal progress			Model 2 Satisfaction			Model 3 Burnout		
	β	S.E.	<i>p</i>	β	S.E.	<i>p</i>	β	S.E.	<i>p</i>
	Δ TOC during the transition								
School TOC	-.40	0.10	< .001	-.39	0.09	< .001	-.38	0.10	< .001
GPA	-.07	0.10	.494	-.07	0.10	.460	-.07	0.10	.463
Δ DOC during the transition									
School DOC	-.44	0.08	< .001	-.46	0.08	< .001	-.44	0.08	< .001
GPA	.13	0.08	.085	.14	0.08	.079	.13	0.08	.079
Δ Outcome during the transition									
School outcome ^a	-.69	0.05	< .001	-.65	0.08	< .001	-.74	0.11	< .001
School TOC	.26	0.09	.003	.19	0.09	.025	-.06	0.07	.368
School DOC	-.07	0.08	.401	-.27	0.10	.007	.37	0.13	.003
GPA	.01	0.07	.889	-.21	0.07	.002	.28	0.07	< .001
T2 work-related TOC									
T1 work threat	-.01	0.09	.948	.01	0.08	.916	-.02	0.09	.783
T1 work challenge	.10	0.12	.386	.09	0.10	.383	.11	0.11	.319
T1 work TOC	.69	0.09	< .001	.73	0.08	< .001	.70	0.08	< .001
Δ TOC	-.07	0.09	.422	-.11	0.09	.236	-.08	0.09	.358
GPA	.05	0.07	.479	.04	0.07	.582	.05	0.07	.488
T2 work-related DOC									
T1 work threat	.25	0.11	.023	.22	0.12	.064	.24	0.10	.019
T1 work challenge	.03	0.08	.721	.10	0.09	.248	.08	0.07	.302
T1 work DOC	.63	0.13	< .001	.67	0.13	< .001	.66	0.11	< .001
Δ DOC	-.26	0.13	.036	-.29	0.12	.017	-.32	0.12	.009
GPA	.02	0.08	.831	.02	0.08	.764	.03	0.08	.706
T2 work-related outcome									
T1 work outcome ^a	.65	0.10	< .001	.83	0.06	< .001	.82	0.07	< .001
Δ Outcome ^a	-.14	0.12	.262	-.07	0.10	.518	.09	0.11	.453
Δ TOC	-.13	0.13	.319	.04	0.07	.602	-.17	0.07	.018
Δ DOC	.08	0.14	.596	.22	0.09	.018	-.34	0.16	.031
GPA	-.05	0.09	.584	.06	0.06	.327	-.19	0.07	.010

Note. Goal progress (Model 1), satisfaction (Model 2), and burnout (Model 3) were examined in separate models. Δ = change variable from school to work. GPA = graduation grade point average. ^a *Outcome* refers to the outcome variable studied in Models 1-3.

Model 1 – Goal Progress. The intercept of Δ progress was negative and statistically significant ($= -0.69, S.E. = 0.15, p < .001$), suggesting that goal progress significantly diminished during the school to work transition. School-related TOC at T1 (but not school-related DOC) was a significant and positive predictor of Δ progress during the transition, thus partially supporting our hypotheses. As typically observed in latent change model, school-related goal progress was negatively associated with Δ progress. Contrary to our hypotheses, change in TOC and DOC during the transition did not significantly predict work-related goal progress at T2 (i.e., after controlling for T1 work-related goal progress). GPA, which was included as a control variable, did not significantly relate to change or T2 levels in goal progress.

Model 2 – Satisfaction. The intercept of Δ satisfaction was negative but not statistically significant ($= -0.10, S.E. = 0.12, p = .34$), suggesting that satisfaction remained relatively stable during the school to work transition. As typically observed in latent change models, school satisfaction was a significant negative predictor of Δ satisfaction. School-related TOC and DOC at T1 respectively positively and negatively predicted change in satisfaction during the transition to work, thus supporting our hypotheses. In partial support of our hypotheses, change in DOC (but not change in TOC) during the transition was a significant and positive predictor of T2 work-related satisfaction (after controlling for T1 work-related satisfaction). That is, a greater decrease in DOC during the transition was related to higher work satisfaction at T2. GPA, which was included as a control variable, negatively predicted change in satisfaction during the transition, but not work-related satisfaction at T2.

Model 3 – Burnout. The intercept of Δ burnout was negative and statistically significant ($= -0.81, S.E. = 0.12, p < .001$), suggesting that symptoms of burnout significantly diminished during transition from school to work. School-related DOC (but not school-related TOC) was a

positive predictor of Δ burnout during the transition, thus partially supporting our hypotheses. As typically observed in latent change models, school burnout was a negative predictor of Δ burnout. In support of our hypotheses, changes in TOC and DOC during the transition were respectively negative and positive predictors of T2 work-related burnout (after controlling for T1 work-related burnout). That is, a greater increase in TOC and a greater decrease in DOC were related to lower work-related burnout. GPA, which was included as a control variable, positively predicted change in burnout during the transition to work and work-related burnout at T2.

Coping in Models 1 to 3. Across the goal progress (Model 1), satisfaction (Model 2), and burnout (Model 3) analyses previously presented²², the intercept of Δ TOC was positive and statistically significant, suggesting that TOC significantly increased during transition from school to work. The intercept of Δ DOC was negative and statistically significant, suggesting that DOC decreased significantly during transition from school to work. As typically observed in latent change models, school DOC and TOC were significant negative predictors of Δ DOC and Δ TOC, respectively (see Table 3.4). In partial support of our hypotheses, work-related threat appraisal at T1 (but not work-related challenge appraisals) significantly predicted T2 work-related DOC (after controlling for T1 work-related DOC). Contrary to expectations, T1 work-related appraisals did not significantly predict T2 work-related TOC. GPA, which was included as a control variable, did not significantly predict change in coping during the transition or work-related coping at T2.

Alternative Models

We tested and compared alternative models with reversed paths from school outcomes (goal progress, satisfaction, burnout) to both T1 appraisal (challenge and threat) and change in

²² Intercepts of change in TOC (Model 1 = 0.21, Model 2 = 0.19, Model = 0.21) and DOC (Model 1 = -0.29, Model 2 = -0.25, Model 3 = -0.24) slightly differed across the three models but the interpretation remained unchanged.

coping (Δ TOC and Δ DOC) during the transition. The addition of these reciprocal paths significantly worsened the chi-square tests (see Table 3.3). However, the values for Δ CFI and Δ RMSEA did not reach threshold to suggest we should reject these alternative models. Results indicated that school-related goal progress was significantly related to threat ($\beta = -.23$, $S.E. = 0.09$, $p = .006$) and challenge appraisal ($\beta = .35$, $S.E. = 0.09$, $p < .001$), and to Δ DOC during the transition ($\beta = -.25$, $S.E. = 0.09$, $p = .006$). Results also indicated that school satisfaction was significantly related to challenge appraisal ($\beta = .34$, $S.E. = .11$, $p = .028$) whereas school burnout was significantly related to threat appraisal ($\beta = .35$, $S.E. = 0.10$, $p < .001$).

Finally, results of the three main models were examined with and without the inclusion of T1 and T2 workload as control variables. Results did not significantly change, and these variables were therefore excluded from the final analyses.

Discussion

In this study, we offered a novel perspective on the experience of recent graduates by incorporating both their academic and work strivings to better depict how coping operates to explain changes during the transition from school to work and how this change relates to their short-term adaptation to work. Our findings build upon prior longitudinal research from the school and work contexts and demonstrate that the school-related experiences of students may transfer to predict early work experiences. We demonstrated that earlier school-related coping relates to changes in goal progress, satisfaction, and burnout during the transition from school to work. Changes in coping during the transition, in turn, were shown to relate to subsequent work-related outcomes, namely satisfaction and burnout.

The School-To-Work Transition

A first goal of this study was to examine the role of school-related coping in predicting

changes in goal progress, satisfaction, and burnout during the transition from school to work.

Three set of noteworthy findings emerged. First, goal progress significantly decreased during the transition. Based on the calculation of predicted values²³, a person who used more school-related task-coping experienced a more positive change in goal progress during the transition. That is, that person experienced a smaller decline in goal progress ($\hat{y} = -0.40$) compared to someone who used less school task-coping ($\hat{y} = -1.001$).

Second, satisfaction decreased during the transition but to a non-significant extent. A person who used more school-related task-coping experienced a more positive change in satisfaction. Specifically, this person experienced a small positive increase or a smaller decline ($\hat{y} = 0.18$) in satisfaction compared to someone who used less school task-coping ($\hat{y} = -0.24$). In contrast, a person who used more school-related disengagement experienced a more negative change in satisfaction. Specifically, this person experienced a smaller positive increase or a stronger decline ($\hat{y} = -0.41$) in satisfaction compared to someone who used less school disengagement-coping ($\hat{y} = 0.34$).

Third, burnout significantly decreased during the transition and this decrease was significantly predicted by school-related disengagement-coping. A person who used more school-related disengagement-coping experienced a smaller decrease in burnout during the transition ($\hat{y} = -0.21$) compared to someone who used less school disengagement ($\hat{y} = -1.46$). Overall, school-related coping played a significant role in explaining change in goal progress, satisfaction, and burnout during the transition to work.

²³Using unstandardized estimates, we calculated the predicted values of the latent change scores of goal progress, satisfaction, and burnout across high (1 unit above the mean) and low (1 unit below the mean) values of school-related coping and of goal progress, satisfaction, and burnout at T2 across high and low values of latent change scores in TOC and DOC.

Short-Term Adaptation to Work

A *second goal* of this study was to examine if changes during the transition from school to work could relate to new graduates' short-term adaptation to work. First, task-coping significantly increased during the transition and this increase predicted work-related burnout at T2. Contrary to our hypotheses, this was not the case for T2 goal progress and satisfaction. A person who experienced a larger increase in task-coping during the transition experienced lower subsequent work burnout ($\hat{y} = -.26$) compared to someone who experienced a smaller increase in task-coping ($\hat{y} = -0.06$).

Second, disengagement-coping significantly decreased during the transition and this decrease predicted work-related satisfaction at T2. A person who experienced a larger decrease in disengagement-coping during the transition experienced more subsequent work satisfaction ($\hat{y} = .26$) compared to someone who experienced a smaller decrease in disengagement-coping during the transition ($\hat{y} = -0.29$). In addition, this decrease in disengagement-coping predicted work-related burnout at T2. A person who experienced a larger decrease in disengagement-coping during the transition experienced lower subsequent work burnout ($\hat{y} = -.40$) compared to someone who experienced a smaller decrease disengagement-coping during the transition ($\hat{y} = -0.09$).

Finally, change in disengagement- and task-coping did not relate to subsequent goal progress. A reduction in disengagement-coping from school to work predicted subsequent disengagement-coping at work, even while controlling for its T1 level, which was not the case for task-coping, goal progress, satisfaction, or burnout. These findings indicate a continuity in disengagement strategies that could follow students from school to work.

A *third goal* of this study was to examine if work-related appraisals of threat and

challenge upon work entry would play a role in predicting subsequent work-related coping. Results indicated that threat appraisal was related to disengagement-coping, such that individuals who perceived goal-relevant demands as exceeding their personal resources (threat appraisal) reported using more strategies directed away from the source of stress as an attempt to avoid dealing with such work demands. Furthermore, earlier challenge appraisal did not significantly relate to subsequent task-coping, thus not supporting our hypothesis. On the one hand, prior research in the school context has provided evidence for the positive association between challenge appraisal and task-coping at the cross-sectional level (Schellenberg & Baillis, 2016), suggesting that challenge may be a stronger predictor of coping in school and threat may be a stronger predictor of coping at work. Students may experience school demands as generally less threatening given their proficiency in the student role. In a novel work environment, new graduates may be less rehearsed with task demands or experience lower job-fit and may therefore be more likely to evaluate certain demands as threatening and respond with disengagement strategies (DOC). On the other hand, in this study, the measure of challenge appraisal originates from a flow state questionnaire that defines challenge as an equilibrium between high demands and high resources. Challenge, from Lazarus' stress and coping perspective, is not contingent on high demands, but rather on the evaluation of them being personally meaningful and holding a potential for personal gain or growth. Taken together, these findings suggest that new graduates are still adapting to work demands and their personal resources do not yet meet the high demands of their new work environment.

A fourth goal of this study was to control for the role of graduation GPA in our models. Overall, our hypotheses were supported even with the inclusion GPA, thus supporting prior research demonstrating the limited predictive value of grades for job success (van Dierendonck,

& van der Gaast, 2013; see also Poole et al., 1993). Therefore, graduation GPA is informative but insufficient to understand the success of recent graduates during the school-to-work transition and their short-term adaptation to work.

Change Processes and Tests of Alternative Models

The proposed alternative models revealed that graduates who made significant progress on their education goals are less likely to be threatened by the demands of their work goals and more likely to perceive being able to master these demands. Graduates who experienced greater symptoms of burnout while in university are more likely to perceive the demands of their work goals as having a potential for harm or loss. In contrast, those who were satisfied with their university experience are more likely to perceive goal-related demands as an opportunity for growth. Results also indicated that compared to graduates who made less progress on their education goals, those who made more progress reduced their use of disengagement coping strategies to a greater extent during the transition to work. Overall, these findings indicate that school-related experiences may follow new graduates into the workplace through bidirectional effects that unfold over time (Bandura, 1989; Carver & Scheier, 1998).

The proposed latent change models allowed us to explore the *changing nature* of coping, goal progress, satisfaction, and burnout during the school to work transition. In particular, an increase in task- and a decrease in disengagement-oriented coping is consistent with the nature of the change period being examined. A developmental transition marked by high change and novelty likely requires a greater mobilization of resources to actively approach external demands and actively regulate any associated emotions while minimizing thoughts and behaviors that function to ignore or avoid dealing with these demands.

In support of prior research (Robins et al., 2018), burnout significantly decreased from

school to work, which could suggest that being in school for a long period of time had begun to physically, emotionally, and mentally exhaust some students, to a point where their symptoms of burnout diminished as they changed contexts. Furthermore, goal progress significantly diminished from school to work and over a four-week period in the work context. As people enter new environments, they must learn new roles and find ways of reinvesting their knowledge and skills to adapt themselves to novel demands. Therefore, a reduction in goal progress can be a reflection this adaptation process during which new graduates must slowly build work-related self-efficacy (Abele & Spurke, 2009b; Saks & Ashford, 2000).

Limitations and Future Research

First, as with any self-reported research, caution must be taken with respect to making causal inferences from our findings. Although the longitudinal design improves on previous coping research, studies that follow the same individuals from school to work are needed to provide stronger evidence for our propositions, much like experimental designs would be warranted to defend any causal explanation (Podsakoff & Podsakoff, 2019). For example, to understand the effects of task- and disengagement-oriented coping in the promotion of desirable outcomes, lab or field experiments could be designed to intervene on the coping strategies of students (i.e., the factors proposed to cause changes in student success) and then follow these students to examine within-person effects (e.g., weekly diaries) or identify individual trajectories and outcomes across time (Pirlott & MacKinnon, 2016). This approach would also provide researchers with the opportunity to measure school-related variables while students are still in school rather than retrospectively after graduation. Second, following students weekly using cohort studies would provide more precise information on the rate at which these developmental effects operate over time. Finally, despite the limited sample size, this study supports prior

research findings obtained with large samples of university students. Although cohort studies may provide access to a larger pool of participants, cost and attrition are typically high – issues we did not encounter in the present study. To enhance the generalizability of our findings, future research is nonetheless needed to include larger, more representative samples of recent graduates, and include moderating variables such as job-fit with educational training.

Conclusion

The models we propose in this study provide a novel lens for studying the consequential implications of coping during transition periods. Our models spanned two time points to depict interindividual differences in the change experiences of new graduates between school and work. Our findings illustrate how student success (GPA) may not be sufficient to predict how graduates will cope with stressful demands upon work entry. It seems, though, that school-related coping relates to change in goal progress, satisfaction, and burnout from school to work. This change in coping, in turn, helps predict short-term adaptation to work. Overall, the mechanisms that help explain how students cope and achieve desirable outcomes in school may subsequently help new graduates successfully transition and adapt to the work domain. Incorporating the school and work pursuits of new graduates thus provided a solid analytic framework for testing a wide range of hypotheses that can inform future cohort and experimental research and, ultimately, intervention efforts. Future research is nonetheless needed to follow recent graduates over longer periods of time and examine within-person processes and/or profiles of individuals to provide stronger support for this intra-individual transfer of effects across time.

References

- Abele, A. E., & Spurk, D. (2009a). How do objective and subjective career success interrelate over time? *Journal of Occupational and Organizational Psychology*, *82*, 803–824.
<https://doi.org/10.1348/096317909X470924>
- Abele, A. E., & Spurk, D. (2009b). The longitudinal impact of self-efficacy and career goals on objective and subjective career success. *Journal of Vocational Behavior*, *74*(1), 53–62.
<https://doi.org/10.1016/j.jvb.2008.10.005>
- Amiot, C., Terry, D., Jimmieson, N., & Callan, V. (2006). A longitudinal investigation of coping processes during a merger: Implications for job satisfaction and organizational identification. *Journal of Management*, *32*, 552–574.
<https://doi.org/10.1177/0149206306287542>
- Amirkhan, J. H., & Kofman, Y. B. (2018). Stress overload as a red flag for freshman failure and attrition. *Contemporary Educational Psychology*, *54*, 297–308.
<https://doi.org/10.1016/j.cedpsych.2018.07.004>
- Armstrong-Stassen, M. (2003). Job transfer during organizational downsizing: A comparison of promotion and lateral transfers. *Group & Organization Management*, *28*, 392–415.
<https://doi.org/10.1177/1059601102250824>
- Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, *63*, 989.
<http://doi.org/10.1037/0022-3514.63.6.989>
- Ayers, T. S., Sandier, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of*

- Personality*, 64, 923–958. <https://doi.org/10.1111/j.1467-6494.1996.tb00949.x>
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44, 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>
- Ben-Zur, H., & Michael, K. (2007). Burnout, social support, and coping at work among social workers, psychologists, and nurses: The role of challenge/control appraisals. *Social Work in Health Care*, 45, 63–82. https://doi.org/10.1300/J010v45n04_04
- Boileau, L., Gaudreau, P., Gareau, A., & Chamandy, M. (2020). Some days are more satisfying than others: A daily-diary study on optimism, pessimism, coping, and academic satisfaction. *The British Journal of Educational Psychology*, 91, 46–62. <https://doi.org/10.1111/bjep.12346>
- Boyd, N. G., Lewin, J. E., & Sager, J. K. (2009). A model of stress and coping and their influence on individual and organizational outcomes. *Journal of Vocational Behavior*, 75, 197–211. <https://doi.org/10.1016/j.jvb.2009.03.010>
- Brammer, L. M. (1992). Coping with life transitions. *International Journal for the Advancement of Counselling*, 15, 239–253. <https://doi.org/10.1007/BF02449903>
- Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research*, 14, 52–62. <https://doi.org/10.1016/j.alcr.2009.03.002>
- Caplan, R. D., Cobb, S., French, J. R. P., Van Harrison, R., & Pinneau, S. R. (1980). *Job demands and worker health*. Ann Arbor: University of Michigan, Institute for Social Research. Items were taken from Appendix E, pp. 238–239.
- Carraro, N., & Gaudreau, P. (2015). Predicting physical activity outcomes during episodes of academic goal conflict: The differential role of action planning and coping planning.

Personality and Social Psychology Bulletin, 41, 1291–1305.

<https://doi.org/10.1177/0146167215594121>

Carver, C. S., & Scheier, M. (1998). *On the self-regulation of behavior*. Cambridge University Press.

Chamandy, M., & Gaudreau, P. (2019). Career doubt in a dual-domain model of coping and progress for academic and career goals. *Journal of Vocational Behavior*, 110, 155–167.

<http://doi.org/10.1016/j.jvb.2018.11.008>

Chamandy, M., & Gaudreau, P. (2022). The pursuit of academic and career goals: A dual-domain latent change score model of coping, progress, and burnout. *International Journal of Stress Management*, 29(2), 130–142. <https://doi.org/10.1037/str0000247>

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 9, 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, 127, 87–127.

<https://doi.org/10.1037/0033-2909.127.1.87>

Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing*, 43, 71–81.

<https://doi.org/10.1046/j.1365-2648.2003.02674.x>

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499–512.

<https://doi.org/10.1037//0021-9010.86.3.499>

- Dix, J. E., & Savickas, M. L. (1995). Establishing a career: Developmental tasks and coping responses. *Journal of Vocational Behavior, 47*, 93–107.
<https://doi.org/10.1006/jvbe.1995.1031>
- Elfering, A., Semmer, N. K., Tschan, F., Kalin, W., & Bucher, A. (2007). First years in job: A three-wave analysis of work experiences. *Journal of Vocational Behavior, 70*, 97–115.
<https://doi.org/10.1016/j.jvb.2006.07.001>
- Fields, D. L. (2013). *Taking the Measure of Work: A guide to Validated Measures for Organizational Research and Diagnosis*. IAP.
- Gareau, A., Chamandy, M., Kljajic, K., & Gaudreau, P. (2018). The detrimental effect of academic procrastination on subsequent grades: The mediating role of coping over and above past achievement and working memory capacity. *Anxiety, Stress, and Coping, 1–14*. <http://doi.org/10.1080/10615806.2018.1543763>
- Garriott, P. O., & Nisle, S. (2018). Stress, coping, and perceived academic goal progress in first-generation college students: The role of institutional supports. *Journal of Diversity in Higher Education, 11*, 436–450. <https://doi.org/10.1037/dhe0000068>
- Gaudreau, P., & Blondin, J.-P. (2002). Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise, 3*, 1–34. [http://doi.org/10.1016/S1469-0292\(01\)00017-6](http://doi.org/10.1016/S1469-0292(01)00017-6)
- Gaudreau, P., Carraro, N., & Miranda, D. (2012). From goal motivation to goal progress: The mediating role of coping in the self-concordance model. *Anxiety, Stress & Coping, 25*, 507–528. <http://doi.org/10.1080/10615806.2011.628015>
- Gaudreau, P., Gunnell, K. E., Hoar, S. D., Thompson, A., & Lelièvre, J. (2015). Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport,*

- Exercise, and Performance Psychology*, 4, 140. <http://doi.org/10.1037/spy0000032>
- Gibbons, C. (2010). Stress, coping and burn-out in nursing students. *International Journal of Nursing Studies*, 47, 1299–1309. <https://doi.org/10.1016/j.ijnurstu.2010.02.015>
- Haase, C. M., Heckhausen, J., & Silbereisen, R. K. (2012). The interplay of occupational motivation and well-being during the transition from university to work. *Developmental Psychology*, 48(6), 1739–1751. <https://doi.org/10.1037/a0026641>
- Hakanen, J., Schaufeli, W., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, 22, 224–241. <http://doi.org/10.1080/02678370802379432>
- Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review*, 117, 32–60. <http://doi.org/10.1037/a0017668>
- Hettich, P. I. (2010). College-to-workplace transitions: Becoming a freshman again. In *Handbook of Stressful Transitions Across the Lifespan* (pp. 87–109). Springer, New York, NY. https://doi.org/10.1007/978-1-4419-0748-6_5
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55. <http://doi.org/10.1080/10705519909540118>
- Jackson, S.A., & Marsh, H.W. (1996). Development and validation of a scale to measure optimal experience: The flow state scale. *Journal of Sport & Exercise Psychology*, 18, 17–35. <https://doi.org/10.1123/jsep.18.1.17>
- Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology*, 48, 485–519. <https://doi.org/10.1111/j.1744-6570.1995.tb01767.x>

- Khan, R., Neveu, J.-P., & Murtaza, G. (2020). Is grit hurting you? The dark side of psychological resources in goal pursuit. *Applied Psychology*. <https://doi.org/10.1111/apps.12279>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer. http://doi.org/10.1007/978-1-4419-1005-9_215
- Lent, R. W., Brown, S. D., Talleyrand, R., McPartland, E. B., Davis, T., Chopra, S. B., Alexander, M. S., Suthakaran, V., & Chai, C.-M. (2002). Career choice barriers, supports, and coping strategies: College students' experiences. *Journal of Vocational Behavior*, *60*, 61–72. <https://doi.org/10.1006/jvbe.2001.1814>
- Leong, F. T. L., Bonz, M. H., & Zachar, P. (1997). Coping styles as predictors of college adjustment among freshmen. *Counselling Psychology Quarterly*, *10*, 211–220. <https://doi.org/10.1080/09515079708254173>
- Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcels controversy needn't be one. *Psychological Methods*, *18*, 285–300. <https://doi.org/10.1037/a0033266>
- Luo, Y., Wang, Z., Zhang, H., Chen, A., & Quan, S. (2016). The effect of perfectionism on school burnout among adolescence: The mediator of self-esteem and coping style. *Personality and Individual Differences*, *88*, 202–208. <https://doi.org/10.1016/j.paid.2015.08.056>
- Marshall, E. A., & Symonds, J. E. (2021). *Young Adult Development at the School-to-Work Transition: International Pathways and Processes*. Oxford University Press.
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*, 99–113. <https://doi.org/10.1002/job.4030020205>
- McArdle, J. J., & Grimm, K. J. (2010). Five steps in latent curve and latent change score

- modeling with longitudinal data. In K. van Montfort, J. H. L. Oud, & A. Satorra (Eds.), *Longitudinal Research with Latent Variables* (pp. 245–273). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-11760-2_8
- Moore, E., Holding, A. C., Moore, A., Levine, S. L., Powers, T. A., Zuroff, D. C., & Koestner, R. (2020). The role of goal-related autonomy: A self-determination theory analysis of perfectionism, poor goal progress, and depressive symptoms. *Journal of Counseling Psychology*. <https://doi.org/10.1037/cou0000438>
- Muthén, L. K., & Muthén, B. O. (1998–2019). *Mplus user's guide* (8th ed.). Los Angeles, California: Muthén & Muthén.
- Peacock, E. J., & Wong, P. T. P. (1990). The stress appraisal measure (SAM): A multi-dimensional approach to cognitive appraisal. *Stress Medicine*, 6, 227–236. <https://doi.org/10.1002/smi.2460060308>
- Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Positive emotions in education. In E. Frydenberg (Ed.), *Beyond coping: Meeting goals, visions, and challenges* (pp. 149–173). Oxford University Press. <https://doi.org/10.1093/med:psych/9780198508144.003.0008>
- Pirlott, A. G., & MacKinnon, D. P. (2016). Design approaches to experimental mediation. *Journal of Experimental Social Psychology*, 66, 29–38. <https://doi.org/10.1016/j.jesp.2015.09.012>
- Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strengths, limitations, and recommendations for improving publishability. *The Leadership Quarterly*, 30, 11–33. <https://doi.org/10.1016/j.leaqua.2018.11.002>
- Poole, M. E., Langan-Fox, J., & Omodei, M. (1993). Contrasting subjective and objective

- criteria as determinants of perceived career success: A longitudinal study. *Journal of Occupational and Organizational Psychology*, 66(1), 39–54.
<https://doi.org/10.1111/j.2044-8325.1993.tb00515.x>
- Robins, T. G., Roberts, R. M., & Sarris, A. (2018). The role of student burnout in predicting future burnout: Exploring the transition from university to the workplace. *Higher Education Research & Development*, 37(1), 115–130.
<https://doi.org/10.1080/07294360.2017.1344827>
- Roth, P. L., & Clarke, R. L. (1998). Meta-Analyzing the relation between grades and salary. *Journal of Vocational Behavior*, 53, 386–400. <https://doi.org/10.1006/jvbe.1997.1621>
- Roth, P. L., BeVier, C. A., Switzer III, F. S., & Schippmann, J. S. (1996). Meta-analyzing the relationship between grades and job performance. *Journal of Applied Psychology*, 81, 548–556. <https://doi.org/10.1037/0021-9010.81.5.548>
- Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *The American Psychologist*, 41, 813–819. <https://doi.org/10.1037/0003-066X.41.7.813>
- Saklofske, D. H., Austin, E. J., Mastoras, S. M., Beaton, L., & Osborne, S. E. (2012). Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learning and Individual Differences*, 22, 251–257. <https://doi.org/10.1016/j.lindif.2011.02.010>
- Saks, A. M., & Ashforth, B. E. (2000). The role of dispositions, entry stressors, and behavioral plasticity theory in predicting newcomers' adjustment to work. *Journal of Organizational Behavior*, 21(1), 43–62. [https://doi.org/10.1002/\(SICI\)1099-1379\(200002\)21:1](https://doi.org/10.1002/(SICI)1099-1379(200002)21:1)
- Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School burnout inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment*, 25, 48–

57. <http://doi.org/10.1027/1015-5759.25.1.48>
- Salmela-Aro, K., Rantanen, J., Hyvönen, K., Tilleman, K., & Feldt, T. (2011). Bergen Burnout Inventory: Reliability and validity among Finnish and Estonian managers. *International Archives of Occupational and Environmental Health, 84*(6), 635–645.
<https://doi.org/10.1007/s00420-010-0594-3>
- Sargent, L. D., & Terry, D. J. (1998). The effects of work control and job demands on employee adjustment and work performance. *Journal of Occupational and Organizational Psychology, 71*(3), 219–236. <https://doi.org/10.1111/j.2044-8325.1998.tb00674.x>
- Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*, 507–514. <https://doi.org/10.1007/BF02296192>
- Schellenberg, B. J., & Bailis, D. S. (2016). The two roads of passionate goal pursuit: Links with appraisal, coping, and academic achievement. *Anxiety, Stress, & Coping, 29*, 287–304.
<http://doi.org/10.1080/10615806.2015.1036047>
- Shimazu, A., Schaufeli, W., & Taris, T. (2010). How does workaholism affect worker health and performance? The mediating role of coping. *International Journal of Behavioral Medicine, 17*, 154–160. <http://doi.org/10.1007/s12529-010-9077-x>
- Shin, H., Park, Y. M., Ying, J. Y., Kim, B., Noh, H., & Lee, S. M. (2014). Relationships between coping strategies and burnout symptoms: A meta-analytic approach. *Professional Psychology: Research and Practice, 45*, 44–56. <https://doi.org/10.1037/a0035220>
- Skinner, E. A., & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 21–44). Springer US.
http://doi.org/10.1007/978-1-4614-2018-7_2

- Skinner, E. A., & Zimmer-Gembeck, M. J. (2016). Coping as action regulation under stress. In E. A. Skinner & M. J. Zimmer-Gembeck (Eds.), *The Development of Coping: Stress, Neurophysiology, Social Relationships, and Resilience During Childhood and Adolescence* (pp. 3–25). Springer International Publishing. https://doi.org/10.1007/978-3-319-41740-0_1
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*, 216–269. <http://doi.org/10.1037/0033-2909.129.2.216>
- Soucy Chartier, I., Gaudreau, P., & Fecteau, M.-C. (2011). From dispositional affect to academic goal attainment: the mediating role of coping. *Anxiety, Stress & Coping, 24*, 43–58. <http://doi.org/10.1080/10615801003725360>
- Sugarman, L. (2010). Handbook of stressful transitions across the lifespan. *British Journal of Guidance & Counselling, 38*, 498–501. <https://doi.org/10.1080/03069885.2010.507939>
- Terry, D. J., & Jimmieson, N. L. (2003). A stress and coping approach to organisational change: Evidence from three field studies. *Australian Psychologist, 38*, 92–101. <https://doi.org/10.1080/00050060310001707097>
- Tinto, V. (1998). Colleges as Communities: Taking Research on Student Persistence Seriously. *The Review of Higher Education; Charlottesville, Va., 21*, 167–177.
- van Dierendonck, D., & van der Gaast, E. (2013). Goal orientation, academic competences and early career success. *Career Development International, 18*(7), 694–711. <https://doi.org/10.1108/CDI-01-2013-0003>
- Vizoso, C., Arias-Gundín, O., & Rodríguez, C. (2019). Exploring coping and optimism as predictors of academic burnout and performance among university students. *Educational*

Psychology, 39, 768–783. <https://doi.org/10.1080/01443410.2018.1545996>

Wiese, B. S. (2007). Successful pursuit of personal goals and subjective well-being. In *Personal project pursuit: Goals, action, and human flourishing* (pp. 301–328). Lawrence Erlbaum Associates Publishers.

Postface

In this study, we assessed recent graduates using measures that are common to the educational context for two main reasons. First, slightly adapting the measures to the context of work ensured conceptual continuity and comparability among the studies preceding or composing this thesis²⁴. Second, it allowed us to apply our dual-domain framework by having measures that can be empirically compared across the school and work domains. Measurement invariance – a prerequisite in longitudinal research²⁵ – can only be evaluated when using a similar measure across time and domains. Accordingly, the decision to adapt academic-related measures to the work context was taken to ensure that the latent constructs and the patterns of factor loadings are analogous, and that the size of factor loadings, the item intercepts, and the residual variances can be meaningfully compared across time and domains.

Although recalling school-related coping was the approach deemed most realistic for this study, future research would benefit from assessing participants prior to work entry, i.e., while they are still in school. It follows that research implementing a repeated measures design spanning over multiple time points (weeks, years) would allow to create and incorporate an aggregate score of recent graduates' school coping into our model. This would considerably reduce measurement error related to retrospective recall bias and provide a measure of coping that acts, theoretically speaking, as a stronger and more reliable predictor of situation-specific coping in the work context²⁶.

²⁴ Wiese, B. S., & Salmela-Aro, K. (2008). Goal conflict and facilitation as predictors of work–family satisfaction and engagement. *Journal of Vocational Behavior*, 73(3), 490–497. <https://doi.org/10.1016/j.jvb.2008.09.007>

²⁵ Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3(1), 4–70.

²⁶ Bolger, N., & Laurenceau, J.-P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. Guilford Press.

Mischel, W., Shoda, Y., & Mendoza-Denton, R. (2002). Situation-behavior profiles as a locus of consistency in personality. *Current Directions in Psychological Science*, 11(2), 50–54. <https://doi.org/10.1111/1467-8721.00166>

Ptacek, J. T., Pierce, G. R., & Thompson, E. L. (2006). Finding evidence of dispositional coping. *Journal of Research in Personality*, 40(6), 1137–1151. <https://doi.org/10.1016/j.jrp.2005.12.001>

CHAPTER 4

Promoting the Student Experience by Preparing for a Life After Graduation: A Small-Scale Coping Intervention

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Abstract

The goal of this randomized experimental study was to test if an intervention focusing on students' transition to work could be useful to improve the way they perceive their transition to work, and in turn promote a more positive student experience. A sample of university students ($N = 275$) completed measures of transition-related controllability appraisals as well as academic-related coping, satisfaction, burnout, and goal progress at pre- and post-intervention and two weeks after. In the first part of the intervention, the control group was asked to describe two past academic setbacks they have encountered while the experimental group was asked to think about and describe two past academic setbacks they successfully managed and the strategies that helped them manage and move past these setbacks. In the second part of the intervention, both the control and experimental groups were asked to describe a desirable outcome of their school-to work transition. In three distinct steps, those assigned to the experimental group were also asked to describe how they would achieve the goal they described, anticipate two potential barriers in the achievement of their goal, and again describe precisely how they would overcome those goal-related barriers. Using a two-group growth modeling approach, results revealed that the experimental condition elicited self-regulatory benefits by demonstrating group differences in the growth, decline, and follow-up levels, as well as in some of the associations between the intercepts and slopes of controllability appraisals, coping, satisfaction, and burnout. Overall, the findings indicate that the ways in which students appraise their school-to-work transition can hinder or enrich their academic pursuits, which may ultimately result in greater adjustment within and beyond the university setting.

Promoting the Student Experience by Preparing for a Life After Graduation: A Small-Scale Coping Intervention

Students and new graduates play an active role in their career development (Fugate et al., 2004; Savickas, 2005). This is particularly relevant in the context of developmental transitions, such as the one from school to work, where it is not possible to anticipate future employment opportunities and all the changes involved in these new roles.

For some university students, the idea of eventually transitioning from school to work is seen as a stressful looming experience marked by uncertainty (Marshall & Symonds, 2021), which can lead to enhanced psychological and physiological stress (Hirsh et al., 2012; Lazarus & Folkman, 1984; Peters et al., 2017; Sweet et al., 1999) and reduced academic achievement and psychological adjustment (Amirkhan & Kofman, 2018; Garriott & Nisle, 2018; Gibbons, 2010). Researchers have argued that coping skills learned earlier can be mobilized during periods of change to help people manage new situations (e.g., Bandura, 1989; Brammer, 1992). However, the experimental examination of the coping process – and the place it takes in helping students succeed in school while at the same time better prepare for a forthcoming workplace entry – remains an important gap in the existing psychological literature. The purpose of this research was to address this matter by testing whether a coping self-efficacy intervention is sufficient to promote both desirable transition-related appraisals and school-related outcomes among the student population.

The Coping Process

Stress is a dynamic process that occurs through a relationship between a person and their environment (Lazarus & Folkman, 1984). The transactional model of stress and coping postulates that cognitive appraisals play a central role in the stress experience. Cognitive

appraisals are concerned with what is at stake for a person and operate by evaluating one's personal resources in relation to specific situational demands (Siemer et al., 2007). Resources can range from personal goals and dispositional tendencies to health and social status or support (Hobfoll, 2002). Accordingly, variables such as optimism, tolerance for ambiguity, and goal-related doubt can weigh in on how a particular situation is evaluated (Lazarus, 2006). This evaluative process entails both the personal meaning that the individual attaches to an event (*primary appraisals*) and how the event can be managed (*secondary appraisals*; Lazarus & Folkman, 1984) given one's personal resources. Controllability – the extent to which individuals perceive to have control over a specific outcome – is among the beliefs that play a role in secondary appraisal (Folkman, 1984). Controllability appraisals have been shown to influence people's thoughts and behaviors when they face demanding situations (e.g., Ajzen, 2002; Bandura & Wood, 1989; Skinner, 1996; Weiner, 1985).

People try to manage demanding situations with coping – the cognitive and behavioral strategies used as an attempt to reduce perceived stress and any associated negative emotion (Lazarus & Folkman, 1984). The specific coping strategies students use to manage stressful transactions can be categorized into two higher-order dimensions of coping that each incorporate problem-focused and emotion-focused coping responses, namely task- and disengagement-oriented coping. In achievement driven contexts such as school and work, a coping dimension is regarded as effective when it relates to and improves achievement and psychological adjustment – two critical outcomes for successful adaptation and development (Aldwin, 2007; Heckhausen et al., 2010).

The task-oriented coping (TOC) dimension functions to persist with goal-directed effort as an attempt to actively alter a stressful event and the resulting thoughts and emotions (e.g.,

increasing effort, making a plan of action, analyzing and reappraising the situation positively). Associations between TOC and desirable outcomes are well established for students in post-secondary education, with positive links with grades, goal progress, academic satisfaction, and academic adjustment (Alarcon et al., 2013; Aspinwall & Taylor, 1992; Chamandy & Gaudreau, 2019; Gaudreau et al., 2015; Gaudreau et al., 2012; Gareau et al., 2018; Thomas et al., 2017), and negative links with symptoms of burnout, such as depersonalization and emotional exhaustion (Luo et al., 2016; Shin et al., 2014; Vizoso et al., 2019).

The disengagement-oriented coping (DOC) dimension functions to withdraw goal-directed effort as an attempt to disengage or distract the self from the stressful situation (i.e., social distancing, venting negative emotions, distracting oneself from the situation). DOC has shown negative links with academic achievement (Gaudreau et al., 2012; Soucy Chartier et al., 2011) and indicators of psychological adjustment (Aspinwall & Taylor, 1992; Gaudreau et al., 2015; Leong et al., 1997; Perera & DiGiacomo, 2015), and positive links with symptoms of school burnout (Luo et al., 2016; Vizoso et al., 2019; Shin et al., 2014).

So far, correlational studies (cross-sectional, prospective) have indicated that TOC and DOC for academic and career goals are distinctively associated with indicators of coping effectiveness such as achievement and psychological adjustment in the school (Chamandy & Gaudreau, 2019, 2022) and work contexts (Chamandy & Gaudreau, 2021). Little is known, however, about the extent to which a coping self-efficacy intervention could promote the experience of students who are in university and preparing for a life after graduation. This gap is important to consider given that the experience of career doubt in university students has been shown to positively relate to DOC and negatively relate to TOC and goal progress during the pursuit of both academic and career goals (Chamandy & Gaudreau, 2019). What is more, prior

academic coping has been found to influence the change processes that recent graduates experience from school to work (Chamandy & Gaudreau, 2021). As such, connecting academic to career strivings seems to be a promising avenue for the promotion of adaptation outcomes intervention research.

Coping Self-Efficacy

Social cognitive theory (Bandura, 1989) postulates that much of human behavior is regulated by the thoughts and anticipation of valued goals. People's beliefs in their capabilities to manage environmental demands affect how they will approach novel or difficult situations and the thought processes, affective states, motivation, and behavioral responses they will experience when coping with stressors (Jerusalem & Schwarzer, 1992). In particular, coping self-efficacy represents a person's judgment about their ability to cope effectively with life challenges and is critical to whether a person feels confident in their ability to perform the actions that lead to goal attainment (Greene, 2017).

Over the years, researchers have demonstrated that mastery experiences are among the strongest source of self-efficacy²⁷ (Bandura, 1997; Koestner et al., 2006). When people see themselves cope effectively with demanding situations or recall previous instances of achievement that are relevant to current or future goals, they are presented with tangible evidence of their success (i.e., mastery). Once people have achieved a mastery experience, their belief in their own ability increases and are better equipped to attempt additional difficult situations (i.e., self-efficacy).

A theoretically and empirically supported way to enhance an individual's sense of mastery and self-efficacy is through mental simulation (Cole et al., 2021; Kappes & Morewedge, 2016; Taylor et al., 1998). On the one hand, people's sense of mastery can be enhanced by having them mentally review past performance experiences. On the other hand, people's sense of self-efficacy can be

²⁷ Bandura (1997) proposed four sources of self-efficacy, namely mastery experiences, verbal persuasion, vicarious experience, and physiological and emotional states.

enhanced by having them transfer that experience to the future self, or to other desired outcomes and areas of life. Research to date has successfully manipulated self-regulatory processes, such as coping, among people facing uncertain or stressful situations (Brown et al., 2002; Rivkin & Taylor, 1999). In particular, mentally simulating the process for reaching a goal has shown to promote not only the resolution of a stressful encounter, but also one's affective states and progress in achieving the related goal (Taylor & al., 1998; Taylor & Pham, 1999). Bridging theories of self-regulation (e.g., Bandura, 1989; Gollwitzer & Bargh, 1996) can thus offer a useful stance from which to study the personal factors that can help students pursue the goals they have set for themselves while also making the best of goal-related obstacles (Brandstädter, 2009).

The Present Study

Students' experiences of coping effectiveness may have effects that extend to the way they appraise the looming change associated with their transition to work, how they cope with the demands of their educational goals, and the desirability of the outcomes they attain in the university context and beyond. The overall objective of the proposed research was to evaluate and compare the impact of a coping self-efficacy intervention (experimental versus control) on the stress appraisals (perceived control, uncontrollability), coping (TOC, DOC), and adaptation outcomes (satisfaction, burnout, goal progress) of university students from the perspective of their school-to-work transition.

In this study, three measurement occasions spanned two points in time, namely pre- and post-intervention (Time 1) and two weeks following the intervention (Time 2). The intervention was created based on prior theoretical and empirical research supporting the role of mastery experiences (Bandura, 1989; Dweck & Sorich, 1999; Felsten & Wilcox, 1992; Hammond, 1990; Koestner et al., 2006; Locke et al., 1984) and the mental simulation of possible selves for

effective self-regulation (Peetz & Wilson, 2008; Strauss et al., 2012; Taylor et al., 1998) in the context of goal pursuit and problem solving under conditions of stress (Aspinwall, 2005; Brown et al., 2002; Mantaras, et al., 2005). We hypothesized that, compared to the control group, participants assigned to the experimental group would report: (a) greater increases in favorable appraisals of their transition to work (and decreases in unfavorable appraisals) and (b) greater increases in school-related TOC and satisfaction, and decreases in DOC and burnout. Goal progress (only measured at Time 2) was expected to be higher in the experimental compared to the control condition. Secondary outcomes were also examined and are displayed in Figure 4.1.

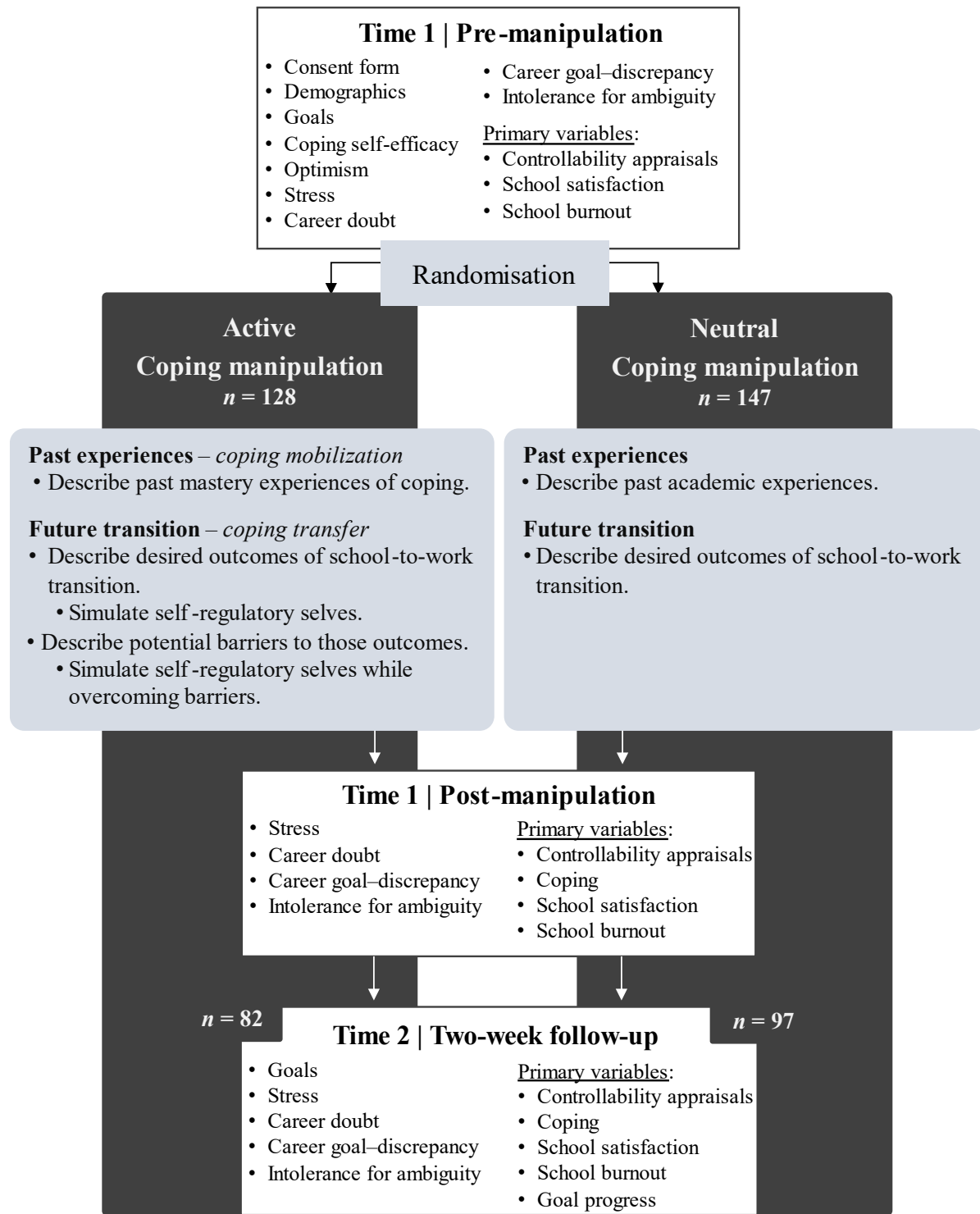
Method

Participants and Procedure

A sample of 331 university students took part in a randomized controlled study. Participants were recruited through an online participation system for Time 1. For Time 2, participants were contacted through email and offered a 10\$ Amazon.ca gift card for their online participation. The final sample for our analyses ($N = 275$; 84.6% female) were between the ages of 18 to 46 years ($M = 20.01$, $SD = 4.71$) the majority of which were 25 and younger (92.8%). Moreover, 50.2% of participants identified as White, 20% as Asian, 9.1% as Black, 8.7% as Arabic, 1.5% as Hispanic, and 0.4% as Indigenous, whereas 8.7% identified as “Other” and 1.5% did not provide a response. Most students (99%) were enrolled full-time (i.e., four classes or more) in various faculties, such as health sciences (36.1%), social sciences (28.5%), science (37.4%), arts (2.6%), engineering (2.2%), education (1.1%), and school of management (2.2%). Most students (73.8%) were completing the first year of their program. Several students (54.2%) reported working outside of school for an average of 16.14 hr per week.

Figure 4.1

Outline of Study Design and Procedure



An overview of the procedure and design of the study are depicted in Figure 4.1. Upon access to the online survey, participants provided informed consent and completed demographic and baseline measures (Time 1; pre-manipulation), after which they were randomly assigned to one of the two manipulation conditions. This randomization process was done automatically through the Qualtrics survey platform. All participants were asked to read an introductory fact sheet about coping, including a definition “Coping strategies refer to the specific mental and behavioural efforts that people employ to master, tolerate, reduce, or minimize stressful situations. People choose among a wide array of coping strategies to manage daily situations [...]” Participants then completed the task that corresponded to the group to which they were randomly assigned (control or experimental group) and completed post-manipulation measures (Time 1). The follow-up (Time 2) occurred two weeks after the manipulation.

Experimental Group

The *experimental coping manipulation* comprised of having students perceive the utility of past school-related mastery experiences for managing future goal-related difficulties; identify and visualize their personal goals as well as the specific actions leading up to the achievement of their goals; and identify and visualize the potential barriers along the way to reaching their career goals as well as the specific actions involved in the mastery of these anticipated barriers. Specifically, students in the experimental group were asked to think about and describe a) two past academic setbacks they successfully managed, b) the strategies that helped them manage and move past these setbacks, c) a desired school-to-work transition outcome, d) the strategies that will allow them to reach that goal (self-regulatory self), e) two barriers to their desired school-to-work outcome, and f) the strategies that will help them manage and move past these setbacks (self-regulatory self).

Control Group

Participants randomly assigned to the *control manipulation* group served to compare the extent of the effects of the experimental coping manipulation. As a way to exclude extraneous explanations for the effects of the manipulation, students in the control group were also asked to think about and describe a) two past academic setbacks they have encountered, b) a desired school-to-work transition outcome, and c) two potential barriers to this desired outcome.

Follow-up

Two weeks following the coping intervention, participants were invited, via email, to complete an online survey. The email reminded participants of the goals they had described at baseline. All participants received the same survey to examine if the effects of the manipulation could be observed two weeks later.

Measures

Certain variables were only measured before the coping intervention (e.g., demographic variables) to gain knowledge on the given sample and provide baseline variables to validate that both groups were not significantly different before the intervention. Other variables, such as coping and goal progress, were only measured after the coping intervention. Measuring coping at Time 1 and Time 2 (but not at baseline) was deemed preferable to avoid overexposing participants to the construct of interest and compromising the interpretation of the causal hypotheses under study (Kuhnen, 2010; see also Ariel et al., 2021; Gruijters, 2022). In a similar vein, a two-week follow-up assessment aimed at examining the effects of the intervention on processes that cannot be examined alongside the intervention, such as the real-life *in situ* goal-related coping and progress.

Primary Variables

Controllability appraisals (Pre-, Post-, Follow-up) were measured using the *control by self* and *uncontrollable by anyone* subscales from the Stress Appraisal Measure (Peacock & Wong, 1990). Sample items are as follow for *controllable by self* (perceived control): “Do I have the ability to do well in this goal?” and as follow for *uncontrollable by anyone* (uncontrollability): “Is this a totally hopeless goal?”. The two subscales were composed of four items rated on a scale from 1 (*Not at all*) to 5 (*Totally*). Each subscale has shown good reliability estimates among university students (e.g., Schellenberg & Baillis, 2016).

School burnout (Pre-, Post-, Follow-up) was measured for the school context using nine items from the School Burnout Inventory (SBI; Salmela-Aro et al., 2009), rated on a scale from 1 (*Not at all*) to 7 (*Totally*). The measure included three subscales: exhaustion (e.g., I feel overwhelmed by my schoolwork), cynicism about the meaning of school (e.g., I feel lack of motivation in my schoolwork and often think of giving up), and sense of inadequacy (e.g., I often have feelings of inadequacy in my schoolwork). A total score of burnout has shown good reliability estimates among university students (Chamandy & Gaudreau, in press).

School satisfaction (Pre-, Post-, Follow-up) was measured with eight items from the Multidimensional Students' Life Satisfaction Scale (Huebner, et al., 1998). Participants were asked to rate the extent to which each statement referred to their feelings toward school using a scale from 1 (*Not at all*) to 7 (*Totally*). Sample items are as follow: “I look forward to going to school”, “I wish I didn't have to go to school”. Three of the eight items were reverted to create positively valanced scores of school satisfaction. This subscale has shown good reliability estimates for school satisfaction among university students (Boileau et al., 2020).

Coping (Post-, Follow-up) was respectively measured for academic goals using the Coping

Inventory for Academic Strivings (CIAS-22; Thompson, 2015). The inventory is composed of 22 items measuring seven coping strategies organized within the TOC dimension (i.e., planning, logical analyses, thought control, mental imagery, relaxation, effort, and seeking support) and four coping strategies organized within the DOC dimension (i.e., behavioral disengagement, mental distraction, venting, and social distancing). All items were rated using a scale from 1 (*Does not correspond at all*) to 5 (*Corresponds totally*). This measure has shown good reliability estimates among university students (Gareau et al., 2018).

Goal progress (Follow-up) was measured for the school context using five items (Carraro & Gaudreau, 2015; Dugas et al., 2012). Participants were asked to rate each item (e.g., “you progressed on your goal” and “you moved forward in the pursuit of your goal”) on a scale from 1 (*Not at all*) to 7 (*Totally*). This measure has shown good reliability estimates among university students (Chamandy & Gaudreau, 2019).

Baseline and Secondary Variables

Optimism and Pessimism (Pre-) was measured using the Life Orientation Test (LOT; Scheier & Carver, 1985). Participants respectively rated three items of optimism and pessimism while keeping in mind how each item corresponded to their life in general (e.g., “In uncertain times, I usually expect the best”; “If something can go wrong for me, it will”) on a scale from 1 (*Not at all agree*) to 7 (*Totally agree*). Each subscale has shown good reliability estimates among university students (e.g., Boileau et al., 2020).

Coping self-efficacy (Pre-) was created and measured based on 11 items of the Coping Inventory for Academic Strivings (CIAS; Thompson, 2015). Participants were asked the following: “Please rate the extent to which you are confident in your ability to do the following statements in situations of academic-related stress.”; e.g., “...create a plan of action for your

school goals.” Items were rated using a scale from 1 (*Not at all*) to 5 (*Totally*).

Career doubt (Pre-, Post-, Follow-up) was measured with the career self-doubt subscale of the Vocational Identity Status Assessment (Porfeli et al., 2011). This subscale includes five items on a scale from 1 (*Do not agree at all*) to 5 (*Totally agree*). The subscale measures the extent to which participants doubt their career choice, with higher scores reflecting greater doubt, uneasiness, and worry about one's career choice and a sense that others share the same feelings and ideas about their choice. Sample items were as follow: “Thinking about choosing a career makes me feel uneasy” and “When I tell other people about my career plans, I feel like I am being a little dishonest”. This subscale has shown excellent reliability estimates among university students (Chamandy & Gaudreau, 2019).

Career goal-discrepancy (Pre-, Post-, Follow-up) was measured with two of four subscales from the Career Related Discrepancies Scale (Creed & Hood, 2015). The discrepancy domains of *ability* (“I thought I had the ability to get the career I want, but now I am not so sure”) and *standard* (“I doubt I can meet the standards of entry to my ideal career”) were chosen for their cognitive rather than behavioral (e.g., effort) nature. A total score was created with the two subscales, which were respectively comprised of three items rated on a 6-point scale from 1 (*Strongly disagree*) to 6 (*Strongly agree*). The full scale has shown excellent reliability estimates among university students (Creed & Hood, 2015).

Intolerance for ambiguity (Pre-, Post-, Follow-up) was measured using a subscale from the *revised need for closure scale* (Roets & Van Hiel, 2011; Webster & Kruglanski, 1994) to tap into how individuals construe and react to uncertainty. The 3-items (e.g., “I don’t like situations that are uncertain.”, “I feel uncomfortable when I don't understand the reason why an event occurred in my life.”) were rated on a scale from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

This subscale has shown good reliability estimates among university students (White, 2022).

School- and career-related stress (Pre-, Post-, Follow-up) were respectively measured with an adaptation of the Visual Analogue Stress Scale (Lesage et al., 2012). Using a scale from 0 (*No stress at all*) to 100 (*Extreme stress*), participants were asked “Using the rating scale above, please indicate the number that corresponds to how stressed you are about your school/career goals.” This single-item measure has been shown to efficiently quantify the intensity of perceived stress (Lesage et al., 2012).

Overview of the Analyses

Mplus version 8.4 (1998-2019) was used for the analyses (Muthén & Muthén, 2019). The models with manifest variables were estimated by combining item indicators into mean scores. We verified group equivalence (i.e., random assignment) by comparing demographic and baseline (i.e., pre-intervention) measurements across both groups. We then moved on to verify if the experimental task succeeded in modifying coping by testing the presence of significant differences in group-level effects at Time 1 – immediately after the experimental intervention. These analyses were performed using ANOVAs with group assignment as the independent variable. Group assignment was coded as 0 (control) and 1 (experimental).

We analyzed the repeated measures data using a two-group growth modeling approach (Byrne, 2013; Duncan & Duncan, 2004), which evaluates inter-individual differences in intra-individual (intercept and slope mean) variability. In multiple-group analysis, the models are estimated within each group simultaneously, and the parameters (e.g., slopes, variances, coefficients) are specified to be estimated freely for each group (i.e., assumed to significantly differ across groups) or to be constrained to equality. Models with and without equality constraints can then be compared using the scaled chi-square difference test ($\Delta\text{MLR}\chi^2$; Satorra &

Bentler, 2001). A significant reduction in model fit would indicate that the constrained parameter significantly differs across the experimental and the control group.

In a *first series of univariate models*, we examined growth for each repeated measure (e.g., stress, intolerance for ambiguity, career doubt, career goal-discrepancy, appraisal, coping, satisfaction, burnout) for the sample as a whole and for the experimental and control groups. For all variables, growth was specified as -2 (baseline), -1 (post-intervention), and 0 (2-week follow-up), with the intercept defined at the last time point to properly estimate the effect of the experimental manipulation. In this study, coping was only measured at Time 1 and Time 2, and growth cannot be estimated with only two time points. Two alternative approaches can be used with two time points: the first being an intercept only model in which the slope variance is set to zero, and the second being an intercept and change model, in which the residual variance of the two measurement occasions are set to zero. Using the latter approach, we began by testing a model in which the slope was defined as -1 and 0 to examine Time 2 as the final status.

In a *series of multivariate models*, we examined the interrelations of parallel growth or change in the primary variables (i.e., intercept and slope mean of appraisal, coping, satisfaction, and burnout) for the experimental and control groups. Finally, we examined goal progress as an outcome variable. Hence, we examined the interrelations between the intercept and slope means of appraisal and coping variables and follow-up levels of academic goal progress. In these models, correlation coefficients were constrained equal across groups to examine if associations between the variables were influenced by the experimental manipulation (i.e., group differences).

Results

Preliminary Analyses

A total of 331 participants took part in the study. Four participants who attempted to

participate twice in the survey were excluded to prevent group contamination. An additional 52 participants were excluded because they did not complete the intervention exercise ($n = 42$), they did not respond properly to attention checks (e.g., “please select not at all”; $n = 2$), the career goal they had described at baseline was somewhat or no longer relevant to them at Time 2 ($n = 7$), and/or they had taken part in career counselling at the university’s academic support center ($n = 1$). Response patterns and bivariate scatterplots were visually examined and Mahalanobis distance was calculated to identify potential multivariate outlying cases. None of the participants were considered an outlier in both the visual examination of the data and the Mahalanobis critical value. A final sample of 275 university students was retained for the main analyses.

Of the 275 participants (128 experimental; 147 control), 210 (65%) completed the final time point (82 experimental; 97 control). Results revealed no significant differences in baseline or demographic variables for participants who dropped out compared to those who remained in the study at Time 2, with the exception of career DOC at Time 1, which was higher for those who dropped out ($B = .15$, $S.E. = 0.06$, $p = .017$). Furthermore, at pre-intervention, no significant group differences were observed for demographic variables ($ps > .129$; i.e., age, gender, course load, faculty, year into the program, work hours, cultural background, current living situation, GPA, being enrolled in a coop program) or baseline variables ($ps > .056$; i.e., optimism, pessimism, coping efficacy, academic- and career-related stress, career doubt, intolerance for ambiguity, career goal-discrepancy, perceived control, uncontrollability, satisfaction, and burnout). Given that the COVID-19 pandemic had begun during the Winter 2020 semester, participants were asked the following question for the academic and career goal domain “Has the current situation surrounding COVID-19 affected your [academic/career] plans or goals?”. No group differences were observed for these two variables ($ps > .186$).

Bivariate correlations for primary study variables are displayed in Table 4.1. Means and variances for variables measured at both post- and follow-up are presented in Table 4.2. The experimental condition successfully elicited some of the expected changes among intervention participants. As seen in Table 4.2, at Time 1 (post-intervention), participants in the experimental group showed significantly lower DOC as well as lower intolerance for ambiguity and lower appraisal of uncontrollability toward their transition to work. No significant difference was observed for TOC. These findings suggests that the coping intervention was partially successful in eliciting the desired effects.

Main Analyses

Univariate Growth Models

Model fit and comparisons for nested multigroup univariate growth models (parameter constraints across groups) of each repeated measure are presented in Table S4.1 of the supplementary file. Results of single-group and multiple-group analysis for each univariate growth model are presented in Table S4.2.

For *transition-related uncontrollability*, the intercept (i.e., mean score at Time 2) was significantly lower ($OR = 0.55$; $d = -.33$, $S.E. = 0.16$, $p = .035$) and the slope (linear rate of change) significantly declined for the experimental group ($OR = 0.55$; $d = -.33$, $S.E. = 0.18$, $p = .070$). No groups differences were found for *perceived control*.

For *school DOC*, the significant increase (post-intervention to follow-up) observed in the mean slope of the experimental group was significantly different ($OR = 1.82$; $d = .33$, $S.E. = 0.14$, $p = .016$) from the small decline observed in the control group. There was also a significant difference in the slope variance across groups ($OR = 0.52$; $d = -.36$, $S.E. = 0.16$, $p = .027$), indicating that the experimental group exhibited significantly less inter-individual differences in

Table 4.1*Bivariate Correlations for Primary Study Variables across the Experimental and Control Groups*

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. SW uncontrollability _{pre}		.68	.42	.52	.51	.42	.20	.26	.20	.16	.06	.12	.01	.15	.22	.20	.10
2. SW uncontrollability _{post}	.51		.54	.45	.46	.33	-.06	.13	.32	.27	-.01	.00	-.06	.30	.36	.31	.02
3. SW uncontrollability _{follow-up}	.46	.45		.27	.35	.53	-.04	.03	.09	.34	-.07	-.08	-.09	.31	.34	.30	-.02
4. SW perceived control _{pre}	.33	.23	.31		.75	.57	.16	.22	.02	.27	.00	.01	-.14	.06	.12	.17	.13
5. SW perceived control _{post}	.34	.49	.25	.55		.58	.14	.18	.05	.17	.01	.02	-.09	.12	.16	.14	.17
6. SW perceived control _{follow-up}	.25	.21	.54	.46	.52		.20	.26	.14	.18	-.05	.00	-.03	.20	.22	.17	.15
7. School TOC _{post}	.04	.13	.06	.29	.43	.29		.71	-.25	-.32	.36	.49	.38	-.28	-.30	-.27	.49
8. School TOC _{follow-up}	-.14	.02	.15	.02	.31	.43	.67		-.16	-.22	.28	.38	.37	-.12	-.15	-.23	.58
9. School DOC _{post}	.22	.08	.19	.02	-.12	-.14	-.18	-.22		.42	-.41	-.40	-.35	.59	.64	.41	-.25
10. School DOC _{follow-up}	.23	.07	.11	.01	-.08	-.26	-.21	-.22	.67		-.33	-.30	-.42	.50	.49	.49	-.25
11. School satisfaction _{pre}	.12	-.06	.01	.12	.19	.25	.43	.48	-.45	-.31		.92	.84	-.50	-.49	-.40	.32
12. School satisfaction _{post}	.09	-.04	-.02	.14	.20	.21	.46	.46	-.45	-.30	.94		.85	-.49	-.48	-.40	.34
13. School satisfaction _{follow-up}	-.06	-.15	-.02	.07	.10	.28	.35	.54	-.47	-.49	.83	.81		-.44	-.48	-.50	.42
14. School burnout _{pre}	.20	.23	.18	.13	.13	-.07	-.07	-.16	.58	.57	-.53	-.51	-.57		.94	.71	-.16
15. School burnout _{post}	.24	.22	.16	.05	.07	-.11	-.15	-.19	.63	.59	-.61	-.61	-.58	.92		.75	-.23
16. School burnout _{follow-up}	.23	.23	.14	-.01	.00	-.15	-.24	-.31	.53	.62	-.59	-.57	-.71	.77	.76		-.35
17. School goal progress _{follow-up}	-.33	-.07	-.10	-.06	.00	.06	.26	.44	-.19	-.17	.35	.41	.55	-.33	-.30	-.44	

Note. Correlation coefficients are presented on the lower left diagonal for the experimental group and on the upper right diagonal for the control group. SW = school-to-work transition. TOC = task-oriented coping, DOC = disengagement-oriented coping. Pre- and post-intervention measurements occurred at Time 1 and follow-up took place two weeks later, at Time 2.

Correlation coefficients above .20 are $p < .05$.

Table 4.2*Results of Single-Group and Multiple-Group Univariate Growth Analyses*

Variables	Post-	Mean		Post-	Variance		Correlation
		Intercept	Slope		Intercept	Slope	Int.-slope
S-W uncontrollability	2.75	2.27**	-0.02	0.37	0.27**	0.07**	.47**
Control	2.82	2.80**	0.01	0.40	0.33**	0.08*	.52*
Experimental	2.67	2.64**	-0.06*	0.32	0.20**	0.05*	.41*
S-W perceived control	3.40	3.33**	-0.04	0.38	0.21**	0.06**	.30*
Control	3.42	3.36**	-0.03	0.41	0.21**	0.06*	.11
Experimental	3.38	3.31**	-0.03	0.34	0.22**	0.07*	.43**
School TOC (post, follow-up)	3.69	3.65**	-0.05	0.42	0.41**	0.24**	.38**
Control	3.64	3.64**	-0.01	0.42	0.43**	0.24**	.39**
Experimental	3.74	3.66**	-0.09*	0.41	0.39**	0.24**	.38**
School DOC (post, follow-up)	2.36	2.41**	0.06	0.55	0.50**	0.46**	.43**
Control	2.47	2.41**	-0.03	0.54	0.50**	0.57**	.51**
Experimental	2.23	2.42**	0.16*	0.53	0.48**	0.34**	.36**
School satisfaction	5.16	5.06**	-0.04*	1.13	1.03**	0.04**	.15
Control	5.07	4.96**	-0.04	1.15	1.04**	0.05*	.11
Experimental	5.27	5.18**	-0.05	1.09	0.99	0.02	.24
School burnout	3.61	3.60**	-0.04	1.66	1.28**	0.07*	-.04
Control	3.76	3.74**	-0.02	1.68	1.28**	0.09*	-.02
Experimental	3.43	3.43**	-0.07*	1.58	1.23**	0.05	-.03
School stress	6.29	6.49**	0.16*	6.86	5.99**	0.71*	.19
Control	6.27	6.33**	0.06	7.32	6.46**	0.68*	.22
Experimental	6.31	6.67**	0.27*	6.33	5.37**	0.73*	.13
Career stress	5.69	5.64**	-0.16*	8.82	6.66**	0.18*	-.35
Control	5.64	5.62**	-0.18*	9.45	6.57**	0.23*	.42
Experimental	5.76	5.69**	-0.11	8.12	6.83**	0.12	.27
Career doubt	2.05	2.09**	0.02	0.82	0.75**	0.09**	.45**
Control	2.09	2.11**	-0.001	0.76	0.75**	0.12**	.43**
Experimental	2.00	2.07**	0.03	0.87	0.76**	0.05*	.47**
Career goal-discrepancy	2.68	2.83**	0.15**	1.93	1.82**	0.18**	.53**
Control	2.80	3.02**	0.23**	1.76	1.85**	0.26**	.59**
Experimental	2.53	2.63**	0.07	2.07	1.69**	0.08*	.41**
Intolerance for ambiguity	4.04	4.11**	-0.03	0.93	0.62**	0.07	.24
Control	4.15	4.27**	0.01	0.88	0.57**	0.09	.13
Experimental	3.91	3.95**	-0.07	0.97	0.63**	0.06	.33

Note. SW = school-to-work transition. TOC = task-oriented coping, DOC = disengagement-oriented coping. TOC and DOC were only measured on two occasions. Bold parameters in the experimental group significantly differ from those in the control group.

* $p < .05$. ** $p < .001$.

intra-individual change. Furthermore, for *school TOC*, the slope showed a significant decline (Time 1 to Time 2) in the experimental group, whereas the small increase observed in the control group was not statistically significant. See Figure 4.2 for a graphical presentation of TOC (Panel A) and DOC (Panel B) levels at post-intervention and follow-up.

School satisfaction did not differ significantly across groups. For *school burnout*, the intercept significantly differed ($OR = 0.60$; $d = -.28$, $S.E. = 0.14$, $p = .047$), suggesting significantly lower levels at follow-up for the experimental group. The mean slope of burnout was negative and statistically significant in the experimental group, but not in the control group.

Finally, for *intolerance for ambiguity*, the intercept was significantly lower ($OR = 0.43$; $d = -.46$, $S.E. = 0.16$, $p = .005$) for the experimental group at follow-up. For *career goal-discrepancy*, the intercept ($OR = 0.56$; $d = -.32$, $S.E. = 0.14$, $p = .024$), slope ($OR = 0.50$; $d = -.38$, $S.E. = 0.18$, $p = .034$), and slope variance ($OR = 0.41$; $d = -.49$, $S.E. = 0.21$, $p = .020$) differed significantly across groups, indicating that the experimental group exhibited less increase and follow-up level of career goal-discrepancy, and that there was significantly less variability in the slopes of individuals within this group. No group differences were found for *career doubt*.

Parallel Growth Models

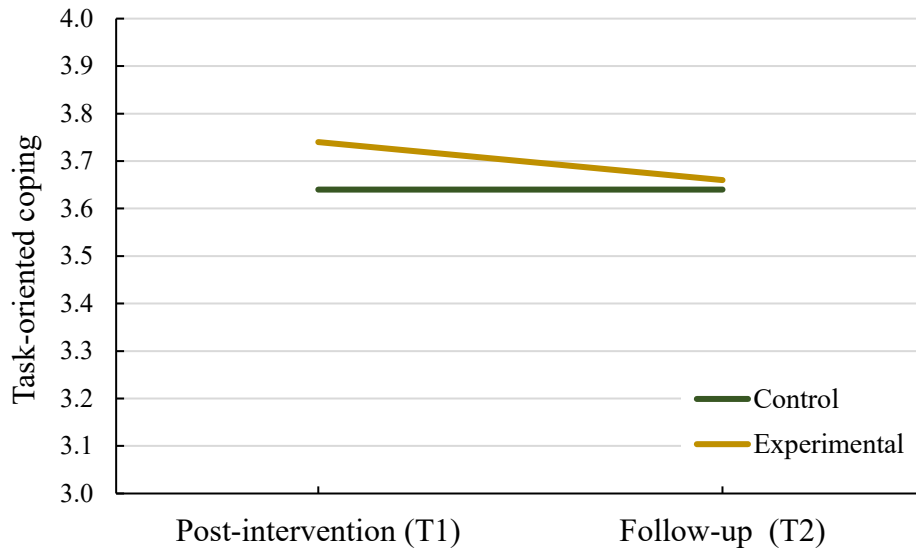
The growth in controllability appraisals, school coping, school satisfaction, and school burnout were estimated in a series of parallel process models to examine the interrelations between the slopes and intercepts of these variables.

Controllability Appraisals and School Coping. Results of *single-group* analysis indicated a significant association between the slope of perceived control and both the slope of TOC ($r = .25$, $S.E. = 0.12$, $p = .035$) and the intercept of DOC ($r = -.22$, $S.E. = 0.11$, $p = .053$). The intercept of perceived control was significantly related to the intercept of TOC

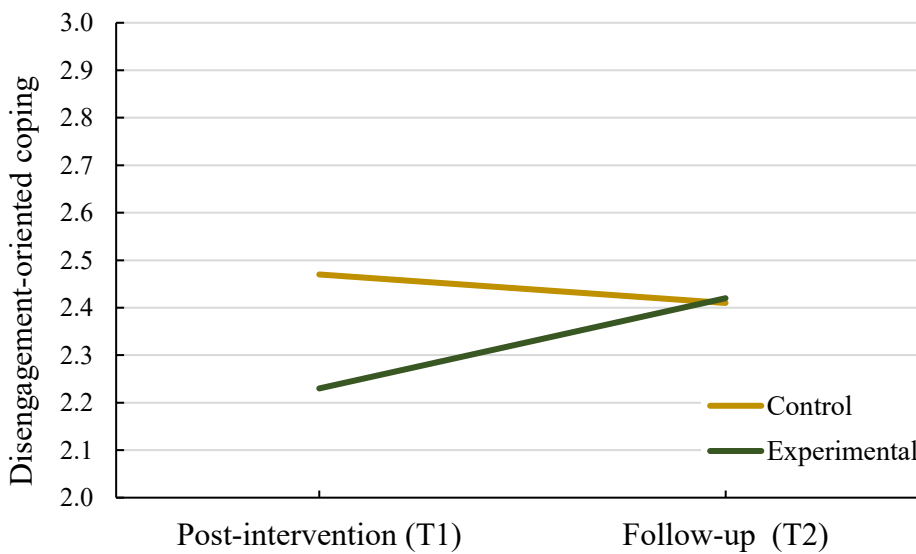
Figure 4.2

Visual Presentation of Means Levels of Coping Across Conditions at Post-Intervention and Follow-up

A



B



($r = .38$, $S.E. = 0.10$, $p < .001$), and the intercept of uncontrollability was significantly related to the intercept of DOC ($r = .29$, $S.E. = 0.08$, $p < .001$). *Multiple-group* analysis indicated a significant group difference for the association between the slope of perceived control and the intercept of TOC ($OR = 1.34$; $d = .16$, $S.E. = 0.09$, $p = .089$) across the experimental ($r = .41$, $S.E. = 0.18$, $p = .019$) and control ($r = .01$, $S.E. = .15$, $p = .928$) group. This finding indicates that an increase in perceived control was associated with higher TOC 2-weeks after the intervention for students in the experimental but not in the control condition. A significant group difference for the association between the slope of perceived control and the slope of TOC was observed ($OR = 1.49$; $d = .22$, $S.E. = 0.11$, $p = .046$) across the experimental ($r = .44$, $S.E. = 0.16$, $p = .004$) and control ($r = .01$, $S.E. = 0.14$, $p = .934$) group. This finding indicates that increases in perceived control and TOC reciprocated in the experimental but not in the control condition. The association between the slope of uncontrollability and the intercept of TOC was also significantly different ($OR = 1.52$; $d = .23$, $S.E. = 0.08$, $p = .005$) across the experimental ($r = .44$, $S.E. = 0.15$, $p = .003$) and control ($r = -.18$, $S.E. = 0.12$, $p = .141$) group. This finding indicates that a decrease in uncontrollability was associated with lower TOC 2-weeks after the intervention for students in the experimental but not in the control condition.

Furthermore, the association between the intercept of perceived control and the intercept of DOC significantly differed ($OR = 0.52$; $d = -.36$, $S.E. = 0.11$, $p = .002$) across the experimental and control group. The association between the intercept of uncontrollability and the intercept of DOC significantly differed ($OR = 0.58$; $d = -.30$, $S.E. = 0.12$, $p = .012$) across the experimental and control group. Finally, there was a significant group difference for the association between the slope of uncontrollability and the slope of DOC ($OR = 0.75$; $d = -.16$, $S.E. = 0.07$, $p = .031$) across the experimental ($r = -.10$, $S.E. = 0.15$, $p = .504$) and control ($r =$

.27, $S.E. = .12$, $p = .029$) group. This finding indicates that increases in uncontrollability was no longer related to increases in DOC, but only in the intervention group.

Controllability Appraisals and Satisfaction. Results of *single-group* analysis indicated no significant associations between the slopes and intercepts of appraisals and those of satisfaction. *Multiple-group* analysis indicated a significant group difference for the association between the intercept of perceived control and the intercept of satisfaction ($OR = 1.31$; $d = .15$, $S.E. = 0.08$, $p = .065$) across the experimental ($r = .31$, $S.E. = 0.12$, $p = .012$) and control ($r = -.01$, $S.E. = 0.12$, $p = .909$) group. No significant group difference was found for the association between uncontrollability and satisfaction.

Controllability Appraisals and Burnout. Results of *single-group* analysis revealed a significant association between the intercept of uncontrollability and the intercept of burnout ($r = .40$, $S.E. = 0.08$, $p < .001$). *Multiple-group* analysis indicated a significant group difference for the association between the intercept of perceived control and the intercept of burnout ($OR = 0.70$; $d = -.20$, $S.E. = 0.08$, $p = .018$) across the experimental ($r = -.13$, $S.E. = 0.14$, $p = .33$) and control ($r = .29$, $S.E. = 0.10$, $p = .006$) group. No significant group difference was found for the association between uncontrollability and burnout.

School Coping and Satisfaction. Results of *single-group* analysis indicated a significant association between the intercept of satisfaction and both the intercepts of TOC ($r = .51$, $S.E. = .06$, $p < .001$) and DOC ($r = -.45$, $S.E. = .05$, $p < .001$). *Multiple-group* analysis did not reveal group differences for coping and school satisfaction.

School Coping and Burnout. Results of *single-group* analysis indicated a significant association between the intercept of TOC and both the intercept ($r = -.31$, $S.E. = .07$, $p < .001$) and slope of burnout ($r = -.18$, $S.E. = .10$, $p = .054$), whereas the intercept of DOC was

significantly related to the intercept of burnout ($r = .68$, S.E. = .05, $p < .001$), but not its slope. *Multiple-group* analysis did not reveal group differences for coping and school burnout.

Time Invariant Outcome Models

Goal progress, which was only measured at Time 2, was set to correlate with the slope and intercept of the growth in transition-related controllability appraisals (perceived control, uncontrollability) and change in school-related coping (TOC, DOC). No significant differences were found across groups for the association between controllability appraisals (intercept and slope) and follow-up goal progress. No significant differences were found across groups for the associations between coping dimensions (intercept and slope) and follow-up goal progress.

Discussion

An individual's sense of coping efficacy facilitates adaptation and adjustment. In this study, we adopted a novel perspective on the student experience by targeting their coping efficacy for the management of hypothetical impediments to the pursuit of their career goals. We built upon the notion that coping self-efficacy can be modified by recalling instances of effective coping and then applying these strategies to self-constructed scenarios of transition-related impediments, along with the actions necessary to respond efficaciously to each. By constructing more precise self-regulatory selves, the proposed approach aimed to strengthen students' coping beliefs and behaviors to gain a greater sense of control over the school-to-work transition and allow them to focus on the pursuit of their academic strivings. Overall, our findings build upon prior research from the sports (e.g., Kent et al., 2018; Strachan et al., 2017), education (e.g., Taylor & Pham, 1999), and health domains (e.g., Sniehotta et al., 2005) to demonstrate that students' beliefs about their capability to cope with the demands of their school-to-work transition can be a promising target that extends to their current university-related experiences.

Univariate Models

Consistent with our hypotheses, the rate of change and follow-up levels of the variables under study differed across the two conditions. Specifically, the rate of change and follow-up levels of *uncontrollability* significantly differed across groups, indicating that the experimental group showed a steeper decline and lower follow-up levels of uncontrollability about their transition to work. These findings suggest that the effects of the intervention perdured over a two-week period to predict how students appraise transition-related stressors. However, such differences were not found for *perceived control*.

School-related TOC – measured at post-intervention and follow-up – declined significantly in the experimental group, but no significant group difference was observed. Furthermore, both the level at post-intervention and the rate of change in DOC significantly differed across groups, suggesting a significant initial difference (at post-intervention) followed by an increase in DOC from post-intervention to follow-up in the experimental group. Notably, the experimental group exhibited a return to levels similar to those of the control group, suggesting that the significant group difference observed after the intervention did not perdure to the follow-up assessment. These findings suggest that the coping intervention may have had a short-lasting effect on the experimental group. Nonetheless, this interpretation should be taken with caution given that the study did not include a baseline measure of coping.

Follow-up levels of *burnout* were significantly lower in the experimental group, indicating that the effects of the intervention on symptoms of school burnout perdured over a two-week period. However, such effect was not found for school *satisfaction*. These findings suggest that the effects of the intervention may require longer time intervals for school satisfaction to exhibit any change, and/or that other factors such as career-related stress

appraisals and burnout symptoms should be considered (Celik & Storme, 2017; Flinchbaugh et al., 2015; Salmela-Aro & Upadyaya, 2014). In particular, students' school satisfaction may have been affected by the transition to online learning elicited by the COVID-19 pandemic. On the one hand, these events may generate increased pressure and uncertainty regarding educational attainment and future career opportunities (Belle et al., 2021; von Keyserlingk et al., 2022). On the other hand, the intervention may have been particularly beneficial for these reasons, as observed with the group differences in burnout symptoms. In particular, research has shown negative relations between burnout and satisfaction, which suggests that the lower level of burnout symptoms observed in the experimental group at follow-up could, over time, produce an increase in school satisfaction (Salmela-Aro & Upadyaya, 2014; Silva & Figueiredo-Braga, 2019).

Intolerance for ambiguity at follow-up was significantly lower in the experimental group, indicating that the effects of the intervention perdured over a two-week period to predict variables that are more general to the individual. Given the array of possible outcomes, an event that has not yet occurred can seem ambiguous and uncertain, thus threatening cognitive closure (Webster & Kruglanski, 1994). For this reason, it is possible that the experimental condition – particularly the component requiring participants to simulate their self-regulatory selves – operated to provide some level of cognitive closure about their future goals and potential goal-related barrier (Aspinwall, 2005; Kim et al., 2016). Accordingly, greater coping self-efficacy may make uncertainty more tolerable and possible to overcome.

The growth rate and variance of career goal-discrepancy was non-significant in the experimental group, whereas the control group showed a significantly steeper increase as well as both higher growth rate variability and follow-up levels. These findings suggest that having

students think about their career goals without providing them with the tools to overcome uncertainty and goal-related obstacles could exacerbate their perception of the gap between their current situation and their aspired career goal. Indeed, achievement-related discrepancies can occur when situations are ambiguous or when the person has little information on which to base their judgments. Theories of self-regulation (Bandura, 1989; Locke & Latham, 2002; Taylor & Schneider, 1989) have long argued that mental simulation can provide information about how to achieve a goal, thus making the goal seem more proximal and attainable. Furthermore, people's self-efficacy influences thought patterns, emotional reactions, and behavior, while coping serves to reduce the gap between a person's current and desired end state (Bandura, 1990; Ryan, 2012). Accordingly, enhancing coping self-efficacy through mental simulation could make personal goals seem respectively less threatening, uncertain, and far from the current self (Carver & Scheier, 1998).

Multivariate Models

Consistent with our hypotheses, there were significant group differences in the interrelations between the parameters of the variables under study. In the *experimental* group, change in perceived control over the transition to work was positively related to change in school TOC, whereas in the *control* group, change in uncontrollability was positively related to change in school DOC. In the experimental group, steeper declines in perceived control and uncontrollability over the transition to work were related to greater TOC at follow up. Again at follow-up, higher perceived control was related to lower DOC in the *experimental* group, whereas higher uncontrollability was related to higher DOC in the *control* group. These findings suggest that the experimental condition induced a negative association between perceived control and DOC (but a positive one in the control group) and protected individuals from experiencing

the potentially detrimental positive association between uncontrollability and DOC. Moreover, when the transition was appraised as less controllable, the experimental group became more focused on managing or eliminating the source of school stress whereas the control group was more focused on avoiding or distracting themselves from the source of stress. It seems, therefore, that students' transition-related coping efficacy affects the control they perceive having over carrying out the necessary actions to effectively manage transition-related obstacles, which spills-over to influence how they navigate and manage school-related demands (Oettingen, 2012).

At follow-up, our findings also showed that greater perceived control over the transition to work was related to greater school satisfaction for those in the *experimental* group, but to greater symptoms of school burnout for those in the *control* group. These findings suggest that the experimental condition fostered the positive association between perceived control and satisfaction. Alternatively, being in the control condition put individuals at higher risk of experiencing the negative association between perceived control and burnout. Accordingly, perceived control can relate to more positive outcomes when the person feels efficacious to cope with transition-related difficulties, but to more negative outcomes when the person does not (for a discussion on the goodness of fit hypothesis, see Zakowski et al., 2001). It follows that changing one's perception of the transition to a more favorable and controllable one, without also incorporating a coping intervention, may hinder the psychological adjustment of a person (Taylor et al., 1998).

Implications

Goal setting is an essential component of goal striving and human development (Locke & Latham, 2002; Wiese, 2007). However, this does not mean that setting goals alone leads to

successful goal pursuit. Attempts to motivate and promote successful goal pursuit should incorporate the notion that goals are mediated by complex environmental/contextual, cognitive, and self-regulatory mechanisms (Bandura, 1989). When behaviors, thoughts, and emotions seem within one's control, people are more likely to see the world as predictable and controllable and are better able to flourish and meet life's challenges (Dweck, 2017; Lazarus, 2006; Skinner, 1995). From a developmental perspective, the flexibility to reorient personal resources toward the optimization of person–environment relationships may serve to foster efforts that yield increasing returns (e.g., coping effectiveness). Accordingly, beliefs about the coping process may prove to be a key mechanism in helping students remain goal-oriented, yet flexible, during the pursuit of their educational goals (Brandtstädter & Rothermund, 2002; Cheng et al., 2014).

From a methodological perspective, the majority of intervention studies look at the effect of the experimental manipulation on the average of individuals. This intervention study, however, is embedded in the transactional framework by also focusing on whether the intervention alters the relationships between some of the underlying processes of the stress process. This study therefore offers a meaningful contribution to the scientific literature by showing that it is possible to quantify how an intervention alters the correlations between the variables that are typically studied in observational or correlational research.

Limitations and Future Research

First, field experiments are conducted in a natural environment and are generally considered to have good external validity (Brewer et al., 2014). However, there is less control over extraneous variables than would a lab setting, which may impact the precision of experimental interventions. Furthermore, the experimental manipulation also contained many active ingredients, which can prevent us from disentangling the impact of the different effects.

By taking a step back, future research is needed to not only conduct empirical tests of contextual sensitivity (e.g., variation in time or location), but also look at the different components of the experimental manipulation individually as well as their unique combinations to narrow down the focus of the manipulation and better understand the mechanisms of action at play.

Second, the short time frame in the present study may have prohibited the examination of the long-term effects of the intervention. For example, more time may be needed for the dynamic relationship between a person and their environment to unfold and transpire into their beliefs, attitudes, and behaviors (West et al., 2014). Alternatively, time may also dissolve any of the observed effects. It follows that the replication of the same effect at different time points could further help rule out alternative explanations to our causal hypotheses.

Third, although measuring coping at Time 1 and Time 2, but not at baseline, had its methodological advantages (e.g., conducting manipulation checks, testing growth patterns, reducing retrieval heuristics, Kuhnen, 2010), it may also limit the interpretation of the change observed across groups following the intervention. For this reason, replication efforts are needed to capture the effect of assessing coping prior to the coping manipulation as well as the extent to which responses can be biased following such overexposure.

Finally, the intercept and slope mean of some variables (e.g., perceived control, TOC) did not significantly differ across groups. On the one hand, the variance around many of these slopes were significantly different from zero, indicating that there was significant variability in the growth rates within one or both groups. Seeking covariates or predictors of these individual differences is therefore warranted (Grosemans et al. 2020; Vancouver et al., 2001). On the other hand, future research is needed to uncover potential non-linear trajectories. For example, piecewise analysis would allow us to model individual trajectories from pre- to post-intervention and

from post-intervention to follow-up, thus providing a more precise description of the growth and decline between each time interval. In light of these limitations and the contributions of our findings, replication efforts are warranted to identify subgroups of individuals for whom the intervention is particularly useful and increase our understanding potential moderating factors (e.g., personal, social) that could promote stronger or more long-lasting effects.

Conclusion

Despite the empirical effectiveness of psychological interventions aimed at promoting desirable outcomes for university students (Harackiewicz & Priniski, 2018) and employees (Bipp et al., 2020), limited attention has been awarded toward building bridges between the academic and career strivings of students. The present study was designed to elucidate whether coping self-efficacy could be modified to influence how students perceive their transition to work, and how these perceptions can impact their academic strivings and overall university experience. We proposed and demonstrated that the ways in which students feel about their work entry may enrich their academic pursuits (e.g., greater motivation to cope actively and invest resources in the pursuit of their academic goals), which may result in more desirable school-related outcomes (e.g., achievement, psychological adjustment; Dweck & Sorich, 1999; Oettingen, 2012). Our findings demonstrated that students who have been provided with the tools to feel more efficacious in their ability to cope with transition-related impediments are more likely to have favorable appraisals of their transition to work and to exhibit more positive consequences in the school domain. Overall, the present study contributed to the literature by offering a novel perspective on the role of mastery experiences and the construction of self-regulatory selves in the context of the school-to-work transition.

References

- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology, 32*(4), 665–683.
<https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- Alarcon, G. M., Edwards, J. M., & Clark, P. C. (2013). Coping strategies and first year performance in postsecondary education. *Journal of Applied Social Psychology, 43*(8), 1676–1685. <https://doi.org/10.1111/jasp.12120>
- Aldwin, C. M. (2007). *Stress, Coping, and Development: An Integrative Perspective*. The Guilford Press.
- Amirkhan, J. H., & Kofman, Y. B. (2018). Stress overload as a red flag for freshman failure and attrition. *Contemporary Educational Psychology, 54*, 297–308.
<https://doi.org/10.1016/j.cedpsych.2018.07.004>
- Ariel, B., Sutherland, A., & Bland, M. (2021). The trick does not work if you have already seen the gorilla: How anticipatory effects contaminate pre-treatment measures in field experiments. *Journal of Experimental Criminology, 17*(1), 55–66.
<https://doi.org/10.1007/s11292-019-09399-6>
- Aspinwall, L. G. (2005). The psychology of future-oriented thinking: From achievement to proactive coping, adaptation, and aging. *Motivation and Emotion, 29*(4), 203–235.
<https://doi.org/10.1007/s11031-006-9013-1>
- Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology, 63*(6), 989–1003.
<https://doi.org/10.1037/0022-3514.63.6.989>
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9),

- 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>
- Bandura, A. (1990). Perceived self-efficacy in the exercise of personal agency. *Journal of Applied Sport Psychology*, 2(2), 128–163. <https://doi.org/10.1080/10413209008406426>
- Bandura, A. (1997). *Self-Efficacy in Changing Societies*. Cambridge University Press.
- Bandura, A., & Wood, R. (1989). Effect of perceived controllability and performance standards on self-regulation of complex decision making. *Journal of Personality and Social Psychology*, 56(5), 805–814. <http://dx.doi.org/10.1037/0022-3514.56.5.805>
- Belle, M. A., Antwi, C. O., Ntim, S. Y., Affum-Osei, E., & Ren, J. (2021). Am I gonna get a job? Graduating students' psychological capital, coping styles, and employment anxiety. *Journal of Career Development*. <https://doi.org/10.1177/08948453211020124>
- Bipp, T., Kleingeld, A., & Schelp, L. (2021). Achievement goals and goal progress as drivers of work engagement. *Psychological Reports*, 124(5), 2180–2202. <https://doi.org/10.1177/0033294120959778>
- Boileau, L., Gaudreau, P., Gareau, A., & Chamandy, M. (2020). Some days are more satisfying than others: A daily-diary study on optimism, pessimism, coping, and academic satisfaction. *The British Journal of Educational Psychology*. <https://doi.org/10.1111/bjep.12346>
- Brammer, L. M. (1992). Coping with life transitions. *International Journal for the Advancement of Counselling*, 15(4), 239–253. <https://doi.org/10.1007/BF02449903>
- Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research*, 14(1), 52–62. <https://doi.org/10.1016/j.alcr.2009.03.002>
- Brandtstädter, J., & Rothermund, K. (2002). The life-course dynamics of goal pursuit and goal adjustment: A two-process framework. *Developmental Review*, 22(1), 117–150.

<https://doi.org/10.1006/drev.2001.0539>

Brewer, M. B., & Crano, W. D. (2014). Research design and issues of validity. In C. M. Judd & H. T. Reis (Eds.), *Handbook of Research Methods in Social and Personality Psychology* (2nd ed., pp. 11–26). Cambridge University Press.

<https://doi.org/10.1017/CBO9780511996481.005>

Brown, G. P., Macleod, A. K., Tata, P., & Goddard, L. (2002). Worry and the simulation of future outcomes. *Anxiety, Stress, & Coping, 15*(1), 1–17.

<https://doi.org/10.1080/10615800290007254>

Byrne, B. M. (2013). *Structural Equation Modeling with Mplus: Basic Concepts, Applications, and Programming*. Routledge. <https://doi.org/10.4324/9780203807644>

Carraro, N., & Gaudreau, P. (2015). Predicting physical activity outcomes during episodes of academic goal conflict: The differential role of action planning and coping planning. *Personality and Social Psychology Bulletin, 41*(9), 1291–1305.

<https://doi.org/10.1177/0146167215594121>

Carver, C. S., & Scheier, M. (1998). *On the self-regulation of behavior*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139174794>

Çelik, P., & Storme, M. (2017). Trait emotional intelligence predicts academic satisfaction through career adaptability. *Journal of Career Assessment, 26*.

<https://doi.org/10.1177/1069072717723290>

Chamandy, M., & Gaudreau, P. (2019). Career doubt in a dual-domain model of coping and progress for academic and career goals. *Journal of Vocational Behavior, 110*, 155–167.

<https://doi.org/10.1016/j.jvb.2018.11.008>

Chamandy, M., & Gaudreau, P. (in press). The pursuit of academic and career goals: A dual-domain latent change model of coping, progress, and burnout. *International Journal of*

Stress Management (2021).

- Chamandy, M., & Gaudreau, P. (2021). *Coping from university to work: The transition and short-term adaptation of recent graduates*. Unpublished manuscript.
- Cheng, C., Lau, H.-P. B., & Chan, M.-P. S. (2014). Coping flexibility and psychological adjustment to stressful life changes: A meta-analytic review. *Psychological Bulletin*, *140*(6), 1582–1607. <https://doi.org/10.1037/a0037913>
- Cole, S. N., Smith, D. M., Ragan, K., Suurmond, R., & Armitage, C. J. (2021). Synthesizing the effects of mental simulation on behavior change: Systematic review and multilevel meta-analysis. *Psychonomic Bulletin & Review*, *28*(5), 1514–1537. <https://doi.org/10.3758/s13423-021-01880-6>
- Creed, P., & Hood, M. (2015). The development and initial validation of a scale to assess career goal discrepancies. *Journal of Career Assessment*, *23*(2), 308–317. <https://doi.org/10.1177/1069072714535175>
- Dugas, Gaudreau, & Carraro. (2012). Implementation planning and progress on physical activity goals: The mediating role of life-management strategies. *Research Quarterly for Exercise and Sport*, *83*, 77–85. <https://doi.org/10.1080/02701367.2012.10599827>
- Duncan, T. E., & Duncan, S. C. (2004). An introduction to latent growth curve modeling. *Behavior Therapy*, *35*(2), 333–363. [https://doi.org/10.1016/S0005-7894\(04\)80042-X](https://doi.org/10.1016/S0005-7894(04)80042-X)
- Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review*, *124*(6), 689–719. <https://doi.org/10.1037/rev0000082>
- Dweck, C. S., & Sorich, L. (1999). Mastery-oriented thinking. In C. R. Snyder (Ed.), *Coping: The psychology of what works* (pp. 232-251). New York: Oxford University Press.
- Felsten, G., & Wilcox, K. (1992). Influences of stress and situation-specific mastery beliefs and

- satisfaction with social support on well-being and academic performance. *Psychological Reports*, 70(1), 291–303. <https://doi.org/10.2466/pr0.1992.70.1.291>
- Flinchbaugh, C., Luth, M. T., & Li, P. (2015). A challenge or a hindrance? Understanding the effects of stressors and thriving on life satisfaction. *International Journal of Stress Management*, 22(4), 323–345. <https://doi.org/10.1037/a0039136>
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, 46(4), 839–852. <https://doi.org/10.1037/0022-3514.46.4.839>
- Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, 65, 14–38. <https://doi.org/10.1016/j.jvb.2003.10.005>
- Gareau, A., Chamandy, M., Kljajic, K., & Gaudreau, P. (2018). The detrimental effect of academic procrastination on subsequent grades: The mediating role of coping over and above past achievement and working memory capacity. *Anxiety, Stress, and Coping*, 1–14. <https://doi.org/10.1080/10615806.2018.1543763>
- Garriott, P. O., & Nisle, S. (2018). Stress, coping, and perceived academic goal progress in first-generation college students: The role of institutional supports. *Journal of Diversity in Higher Education*, 11(4), 436–450. <http://dx.doi.org/10.1037/dhe0000068>
- Gaudreau, Carraro, & Miranda. (2012). From goal motivation to goal progress: The mediating role of coping in the Self-Concordance Model. *Anxiety, Stress & Coping*, 25, 507–528. <https://doi.org/10.1080/10615806.2011.628015>
- Gaudreau, P., Gunnell, K., Hoar, S., Thompson, A., & Lelièvre, J. (2015). Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport, Exercise, and Performance Psychology*, 4(2), 140–152. <https://doi.org/10.1037/spy0000032>

Gibbons, C. (2010). Stress, coping and burn-out in nursing students. *International Journal of Nursing Studies*, 47(10), 1299–1309. <https://doi.org/10.1016/j.ijnurstu.2010.02.015>

Greene, B. A. (2017). *Self-Efficacy and Future Goals in Education*. Routledge.
<https://doi.org/10.4324/9781315523019>

Grosemans, I., Coertjens, L., & Kyndt, E. (2020). Work-related learning in the transition from higher education to work: The role of the development of self-efficacy and achievement goals. *The British journal of educational psychology*, 90(1), 19–42.
<https://doi.org/10.1111/bjep.12258>

Grujters, S. L. K. (2022). Making inferential leaps: Manipulation checks and the road towards strong inference. *Journal of Experimental Social Psychology*, 98, 104251.
<https://doi.org/10.1016/j.jesp.2021.104251>

Hammond, K. J. (1990). Case-based planning: A framework for planning from experience. *Cognitive Science*, 14(3), 385–443. https://doi.org/10.1207/s15516709cog1403_3

Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology*, 69, 409–435.
<https://doi.org/10.1146/annurev-psych-122216-011725>

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review*, 117(1), 32–60. <https://doi.org/10.1037/a0017668>

Hirsh, J. B., Mar, R. A., & Peterson, J. B. (2012). Psychological entropy: A framework for understanding uncertainty-related anxiety. *Psychological Review*, 119(2), 304–320.
<http://dx.doi.org/10.1037/a0026767>

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6(4), 307–324. <https://doi.org/10.1037/1089-2680.6.4.307>

Huebner, E. S., Laughlin, J. E., Ash, C., & Gilman, R. (1998). Further validation of the

- multidimensional students' life satisfaction scale. *Journal of Psychoeducational Assessment*, 16(2), 118–134. <https://doi.org/10.1177/073428299801600202>
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In *Self-efficacy: Thought control of action* (pp. 195–213). Hemisphere Publishing Corp.
- Kappes, H. B., & Morewedge, C. K. (2016). Mental simulation as substitute for experience. *Social and Personality Psychology Compass*, 10(7), 405–420. <https://doi.org/10.1111/spc3.12257>
- Kent, S., Devonport, T. J., Lane, A. M., Nicholls, W., & Friesen, A. P. (2018). The effects of coping interventions on ability to perform under pressure. *Journal of Sports Science & Medicine*, 17(1), 40–55.
- Kim, B., Rhee, E., Ha, G., Yang, J., & Lee, S. M. (2016). Tolerance of uncertainty: Links to happenstance, career decision self-efficacy, and career satisfaction. *The Career Development Quarterly*, 64(2), 140–152. <https://doi.org/10.1002/cdq.12047>
- Koestner, R., Horberg, E. J., Gaudreau, P., Powers, T., Di Dio, P., Bryan, C., Jochum, R., & Salter, N. (2006). Bolstering implementation plans for the long haul: the benefits of simultaneously boosting self-concordance or self-efficacy. *Personality & social psychology bulletin*, 32(11), 1547–1558. <https://doi.org/10.1177/0146167206291782>
- Kuhnen. (2010). Manipulation checks as manipulation: Another Look at the ease-of-retrieval heuristic. *Personality & Social Psychology Bulletin*, 36(1), 47–58. <https://doi.org/10.1177/0146167209346746>
- Lazarus, R. S. (2006). *Stress and emotion: A new synthesis*. Springer Pub. Co. <http://public.eblib.com/choice/publicfullrecord.aspx?p=435140>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

http://doi.org/10.1007/978-1-4419-1005-9_215

- Leong, F. T. L., Bonz, M. H., & Zachar, P. (1997). Coping styles as predictors of college adjustment among freshmen. *Counselling Psychology Quarterly*, *10*(2), 211–220. <https://doi.org/10.1080/09515079708254173>
- Lesage, F.-X., Berjot, S., & Deschamps, F. (2012). Clinical stress assessment using a visual analogue scale. *Occupational Medicine*, *62*(8), 600–605. <https://doi.org/10.1093/occmed/kqs140>
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*, 705–717. <https://doi.org/10.1037//0003-066X.57.9.705>
- Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology*, *69*(2), 241–251. <https://doi.org/10.1037/0021-9010.69.2.241>
- Luo, Y., Wang, Z., Zhang, H., Chen, A., & Quan, S. (2016). The effect of perfectionism on school burnout among adolescence: The mediator of self-esteem and coping style. *Personality and Individual Differences*, *88*, 202–208. <https://doi.org/10.1016/j.paid.2015.08.056>
- Mantaras, R. L. D., Mcsherry, D., Bridge, D., Leake, D., Smyth, B., Craw, S., Faltings, B., Maher, M. L., Cox, M. T., Forbus, K., Keane, M., Aamodt, A., & Watson, I. (2005). Retrieval, reuse, revision and retention in case-based reasoning. *The Knowledge Engineering Review*, *20*(3), 215–240. <https://doi.org/10.1017/S0269888906000646>
- Marshall, E. A., & Symonds, J. E. (2021). *Young adult development at the school-to-work transition: International pathways and processes*. Oxford University Press.
- Muthén, L. K., & Muthén, B. O. (1998–2019). *Mplus user's guide* (8th ed.). Los Angeles,

- California: Muthén & Muthén.
- Oettingen, G. (2012). Future thought and behaviour change. *European Review of Social Psychology, 23*(1), 1–63. <https://doi.org/10.1080/10463283.2011.643698>
- Peacock, E. J., & Wong, P. T. P. (1990). The stress appraisal measure (SAM): A multidimensional approach to cognitive appraisal. *Stress Medicine, 6*(3), 227–236. <https://doi.org/10.1002/smi.2460060308>
- Peetz, J., & Wilson, A. E. (2008). The temporally extended self: The relation of past and future selves to current identity, motivation, and goal pursuit. *Social and Personality Psychology Compass, 2*(6), 2090–2106. <https://doi.org/10.1111/j.1751-9004.2008.00150.x>
- Perera, H. N., & DiGiacomo, M. (2015). The role of trait emotional intelligence in academic performance during the university transition: An integrative model of mediation via social support, coping, and adjustment. *Personality and Individual Differences, 83*, 208–213. <https://doi.org/10.1016/j.paid.2015.04.001>
- Peters, A., McEwen, B. S., & Friston, K. (2017). Uncertainty and stress: Why it causes diseases and how it is mastered by the brain. *Progress in Neurobiology, 156*, 164–188. <https://doi.org/10.1016/j.pneurobio.2017.05.004>
- Porfeli, E. J., Lee, B., Vondracek, F. W., & Weigold, I. K. (2011). A multi-dimensional measure of vocational identity status. *Journal of Adolescence, 34*, 853–871. <https://doi.org/10.1016/j.adolescence.2011.02.001>
- Rivkin, I., & Taylor, S. (1999). The effects of mental simulation on coping with controllable stressful events. *Personality and Social Psychology Bulletin, 25*(10), 1451–1462. <https://doi.org/10.1177/01461672992510002>
- Roets, A., & Van Hiel, A. (2011). Item selection and validation of a brief, 15-item version of the

- Need for Closure Scale. *Personality and Individual Differences*, 50(1), 90–94.
<https://doi.org/10.1016/j.paid.2010.09.004>
- Ryan, R. M. (Ed.). (2012). *The Oxford handbook of human motivation*. Oxford University Press.
- Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. *The British Journal of Educational Psychology*, 84(Pt 1), 137–151. <https://doi.org/10.1111/bjep.12018>
- Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School Burnout Inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment*, 25(1), 48–57. <http://dx.doi.org/10.1027/1015-5759.25.1.48>
- Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66(4), 507–514. <https://doi.org/10.1007/BF02296192>
- Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42–70). John Wiley & Sons, Inc.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219–247. <https://doi.org/10.1037/0278-6133.4.3.219>
- Schellenberg, B. J. I., & Bailis, D. S. (2016). The two roads of passionate goal pursuit: Links with appraisal, coping, and academic achievement. *Anxiety, Stress, & Coping*, 29(3), 287–304. <https://doi.org/10.1080/10615806.2015.1036047>
- Shin, H., Park, Y. M., Ying, J. Y., Kim, B., Noh, H., & Lee, S. M. (2014). Relationships between coping strategies and burnout symptoms: A meta-analytic approach. *Professional Psychology: Research and Practice*, 45(1), 44–56. <https://doi.org/10.1037/a0035220>
- Siemer, M., Mauss, I., & Gross, J. J. (2007). Same situation--Different emotions: How appraisals

- shape our emotions. *Emotion*, 7(3), 592–600. <https://doi.org/10.1037/1528-3542.7.3.592>
- Silva, R. G., & Figueiredo-Braga, M. (2019). The roles of empathy, attachment style, and burnout in pharmacy students' academic satisfaction. *American Journal of Pharmaceutical Education*, 83(5), 6706. <https://doi.org/10.5688/ajpe6706>
- Skinner E. A. (1996). A guide to constructs of control. *Journal of personality and social psychology*, 71(3), 549–570. <https://doi.org/10.1037//0022-3514.71.3.549>
- Skinner, E. (1995). *Perceived Control, Motivation, & Coping*.
<https://doi.org/10.4135/9781483327198>
- Sniehotta, F., Scholz, U., & Schwarzer, R. (2005). Bridging the intention-behaviour gap: Planning, self-efficacy, and action control in the adoption and maintenance of physical exercise. *Psychology and Health*, 20, 143–160.
<https://doi.org/10.1080/08870440512331317670>
- Soucy Chartier, I., Gaudreau, P., & Fecteau, M.-C. (2011). From dispositional affect to academic goal attainment: The mediating role of coping. *Anxiety, Stress & Coping*, 24(1), 43–58.
<https://doi.org/10.1080/10615801003725360>
- Strachan, S. M., Marcotte, M. M. E., Giller, T. M. T., Brunet, J., & Schellenberg, B. J. I. (2017). An online intervention to increase physical activity: Self-regulatory possible selves and the moderating role of task self-efficacy. *Psychology of Sport and Exercise*, 31, 158–165.
<https://doi.org/10.1016/j.psychsport.2016.05.001>
- Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *The Journal of Applied Psychology*, 97(3), 580–598. <https://doi.org/10.1037/a0026423>
- Sweet, L., Savoie, J. A., & Lemyre, L. (1999). Appraisals, coping, and stress in breast cancer screening: A longitudinal investigation of causal structure. *Canadian Journal of*

- Behavioural Science*, 31(4), 240–253. <https://doi.org/10.1037/h0087093>
- Taylor, S. E., & Pham, L. B. (1999). The effect of mental simulation on goal-directed performance. *Imagination, Cognition and Personality*, 18(4), 253–268. <https://doi.org/10.2190/VG7L-T6HK-264H-7XJY>
- 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(4), 429–439. <https://doi.org/10.1037/0003-066X.53.4.429>
- Gollwitzer, P. M., & Bargh, J. A. (Eds.). (1996). *The psychology of action: Linking cognition and motivation to behavior*. The Guilford Press.
- Thomas, C., Cassady, J., & Heller, M. (2017). The influence of emotional intelligence, cognitive test anxiety, and coping strategies on undergraduate academic performance. *Learning and Individual Differences*, 55, 40–48. <https://doi.org/10.1016/j.lindif.2017.03.001>
- Thompson, A. (2015). *Coping with Stress in Undergraduate University Students: Development and Validation of the Coping Inventory for Academic Striving (CIAS) to Examine Key Educational Outcomes in Correlational and Experimental Studies* [University of Ottawa]. <https://doi.org/10.20381/ruor-4763>
- Vancouver, J. B., Thompson, C. M., & Williams, A. A. (2001). The changing signs in the relationships among self-efficacy, personal goals, and performance. *Journal of Applied Psychology*, 86(4), 605. <https://doi.org/10.1037/0021-9010.86.4.605>
- Vizoso, C., Arias-Gundín, O., & Rodríguez, C. (2019). Exploring coping and optimism as predictors of academic burnout and performance among university students. *Educational Psychology*, 39(6), 768–783. <https://doi.org/10.1080/01443410.2018.1545996>
- von Keyserlingk, L., Yamaguchi-Pedroza, K., Arum, R., & Eccles, J. S. (2022). Stress of university students before and after campus closure in response to COVID-19. *Journal of*

- Community Psychology*, 50(1), 285–301. <https://doi.org/10.1002/jcop.22561>
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049–1062. <https://doi.org/10.1037/0022-3514.67.6.1049>
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548–573. <https://doi.org/10.1037/0033-295X.92.4.548>
- Wiese, B. S. (2007). Successful pursuit of personal goals and subjective well-being. In *Personal project pursuit: Goals, action, and human flourishing* (pp. 301–328). Lawrence Erlbaum Associates Publishers.
- Zakowski, S.G., Hall, M.H., Klein, L.C., & Baum, A.S. (2001). Appraised control, coping, and stress in a community sample: A test of the goodness-of-fit hypothesis. *Annals of Behavioral Medicine*, 23(3), 158-165, https://doi.org/10.1207/S15324796ABM2303_3

Supplementary Material

Table S4.1

Model Comparisons for Group Differences in Growth Parameters

Models	MLR χ^2	df	Contrast	Δ MLR χ^2	p
a. S-W uncontrollability	2.52	4			
b. Slope mean	6.17	5	b vs a	4.16	.042
c. Intercept mean	8.07	5	c vs a	6.41	.011
d. Slope variance	3.39	5	d vs a	0.87	.351
e. Intercept variance	4.21	5	e vs a	2.07	.150
f. Slope-intercept covariance	3.17	5	f vs a	0.64	.422
a. S-W perceived control	3.44	4			
b. Slope mean	3.74	5	2 vs 1	0.29	.592
c. Intercept mean	3.50	5	3 vs 1	0.07	.791
d. Slope variance	3.35	5	4 vs 1	0.09	.763
e. Intercept variance	3.34	5	5 vs 1	0.01	.909
f. Slope-intercept covariance	3.51	5	6 vs 1	0.24	.627
a. School TOC	17.86	8			
b. Slope mean	18.84	9	b vs a	0.76	.383
c. Intercept mean	18.38	9	c vs a	0.26	.611
d. Slope variance	17.64	9	d vs a	0.001	.982
e. Intercept variance	17.83	9	e vs a	0.03	.865
f. Slope-intercept covariance	17.50	9	f vs a	0.003	.956
a. School DOC	17.86	8			
b. Slope mean	22.77	9	b vs a	5.40	.020
c. Intercept mean	18.30	9	c vs a	0.13	.719
d. Slope variance	22.64	9	d vs a	4.79	.029
e. Intercept variance	18.30	9	e vs a	0.14	.707
f. Slope-intercept covariance	20.60	9	f vs a	2.86	.091
a. School satisfaction	12.383	4			
b. Slope mean	13.02	5	b vs a	0.06	.802
c. Intercept mean	14.79	5	c vs a	2.31	.129
d. Slope variance	13.96	5	d vs a	1.80	.180
e. Intercept variance	13.06	5	e vs a	0.06	.810
f. Slope-intercept covariance	12.52	5	f vs a	0.01	.909
a. School burnout	11.06	4			
b. Slope mean	12.13	5	b vs a	1.09	.296
c. Intercept mean	15.08	5	c vs a	3.95	.047

d. Slope variance	10.98	5	d vs a	0.65	.420
e. Intercept variance	11.31	5	e vs a	0.05	.832
f. Slope-intercept covariance	10.77	5	f vs a	0.001	.981
a. School stress	1.18	4			
b. Slope mean	3.55	5	b vs a	2.83	.092
c. Intercept mean	2.15	5	c vs a	1.08	.299
d. Slope variance	0.81	5	d vs a	0.01	.918
e. Intercept variance	1.79	5	e vs a	0.69	.405
f. Slope-intercept covariance	1.35	5	f vs a	0.18	.675
a. Career stress	2.67	4			
b. Slope mean	3.33	5	b vs a	0.66	.416
c. Intercept mean	2.69	5	c vs a	0.04	.846
d. Slope variance	2.93	5	d vs a	0.34	.557
e. Intercept variance	2.85	5	e vs a	0.04	.839
f. Slope-intercept covariance	3.23	5	f vs a	0.56	.455
a. Career doubt	13.66	6			
b. Slope mean	15.05	7	b vs a	1.27	.261
c. Intercept mean	14.21	7	c vs a	0.22	.640
d. Slope variance	13.08	7	d vs a	0.18	.672
e. Intercept variance	14.62	7	e vs a	0.04	.851
f. Slope-intercept covariance	13.99	7	f vs a	0.06	.803
a. Career goal-discrepancy	12.01	4			
b. Slope mean	16.97	5	b vs a	4.77	.029
c. Intercept mean	17.29	5	c vs a	5.13	.023
d. Slope variance	20.05	5	d vs a	6.44	.011
e. Intercept variance	12.92	5	e vs a	0.55	.460
f. Slope-intercept covariance	16.55	5	f vs a	4.30	.038
a. Intolerance for ambiguity	12.71	2			
b. Slope mean	15.02	3	b vs a	2.64	.104
c. Intercept mean	21.44	3	c vs a	8.92	.003
d. Slope variance	12.55	3	d vs a	0.09	.766
e. Intercept variance	13.39	3	e vs a	0.22	.640
f. Slope-intercept covariance	13.21	3	f vs a	0.19	.665

Note. SW = school-to-work transition, TOC = task-oriented coping, DOC = disengagement-oriented coping. Models “a” were estimated with freely estimated parameters. TOC and DOC were only measured on two occasions, after the intervention took place.

* $p < .05$. ** $p < .001$.

Postface

Methodological Remarks

Although this study uses an experimental method allowing for a more thorough test of causality, the two-week lag was informative, but likely insufficient, to effectively study the long-term effects of the experimental manipulation. Mastery experiences are the success experiences we gain when taking on new challenges, and a strong sense of self-efficacy is likely to be developed through repeated successes²⁸. Bandura and Schunk²⁹ suggested the presence of a temporal lag between newly acquired self-efficacy beliefs and one's attitudes and behaviours. Accordingly, successful psychological interventions are likely to exhibit more immediate cognitive effects that then give rise to real-world beliefs, attitudes, behaviours³⁰⁻³¹. Therefore, more time (and follow-up assessments) may be needed for the dynamic relationship between a person and their environment to unfold and transpire into measurable changes in their beliefs, attitudes, and behaviours³².

²⁸ Bandura, A. (1997). *Self-Efficacy in Changing Societies*. Cambridge University Press.

²⁹ Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, *41*(3), 586–598.
<https://doi.org/10.1037/0022-3514.41.3.586>

³⁰ Feldstein Ewing, S. W., Filbey, F. M., Hendershot, C. S., McEachern, A. D., & Hutchison, K. E. (2011). Proposed model of the neurobiological mechanisms underlying psychosocial alcohol interventions: The example of motivational interviewing. *Journal of Studies on Alcohol and Drugs*, *72*(6), 903–916.

³¹ Höchli, B., Brügger, A., Abegglen, R., & Messner, C. (2019). Using a goal theoretical perspective to reduce negative and promote positive spillover after a bike-to-work campaign. *Frontiers in Psychology*, *10*(433).
<https://www.frontiersin.org/article/10.3389/fpsyg.2019.00433>

³² West, S. G., Cham, H., & Liu, Y. (2014). Causal inference and generalization in field settings: Experimental and quasi-experimental designs. In C. M. Judd & H. T. Reis (Eds.), *Handbook of Research Methods in Social and Personality Psychology* (2nd ed., pp. 49–80). Cambridge University Press.
<https://doi.org/10.1017/CBO9780511996481.007>

CHAPTER 5

General Discussion

General Discussion

The school-to-work transition is a pivotal turning point in the lives of university students. The way students prepare for and adapt to the demands of this transition can hold important implications for the short- and long-term achievement and psychological adjustment of students themselves, but also of organizations and society at large. Despite the mounting empirical evidence supporting the different roles of coping in the lives of students and employees, relatively little research has examined coping across time and contexts, and even less research has examined coping as central determinant of how individuals will adapt to novel and changing demands within and beyond the university context.

The overarching goal of this doctoral thesis was to create bridges between current knowledge on academic and career strivings through the lens of stress and coping theory (Lazarus & Folkman, 1984; Lazarus, 1991) to clarify the role of coping as a transferable psychological factor that can prevent, or permit, students and recent graduates to successfully pursue their academic goals as well as successfully prepare for, transition, and adapt to work entry. Goals are deeply and meaningfully embedded in the subjective reality of day-to-day life, providing a substantive basis for people's sense of meaning and continuity. The pursuit of life goals is inherently time bound (Peetz & Wilson, 2008) and self-regulatory strategies play a central role in effectively aligning short- and long-term pursuits (Károlyi, 2010; Karniol & Ross, 1996). Goals and personal standards not only provide a temporal anchor for cognitive and emotional processes, but also delineate the adaptiveness of the person-environment interaction (Lazarus, 1991; Power & Dalgleish, 1997). Therefore, an integrative framework from which to consider the coping process is one that is concerned with peoples' goal pursuits across time (Karniol & Ross, 1996). Accordingly, building upon the transactional model of stress and

coping, we developed a dual-domain framework of academic and career strivings that incorporates coping as a transferable capability that can piece together the two sides of the school-to-work transition. Three studies were designed in this doctoral thesis to document the associations between self-reported appraisal, coping, goal progress and psychological adjustment. Hereinafter, the key findings from the three studies, followed by a schematic overview of the main findings (see Table 5.1).

Key Findings from Study 1 – *The Pursuit of Academic and Career Goals: A Dual-Domain Latent Change Model of Coping, Progress, and Burnout*

The transactional nature of coping implies that individuals can modify their behaviour according to the changing demands of their environment (Lazarus & Folkman, 1984, 1987). Coping is therefore a process that changes across time, situations, and life domains (Lazarus & Folkman, 1984). However, only a limited number of studies have empirically examined coping – from a process approach – in the lives of university students.

The goal of *Study 1* was to apply our dual-domain framework (Chamandy & Gaudreau, 2019) to the longitudinal examination of students' academic and career strivings. Accordingly, we examined the coping efforts of students in relation to two exam periods (situation-specific), rather than their usual coping tendencies or disposition, and examined the relationships between control appraisal, coping, and goal progress at the same level of specificity via two goal domains.

Firstly, we showed measurement invariance across different contexts and measurement occasions. Establishing measurement invariance includes the hierarchical process of testing for equal structure, equal factors loadings, equal indicator intercepts, and equal residuals (Vandenberg & Lance, 2000). Both metric (equal loadings) and scalar (equal intercepts) invariance were supported across the academic and career *domains* for measures of perceived

control, TOC, DOC, and goal progress. Similar findings were found across *time points*, providing the first test and support of longitudinal invariance with our dual-domain model of coping.

Study 1 also tested the contemporaneous interplay between perceived control, coping, goal progress, and burnout across the academic and career domains to establish a point of comparison with findings in the current scientific literature. Across both domains, results indicated that students who perceived having greater control over the pursuit of their goals were more likely to engage in task-oriented coping and less likely to engage in disengagement-oriented coping. This study nicely replicated previous results and gave good grounds to further examine how some contemporaneous associations differed across life domain and time points. Given that career-related pursuits are a long-term project, our findings suggested that temporarily disengaging from career goals may not be as consequential to students' psychological adjustment as disengaging from academic goals – a domain for which outcomes are more proximal (Lent et al., 2002). As such, academic goals may require immediate and continuous actions over the course of a semester, particularly during times of high academic demands, whereas career goals may not.

In support of the inconsistent findings in the literature concerning the relationship between disengagement-oriented coping and achievement, our findings indicated that academic and career disengagement-oriented coping were significantly related to lower goal progress, but only at Time 2. Task-oriented coping also began to play a significant role in the psychological adjustment of students at Time 2. However, academic task-oriented coping was related to *lower* burnout while career task-oriented coping was unexpectedly related to *greater* burnout. The differential role of disengagement-oriented coping across time points and the differential role of

task-oriented coping across both time and goal domain supports the necessity for goal adjustment as demands and resources change (Brandtstädter, 2009). In this study, the selected time points, each reflecting specific academic demands during the semester, illustrated why such contemporaneous effects differ with the passage of time. Namely, the protective role of academic task-oriented coping and the debilitating role of career task-oriented coping each become more apparent on the psychological adjustment of students as they begin to manage the heightened demands of their final exam period. Furthermore, the same coping strategies that related to lower burnout when used to respond to academic demands related to greater burnout when used to respond to career demands. The consideration of two goal domains illustrated how directing too much effort toward a related, albeit secondary, life domain can become problematic near the end of the semester when the workload and accumulated fatigue limits available time and resources. These findings are novel and illustrate the importance of studying how the coping associated with life goals outside the academic domain influences the psychological adjustment of students at different points in time during a semester.

Using latent change score analysis, *Study 1* examined the proposed associations at the longitudinal level by testing a model in which earlier levels of perceived control and coping in a particular domain would respectively explain change in coping and goal progress in that same domain. Our findings revealed that, in each domain, task-oriented coping and disengagement-oriented coping were respectively positively and negatively related to change in goal progress, but not to change in psychological adjustment. To rule out alternative cross-domain and bidirectional hypotheses, a fourth goal of *Study 1* was to build upon the latent change score model to test (1) the *specificity* of the proposed associations using a model in which we added cross-domain paths (e.g., from school coping at Time 1 to change in career goal progress) and

(2) the *direction* of the proposed associations using a model in which we added paths in the reversed direction (e.g., from goal progress at Time 1 to change in coping). No cross-domain effects were supported. However, in the career domain, earlier levels of goal progress predicted change in task-oriented coping, thus revealing a bidirectional effect. Therefore, making progress on a career goal at Time 1 was related to a positive change in the use of task-oriented strategies from one exam period to the next.

Key Findings from Study 2 – *Coping from University to Work: The Transition and Short-Term Adaptation of Recent Graduates*

The overarching goal of *Study 2* was to move forward in the timeline by examining these effects among recent graduates who had recently gone through the transition to work. This sampling strategy served to reverse the lens to better understand the factors that may transfer from school to work and facilitate the management of the demands associated with the transition. A two-wave study was designed in which recent graduates retrospectively assessed their past experiences as university students and their current experiences in the work domain (Time 1) to capture an initial phase of change and then reassessed their current work-related experiences four weeks later (Time 2) to capture their short-term adaptation to work.

Using bivariate latent change score analysis, we examined the associations between primary appraisal, coping, goal progress, satisfaction, and burnout. On the one hand, results showed support for the spillover effects from school coping to change in goal progress and satisfaction from school to work. Complementary findings also revealed spillover effects from school satisfaction and burnout to work-related challenge and threat appraisal, respectively, and from school progress to work-related threat appraisal and to change in disengagement-oriented coping from school to work. Although findings from Chamandy and Gaudreau (2019)

demonstrated that career doubt can spillover to students' school coping and goal progress, the findings from *Study 2* demonstrate that school coping can spillover to graduates' goal progress and satisfaction during their transition to work, while their school satisfaction, progress, and burnout symptoms can relate to their work appraisals and transition-related change in disengagement coping. This latter finding differs from – but complements rather than contradicts – the reversed association in *Study 1* between Time 1 goal progress and change in task coping.

On the other hand, the associations between the changes that took place during the transition from school to work and graduates' short-term adaptation at work indicated that change in coping from school to work predicted subsequent work satisfaction and symptoms of work burnout. Results also indicated that initial threat appraisal at work was positively related to subsequent disengagement-oriented coping. Notably, the findings from this study were obtained while controlling for graduation GPA and work demands, indicating that the subjective achievement and psychological adjustment of recent graduates cannot be based and predicted solely on external measures of academic performance.

Key Findings from Study 3 – Promoting the Student Experience by Preparing for a Life After Graduation: A Small-Scale Coping Intervention

Based on the notion that an individual's sense of coping efficacy facilitates adaptation, an experimental design tested if students' beliefs about their capability to cope with the demands of their school-to-work transition could lead to more desirable appraisals of their transition, and to a more positive student experience. We manipulated coping through the recall of effective coping instances, in combination with the construction of transition-related impediments and the actions necessary to respond efficaciously to each. By constructing more precise self-regulatory selves, this approach helped students gain a greater sense of control over the school to work transition.

The randomized control study revealed that the experimental intervention induced group differences in the individual means and relationships between the change and follow-up levels of controllability appraisals, coping, satisfaction, and burnout. In particular, the experimental condition elicited a steeper decline in transition-related uncontrollability and school burnout and protected individuals from the apparent increase in career goal-discrepancy exhibited by the control group. The experimental group also exhibited lower transition-related uncontrollability, burnout symptoms, intolerance for ambiguity, and career goal-discrepancy at Time 2. Moreover, both the level at post-manipulation and the rate of change in disengagement-oriented coping significantly differed across groups, suggesting a significant initial group difference followed by an increase in disengagement-oriented coping from post-manipulation to follow-up in the experimental group. Notably, the experimental group exhibited a return to levels similar to those of the control group, suggesting that the significant groups difference in coping observed after the manipulation did not perdure to the follow-up assessment.

Multivariate analysis indicated that the experimental condition exhibited a positive association between the slope of transition-related control and both the intercept and slope of school task coping, a negative association between the intercept of transition-related control and intercept of school disengagement-oriented coping, and a positive association between the intercept of transition-related control and intercept of school satisfaction. Compared to the control group, the experimental group *no longer* exhibited the positive association between the slope of transition-related uncontrollability and the slope of school disengagement-oriented coping, the positive association between the intercept of transition-related uncontrollability and the intercept of school disengagement-oriented coping, nor the positive association between the intercept of transition-related control and the intercept of school burnout.

Table 5.1

Summary of Findings Across Thesis

Studies	Design	Key Findings	
Chapter 1: Elaboration of dual-domain framework	Preliminary cross-sectional (Students at one point in time)	<ul style="list-style-type: none"> • Career doubt relates positively to TOC (a-c) and negatively to DOC (a-c). • TOC (a-c) positively relates to progress (a-c). • Career doubt relates indirectly to progress (a-c) through TOC (a-c). 	
		Across time	Across domains
Chapter 2: Domain specificity and changing nature of coping	Longitudinal correlational (Students preparing for two exam periods, 4-week interval)	<u>School-School</u> <ul style="list-style-type: none"> • Burnout $\Delta M d = .21^*$ • TOC $\Delta M d = -.24^*$ • DOC $\Delta M d = .22^*$ • Progress $\Delta M d = -.04$ <u>Career-Career</u> <ul style="list-style-type: none"> • TOC $\Delta M d = -.37^*$ • DOC $\Delta M d = .20^*$ • Progress $\Delta M d = -.16^*$ 	<ul style="list-style-type: none"> • Earlier perceived control (a-c) does not relate sign. to change in coping (a-c). • Earlier TOC and DOC (a-c) relates to change in progress (a-c), but not in school burnout. • Bidirectional association between earlier career progress and change in career TOC.
		Across time and domains	
Chapter 3: Spillover effects from school to work	Recent graduates in their first 24 months of work, 4-week interval	<u>School-Work</u> <ul style="list-style-type: none"> • TOC $\Delta M d = .36^{**}$ • DOC $\Delta M d = -.40^{**}$ • Burnout $\Delta M d = -.65^{**}$ • Progress $\Delta M d = -.62^{**}$ • Satisfaction $\Delta M d = -.06$ <u>Work-Work</u> <ul style="list-style-type: none"> • TOC $\Delta M d = -.12$ • DOC $\Delta M d = .16$ • Burnout $\Delta M d = -.02$ • Progress $\Delta M d = -.19^*$ • Satisfaction $\Delta M d = -.02$ 	<ul style="list-style-type: none"> • Retrospective school coping relates to change in progress (TOC), satisfaction (TOC, DOC), and burnout (DOC) from school to work. • gGPA relates to change in satisfaction and burnout from school to work and to T2 work burnout. • Reversed associations between school progress and both work appraisal and change in DOC, between school satisfaction and work challenge, and between school burnout and work threat. • Change in coping from school to work relates to T2 work satisfaction (DOC) and burnout (TOC, DOC). • Earlier work threat relates to T2 burnout.
		Across time and domains	Within time and across domains
Chapter 4: Spillover effects of coping intervention	Experimental test of intervention on coping self-efficacy (Students in 1st yr. anticipating the transition to work, 2-week interval)	<ul style="list-style-type: none"> • Steeper decline in uncontrollability (tr) in xGr. • Greater increase in school DOC in xGr. • Greater decline in school burnout in xGr. • Increase in career goal discrepancy no longer sign. in xGr. • Positive association for slope of control (tr) and both intercept and slope of school TOC in xGr. • Positive association for slope of uncontrollability (tr) and slope of school DOC no longer sign. in xGr. 	<ul style="list-style-type: none"> • Lower uncontrollability (tr) at T2 in xGr. • Lower school burnout at T2 in xGr. • Lower intol. for ambiguity at T2 in xGr. • Lower career goal-discrepancy at T2 in xGr. • Negative association for intercept of control (tr) and intercept of school DOC in xGr. • Positive association for intercept of uncontrollability (tr) and intercept of school DOC no longer sign. in xGr. • Positive association for intercept of control (tr) and intercept of school satisfaction in xGr. • Positive association for intercept of control (tr) and intercept of school burnout no longer sign. in xGr.

Note. TOC = task-oriented coping, DOC = disengagement-oriented coping, a-c = academic and career goals, gGPA = graduation grade point average, tr = transition, xGr = experimental group.

Integration of Findings

Findings from the three studies contribute to the core research questions and overarching aim of this thesis.

1) The domain specificity and changing nature of the coping process

Study 1 provided new insights on the *domain specificity* and *changing nature* of the coping process across two striving domains and two exam periods. The transactional nature of coping implies that individuals can modify their behaviour according to the changing demands of their environment (Lazarus & Folkman, 1984, 1987). Coping is therefore a process that changes across time, situations, and life domains. However, only a limited number of studies have empirically examined coping – from a process approach – in the lives of university students.

Findings from *Study 1* supported the *domain-specificity* of coping in the following ways: a) the contemporaneous associations between coping, goal progress, and burnout differed across goal domains; b) the coping made in response to the demands of a particular goal influenced the progress made on this particular goal more strongly than the progress made on the other goal domain. Findings from *Study 1* also supported the *changing nature* of coping in the following ways: a) coping significantly changed across examination periods; b) the contemporaneous associations between coping, goal progress, and burnout differed across examination periods; c) the pattern of longitudinal results indicated that coping usage during the first examination period was significantly related to the change in goal progress made from the first to the second examination period. Taken together, these findings highlight the domain-specific and changing nature of coping and the need to decipher between specific and general effects (dual domain) and between contemporaneous and changing effects (longitudinal) to better understand the role of coping in the lives of university students.

2) The spillover of coping mechanisms

Study 2 provided new insights on the *spillover effects* of the coping process from school to work and, in turn, to graduates' short-term adaptation at work. In *Study 2*, graduation grades were shown to be useful yet insufficient for our understanding of successful adaptation in the workplace. Rather, the coping processes that helped new graduates successfully transition and adapt to the workplace were shown to be similar to those that are associated with positive outcomes in school. Much like the spillover associations between career doubt and school-related coping and progress shown in preliminary research (*Study 0*; Chamandy & Gaudreau, 2019), *Study 2* showed that retrospective school-related variables such as coping, satisfaction, and burnout symptoms spilled over to predict current work-related appraisals.

Furthermore, *Study 3* demonstrated that recalling instances of successful coping in the school context can spillover to predict more favorable appraisals of the transition to work, and favorable appraisals of the transition can spillover to predict levels of school satisfaction and burnout. These findings contribute to our understanding of the coping process by highlighting the importance of studying variables in their respective domain (domain-specificity) while at the same time demonstrating that career- or work-related variables relate to school pursuits when examined across distal time frames (spillover). These findings thus support the usefulness of incorporating the coping process into the pursuit of multiple goals to better understand how cognitive factors in one domain can relate to behavioural and consequential outcomes in the other domain and vice versa.

3) The role of coping efficacy in goal appraisals and current experiences

Study 3 provided new insights on *spillover effects* from the perspective of a coping intervention that integrates both the past and future self into the current self to proactively build

coping resources. The findings demonstrated that the ways in which students appraise their school-to-work transition can hinder or enrich their academic pursuits, which may ultimately result in poorer or greater adjustment within and beyond the university setting. Notably, the results showed that the intervention could alter the associations between the underlying processes of the person-environment transaction.

The coping manipulation was built upon, and added to, the findings from *Study 1* and *Study 2* (and *Study 0*), which respectively supported the domain-specificity and spillover nature of the coping process. In particular, the capacity to reorient personal resources toward the optimization of person-environment relationships may serve to foster efforts that yield increasing returns (e.g., coping effectiveness). Accordingly, beliefs about the coping process may prove to be a key mechanism in helping students remain goal-oriented, yet flexible, during the pursuit of their educational goals (Brandtstädter & Rothermund, 2002; Cheng et al., 2014). Without this flexibility and confidence in adaptation, students, newly graduates, and their employers may find that the typical GPA benchmark is a low to moderate predictor of students' and workers' adjustment and later success. Therefore, this experimental study offers a meaningful contribution to the scientific literature by showing that it is possible to quantify how an intervention alters the correlations between the variables that are typically studied in observational or correlational research.

Implications of Dissertation for Research

By burrowing from central theories of human behaviour (Bandura, 1989; Kruglanski et al., 2018; Lazarus & Folkman, 1984), the findings from the present doctoral dissertation hold significant implications for the study of coping processes by contributing to the development of a theoretical framework that takes the transactional theory of stress and coping beyond what has

been studied so far. Much research has examined how students can attain better grades in school – yet grades alone are not a strong predictor of later success, partly because they are an incomplete indicator of learning, skills, abilities, knowledge, and one’s overall capabilities (Gaudreau, 2018; Gareau et al., 2018; Richardson et al., 2012). Accordingly, students with high intellectual ability may fail to thrive academically, much like those with less may exceed our expectations. In addition to the challenges associated with the successful navigation of academic and career goals, workers are being asked to perform a range of tasks that are not directly related to the subject knowledge acquired over the course of their education – thus generating unpredictable demands and challenges (Green et al., 2009). The ability to adapt to change thus appears critical. Without this flexibility, students, newly graduates, and their employers may find that the typical GPA benchmark is a low to moderate predictor of students’ and workers’ adjustment and later success.

It is not feasible nor advisable to invest more resources in ensuring that all students graduate university as multidisciplinary experts. Rather than solely focus on the disciplinary knowledge and skills graduates have (or do not have) and undermine their ability to become adaptable and autonomous learners, the question to be asked may regard the ways in which students and workers respond to their *lack of skill* or experience in a given situation. Therefore, it seemed reasonable to believe that the ways in which individuals cope with obstacles in the process of pursuing desired outcomes – not only in school but also upon work entry – is a promising research avenue.

Theoretical Implications

Extending on the transactional model of stress and coping (Lazarus & Folkman, 1984), this doctoral dissertation built a dual-domain theoretical framework that incorporated the coping

process into the pursuit of key development goals (Ballard et al., 2018; Lent et al., 1994; Heckhausen, 2002) to bridge both sides of a pivotal life transition. On the basis of this dual-domain framework, students and recent graduates are understood as active agents in the pursuit of the personal pursuits that will define the course of their adult lives. As such, the quality of the transition from school to work is viewed as encompassing the selection of career goals. It can also provide motivational salience to the proactive management and pursuit of such goals (Aspinwall & Taylor, 1997; Shah & Kruglanski, 2000).

Notably, the present research supported the importance of studying variables in their respective domain (domain-specificity) while at the same time demonstrating that career- or work-related variables relate to school pursuits when examined across distal time frames (spillover). That is, current work-related appraisals were predicted by retrospective school-related variables such as coping, satisfaction, and burnout symptoms, and career doubt was related to school-related coping and outcomes. These findings thus support the usefulness of incorporating the coping process into the pursuit of multiple goals to better understand how cognitive factors in one domain can relate to behavioural and consequential outcomes in the other domain and vice versa.

Methodological Implications

The present doctoral dissertation contributes to the stress and coping literature by considering and supporting several of the methodological conditions necessary for the study of coping as a process. First, the hierarchical factor structure of the coping construct was evaluated and supported, indicating that the measurement models under study coherently aligned with the conceptual underpinnings of the coping construct. Second, the suitability of measuring coping across the academic and career context and across time was also supported. Tests of

measurement invariance across contexts and time were examined and supported across *Studies 0-2*. These findings imply that coping can be measured reliably across goal domains and measurement points and hold implications for the unbiased estimation of rank-order and normative stability as well as for the examination of structural change processes.

The reliability and consistency of the coping measures used across the studies of this thesis were supported and, in accord with the transactional model (Lazarus & Folkman, 1984), coping responses were shown to change across time and goal domains. The application of multivariate modeling strategies has further provided insights on the antecedents and consequences associated with task- and disengagement coping utilization. Accordingly, each striving domain contributed to our understanding of the coping process and coping in each domain was a stronger predictor of outcomes in its respective domain. Using finer-grained approaches to the study of change (multilevel modeling), our findings open the door to further improving our understanding of the people who might be more (or less) prone to adapt their use of coping according to the evolving demands of their environment.

Practical Implications

By treating student development as a global agenda that encompasses the attainment of high grades or the selection of career goals, we can then improve not only the quality of students' academic experience but also the extent to which they adapt and thrive in the workforce. In order to be practically important to the stress process, coping must relate to variables that are psychologically meaningful and important to individuals, post-secondary institutions, and organizations. The significant *domain-specific* effects, in combination with the non-significant *cross-domain* effects, suggest that intervening on coping with the demands of one life domain should have effects that are more specific to that particular domain. The significant *spillover*

effects indicate that various levels of the goal system should be considered when attempting to understand and improve the student experience.

By mentally simulating the self-regulatory self overcoming hypothetical barriers, students can link their future goals to their proximal pursuits more easily by taking down any perceived barriers to goal attainment (Lent et al., 1994; Shah & Kruglanski, 2008). Educational researchers could build upon these findings by identifying effective ways to counsel students for the promotion of desirable short- and long-term outcomes. The changeability of coping does, nonetheless, indicate that transactional elements (personal factors, environmental conditions) must be incorporated into our dual-domain framework to improve its ability to predict who and when individuals will perceive stressful demands as challenges under their control and effectively cope with the demands of their important academic and career goals. This therefore points to the need for more comprehensive programs that are well integrated with the realities of students' academic and career pursuits (Harackiewicz & Priniski, 2018; Lent et al., 2002; Marko & Savickas, 1998; Martin & al., 2012). It follows that identifying the patterns of behaviour that put students at risk or that protect them from experiencing the negative impacts of goal-related adversity may prove useful to strategically support students from different socio-economic backgrounds and across different developmental periods.

As a whole, we could argue that in school, students who pursue personally valued career goals that are linked to their proximal educational pursuits should be more likely to perceive stressful goal-related demands as challenges within their control, to cope in a task-oriented manner, and to make significant progress in the pursuit of their important academic and career goals. The development of a motivational system of proximal subgoals should thus increase the likelihood that proximal tasks are perceived as instrumental to attaining future goals. Moreover,

the pursuit of smaller, less rigid goals should enable students to remain flexible in the face of change. It is much easier to embrace a challenge when an overarching goal is decomposed into smaller attainable aims. Smaller goals represent lower risk for loss and should encourage students to find alternate solutions to a problem and see alternative ways to achieve related aims. For these students, academic and transition-related stressors would have positive rather than detrimental associations with academic success and workplace adaptation. Change is a constant in our world and being able to remain flexible is a highly transferable skill that supports adaptability. Accordingly, programs and curricula that emphasize specific future career goals may come at the expense of fostering flexibility and confidence in students' ability to adapt to changing situations. Fixed goals lack the diversity and flexibility needed for rapid change and adaptation. Universities and organizations therefore need to create environments that encourage the diversity and flexibility on which adaptation thrives.

Limitations

Sample

The samples carried a few limitations that warrant discussion. In *Study 1* and *3*, the samples were recruited from the University of Ottawa's Integrated System of Participation in Research (ISPR) and were mostly composed of White females. In contrast, the sample from *Study 2* was recruited from Prolific Academic, a crowdsourcing platform, and was mainly composed of people who resided in Europe. Such limitations call for further replications.

The higher proportion of female enrollment is not unique to the University of Ottawa, with 72.5% and 78.7% female enrollment for these same faculties across Canadian universities in 2020 (Statistics Canada, 2021). Despite this widespread gender disproportion, gender analysis could provide an insightful lens from which to study patterns of results among females and

males, which may be particularly useful for replication efforts. For exploratory purposes, complementary analyses were conducted to investigate potential group differences in our data but provided no rationale to exclude males from our student samples. The focus of the main analyses of this thesis therefore remained on the student population as a whole.

Moreover, more than half of participants in our samples identified as White and nearly 73% of the sample recruited through Prolific resided in Europe. Although it can be difficult to assume that our findings can generalize to the Canadian population, the findings from all three studies did support our theoretically and empirically informed hypotheses. It is also worthy to note that the sample recruited through Prolific was more diverse in terms of academic background, with participants having graduated from schools that have varying levels of prestige, admission requirements, and environmental demands³³.

Notwithstanding the contribution of our findings, it is important to acknowledge the presence and consequences of high sampling bias in psychological science (Henrich et al., 2010), with only 20% of publications reporting ethnic identification (Rad et al., 2018). Efforts are also needed to recognize the potential biases that could arise from the generalization of our findings across the population. For example, the intersectionality of multiple minority identities is known to put people at higher risk of adverse outcomes (Harris & Patton, 2018). To further enhance the validity and generalizability of our findings, future research is needed to better inform the transferability of the proposed effects, in particular how they may operate across levels of risk associated with combined gender and ethnic identities. With larger samples and statistical power,

³³ It is worth noting that, compared to university samples, participants from Prolific are more naïve to common experimental research tasks and more diverse in terms of geographical location and ethnicity (Peer et al., 2017). Compared to MTurk, participants from Prolific have been found to provide better data quality scores (e.g., attention, comprehension, honesty; Adams et al., 2020; Peer et al., 2021; Peer et al., 2017), lower dropout rates (2.5% vs 11%), and a more proportional representation of female respondents (52.7% vs 33.5%; Peer et al., 2021).

ethnic and other social and cultural factors (e.g., skin color, immigration recency, cultural upbringing) could be deconstructed to identify possible subgroups and effects within our models.

Design

The measurement points and time lags of the three studies impose a few limitations that merit attention. First, in *Studies 1-3*, we included two measurement occasions, which is not only an improvement over prior cross-sectional studies (e.g., Chamandy & Gaudreau, 2019), but also common for cross-lagged and latent change score models. We did not, however, incorporate weekly measurements of coping to elucidate whether coping significantly fluctuates based on environmental demands (e.g., assumed to be higher during each examination period). Furthermore, two data points assume a linear development over time, and prevent an examination of some other growth curve patterns (i.e., plateaux, accelerations, decelerations) that may operate. Therefore, more time (and follow-up assessments) may be needed for the dynamic relationship between a person and their environment to unfold and transpire into measurable changes in their beliefs, attitudes, and behaviours (West et al., 2014).

Second, the four-week time frame between Time 1 and Time 2 of *Study 2* were not representative of specific events, but rather a transitional period shaped by work entry. Interpretation must therefore be made with caution. Finally, although *Study 3* uses an experimental method allowing for a more thorough test of causality, the two-week lag was informative, but likely insufficient, to effectively study the long-term effects of the experimental manipulation. The correlational (cross-sectional, prospective) and experimental studies composing this thesis have nonetheless provided useful information on the links between appraisals, coping, and outcomes of achievement and psychological adjustment in the school and work contexts.

Measurement

Tying into the design of the three studies are the measurements used to test the research questions under investigation. First, the situational demands, contexts, and type of cognitive appraisals being examined differed across the three studies. Although these different approaches to studying the coping process call for replication efforts to test the boundary conditions of our findings, they each provide unique contributions to our understanding of coping across time and domains.

Second, the constructs under study in this thesis were measured using self-report questionnaires, which may introduce biased assessments. Nevertheless, in *Study 2*, graduation GPA was included as an external measure of achievement. Grade point average remains a widely used measure to benchmark students and make important administrative decisions (e.g., admission, probation, bursaries). Although some biases are known to influence self-reported grades (e.g., self-enhancement; Robins & Beer, 2001), research has found them to be highly positively correlated with actual grades (e.g., $r = .85$; Sticca et al, 2017). Such measures, however, typify the cumulative achievement taken at the end of a period (e.g., semester, year) and do not take into consideration the idiosyncratic nature of the personal goals pursued by each student. Therefore, comparisons among subjective and objective assessments methods are warranted.

Third, in *Study 2*, participants were asked to report on how they coped with school-related stressors while in university. Retrospective assessments of coping can introduce recall bias, as indicated by moderate correlations between retrospective coping and actual situational coping ($r = .58$; Ptacek et al., 1994). Retrospective assessments are likely to measure respondents' own implicit theory of how they tend to cope with similar-typed events (Ptacek et

al., 1994). We must therefore acknowledge the methodological shortcomings of retrospective recall bias in the stress and coping literature. In particular, people search to relate actions with outcomes as a way to feel in control of their world. When recalling thoughts, emotions, and behaviours, people may attribute specific outcomes to how they coped with the situation, thus failing to recall or report the strategies that dissonate with the outcome of the situation (Park & Folkman, 1997; Ptacek et al., 1994). For example, a person who is dissatisfied with their educational attainment or graduation GPA may selectively recall using less task-oriented strategies (e.g., not enough effort and help seeking) and more disengagement-oriented strategies (e.g., too many social distractions) while in school (Karpen, 2018). Likewise, circulatory effects may be observed in cases where a person experiencing burnout is likely to rate their coping more negatively, or to report disengagement as a symptom of burnout (Carver & Scheier, 1998). Despite these limitations, this thesis provided a good basis for future research entailing larger samples with prospective designs to follow individuals through actual transitions.

Future Research Directions

The Study of Coping

Efforts to deepen our understanding of the coping process call for a thorough examination of change mechanisms. First, there is a range of ways to measure self-reported coping. On the one hand, each person has their own habitual set of strategies that they use across time and situations (Lazarus & Folkman, 1984). Differentiating between a person's actual (state) and habitual (trait) way of coping (Gaudreau & Miranda, 2010) could thus deepen our understanding of the coping process. For example, the inclusion of dispositional measures of coping can be useful to create a model in which the more stable thoughts and behaviours that overlap with those that are unique to the domain of school and the domain of career strivings are

partialled out from the associations under study (e.g., Gaudreau et al., 2015). This way, we could further test the validity of our dual-domain model by examining coping effectiveness from a diverging domain-specific perspective. On the other hand, coping can be measured across time, situation, context, and life in general, and the strategies people use to cope can vary largely across these different levels of analysis. By incorporating repeated measures of coping in school, we could then capture a person's specific responses across distinct situations within a particular context (e.g., across courses) to use aggregates of situational coping as a more reliable measure of domain-specific coping.

Second, the different ways to assess self-reported coping can be incorporated into different types of methodological approaches and models. Although costly (time, money, attrition), truly prospective designs, such as cohort studies that follow students throughout their degree and transition to work, could broaden or narrow down the level of analysis to a developmental examination of student success. From there on, questions pertaining to the transferability of coping could be answered not only from a variable-centered perspective of between- and within-person analyses, but also from a person-centered perspective.

Taking on a *person-centered approach* (e.g., Chen et al., 2015; Lazarides et al., 2021), our dual-domain framework could be used to elaborate more precise profiles or latent classes of dual-domain coping mechanisms (Spurk et al., 2020). Building upon the transactional model of stress and coping, we could identify distinct and modifiable profiles of coping behaviour (Martinent & Nicolas, 2016) within the student population and test if they differentially relate to theoretically relevant predictors (personal and motivational factors) and outcomes (adaptation). For example, some students may exhibit a moderate combination of both disengagement- and task-oriented coping strategies throughout the semester for their academic goals, along with high

disengagement- and low task-oriented strategies for their career goals. Although these students may not be at risk of school dropout, they may exhibit lower academic engagement, satisfaction, and progress. This type of coping profile may also be more prevalent among students who experience higher career doubt or other sociodemographic variables that may reduce the availability of personal resources. Accordingly, a person-centered approach could provide novel insights for strategic data-driven action tailored to subgroups of the student population.

Future research could also incorporate *different levels of analysis* (e.g., Chen et al., 2015; Henning et al., 2019) in the dual-domain framework of academic and career strivings. In this thesis, I focused on the examination of coping from a subjective, domain-specific perspective. While this approach does not treat coping as a trait or style, it is likely to remain more constant across time and situations than would situational or daily measurements. A situational approach to the measurement of coping can offer a complementary understanding of the dynamic process whereby goal demands change as goal pursuit unfolds from one day to the next or across weeks. A multilevel repeated measures design would allow to measure and extract both between-person (individual differences in coping; how different students cope differently) and within-person (intra-individual differences in coping; how coping varies from one moment to the next) information from the data to better understand how psychological processes (appraisal, coping, outcomes) can differ depending on the level of analysis being examined (Curran & Bauer, 2011). This methodology would also provide a useful perspective from which to study temporal variation nested under individuals, and individuals nested under broader environmental, societal, or risk factors, such as field of employment, rate of unemployment, or socio-economic status.

The Study of Coping Effectiveness

Efforts to deepen our understanding of coping effectiveness call for a thorough

examination of the idiosyncratic nature of the personal goals pursued by each student. The study of internally established goals has created challenges for goal research (Austin & Vancouver, 1996) and alternative approaches to studying achievement and psychological adjustment are warranted. On the one hand, we could examine the actual grade participants obtain in relation to their desired grade in order to calculate a discrepancy score that captures the progress they have made on their personal objectives (e.g., Buckelew et al., 2013).

On the other hand, comparisons among subjective and objective assessments methods are lacking and the use of multiple perspectives on goal progress may be useful to triangulate the findings from our models (e.g., Lemyre & Lee, 2006). A mixed-method approach could be integrated into future research to explore the role of qualitative behavioural data in our understanding of the coping process (Hulland & Houston, 2021). As such, future research is needed to determine if we can arrive at the same conclusions with different methods of data collection and thus increase the validity of our findings.

The Who and The Why

The findings from the studies offer novel information on the processes implicated in the academic and career strivings of students and recent graduates, which is a steppingstone in further investigating the who and the why of such processes. Identifying the “who” is important to identify who is more or less at risk of goal pursuit difficulties to ultimately develop intervention initiatives that are tailored to the needs of different subgroups of students. Identifying the “why” is important to understand why these subgroups of individuals are at a higher risk of experiencing such difficulties and which mechanisms can be targeted in the development of tailored interventions.

Individuals with perfectionistic standards strive to attain excessively high standards of achievement that often result in large perceived discrepancies between actual and desired outcomes (Flett et al., 2017). Research has shown that some facets or subtypes of perfectionism can represent a risk factor (Chang et al., 2020; Crocker et al., 2014; Dunkley et al., 2003; Flett et al., 1995; Gaudreau et al., 2022; Kljajic et al., 2017; Levine et al., 2020; Moore et al., 2018). Notably, perfectionism has been associated with goal adjustment difficulties in the face of change, as indicated by how they cope with stress (Eddington, 2014) and their tendency to maintain perseverative and undesirable engagement in the pursuit of unattainable goals, despite being engaged in new ones (Gaudreau & Chamandy, 2021). We could therefore gain valuable insights onto successful adaptation by incorporating personal resources or more stable idiosyncrasies.

Taken together, people are said to carry motivational characteristics (i.e., personal resources) in the form of goal hierarchies (Eccles & Wigfield, 2002; Lazarus, 1991), which can be brought to action by the demands, constraints, and resources presented by the environment. There is therefore a dispositional and transactional aspect to goal striving. As stated by Lazarus (1991, p. 819) “I believe that this renewal of interest in motivation occurred because individual differences in stress and emotion could not be adequately understood without taking into account what is personally important. We don’t become emotional about unimportant things, but about values and goals to which we have made a strong commitment.” Personal characteristics, such as perfectionism and goal attributes, and sociodemographic variables, such as income and adversity, should be included in the models being examined to take on a dynamic approach to the study of goal pursuit (Shah & Kruglanski, 2008).

Conclusion

The work of Lazarus and Folkman (1984) has pioneered the integration of an individualized and comprehensive approach to human functioning. To extend the range of application and augment the explanatory and predictive ability of the transactional model of stress and coping, the present doctoral dissertation empirically tested key elements of the theory by bridging the academic and career strivings of individuals on both sides of the university-to-work transition. Accordingly, the transactional theory provided a valuable standpoint from which to address how individuals perceive, manage, and meet the demands of stressful transactions during the pursuit of valued personal goals.

While students must make important choices regarding their educational and career endeavors, there is an enormous body of literature on the elements involved in making optimal vocational and career choices, all of which I deliberately avoid and confide to counselling specialists. Making the proper vocational choices – ones that reflects inner needs, values, and skills – is indeed a crucial step in human development. The goal here was to create bridges between current knowledge on academic and work strivings to understand how coping processes can facilitate – or hinder – the academic and career strivings of students, as well as the transition in between. By examining coping across time and contexts, the contribution, hereby, lies within providing further clarification on the role of coping as a psychological factor that can assist students in pursuing the goals they have set for themselves, while remaining adaptable in the face of change and uncertainty. Taken together, the proposed dual-domain framework provides the necessary theoretical, methodological, and empirical building blocks to inform future research and create an informed lens from which to study, predict, and intervene at the individual level, in university, to promote students' personal short- and long-term success.

References

- Adams, T.L., Li, Y., & Liu, H. (2020). A Replication of Beyond the Turk: Alternative Platforms for Crowdsourcing Behavioral Research – Sometimes Preferable to Student Groups. *Business*. <https://doi.org/10.17705/1ATTR.00058>
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683.
<https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- Akkermans, J., Brenninkmeijer, V., Schaufeli, W. B., & Blonk, R. W. B. (2015). It's all about CareerSKILLS: Effectiveness of a career development intervention for young employees. *Human Resource Management*, 54, 533–551. <https://doi.org/10.1002/hrm.21633>
- Akkermans, J., Nykänen, M., & Vuori, J. (2015). Practice makes perfect? Antecedents and consequences of an adaptive school-to-work transition. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable Working Lives* (pp. 65–86). Springer Netherlands.
https://doi.org/10.1007/978-94-017-9798-6_5
- Akram, T. A., & Iraqi, K. M. (2020). Impact of career counselling on employees' performance. *Journal of Entrepreneurship and Business Innovation*, 2(1), Article 1.
<https://doi.org/10.22555/jebi.v2i1.81>
- Alamsyah, N., & Zhu, Y.-Q. (2021). We shall endure: Exploring the impact of government information quality and partisanship on citizens' well-being during the COVID-19 pandemic. *Government Information Quarterly*, 39(1).
<https://doi.org/10.1016/j.giq.2021.101646>
- Alarcon, G. M., Edwards, J. M., & Clark, P. C. (2013). Coping strategies and first year performance in postsecondary education. *Journal of Applied Social Psychology*, 43(8),

- 1676–1685. <https://doi.org/10.1111/jasp.12120>
- Alarcon, G., & Edwards, J. (2013). Ability and motivation: Assessing individual factors that contribute to university retention. *Journal of Educational Psychology, 105*, 129. <https://doi.org/10.1037/a0028496>
- Al-Bahrani, M. A., Allawati, S. M., Abu Shindi, Y. A., & Bakkar, B. S. (2020). Career aspiration and related contextual variables. *International Journal of Adolescence and Youth, 25*(1), 703–711. <https://doi.org/10.1080/02673843.2020.1730201>
- Aldwin, C. M. (2007). *Stress, coping, and development: An integrative perspective* (2nd ed.). Guilford Press.
- Aldwin, C. M., Skinner, E. A., Taylor, A., & Zimmer-Gembeck, M. J. (2011). Coping and self-regulation across the lifespan. In *Handbook of life-span development* (pp. 561–587). Springer.
- Amiot, C. E., Blanchard, C. M., & Gaudreau, P. (2008). The self in change: A longitudinal investigation of coping and self-determination processes. *Self and Identity, 7*(2), 204–224. <https://doi.org/10.1080/15298860701580793>
- Amiot, C., Terry, D., Jimmieson, N., & Callan, V. (2006). A longitudinal investigation of coping processes during a merger: Implications for job satisfaction and organizational identification. *Journal of Management, 32*(4), 552–574. <https://doi.org/10.1177/0149206306287542>
- Anderson, E. C., Carleton, R. N., Diefenbach, M., & Han, P. K. J. (2019). The relationship between uncertainty and affect. *Frontiers in Psychology, 10*, 1-17. <https://doi.org/10.3389/fpsyg.2019.02504>
- Anderson, M., Goodman, J., & Schlossberg, N. (2012). Counseling adults in transition: Linking

- Schlossberg's theory with practice in a diverse world. All Books and Monographs by WMU Authors. <https://scholarworks.wmich.edu/books/15>
- Appleby, D. C. (2018). Preparing psychology majors to enter the workforce: Then, now, with whom, and how. *Teaching of Psychology, 45*(1), 14–23.
<https://doi.org/10.1177/0098628317744944>
- Armstrong-Stassen, M. (1994). Coping with transition: A study of layoff survivors. *Journal of Organizational Behavior, 15*(7), 597–621. <https://doi.org/10.1002/job.4030150705>
- Asparouhov, T., Muthén, B., & Morin, A. J. S. (2015). Bayesian structural equation modeling with cross loadings and residual covariances: Comments on Stromeier et al. *Journal of Management, 41*(6), 1561–1577. <https://doi.org/10.1177/0149206315591075>
- Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology, 63*(6), 989.
- Aspinwall, L. G., & Taylor, S. E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin, 121*(3), 417–436. <https://doi.org/10.1037/0033-2909.121.3.417>
- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin, 120*(3), 338–375.
<http://dx.doi.org.proxy.bib.uottawa.ca/10.1037/0033-2909.120.3.338>
- Ayers, T. S., Sandier, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of Personality, 64*(4), 923–958. <https://doi.org/10.1111/j.1467-6494.1996.tb00949.x>
- Ballard, T., Farrell, S., & Neal, A. (2018). Quantifying the psychological value of goal achievement. *Psychonomic Bulletin & Review, 25*(3), 1184–1192.

<https://doi.org/10.3758/s13423-017-1329-1>

Ballard, T., Vancouver, J. B., & Neal, A. (2018). On the pursuit of multiple goals with different deadlines. *Journal of Applied Psychology, 103*(11), 1242–1264.

<https://doi.org/10.1037/apl0000304>

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

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>

Bandura, A. (1997). *Self-Efficacy in Changing Societies*. Cambridge University Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control* (pp. ix, 604). W H Freeman/Times Books/ Henry Holt & Co.

Bandura, A. (2001). Social Cognitive Theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>

Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology, 41*(3), 586–598. <https://doi.org/10.1037/0022-3514.41.3.586>

Bandura, A., & Wood, R. (1989). Effect of perceived controllability and performance standards on self-regulation of complex decision making. *Journal of Personality and Social Psychology, 56*(5), 805–814. <http://dx.doi.org/10.1037/0022-3514.56.5.805>

Barrie, S. C. (2006). Understanding what we mean by the generic attributes of graduates. *Higher Education, 51*(2), 215–241. <https://doi.org/10.1007/s10734-004-6384-7>

Blascovich, J. (2008). Challenge and threat. In *Handbook of approach and avoidance motivation* (pp. 431–445). Psychology Press.

- Blouin-Hudon, E.-M. C., Gaudreau, P., & Gareau, A. (2016). Coping as a building mechanism to explain the unique association of affect and goal motivation with changes in affective states. *Anxiety, Stress, & Coping, 29*(5), 519–532.
<https://doi.org/10.1080/10615806.2015.1100298>
- Boileau, L., Gaudreau, P., Gareau, A., & Chamandy, M. (2020). Some days are more satisfying than others: A daily-diary study on optimism, pessimism, coping, and academic satisfaction. *The British Journal of Educational Psychology*.
<https://doi.org/10.1111/bjep.12346>
- Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research, 17*(3), 303–316.
<https://doi.org/10.1177/0049124189017003004>
- Bonaccio, S., Gauvin, N., & Reeve, C. L. (2014). The experience of emotions during the job search and choice process among novice job seekers. *Journal of Career Development, 41*(3), 237–257. <https://doi.org/10.1177/0894845313486354>
- Bordia, P., Hobman, E., Jones, E., Gallois, C., & Callan, V. J. (2004). Uncertainty during organizational change: Types, consequences, and management strategies. *Journal of Business and Psychology, 18*(4), 507–532.
<https://doi.org/10.1023/B:JOBU.0000028449.99127.f7>
- Bordia, P., Hunt, E., Paulsen, N., Tourish, D., & DiFonzo, N. (2004). Uncertainty during organizational change: Is it all about control? *European Journal of Work and Organizational Psychology, 13*(3), 345–365. <https://doi.org/10.1080/13594320444000128>
- Boudreaux, M. J., & Ozer, D. J. (2013). Goal conflict, goal striving, and psychological well-being. *Motivation and Emotion, 37*(3), 433–443. <https://doi.org/10.1007/s11031-012-9333-2>

- Boyd, N. G., Lewin, J. E., & Sager, J. K. (2009). A model of stress and coping and their influence on individual and organizational outcomes. *Journal of Vocational Behavior, 75*(2), 197–211. <https://doi.org/10.1016/j.jvb.2009.03.010>
- Brammer, L. M. (1992). Coping with life transitions. *International Journal for the Advancement of Counselling, 15*(4), 239–253. <https://doi.org/10.1007/BF02449903>
- Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research, 14*(1), 52–62. <https://doi.org/10.1016/j.alcr.2009.03.002>
- Bridges, W. (1986). Managing organizational transitions. *Organizational Dynamics, 15*(1), 24–33. [https://doi.org/10.1016/0090-2616\(86\)90023-9](https://doi.org/10.1016/0090-2616(86)90023-9)
- Brittle, B. (2020). Coping strategies and burnout in staff working with students with special educational needs and disabilities. *Teaching and Teacher Education, 87*, 102937. <https://doi.org/10.1016/j.tate.2019.102937>
- Britton, D. M., Kavanagh, E. J., & Polman, R. C. J. (2019). A path analysis of adolescent athletes' perceived stress reactivity, competition appraisals, emotions, coping, and performance satisfaction. *Frontiers in Psychology, 10*, 1151. <https://doi.org/10.3389/fpsyg.2019.01151>
- Brown, J. D., & Siegel, J. M. (1988). Attributions for negative life events and depression: The role of perceived control. *Journal of Personality and Social Psychology, 54*(2), 316–322. <http://dx.doi.org/10.1037/0022-3514.54.2.316>
- Brown, S. D., & Lent, R. W. (2005). *Career development and counseling: Putting theory and research to work*. Wiley.
- Brown, S. P., Westbrook, R. A., & Challagalla, G. (2005). Good cope, bad cope: Adaptive and maladaptive coping strategies following a critical negative work event. *Journal of Applied*

Psychology, 90, 792–798. <https://doi.org/10.1037/0021-9010.90.4.792>

Brunet, J., Gunnell, K. E., Gaudreau, P., & Sabiston, C. M. (2015). An integrative analytical framework for understanding the effects of autonomous and controlled motivation.

Personality and Individual Differences, 84, 2–15.

<https://doi.org/10.1016/j.paid.2015.02.034>

Brunner, M., Nagy, G., & Wilhelm, O. (2012). A tutorial on hierarchically structured constructs.

Journal of Personality, 80(4), 796–846. <https://doi.org/10.1111/j.1467-6494.2011.00749.x>

Buckelew, S. P., Byrd, N., Key, C. W., Thornton, J., & Merwin, M. M. (2013). Illusions of a good grade: Effort or luck? *Teaching of Psychology*, 40(2), 134–138.

<https://doi.org/10.1177/0098628312475034>

Cannon, W. B. (1929). *Bodily changes in pain, hunger, fear and rage*. Appleton.

Carraro, N., & Gaudreau, P. (2011). Implementation planning as a pathway between goal motivation and goal progress for academic and physical activity goals. *Journal of Applied Social Psychology*, 41, 1835–1856. <https://doi.org/10.1111/j.1559-1816.2011.00795.x>

Carraro, N., & Gaudreau, P. (2015). Predicting physical activity outcomes during episodes of academic goal conflict. *Personality and Social Psychology Bulletin*, 41, 1291–1305.

<https://doi.org/10.1177/0146167215594121>

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679–704. <https://doi.org/10.1146/annurev.psych.093008.100352>

Carver, C. S., & Scheier, M. (1998). *On the self-regulation of behavior*. Cambridge University Press.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267.

- Chamandy, M. (2016). *When work entry looms large: A qualitative examination of the university student experience*. Unpublished manuscript.
- Chamandy, M., & Gaudreau, P. (2018). Career doubt in a dual-domain model of coping and progress for university students' academic and career goals. *OSF Preprints*.
<https://doi.org/10.31219/osf.io/n2dmh>
- Chamandy, M., & Gaudreau, P. (2019). Career doubt in a dual-domain model of coping and progress for academic and career goals. *Journal of Vocational Behavior, 110*, 155–167.
<https://doi.org/10.1016/j.jvb.2018.11.008>
- Chamandy, M., & Gaudreau, P. (2021). *Coping from university to work: The transition and short-term adaptation of recent graduates*. Unpublished manuscript.
- Chamandy, M., & Gaudreau, P. (2022a). Can Bayesian Confirmatory Factor Analyses Help Recover the Hierarchical Structure of Coping? *OSF Preprints*
<https://doi.org/10.31219/osf.io/rw34b>
- Chamandy, M., & Gaudreau, P. (2022b). *Promoting the student experience by preparing for a life after graduation: A small-scale coping intervention*. Unpublished manuscript.
- Chamandy, M., & Gaudreau, P. (in press). The pursuit of academic and career goals: A dual-domain latent change score model of coping, progress, and burnout. *International Journal of Stress Management* (2021).
- Chang, E., Seong, H., & Lee, S. M. (2020). Exploring the relationship between perfectionism and academic burnout through achievement goals: A mediation model. *Asia Pacific Education Review, 21*(3), 409–422. <https://doi.org/10.1007/s12564-020-09633-1>
- Chen, X., Morin, A. J. S., Parker, P. D., & Marsh, H. W. (2015). Developmental investigation of the domain-specific nature of the life satisfaction construct across the post-school

- transition. *Developmental Psychology*, 51(8), 1074–1085. <https://doi.org/10.1037/a0039477>
- Cohen, M., Ben-Zur, H., & Rosenfeld, M. J. (2008). Sense of coherence, coping strategies, and test anxiety as predictors of test performance among college students. *International Journal of Stress Management*, 15(3), 289–303. <https://doi.org/10.1037/1072-5245.15.3.289>
- Cole, S. N., Smith, D. M., Ragan, K., Suurmond, R., & Armitage, C. J. (2021). Synthesizing the effects of mental simulation on behavior change: Systematic review and multilevel meta-analysis. *Psychonomic Bulletin & Review*, 28(5), 1514–1537. <https://doi.org/10.3758/s13423-021-01880-6>
- Compas, B. E., Banez, G. A., Malcarne, V., & Worsham, N. (1991). Perceived control and coping with stress: A developmental perspective. *Journal of Social Issues*, 47(4), 23–34. <https://doi.org/10.1111/j.1540-4560.1991.tb01832.x>
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, 127(1), 87–127. <https://doi.org/10.1037/0033-2909.127.1.87>
- Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., Williams, E., & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin*, 143(9), 939–991. <https://doi.org/10.1037/bul0000110>
- Compas, B. E., Jaser, S. S., Dunbar, J. P., Watson, K. H., Bettis, A. H., Gruhn, M. A., & Williams, E. K. (2014). Coping and emotion regulation from childhood to early adulthood: Points of convergence and divergence. *Australian Journal of Psychology*, 66(2), 71–81. <https://doi.org/10.1111/ajpy.12043>

- Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in older children and young adolescents. *Journal of Consulting and Clinical Psychology, 56*(3), 405–411. <https://doi.org/10.1037/0022-006X.56.3.405>
- Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Thomsen, A. H., & Saltzman, H. (2000). Responses to stress in adolescence: Measurement of coping and involuntary stress responses. *Journal of Consulting and Clinical Psychology, 68*(6), 976–992.
- Credé, M., & Harms, P. D. (2015a). 25 years of higher-order confirmatory factor analysis in the organizational sciences: A critical review and development of reporting recommendations. *Journal of Organizational Behavior, 36*(6), 845–872. <https://doi.org/10.1002/job.2008>
- Crocker, J., Moeller, S., & Burson, A. (2010). The costly pursuit of self-esteem. In *Handbook of personality and self-regulation* (pp. 403–429). Wiley-Blackwell.
<https://doi.org/10.1002/9781444318111.ch18>
- Crocker, P. R. E., Gaudreau, P., Mosewich, A. D., & Kljajic, K. (2014). Perfectionism and the stress process in intercollegiate athletes: Examining the 2 x 2 model of perfectionism in sport competition. *International Journal of Sport Psychology, 45*(4), 325–348.
- Crum, A. (2011). Evaluating a mindset training program to unleash the enhancing nature of stress. *Academy of Management Proceedings, 2011*(1), 1–6.
<https://doi.org/10.5465/AMBPP.2011.65870502>
- Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology, 62*, 583–619.
<https://doi.org/10.1146/annurev.psych.093008.100356>
- de Berker, A. O., Rutledge, R. B., Mathys, C., Marshall, L., Cross, G. F., Dolan, R. J., & Bestmann, S. (2016). Computations of uncertainty mediate acute stress responses in

- humans. *Nature Communications*, 7(1), 10996. <https://doi.org/10.1038/ncomms10996>
- De Rijk, A. E., Blanc, P. M. L., Schaufeli, W. B., & De Jonge, J. (1998). Active coping and need for control as moderators of the job demand–control model: Effects on burnout. *Journal of Occupational and Organizational Psychology*, 71(1), 1–18. <https://doi.org/10.1111/j.2044-8325.1998.tb00658.x>
- de Volder, M. L., & Lens, W. (1982). Academic achievement and future time perspective as a cognitive–motivational concept. *Journal of Personality and Social Psychology*, 42(3), 566–571. <https://doi.org/10.1037/0022-3514.42.3.566>
- Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing*, 43(1), 71–81. <https://doi.org/10.1046/j.1365-2648.2003.02674.x>
- Dietrich, J., Jokisaari, M., & Nurmi, J.-E. (2012). Work-related goal appraisals and stress during the transition from education to work. *Journal of Vocational Behavior*, 80, 82–92. <https://doi.org/10.1016/j.jvb.2011.07.004>
- Dix, J. E., & Savickas, M. L. (1995). Establishing a career: Developmental tasks and coping responses. *Journal of Vocational Behavior*, 47(1), 93–107. <https://doi.org/10.1006/jvbe.1995.1031>
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology*, 84(1), 234–252. <https://doi.org/10.1037/0022-3514.84.1.234>
- Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review*, 124(6), 689–719. <https://doi.org/10.1037/rev0000082>

- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53(1), 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Eddington, K. M. (2014). Perfectionism, goal adjustment, and self-regulation: A short-term follow-up study of distress and coping. *Self and Identity*, 13(2), 197–213. <https://doi.org/10.1080/15298868.2013.781740>
- Edwards, J. M., & Trimble, K. (1992). Anxiety, coping and academic performance. *Anxiety, Stress, & Coping*, 5(4), 337–350. <https://doi.org/10.1080/10615809208248370>
- Endler, N. S., & Magnusson, D. (1976). Toward an interactional psychology of personality. *Psychological Bulletin*, 83(5), 956–974. <https://doi.org/10.1037/0033-2909.83.5.956>
- Endler, N. S., & Parker, J. D. A. (1994). Assessment of multidimensional coping: Task, emotion, and avoidance strategies. *Psychological Assessment*, 6(1), 50–60. <https://doi.org/10.1037/1040-3590.6.1.50>
- Endler, N. S., Kantor, L., & Parker, J. D. A. (1994). State-trait coping, state-trait anxiety and academic performance. *Personality and Individual Differences*, 16(5), 663–670. [https://doi.org/10.1016/0191-8869\(94\)90208-9](https://doi.org/10.1016/0191-8869(94)90208-9)
- Feldstein Ewing, S. W., Filbey, F. M., Hendershot, C. S., McEachern, A. D., & Hutchison, K. E. (2011). Proposed model of the neurobiological mechanisms underlying psychosocial alcohol interventions: The example of motivational interviewing. *Journal of Studies on Alcohol and Drugs*, 72(6), 903–916.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Mosher, S. W. (1995). Perfectionism, life events, and depressive symptoms: A test of a diathesis-stress model. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, 14(2), 112–137. <https://doi.org/10.1007/BF02686885>

- Flett, G. L., Hewitt, P. L., Nepon, T., & Besser, A. (2018). Perfectionism cognition theory: The cognitive side of perfectionism. In J. Stoeber (Ed.), *The psychology of perfectionism: Theory, research, applications* (pp. 89–110). Routledge.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology, 46*(4), 839–852.
<https://doi.org/10.1037/0022-3514.46.4.839>
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*(1), 150–170. <https://doi.org/10.1037/0022-3514.48.1.150>
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology, 55*(1), 745–774. <https://doi.org/10.1146/annurev.psych.55.090902.141456>
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992–1003. <https://doi.org/10.1037/0022-3514.50.5.992>
- Frazier, P., Gabriel, A., Merians, A., & Lust, K. (2018). Understanding stress as an impediment to academic performance. *Journal of American College Health, 0*(0), 1–9.
<https://doi.org/10.1080/07448481.2018.1499649>
- Frazier, P., Keenan, N., Anders, S., Perera, S., Shallcross, S., & Hintz, S. (2011). Perceived past, present, and future control and adjustment to stressful life events. *Journal of Personality and Social Psychology, 100*(4), 749–765. <https://doi.org/10.1037/a0022405>
- Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*, 14–38.

<https://doi.org/10.1016/j.jvb.2003.10.005>

Gareau, A., Chamandy, M., Kljajic, K., & Gaudreau, P. (2018). The detrimental effect of academic procrastination on subsequent grades: The mediating role of coping over and above past achievement and working memory capacity. *Anxiety, Stress, and Coping*, 1–14.

<https://doi.org/10.1080/10615806.2018.1543763>

Garriott, P. O., & Nisle, S. (2018). Stress, coping, and perceived academic goal progress in first-generation college students: The role of institutional supports. *Journal of Diversity in Higher Education*, 11(4), 436–450. <https://doi.org/10.1037/dhe0000068>

Gaudreau, Carraro, & Miranda. (2012). From goal motivation to goal progress: The mediating role of coping in the Self-Concordance Model. *Anxiety, Stress & Coping*, 25, 507–528.

<https://doi.org/10.1080/10615806.2011.628015>

Gaudreau, P. (2018). Active coping strategies. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of personality and individual differences* (pp. 1–4). Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_1119-1

Gaudreau, P. (2019). On the distinction between personal standards perfectionism and excellencism: A theory elaboration and research agenda. *Perspectives on Psychological Science*, 14(2), 197–215. <https://doi.org/10.1177/1745691618797940>

Gaudreau, P., & Blondin, J.-P. (2002). Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise*, 3(1), 1–34. [https://doi.org/10.1016/S1469-0292\(01\)00017-6](https://doi.org/10.1016/S1469-0292(01)00017-6)

Gaudreau, P., & Chamandy, M. (2021). Excellencism, perfectionism, and profiles of goal adjustment capacities: Associations with stress overload, burnout, and growth-related experiences during the pandemic. Manuscript in preparation.

- Gaudreau, P., & Miranda, D. (2010). Coping across time, situations, and contexts: A conceptual and methodological overview of its stability, consistency, and change. In *Coping in Sport: Theory, Methods, and Related Constructs* (pp. 15–32).
- Gaudreau, P., Gunnell, K. E., Hoar, S. D., Thompson, A., & Lelièvre, J. (2015). Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport, Exercise, and Performance Psychology, 4*(2), 140-152. <https://doi.org/10.1037/spy0000032>
- Gaudreau, P., Schellenberg, B. J. I., Gareau, A., Kljajic, K., & Manoni-Millar, S. (2022). Because excellencism is more than good enough: On the need to distinguish the pursuit of excellence from the pursuit of perfection. *Journal of Personality and Social Psychology*. <http://dx.doi.org/10.1037/pspp0000411>
- Geiser, C., & Lockhart, G. (2012). A comparison of four approaches to account for method effects in latent state-trait analyses. *Psychological Methods, 17*(2), 255–283. <https://doi.org/10.1037/a0026977>
- Gomes, A. R., Faria, S., & Gonçalves, A. M. (2013). Cognitive appraisal as a mediator in the relationship between stress and burnout. *Work & Stress, 27*(4), 351–367. <https://doi.org/10.1080/02678373.2013.840341>
- Gray, J. S., Ozer, D. J., & Rosenthal, R. (2017). Goal conflict and psychological well-being: A meta-analysis. *Journal of Research in Personality, 66*, 27–37. <https://doi.org/10.1016/j.jrp.2016.12.003>
- Green, W., Hammer, S., & Star, C. (2009). Facing up to the challenge: Why is it so hard to develop graduate attributes? *Higher Education Research & Development, 28*(1), 17–29.
- Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology, 69*, 409–435.

- <https://doi.org/10.1146/annurev-psych-122216-011725>
- Haratsis, J. M., Creed, P. A., & Hood, M. (2015). Measuring assimilative and accommodative resources in young adults: Development and initial validation of suitable scales. *Personality and Individual Differences, 81*, 61–66.
- <https://doi.org/10.1016/j.paid.2014.12.011>
- 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. <https://doi.org/10.1177/0894845315572019>
- Harris, J.C., & Patton, L.D. (2019). Un/Doing Intersectionality through Higher Education Research. *The Journal of Higher Education, 90*, 347 - 372.
- <https://doi.org/10.1080/00221546.2018.1536936>
- Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology, 33*(1), 176.
- Heckhausen, J. (2002). Developmental regulation of life-course transitions: A control theory approach. In L. Pulkkinen & A. Caspi (Eds.), *Paths to successful development: Personality in the life course* (pp. 257–280). Cambridge University Press.
- <https://doi.org/10.1017/CBO9780511489761.011>
- Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review, 117*(1), 32–60. <https://doi.org/10.1037/a0017668>
- Heidemeier, H., & Moser, K. (2009). Self-other agreement in job performance ratings: A meta-analytic test of a process model. *The Journal of Applied Psychology, 94*(2), 353–370.
- <https://doi.org/10.1037/0021-9010.94.2.353>
- Henning, G., Bjälkebring, P., Stenling, A., Thorvaldsson, V., Johansson, B., & Lindwall, M.

- (2019). Changes in within- and between-person associations between basic psychological need satisfaction and well-being after retirement. *Journal of Research in Personality*, 79, 151–160. <https://doi.org/10.1016/j.jrp.2019.03.008>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, 466(7302), 29. <https://doi.org/10.1038/466029a>
- Hettich, P. I. (2010). College-to-workplace transitions: Becoming a freshman again. In *Handbook of Stressful Transitions Across the Lifespan* (pp. 87–109). Springer, New York, NY. https://doi.org/10.1007/978-1-4419-0748-6_5
- Hilton, M. (2015). Preparing students for life and work. *Issues in Science and Technology*, 31(4), 63.
- Hirsh, J. B., Mar, R. A., & Peterson, J. B. (2012). Psychological entropy: A framework for understanding uncertainty-related anxiety. *Psychological Review*, 119(2), 304–320. <http://dx.doi.org/10.1037/a0026767>
- Hogg, M. A. (2016). Social Identity Theory. In *Understanding peace and conflict through Social Identity Theory* (pp. 3–17). Springer, Cham. https://doi.org/10.1007/978-3-319-29869-6_1
- Hsee, C. K., Abelson, R. P., & Salovey, P. (1991). The relative weighting of position and velocity in satisfaction. *Psychological Science*, 2(4), 263–267. <https://doi.org/10.1111/j.1467-9280.1991.tb00146.x>
- Hulland, J., & Houston, M. (2021). The importance of behavioral outcomes. *Journal of the Academy of Marketing Science*, 49(3), 437–440. <https://doi.org/10.1007/s11747-020-00764-w>
- Hyojung Shin, Park, Y. M., Ying, J. Y., Kim, B., Noh, H., & Lee, S. M. (2014). Relationships between coping strategies and burnout symptoms: A meta-analytic approach. *Professional*

- Psychology: Research and Practice*, 45(1), 44–56. <https://doi.org/10.1037/a0035220>
- Iacobucci, D. (2010). Structural equations modeling: Fit Indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90–98. <https://doi.org/10.1016/j.jcps.2009.09.003>
- Jamieson, J. P., Black, A. E., Pelaia, L. E., & Reis, H. T. (2020). The impact of mathematics anxiety on stress appraisals, neuroendocrine responses, and academic performance in a community college sample. *Journal of Educational Psychology*, No Pagination Specified- No Pagination Specified. <https://doi.org/10.1037/edu0000636>
- Jamieson, J. P., Crum, A. J., Goyer, J. P., Marotta, M. E., & Akinola, M. (2018). Optimizing stress responses with reappraisal and mindset interventions: An integrated model. *Anxiety, Stress, & Coping*, 31(3), 245–261. <https://doi.org/10.1080/10615806.2018.1442615>
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In *Self-efficacy: Thought control of action* (pp. 195–213). Hemisphere Publishing Corp.
- Jung, K.-R., Zhou, A. Q., & Lee, R. M. (2017). Self-efficacy, self-discipline and academic performance: Testing a context-specific mediation model. *Learning and Individual Differences*, 60, 33–39. <https://doi.org/10.1016/j.lindif.2017.10.004>
- Kaftan, O. J., & Freund, A. M. (2018). The way is the goal: The role of goal focus for successful goal pursuit and subjective well-being. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being*. Salt Lake City, UT: DEF Publishers. [doi:nobascholar.com](https://doi.org/10.1002/9781119281307.ch10)
- Karniol, R., & Ross, M. (1996). The motivational impact of temporal focus: Thinking about the future and the past. *Annual Review of Psychology*, 47(1), 593–620.
- Karoly, P. (2010). Goal systems and self-regulation. In R. H. Hoyle (Ed.), *Handbook of Personality and Self-Regulation* (pp. 218–242). Wiley-Blackwell.

<https://doi.org/10.1002/9781444318111.ch10>

- Karpen, S. C. (2018). The social psychology of biased self-assessment. *American Journal of Pharmaceutical Education*, 82(5), 6299. <https://doi.org/10.5688/ajpe6299>
- Keech, J. J., Hagger, M. S., O'Callaghan, F. V., & Hamilton, K. (n.d.). The influence of university students' stress mindsets on health and performance outcomes. *Annals of Behavioral Medicine*. <https://doi.org/10.1093/abm/kay008>
- Kljajic, K., Gaudreau, P., & Franche, V. (2017). An investigation of the 2×2 model of perfectionism with burnout, engagement, self-regulation, and academic achievement. *Learning and Individual Differences*, 57, 103–113. <https://doi.org/10.1016/j.lindif.2017.06.004>
- Klug, H. J. P., & Maier, G. W. (2015). Linking goal progress and subjective well-being: A meta-analysis. *Journal of Happiness Studies*, 16(1), 37–65. <https://doi.org/10.1007/s10902-013-9493-0>
- Klug, H., & Maier, G. (2015). Linking goal progress and subjective well-being: A meta-analysis. *Journal of Happiness Studies*, 16(1), 37–65. <https://doi.org/10.1007/s10902-013-9493-0>
- Körner, A., Lechner, C. M., Pavlova, M. K., & Silbereisen, R. K. (2015). Goal engagement in coping with occupational uncertainty predicts favorable career-related outcomes. *Journal of Vocational Behavior*, 88, 174–184. <https://doi.org/10.1016/j.jvb.2015.03.001>
- Kruglanski, A. W., Chernikova, M., Babush, M., Dugas, M., & Schumpe, B. M. (2015). Chapter three - The architecture of goal systems: Multifinality, equifinality, and counterfinality in means—end relations. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 2, pp. 69–98). Elsevier. <https://doi.org/10.1016/bs.adms.2015.04.001>
- Kruglanski, A. W., Köpetz, C., Bélanger, J. J., Chun, W. Y., Orehek, E., & Fishbach, A. (2013).

- Features of multifinality. *Personality and Social Psychology Review*, 17(1), 22–39.
<https://doi.org/10.1177/1088868312453087>
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2018). A theory of goal systems. In *The motivated mind*. Routledge.
- Laschinger, H. K. S., Borgogni, L., Consiglio, C., & Read, E. (2015). The effects of authentic leadership, six areas of worklife, and occupational coping self-efficacy on new graduate nurses' burnout and mental health: A cross-sectional study. *International Journal of Nursing Studies*, 52(6), 1080–1089. <https://doi.org/10.1016/j.ijnurstu.2015.03.002>
- Lazarides, R., Dicke, A.-L., Rubach, C., Oppermann, E., & Eccles, J. S. (2021). Motivational profiles across domains and academic choices within Eccles et al.'s situated expectancy–value theoretical framework. *Developmental Psychology*, 57(11), 1893–1909.
<https://doi.org/10.1037/dev0001250>
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. McGraw-Hill.
- Lazarus, R. S. (1991). Progress on a Cognitive–Motivational–Relational Theory of Emotion. *American Psychologist*, 46(8), 819–834. <https://doi.org/10.1037/0003-066X.46.8.819>
- Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, 44(1), 1–22.
<https://doi.org/10.1146/annurev.ps.44.020193.000245>
- Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, 1(3), 141–169. <https://doi.org/10.1002/per.2410010304>
- Lechner, C. M., Tomasik, M. J., & Silbereisen, R. K. (2016). Preparing for uncertain careers: How youth deal with growing occupational uncertainties before the education-to-work transition. *Journal of Vocational Behavior*, 95–96, 90–101. <https://doi.org/10.1016/j.jvb.2016.08.002>

- Leiter, M. P. (1990). The Impact of family resources, control coping, and skill utilization on the development of burnout: A longitudinal study. *Human Relations, 43*(11), 1067–1083.
<https://doi.org/10.1177/001872679004301102>
- Lemyre, L., & Lee, J. E. C. (2006). Triangulation of self-report and investigator-rated coping indices as predictors of psychological stress: A longitudinal investigation among public utility workers. *Work, 27*(1), 89–100.
- Lenarcic Biss, D. & Pichette, J. (2018) *Minding the Gap? Ontario postsecondary students' perceptions on the state of their skills*. Toronto: Higher Education Quality Council of Ontario.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown (Ed.), *Career choice and development* (4th ed., pp. 255–311). Jossey-Bass.
- Leong, F. T. L., Bonz, M. H., & Zachar, P. (1997). Coping styles as predictors of college adjustment among freshmen. *Counselling Psychology Quarterly, 10*(2), 211–220.
<https://doi.org/10.1080/09515079708254173>
- Levine, S. L., Milyavskaya, M., & Zuroff, D. C. (2020). Perfectionism in the transition to university: Comparing diathesis-stress and downward spiral models of depressive symptoms. *Clinical Psychological Science, 8*(1), 52–64.
<https://doi.org/10.1177/2167702619865966>
- Luo, Y., Wang, Z., Zhang, H., Chen, A., & Quan, S. (2016). The effect of perfectionism on school burnout among adolescence: The mediator of self-esteem and coping style. *Personality and Individual Differences, 88*, 202–208.

<https://doi.org/10.1016/j.paid.2015.08.056>

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the Mediation, Confounding and Suppression Effect. *Prevention Science, 1*(4), 173–181.

<https://doi.org/10.1023/A:1026595011371>

Madigan, D. J., Rumbold, J. L., Gerber, M., & Nicholls, A. R. (2020). Coping tendencies and changes in athlete burnout over time. *Psychology of Sport and Exercise, 48*, 101666.

<https://doi.org/10.1016/j.psychsport.2020.101666>

Marko, K. W., & Savickas, M. L. (1998). Effectiveness of a career time perspective intervention. *Journal of Vocational Behavior, 52*(1), 106–119. <https://doi.org/10.1006/jvbe.1996.1566>

Marsh, H. W. (1987). The hierarchical structure of self-concept and the application of hierarchical confirmatory factor analysis. *The Journal of Educational Measurement, 24*(1), 17–39. <https://doi.org/10.1111/j.1745-3984.1987.tb00259.x>

Marsh, H. W., & Hau, K.-T. (1996). Assessing goodness of fit. *Journal of Experimental Education, 64*(4), 364–390. <https://doi.org/10.1080/00220973.1996.10806604>

Marsh, H. W., & Yeung, A. S. (1998). Longitudinal structural equation models of academic self-concept and achievement: gender differences in the development of math and English constructs. *American Educational Research Journal, 35*(4), 705–738. <https://doi.org/10.3102/00028312035004705>

Martinet, G., & Nicolas, M. (2016). A latent profile transition analysis of coping within competitive situations. *Sport, Exercise, and Performance Psychology, 5*(3), 218–231. <https://doi.org/10.1037/spy0000062>

Miller, R. B., & Brickman, S. J. (2004). A model of future-oriented motivation and self-regulation. *Educational Psychology Review, 16*(1), 9–33.

<https://doi.org/10.1023/B:EDPR.0000012343.96370.39>

Milliken, F. J. (1987). Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *The Academy of Management Review*, *12*(1), 133–143.

<https://doi.org/10.2307/257999>

Monat, A., Averill, J. R., & Lazarus, R. S. (1972). Anticipatory stress and coping reactions under various conditions of uncertainty. *Journal of Personality and Social Psychology*, *24*(2), 237–253. <https://doi.org/10.1037/h0033297>

Montero-Marin, J., Prado-Abril, J., Piva Demarzo, M. M., Gascon, S., & García-Campayo, J. (2014). Coping with stress and types of burnout: Explanatory power of different coping strategies. *PLoS ONE*, *9*(2). <https://doi.org/10.1371/journal.pone.0089090>

Moore, E., Holding, A. C., Hope, N. H., Harvey, B., Powers, T. A., Zuroff, D., & Koestner, R. (2018). Perfectionism and the pursuit of personal goals: A self-determination theory analysis. *Motivation and Emotion*, *42*(1), 37–49. <https://doi.org/10.1007/s11031-017-9654-2>

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, *126*(2), 247–259.

Muthén, B., & Asparouhov, T. (2012). Bayesian structural equation modeling: A more flexible representation of substantive theory. *Psychological Methods*, *17*(3), 313–335. <https://doi.org/10.1037/a0026802>

Neal, A., Ballard, T., & Vancouver, J. B. (2017). Dynamic self-regulation and multiple-goal pursuit. *Annual Review of Organizational Psychology and Organizational Behavior*, *4*(1), 401–423. <https://doi.org/10.1146/annurev-orgpsych-032516-113156>

Nicholls, A. R., Levy, A. R., Carson, F., Thompson, M. A., & Perry, J. L. (2016). The

- applicability of self-regulation theories in sport: Goal adjustment capacities, stress appraisals, coping, and well-being among athletes. *Psychology of Sport and Exercise*, 27, 47–55. <https://doi.org/10.1016/j.psychsport.2016.07.011>
- Nonglait, F. L., & Myrthong, E. B. (2021). Rural students transition into higher education in Meghalaya: Challenges and coping strategies. *The Qualitative Report*, 26(5), 1663–1677. <http://dx.doi.org/10.46743/2160-3715/2021.4759>
- Nurmi, J.-E., Salmela-Aro, K., & Koivisto, P. (2002). Goal importance and related achievement beliefs and emotions during the transition from vocational school to work: Antecedents and consequences. *Journal of Vocational Behavior*, 60(2), 241–261. <https://doi.org/10.1006/jvbe.2001.1866>
- Overton-Healy, J. (2010). *First-generation college seniors: A phenomenological exploration of the transitional experience of the final college year*. ProQuest LLC.
- Park, C. L., & Fenster, J. R. (2004). Stress-related growth: Predictors of occurrence and correlates with psychological adjustment. *Journal of Social and Clinical Psychology*, 23(2), 195–215. <https://doi.org/10.1521/jscp.23.2.195.31019>
- Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology*, 1(2), 115–144. <https://doi.org/10.1037/1089-2680.1.2.115>
- Parker, J. D. A., & Endler, N. S. (1992). Coping with coping assessment: A critical review. *European Journal of Personality*, 6(5), 321–344. <https://doi.org/10.1002/per.2410060502>
- Parker, J. D., Endler, N. S., & Bagby, R. M. (1993). If it changes, it might be unstable: Examining the factor structure of the Ways of Coping Questionnaire. *Psychological Assessment*, 5(3), 361–368. <https://doi.org/10.1037/1040-3590.5.3.361>
- Peacock, E. J., & Wong, P. T. P. (1996). Anticipatory stress: The relation of locus of control,

- optimism, and control appraisals to coping. *Journal of Research in Personality*, 30(2), 204–222. <https://doi.org/10.1006/jrpe.1996.0014>
- Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology*, 70, 153-163. <https://doi.org/10.1016/j.jesp.2017.01.006>
- Péer, E., Rothschild, D.M., Evernden, Z., Gordon, A., & Damer, E. (2021). Data Quality of Platforms and Panels for Online Behavioral Research. *Decision-Making & Management Science eJournal*. <https://doi.org/10.2139/ssrn.3765448>
- Petz, J., & Wilson, A. E. (2008). The temporally extended self: The relation of past and future selves to current identity, motivation, and goal pursuit. *Social and Personality Psychology Compass*, 2(6), 2090–2106. <https://doi.org/10.1111/j.1751-9004.2008.00150.x>
- Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Positive emotions in education. In E. Frydenberg (Ed.), *Beyond coping: Meeting goals, visions, and challenges* (pp. 149–173). Oxford University Press. <https://doi.org/10.1093/med:psych/9780198508144.003.0008>
- Perera, H. N., & DiGiacomo, M. (2015). The role of trait emotional intelligence in academic performance during the university transition: An integrative model of mediation via social support, coping, and adjustment. *Personality and Individual Differences*, 83, 208–213. <https://doi.org/10.1016/j.paid.2015.04.001>
- Perrone, L., & Vickers, M. H. (2003). Life after graduation as a “very uncomfortable world”: An Australian case study. *Education + Training*, 45(2), 69–78. <https://doi.org/10.1108/00400910310464044>
- Peters, A., McEwen, B. S., & Friston, K. (2017). Uncertainty and stress: Why it causes diseases

- and how it is mastered by the brain. *Progress in Neurobiology*, *156*, 164–188.
<https://doi.org/10.1016/j.pneurobio.2017.05.004>
- Peterson, C., Schwartz, S. M., & Seligman, M. E. (1981). Self-blame and depressive symptoms. *Journal of Personality and Social Psychology*, *41*(2), 253–259.
<https://doi.org/10.1037/0022-3514.41.2.253>
- Piaget, J. C. (1952). *The origins of intelligence in children*. International Universities Press.
- Podsakoff, P. M., MacKenzie, S. B., Jeong-Yeon Lee, & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Poulin, M. J., & Heckhausen, J. (2007). Stressful events compromise control strivings during a major life transition. *Motivation and Emotion*, *31*(4), 300–311.
<https://doi.org/10.1007/s11031-007-9077-6>
- Power, M., & Dalgleish, T. (1999). Two routes to emotion: some implications of multi-level theories of emotion for therapeutic practice. *Behavioural and Cognitive Psychotherapy*, *27*(2), 129-141. doi:10.1017/S1352465899272049
- Powers, T. A., Koestner, R., & Topciu, R. A. (2005). Implementation intentions, perfectionism, and goal progress: Perhaps the road to hell is paved with good intentions. *Personality & Social Psychology Bulletin*, *31*(7), 902–912. <https://doi.org/10.1177/0146167204272311>
- Ptacek, J. T., Smith, R. E., & Dodge, K. L. (1994). Gender differences in coping with stress: When stressor and appraisals do not differ. *Personality and Social Psychology Bulletin*, *20*(4), 421–430. <https://doi.org/10.1177/0146167294204009>
- Rabenu, E., Yaniv, E., & Elizur, D. (2016). The relationship between psychological capital,

- coping with stress, well-Being, and performance. *Current Psychology* 36(4), 875-887.
<https://doi.org/10.1007/s12144-016-9477-4>
- Rad, M. S., Martingano, A. J., & Ginges, J. (2018). Toward a psychology of Homo Sapiens: Making psychological science more representative of the human population. *Proceedings of the National Academy of Sciences*, 115(45), 11401–11405.
<https://doi.org/10.1073/pnas.1721165115>
- Rafferty, A. E., & Griffin, M. A. (2006). Perceptions of organizational change: A stress and coping perspective. *Journal of Applied Psychology*, 91(5), 1154–1162.
<http://dx.doi.org.proxy.bib.uottawa.ca/10.1037/0021-9010.91.5.1154>
- Raybould, J., & Sheedy, V. (2005). Are graduates equipped with the right skills in the employability stakes? *Industrial and Commercial Training*, 37(5), 259-263.
- Rettie, H., & Daniels, J. (2021). Coping and tolerance of uncertainty: Predictors and mediators of mental health during the COVID-19 pandemic. *American Psychologist*, 76(3), 427–437.
<http://dx.doi.org/10.1037/amp0000710>
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353–387. <https://doi.org/10.1037/a0026838>
- Riediger, M., & Freund, A. M. (2004). Interference and facilitation among personal goals: Differential associations with subjective well-being and persistent goal pursuit. *Personality and Social Psychology Bulletin*, 30(12), 1511–1523.
<https://doi.org/10.1177/0146167204271184>
- Robins, R. W., & Beer, J. S. (2001). Positive illusions about the self: Short-term benefits and long-term costs. *Journal of Personality and Social Psychology*, 80(2), 340–352.

<https://doi.org/10.1037/0022-3514.80.2.340>

Roth, P. L., BeVier, C. A., Switzer III, F. S., & Schippmann, J. S. (1996). Meta-analyzing the relationship between grades and job performance. *Journal of Applied Psychology, 81*(5), 548–556. <https://doi.org/10.1037/0021-9010.81.5.548>

Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist, 41*(7), 813–819. <https://doi.org/10.1037/0003-066X.41.7.813>

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1–28. <https://doi.org/10.1037/h0092976>

Rovira, T., Fernandez-Castro, J., & Edo, S. (2005). Antecedents and consequences of coping in the anticipatory stage of an exam: A longitudinal study emphasizing the role of affect. *Anxiety, Stress, & Coping, 18*(3), 209–225. <https://doi.org/10.1080/10615800500134654>

Saklofske, D. H., Austin, E. J., Mastoras, S. M., Beaton, L., & Osborne, S. E. (2012). Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learning and Individual Differences, 22*(2), 251–257. <https://doi.org/10.1016/j.lindif.2011.02.010>

Salmela-Aro, K., & Vuori, J. (2015). School engagement and burnout among students: Preparing for work life. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable working lives* (pp. 51–64). Springer Netherlands. https://doi.org/10.1007/978-94-017-9798-6_4

Samson, G. E., Graue, M. E., Weinstein, T., & Walberg, H. J. (1984). Academic and occupational performance: A quantitative synthesis. *American Educational Research Journal, 21*(2), 311–321. <https://doi.org/10.2307/1162446>

Schellenberg, B. J. I., & Bailis, D. S. (2016). The two roads of passionate goal pursuit: Links

- with appraisal, coping, and academic achievement. *Anxiety, Stress, & Coping*, 29(3), 287–304. <https://doi.org/10.1080/10615806.2015.1036047>
- Schellenberg, B. J. I., Gaudreau, P., & Crocker, P. R. E. (2013). Passion and coping: Relationships with changes in burnout and goal attainment in collegiate volleyball players. *Journal of Sport & Exercise Psychology*, 35(3), 270–280. <https://doi.org/10.1123/jsep.35.3.270>
- Schlossberg, N. K. (1984). *Counseling adults in transition: Linking practice with theory*. Springer Publishing Company.
- Schlossberg, N. K. (2011). The challenge of change: The transition model and its applications. *Journal of Employment Counseling*, 48(4), 159–162. <https://doi.org/10.1002/j.2161-1920.2011.tb01102.x>
- Schmidt, F. L., Oh, I. S., & Shaffer, J. A. (2016). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 100 years. *Fox School of Business Research Paper*, 1-74. <https://doi.org/10.13140/RG.2.2.18843.26400>
- Schmitt, T. A., Sass, D. A., Chappelle, W., & Thompson, W. (2018). Selecting the “best” factor structure and moving measurement validation forward: An illustration. *Journal of Personality Assessment*, 100(4), 345–362. <https://doi.org/10.1080/00223891.2018.1449116>
- Schulz, R., & Heckhausen, J. (1996). A life span model of successful aging. *The American Psychologist*, 51(7), 702–714.
- Segerstrom, S. C., & Solberg Nes, L. (2006). When goals conflict but people prosper: The case of dispositional optimism. *Journal of Research in Personality*, 40(5), 675–693. <https://doi.org/10.1016/j.jrp.2005.08.001>

- Selig, J. P., & Little, T. D. (2012). Autoregressive and cross-lagged panel analysis for longitudinal data. In *Handbook of developmental research methods* (pp. 265–278). Guilford Press.
- Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature*, 138, 32.
<https://doi.org/10.1038/138032a0>
- Shah, J. Y., & Kruglanski, A. W. (2008). Structural dynamics: The challenge of change in goal systems. In *Handbook of motivation science* (pp. 217–229). The Guilford Press.
- Sheldon, & Elliot. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482.
<https://doi.org/10.1037/0022-3514.76.3.482>
- Shimazu, A., & Schaufeli, W. (2007). Does distraction facilitate problem-focused coping with job stress? A 1 year longitudinal study. *Journal of Behavioral Medicine*, 30(5), 423–434.
<https://doi.org/10.1007/s10865-007-9109-4>
- Shimazu, A., Schaufeli, W., & Taris, T. (2010). How does workaholism affect worker health and performance? The mediating role of coping. *International Journal of Behavioral Medicine*, 17(2), 154–160. <https://doi.org/10.1007/s12529-010-9077-x>
- Siemer, M., Mauss, I., & Gross, J. J. (2007). Same situation--different emotions: How appraisals shape our emotions. *Emotion*, 7(3), 592–600. <https://doi.org/10.1037/1528-3542.7.3.592>
- Sitzmann, T., & Yeo, G. (2013). A meta-analytic investigation of the within-person self-efficacy domain: Is self-efficacy a product of past performance or a driver of future performance? *Personnel Psychology*, 66(3), 531-568. <https://doi.org/10.1111/peps.12035>
- Skinner E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, 71(3), 549–570. <https://doi.org/10.1037//0022-3514.71.3.549>

Skinner, E. A. (1995). *Perceived Control, Motivation, & Coping*. SAGE.

<https://doi.org/10.4135/9781483327198>

Skinner, E. A., & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 21–44). Springer US.

https://doi.org/10.1007/978-1-4614-2018-7_2

Skinner, E. A., & Zimmer-Gembeck, M. J. (2010). Perceived control and the development of coping. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (pp.).

<https://doi.org/10.1093/oxfordhb/9780195375343.013.0003>

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping.

Psychological Bulletin, 129(2), 216–269. <https://doi.org/10.1037/0033-2909.129.2.216>

Soucy Chartier, I., Gaudreau, P., & Fecteau, M.-C. (2011). From dispositional affect to academic goal attainment: The mediating role of coping. *Anxiety, Stress & Coping*, 24(1), 43–58.

<https://doi.org/10.1080/10615801003725360>

Spielberger, C. D. (2013). *Anxiety: Current trends in theory and research*. Elsevier.

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and “how to” guide of its application within vocational behavior research. *Journal of Vocational Behavior*, 103445. <https://doi.org/10.1016/j.jvb.2020.103445>

Stajkovic, A., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124(2), 240–261. <https://doi.org/10.1037/0033-2909.124.2.240>

Star, C., & Hammer, S. (2008). Teaching generic skills: Eroding the higher purpose of

- universities, or an opportunity for renewal? *Oxford Review of Education*, 34(2), 237–251.
<https://doi.org/10.1080/03054980701672232>
- Statistics Canada (2021). Proportion of male and female postsecondary graduates, by field of study and International Standard Classification of Education. Table 37-10-0135-02.
<https://doi.org/10.25318/3710013501-eng>
- Sticca, F., Goetz, T., Bieg, M., Hall, N. C., Eberle, F., & Haag, L. (2017). Examining the accuracy of students' self-reported academic grades from a correlational and a discrepancy perspective: Evidence from a longitudinal study. *PLOS ONE*, 12(11), e0187367. <https://doi.org/10.1371/journal.pone.0187367>
- Stock, J., & Cervone, D. (1990). Proximal goal-setting and self-regulatory processes. *Cognitive Therapy and Research*, 14(5), 483–498.
- Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in Higher Education*, 41(5), 581–592.
- Sugarman, L. (2010). Handbook of stressful transitions across the lifespan. *British Journal of Guidance & Counselling*, 38(4), 498–501.
<https://doi.org/10.1080/03069885.2010.507939>
- Sweet, L., Savoie, J. A., & Lemyre, L. (1999). Appraisals, coping, and stress in breast cancer screening: A longitudinal investigation of causal structure. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, 31(4), 240–253. <https://doi.org/10.1037/h0087093>
- Tabachnick, S. E., Miller, R. B., & Relyea, G. E. (2008). The relationships among students' future-oriented goals and subgoals, perceived task instrumentality, and task-oriented self-

- regulation strategies in an academic environment. *Journal of Educational Psychology*, *100*(3), 629–642. <https://doi.org/10.1037/0022-0663.100.3.629>
- Terry, D. D. J., Callan, V. J., & Sartori, G. (1996). Employee adjustment to an organizational merger: Stress, coping and intergroup differences. *Stress Medicine*, *12*(2), 105–122. [https://doi.org/10.1002/\(SICI\)1099-1700\(199604\)12:2<105::AID-SMI695>3.0.CO;2-Q](https://doi.org/10.1002/(SICI)1099-1700(199604)12:2<105::AID-SMI695>3.0.CO;2-Q)
- Thomas, C. L., Cassady, J. C., & Heller, M. L. (2017). The influence of emotional intelligence, cognitive test anxiety, and coping strategies on undergraduate academic performance. *Learning and Individual Differences*, *55*, 40–48. <https://doi.org/10.1016/j.lindif.2017.03.001>
- Thompson, A. (2015). Coping with stress in undergraduate university students: Development and validation of the Coping Inventory for Academic Striving (CIAS) to examine key educational outcomes in correlational and experimental studies [University of Ottawa]. <https://doi.org/10.20381/ruor-4763>
- Thompson, A., & Gaudreau, P. (2008). From optimism and pessimism to coping: The mediating role of academic motivation. *International Journal of Stress Management*, *15*(3), 269.
- Tobin, D., Holroyd, K., Reynolds, R., & Wigal, J. (1989). The hierarchical structure of the Coping Strategies Inventory. *Cognitive Therapy and Research*, *13*(4), 343–361. <https://doi.org/10.1007/BF01173478>
- Tomaka, J., Blascovich, J., Kelsey, R. M., & Leitten, C. L. (1993). Subjective, physiological, and behavioral effects of threat and challenge appraisal. *Journal of Personality and Social Psychology*, *65*(2), 248–260.
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed., *Advances in experimental social psychology* (Vol. 29), (pp. 271–360).

- Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60019-2](https://doi.org/10.1016/S0065-2601(08)60019-2)
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*(1), 4–70.
- Vasalampi, K., Salmela-Aro, K., & Nurmi, J.-E. (2009). Adolescents' self-concordance, school engagement, and burnout predict their educational trajectories. *European Psychologist, 14*(4), 332–341. <https://doi.org/10.1027/1016-9040.14.4.332>
- Vierhaus, M., Lohaus, A., & Ball, J. (2007). Developmental changes in coping: Situational and methodological influences. *Anxiety, Stress & Coping, 20*(3), 267–282. <https://doi.org/10.1080/10615800701330242>
- Vizoso, C., Arias-Gundín, O., & Rodríguez, C. (2019). Exploring coping and optimism as predictors of academic burnout and performance among university students. *Educational Psychology, 39*(6), 768–783. <https://doi.org/10.1080/01443410.2018.1545996>
- Vizoso, C., Rodríguez, C., & Arias-Gundín, O. (2018). Coping, academic engagement and performance in university students. *Higher Education Research & Development, 37*(7), 1515–1529. <https://doi.org/10.1080/07294360.2018.1504006>
- Vuori, J., & Toppinen-Tanner, S. (2015). Enhancing career management preparedness and mental health. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable working lives: Managing work transitions and health throughout the life course* (pp. 231–247). Springer Netherlands. https://doi.org/10.1007/978-94-017-9798-6_13
- Wadsworth, B. J. (1996). *Piaget's theory of cognitive and affective development: Foundations of constructivism* (5th ed.). Longman Publishers USA.
- Walker, L. S., Smith, C. A., Garber, J., & Van Slyke, D. A. (1997). Development and validation

- of the pain response inventory for children. *Psychological Assessment*, 9(4), 392–405.
<https://doi.org/10.1037/1040-3590.9.4.392>
- Watson, R., Deary, I., Thompson, D., & Li, G. (2008). A study of stress and burnout in nursing students in Hong Kong: A questionnaire survey. *International Journal of Nursing Studies*, 45(10), 1534–1542. <https://doi.org/10.1016/j.ijnurstu.2007.11.003>
- Weissenstein, A., Ligges, S., Brouwer, B., Marschall, B., & Friederichs, H. (2014). Measuring the ambiguity tolerance of medical students: A cross-sectional study from the first to sixth academic years. *BMC Family Practice*, 15(1), 6. <https://doi.org/10.1186/1471-2296-15-6>
- Wendlandt, N. M., & Rochlen, A. B. (2008). Addressing the college-to-work transition: Implications for university career counselors. *Journal of Career Development*, 35(2), 151–165. <https://doi.org/10.1177/0894845308325646>
- West, S. G., Cham, H., & Liu, Y. (2014). Causal inference and generalization in field settings: Experimental and quasi-experimental designs. In C. M. Judd & H. T. Reis (Eds.), *Handbook of Research Methods in Social and Personality Psychology* (2nd ed., pp. 49–80). Cambridge University Press. <https://doi.org/10.1017/CBO9780511996481.007>
- West, S. G., Taylor, A. B., & Wu, W. (2012). Model fit and model selection in structural equation modeling. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 209–231). The Guilford Press.
- Whatley, S. L., Foreman, A. C., & Richards, S. (1998). The relationship of coping style to dysphoria, anxiety, and anger. *Psychological Reports*, 83(3), 783–791.
<https://doi.org/10.2466/pr0.1998.83.3.783>
- White H. A. (2022). Need for cognitive closure predicts stress and anxiety of college students

- during COVID-19 pandemic. *Personality and individual differences*, 187, 111393.
<https://doi.org/10.1016/j.paid.2021.111393>
- Wiese, B. S. (2007). Successful pursuit of personal goals and subjective well-being. In B. R. Little et al (Eds.), *Personal project pursuit: Goals, action, and human flourishing* (pp. 301–328). Lawrence Erlbaum Associates Publishers.
- Wiese, B. S., & Salmela-Aro, K. (2008). Goal conflict and facilitation as predictors of work–family satisfaction and engagement. *Journal of Vocational Behavior*, 73(3), 490–497.
<https://doi.org/10.1016/j.jvb.2008.09.007>
- Wood, L., & Kaczynski, D. (2007). University students in USA and Australia: Anticipation and reflection on the transition to work. *International Journal of Employment Studies*, 15(2), 91-106. Academic OneFile.
- Yazedjian, A., Kielaszek, B. J., & Toews, M. L. (2010). Students’ perceptions regarding their impending transition out of college. *Journal of the First-Year Experience & Students in Transition*, 22(2), 33–48.
- Yeo, G. B., & Neal, A. (2006). An examination of the dynamic relationship between self-efficacy and performance across levels of analysis and levels of specificity. *The Journal of Applied Psychology*, 91(5), 1088–1101. <https://doi.org/10.1037/0021-9010.91.5.1088>
- Zeidner, M. (1995). Coping with examination stress: Resources, strategies, outcomes. *Anxiety, Stress, & Coping*, 8(4), 279–298. <https://doi.org/10.1080/10615809508249379>
- Zhao, X., & Ding, S. (2020). Phenomenology of burnout syndrome and connection thereof with coping strategies and defense mechanisms among university professors. *European Journal of Investigation in Health, Psychology and Education*, 10(1), 82–93.
<https://doi.org/10.3390/ejihpe10010008>

APPENDICES A-E

APPENDIX A

Questionnaires: Background Information

1) Please indicate your gender

Male	Female	You don't have an option that applies to me
------	--------	---------------------------------------------

I identify as (please specify) _____

2) What is your age? _____

3) How do you describe yourself in terms of your cultural background?

- Aboriginal/native
- White
- Black
- Hispanic/latino
- Asian
- Arabic
- Other
- I don't want to answer this question
- If other, please describe _____

Study 1, 3

4) In what faculty are you mainly enrolled?

5) In what academic program are you mainly enrolled?

6) are you enrolled in a co-op program?

7) Do you work during the semester?

8) If yes, how many hours per week do you work on average?

9) How many course(s) do you have THIS semester?

Study 1, 3

10) Which status describes you the best?

- Before university, I was studying in high school in Quebec
- Before university, I was studying in high school in Ontario
- Before university, I was studying in high school elsewhere in Canada
- Before university, I was studying in a Cegep
- Before university, I was studying in a community college
- Before university, I was studying outside of Canada
- Before university, I have worked on a paid job for more than six months

11) Where do you currently live?

- Parents
- Apartment
- Residence

12) Do you receive a scholarship to cover your tuition fees?

- Full scholarship
- Partial scholarship
- No scholarship

13) How much financial support do you receive from your parents for school?

- Full support
- Partial support
- No support

14) What was your entry GPA? Please answer honestly.

- F (0-39)
- E (40-49)
- D (50-54)
- D+ (55-59)
- C (60-64)
- C+ (65-69)
- B (70-74)
- B+ (75-79)
- A- (80-84)
- A (85-89)
- A+ (90-100)

Study 1, 3

- 15) What is your current academic standing (overall cumulative GPA since the start of the school year)?
- F (0-39)
 - E (40-49)
 - D (50-54)
 - D+ (55-59)
 - C (60-64)
 - C+ (65-69)
 - B (70-74)
 - B+ (75-79)
 - A- (80-84)
 - A (85-89)
 - A+ (90-100)
 - Too early to say.
- 16) Upon graduation, do you plan on pursuing your education in medical school, law school, or teacher's college?
- I don't think so
 - Yes, medical school
 - Yes, law school
 - Yes, teacher's college
- 17) Do you plan on pursuing graduate studies right after your undergraduate studies?
- Maybe eventually (e.g., after having some work experience)
 - No
 - Yes, master's degree
 - Yes, master's and PhD
 - Yes, PhD

Study 2

18) Where do you currently live?

- Parents
- Alone
- With roommates/friends
- With wife/husband/partner
- Other

19) What is your marital status?

- Single (never married)
- Married, or in a domestic partnership
- Widowed
- Divorced
- Separated

20) In the past year, which of the following events have applied to you?

- Separation from a partner or spouse
- Serious illness (psychological, physiological, or physical)
- Death of close family member or friend
- Marriage
- Birth of a child
- Geographical relocation (e.g., change of cities)

Applied to me

Did not apply to me

21) What is the highest degree or level of education you have completed?

- Some college/university, no degree
- Associate degree (e.g. AA, AS)
- Bachelor's degree (e.g. BA, BS)
- Master's degree (e.g. MA, MS, Med, MBA)
- Professional degree (e.g. MD, DDS, DVM)
- Doctorate (e.g. PhD, EdD)
- Other, please specify: _____

Study 2

22) What was your cumulative grade point average (GPA) upon graduation? Please be as honest as possible.

- A+
- A
- A-
- B+
- B
- B-
- C+
- C
- C-
- D+
- D
- D-
- F

23) Since graduating from university...How many months elapsed between:

a) The date of your graduation and your first day of work (at your current job or position).

b) The date of your graduation and today.

24) While searching for employment, how many job applications did you submit to potential employers?

25) While searching for employment, how many interviews did you do before getting hired? (if applicable, include the interview for your current job).

26) Are you self-employed?

- No
- Yes, as an independent Business Owner
- Yes, as an independent Contractor
- Yes, as a freelancer
- Yes, as other.

Please specify: _____

Study 2

27) Aside from overtime, how many hours per week, on average, do you work?

28) How many hours a week are you expected to work (as per your employment contract)?

29) So far, how many hours of overtime do you do per week, on average?

30) What is your personal annual income since you have started your new employment?

- Less than \$20,000.
- \$20,000 to \$34,999.
- \$35,000 to \$49,999.
- \$50,000 to \$74,999.
- \$75,000 to \$99,999.
- Over \$100,000.

31) Which of the following occupational classifications corresponds to your new employment?

- Management Occupations
- Business, Finance and Administrative Occupations
- Natural and Applied Sciences and Related Occupations
- Health Occupations
- Occupations in Social Science, Education, Government Service and Religion
- Occupations in Art, Culture, Recreation and Sport
- Sales and Service Occupations
- Trades, Transport and Equipment Operators and Related Occupations
- Occupations Unique to Primary Industry
- Occupations Unique to Processing, Manufacturing and Utilities
- Other

32) Are you still working for the employment you reported in our previous survey? [Time 2]

- Yes
- No, I quit
- No, I was fired

APPENDIX B**Questionnaires from Study 1***Academic Domain: Students**ACADEMIC GOAL SETTING*

In the next section of the survey, you will be asked questions about your academic experience. These questions may be difficult to answer considering that you may have just started university. Please be assured that there are no right or wrong answers. Try to respond as precisely and honestly as possible.

Your Academic Goal

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

Even if you are just starting university, you may already have academic goals that you wish to attain.

Please take the time to think of an important and specific academic goal that you are pursuing or wish to pursue.

The following questions are concerned with the academic goal you described above.

*CONTROLLABILITY APPRAISAL FOR ACADEMIC GOAL**Time 1*

The following questions are concerned with your thoughts about the academic goal you described above. Please response according to how you view of your academic goal. Please answer the questions below while thinking of your academic goal.

1	2	3	4	5
Not At All	Slightly	Moderately	Considerably	Extremely

1. Is this a totally hopeless goal?
2. Does this goal create tension in me?
3. Is the outcome of this goal uncontrollable by anyone?
4. Is there someone or some agency I can turn to for help if I need it?
5. Does this goal have important consequences for me?
6. How much will I be affected by the outcome of this goal?
7. Do I have the ability to do well in this goal?
8. Does this goal have serious implications for me?
9. Do I have what it takes to do well in this goal?
10. Is there help available to me for dealing with this goal?
11. Does this goal tax or exceed my coping resources?
12. Are there sufficient resources available to help me in dealing with this goal?
13. Is it beyond anyone's power to do anything about this goal?
14. Is the goal unattainable by anyone?
15. Will I be able to achieve the goal?
16. Is there anyone who can help me to manage this goal?
17. To what extent do I perceive this goal as stressful?
18. Do I have the skills necessary to achieve a successful outcome?
19. To what extent does this goal require coping efforts on my part?
20. Does this goal have long-term consequences for me?

*COPING WITH ACADEMIC GOAL**Time 1-2*

Each of the following items represents what students may do to deal with the stress associated with the pursuit of their academic goal. Please rate the extent to which each item corresponds to what you think about or do while pursuing your academic-related goal in the past two weeks.

1	2	3	4	5
Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds strongly	Corresponds totally

1. I visualize myself doing my best academic performance.
2. I express my displeasure regarding school.
3. I create a plan of action for my schoolwork.
4. I refrain from social interactions with other students.
5. I put effort in my work.
6. I divert my attention from the academic situation.
7. I eliminate my doubts about my schoolwork by thinking positively.
8. I ask for help to determine how to best accomplish my schoolwork.
9. I try to manage my nervousness by relaxing.
10. I seek to understand the situation in order to manage my academic work.
11. I quit believing in my ability to manage my schoolwork.
12. I try to picture myself successfully completing my schoolwork.
13. I express my annoyance with my schoolwork.
14. I try to manage my time.
15. I keep everyone at a distance.
16. I give a quality effort.
17. I occupy myself, so I do not have to think about my schoolwork.
18. I try to interpret the situation in a positive manner.
19. I try to seek out advice of knowledgeable people.
20. I use some techniques in an attempt to relax.
21. I attempt to identify the demands of my schoolwork.
22. I leave myself feel hopeless and discouraged.

*PROGRESS WITH ACADEMIC GOAL**Time 1*

Using the rating scale below, please indicate the extent to which you made progress on your academic goal as of today. Please rate the extent to which...

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

- 1...you progressed on your goal
- 2...you moved forward in the pursuit of your goal
- 3...you came closer to reaching your goal
- 4...you made progress toward the realization of your goal
- 5...you advanced toward your goal

*BURNOUT IN UNIVERSITY**Time 1-2*

Please indicate the extent to which each item represents your feelings about the university.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I feel overwhelmed by my schoolwork.
2. I feel a lack of motivation in my schoolwork and often think of giving up.
3. I often have feelings of inadequacy in my schoolwork.
4. I often sleep badly because of matters related to my schoolwork.
5. I feel that I am losing interest in my schoolwork.
6. I'm continually wondering whether my schoolwork has any meaning.
7. I worry over matters related to my schoolwork a lot during my free time.
8. I used to have higher expectations of my schoolwork than I do now.
9. The pressure of my schoolwork causes me problems in my close relationships with others.

*Career Domain: Students**CAREER GOAL SETTING*

In the next section of the survey, you will be asked questions about your future career. These questions may be more difficult to answer considering that you are still in the process of thinking about what you may want to do after university. Please be assured that there are no right or wrong answers and try to respond as precisely and honestly as possible.

You Career Goal

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

Even if you are just starting university, you may already have career goals that you wish to attain after you graduate from university.

Please take the time to think of an important and specific career goal that you are pursuing or wish to pursue.

The following questions are concerned with the career goal you described above.

*CONTROLLABILITY APPRAISAL FOR CAREER GOAL**Time 1*

The following questions are concerned with your thoughts about the career goal you described above. Please response according to how you view of your career goal. Please answer the questions below while thinking of your career goal:

1	2	3	4	5
Not At All	Slightly	Moderately	Considerably	Extremely

1. Is this a totally hopeless goal?
2. Does this goal create tension in me?
3. Is the outcome of this goal uncontrollable by anyone?
4. Is there someone or some agency I can turn to for help if I need it?
5. Does this goal have important consequences for me?
6. How much will I be affected by the outcome of this goal?
7. Do I have the ability to do well in this goal?
8. Does this goal have serious implications for me?
9. Do I have what it takes to do well in this goal?
10. Is there help available to me for dealing with this goal?
11. Does this goal tax or exceed my coping resources?
12. Are there sufficient resources available to help me in dealing with this goal?
13. Is it beyond anyone's power to do anything about this goal?
14. Is the goal unattainable by anyone?
15. Will I be able to achieve the goal?
16. Is there anyone who can help me to manage this goal?
17. To what extent do I perceive this goal as stressful?
18. Do I have the skills necessary to achieve a successful outcome?
19. To what extent does this goal require coping efforts on my part?
20. Does this goal have long-term consequences for me?

*COPING WITH CAREER GOAL**Time 1-2*

Each of the following items represents what students may do to deal with the stress associated with the pursuit of their career goal. Please rate the extent to which each item corresponds to what you think about or do while pursuing your career-related goal in the past two weeks.

1	2	3	4	5
Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds strongly	Corresponds totally

1. I visualize myself doing my best on my goal.
2. I express my displeasure regarding goal.
3. I create a plan of action for my goal.
4. I refrain from social interactions with other students.
5. I put effort in my goal.
6. I divert my attention from my goal.
7. I eliminate my doubts about my goal by thinking positively.
8. I ask for help to determine how to best accomplish my goal.
9. I try to manage my nervousness by relaxing.
10. I seek to understand the situation in order to manage my goal.
11. I quit believing in my ability to manage my goal.
12. I try to picture myself successfully completing my goal.
13. I express my annoyance with my goal.
14. I try to manage my time.
15. I keep everyone at a distance.
16. I give a quality effort.
17. I occupy myself, so I do not have to think about my goal.
18. I try to interpret the situation in a positive manner.
19. I try to seek out advice of knowledgeable people.
20. I use some techniques in an attempt to relax.
21. I attempt to identify the demands of goal.
22. I leave myself feel hopeless and discouraged.

*PROGRESS WITH CAREER GOAL**Time 1-2*

Using the rating scale below, please indicate the extent to which you made progress on your career goal as of today. Please rate the extent to which...

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

- 1...you progressed on your goal
- 2...you moved forward in the pursuit of your goal
- 3...you came closer to reaching your goal
- 4...you made progress toward the realization of your goal
- 5...you advanced toward your goal

APPENDIX C**Questionnaires from Study 2***Academic Domain: Graduates**RETROSPECTIVE ACADEMIC GOAL***Your Academic Goal**

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

You probably pursued an academic goal while you were still in school. Take the time to think about an important goal you wished to attain while you were still in school.

Please describe in your own words the specific and personal goal you pursued and wished to attain regarding school.

The following questions are concerned with the academic goal you described above.

*RETROSPECTIVE COPING WITH ACADEMIC GOAL**Time 1*

Each of the following items represents what students may do to deal with the stress associated with the pursuit of their academic goal. Please rate the extent to which each item corresponds to what you thought about or did while pursuing your academic-related goal while in school.

1	2	3	4	5
Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds strongly	Corresponds totally

1. I visualized myself doing my best academic performance.
2. I expressed my displeasure regarding school.
3. I created a plan of action for my schoolwork.
4. I refrained from social interactions with other students.
5. I put effort in my work.
6. I diverted my attention from the academic situation.
7. I eliminated my doubts about my schoolwork by thinking positively.
8. I asked for help to determine how to best accomplish my schoolwork.
9. I tried to manage my nervousness by relaxing.
10. I sought to understand the situation in order to manage my academic work.
11. I quit believing in my ability to manage my schoolwork.
12. I tried to picture myself successfully completing my schoolwork.
13. I expressed my annoyance with my schoolwork.
14. I tried to manage my time.
15. I kept everyone at a distance.
16. I gave a quality effort.
17. I occupied myself, so I did not have to think about my schoolwork.
18. I tried to interpret the situation in a positive manner.
19. I tried to seek out advice of knowledgeable people.
20. I used some techniques in an attempt to relax.
21. I attempted to identify the demands of my schoolwork.
22. I left myself feel hopeless and discouraged.

*RETROSPECTIVE PROGRESS WITH ACADEMIC GOAL**Time 1*

Using the rating scale below, please indicate the extent to which you made progress on your academic goal while in school. Please rate the extent to which...

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

- 1...you progressed on your goal
- 2...you moved forward in the pursuit of your goal
- 3...you came closer to reaching your goal
- 4...you made progress toward the realization of your goal
- 5...you advanced toward your goal

*RETROSPECTIVE BURNOUT IN UNIVERSITY**Time 1*

Please indicate the extent to which each item represents how you felt while in school.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I felt overwhelmed by my schoolwork.
2. I felt a lack of motivation in my schoolwork and often thought of giving up.
3. I often had feelings of inadequacy in my schoolwork.
4. I often slept badly because of matters related to my schoolwork.
5. I felt that I was losing interest in my schoolwork.
6. I was continually wondering whether my schoolwork had any meaning.
7. I worried over matters related to my schoolwork a lot during my free time.
8. I once had higher expectations of my schoolwork than I did then.
9. The pressure of my schoolwork caused me problems in my close relationships with others.

*RETROSPECTIVE SATISFACTION WITH UNIVERSITY**Time 1*

Using the rating scale below, please indicate the extent to which each item represent how you felt about school.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I looked forward to going to school
2. I liked being in school
3. School was interesting
4. I wished I didn't have to go to school
5. There were many things about school I didn't like
6. I enjoyed school activities
7. I learned a lot at school
8. I felt bad at school

Work Domain: Graduates*Time 1-2****WORK GOAL SETTING***

In the next section of the survey, you will be asked questions about your work experience. Please be assured that there are no right or wrong answers. Try to respond as precisely and honestly as possible.

Your Work Goal

Within your work context, you may have specific work goals you wish to attain.

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

Take the time to think about an important goal you are pursuing and wish to attain regarding your employment.

Please take the time to describe in your own words the specific and personal goal you are pursuing and wish to attain at work. Please describe this goal:

The following questions are concerned with your thoughts about the work goal you described above.

*CHALLENGE/THREAT APPRAISAL OF WORK GOAL**Time 1*

Please response according to how you view of the obstacles related to your work goal. Regarding the work goal you described above, please indicate the extent to which you agree with the following statements.

1	2	3	4	5
Not at all	Slightly	Moderately	Considerably	Totally

1. I feel challenged, but I believe my skills will allow me to meet the challenge.
2. My abilities match the high challenge of my work goal.
3. I feel that I am competent to meet the high demands of my work goal.
4. The challenge and my skills are at an equally high level.
1. I feel threatened by the high demands of my work goal.
2. I feel that my self-worth could be compromised.
3. I feel intimidated by the demands of my work goal.
4. I feel that I would lose something by not progressing on my goal.
5. I feel pressure to meet the demands of my work goal.

*COPING WITH WORK GOAL**Time 1-2*

Each of the following items represents what people may do to deal with the stress associated with the pursuit of their work goals. Please rate the extent to which each item corresponds to what thought about or did while pursuing your work-related goal in the past two weeks.

1	2	3	4	5
Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds strongly	Corresponds totally

1. I visualized myself doing my best performance.
2. I expressed my displeasure regarding work.
3. I created a plan of action for my work.
4. I refrained from social interactions with my colleagues.
5. I put effort in my work.
6. I diverted my attention from the work.
7. I eliminated my doubts about my work by thinking positively.
8. I asked for help to determine how to best accomplish my work.
9. I tried to manage my nervousness by relaxing.

10. I sought to understand the situation in order to manage my work.
11. I quit believing in my ability to manage my work.
12. I tried to picture myself successfully completing my work.
13. I expressed my annoyance with my work.
14. I tried to manage my time.
15. I kept everyone at a distance.
16. I gave a quality effort.
17. I occupied myself, so I did not have to think about my work.
18. I tried to interpret the situation in a positive manner.
19. I tried to seek out advice of knowledgeable people.
20. I used some techniques in an attempt to relax.
21. I attempted to identify the demands of my work.
22. I left myself feel hopeless and discouraged.

PROGRESS WITH WORK GOAL

Time 1-2

To answer the following questions, please consider the goal you are pursuing at work. Using the rating scale below, please indicate the extent to which you have made progress on your work goal as of today. Please rate the extent to which...

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

- 1...you progressed on your goal
- 2...you moved forward in the pursuit of your goal
- 3...you came closer to reaching your goal
- 4...you made progress toward the realization of your goal
- 5...you advanced toward your goal

*BURNOUT AT WORK**Time 1-2*

Please indicate the extent to which each item represent how you feel at work.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I feel overwhelmed by my work.
2. I feel a lack of motivation in my work and often think of leaving my job.
3. I often have feelings of inadequacy in my work.
4. I often sleep badly because of matters related to my work.
5. I feel that I am losing interest in my work.
6. I am continually wondering whether my work has any meaning.
7. I worry over matters related to my work a lot during my free time.
8. I used to have higher expectations of my work performance than I do now.
9. The pressure of my job cause me problems in my close relationships with others.

*SATISFACTION WITH WORK**Time 1-2*

Using the rating scale below, please indicate the extent to which each item represent how you feel about your work.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I look forward to going to work
2. I like being at work
3. Work is interesting
4. I wish I didn't have to go to work
5. There are many things about work I don't like
6. I enjoy my work tasks
7. I learn a lot at work
8. I feel bad at work

*WORKLOAD / JOB DEMANDS**Time 1-2*

Please indicate how often each statement applies to your new job.

How often ...

1	2	3	4	5
Rarely	Occasionally	Sometimes	Fairly often	Very often

1. How often does your job require you to work very fast?
2. How often does your job require you to work very hard?
3. How often does your job leave you with little time to get things done?
4. How often is there a great deal to be done?

APPENDIX D

Questionnaires from Study 3

*Academic Domain: Students**COPING WITH ACADEMIC GOAL**Time 1-2*

Each of the following items represents what students may do to deal with the stress associated with the pursuit of their academic goal. Please rate the extent to which each item corresponds to what you think about or do while pursuing your academic-related goal in the past two weeks.

1	2	3	4	5
Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds strongly	Corresponds totally

1. I visualize myself doing my best academic performance.
2. I express my displeasure regarding school.
3. I create a plan of action for my schoolwork.
4. I refrain from social interactions with other students.
5. I put effort in my work.
6. I divert my attention from the academic situation.
7. I eliminate my doubts about my schoolwork by thinking positively.
8. I ask for help to determine how to best accomplish my schoolwork.
9. I try to manage my nervousness by relaxing.
10. I seek to understand the situation in order to manage my academic work.
11. I quit believing in my ability to manage my schoolwork.
12. I try to picture myself successfully completing my schoolwork.
13. I express my annoyance with my schoolwork.
14. I try to manage my time.
15. I keep everyone at a distance.
16. I give a quality effort.
17. I occupy myself, so I do not have to think about my schoolwork.
18. I try to interpret the situation in a positive manner.
19. I try to seek out advice of knowledgeable people.
20. I use some techniques in an attempt to relax.
21. I attempt to identify the demands of my schoolwork.
22. I leave myself feel hopeless and discouraged.

PROGRESS WITH ACADEMIC GOAL

Time 1

Using the rating scale below, please indicate the extent to which you made progress on your academic goal as of today. Please rate the extent to which...

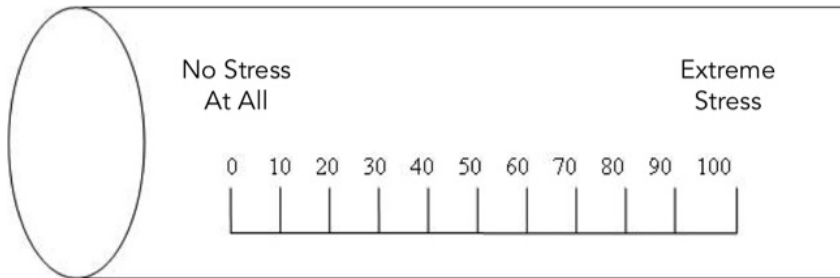
1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

- 1...you progressed on your goal
- 2...you moved forward in the pursuit of your goal
- 3...you came closer to reaching your goal
- 4...you made progress toward the realization of your goal
- 5...you advanced toward your goal

STRESS WITH ACADEMIC GOAL

Time 1-2

Using the rating scale above, please write down the number that corresponds to how stressed you are about your academic goal.



*BURNOUT IN UNIVERSITY**Time 1-2*

Please indicate the extent to which each item represents your feelings about the university.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I feel overwhelmed by my schoolwork.
2. I feel a lack of motivation in my schoolwork and often think of giving up.
3. I often have feelings of inadequacy in my schoolwork.
4. I often sleep badly because of matters related to my schoolwork.
5. I feel that I am losing interest in my schoolwork.
6. I'm continually wondering whether my schoolwork has any meaning.
7. I worry over matters related to my schoolwork a lot during my free time.
8. I used to have higher expectations of my schoolwork than I do now.
9. The pressure of my schoolwork causes me problems in my close relationships with others.

*SATISFACTION WITH UNIVERSITY**Time 1-2*

Using the rating scale below, please indicate the extent to which each item represent how you feel about university.

1	2	3	4	5	6	7
Not at all agree	Very slightly agree	Slightly agree	Moderately agree	Strongly agree	Very strongly agree	Totally agree

1. I look forward to going to school
2. I like being in school
3. School is interesting
4. I wish I didn't have to go to school
5. There are many things about school I don't like
6. I enjoy school activities
7. I learn a lot at school
8. I feel bad at school

*Career Domain: Students**CAREER GOAL SETTING*

In the next section of the survey, you will be asked questions about your future career. These questions may be more difficult to answer considering that you are still in the process of thinking about what you may want to do after university. Please be assured that there are no right or wrong answers and try to respond as precisely and honestly as possible.

You Career Goal

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

Even if you are just starting university, you may already have career goals that you wish to attain after you graduate from university.

Please take the time to think of an important and specific career goal that you are pursuing or wish to pursue.

The following questions are concerned with the career goal you described above.

*CONTROLLABILITY APPRAISAL FOR TRANSITION TO WORK**Time 1-2*

Think about your transition to work, i.e., graduating from university, finding employment, and beginning your career. Please answer the following questions while thinking your transition toward the career goal you described in the previous section.

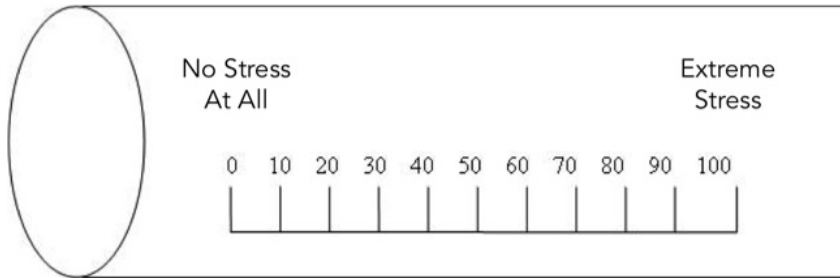
1	2	3	4	5
Not at all	Slightly	Moderately	Considerably	Extremely

1. Is this transition a totally hopeless situation?
2. Does the transition create tension in me?
3. Is the outcome of this transition uncontrollable by anyone?
4. Is there someone or some agency I can turn to for help with this transition if I need it?
5. Does this transition make me feel anxious?
6. Does this transition have important consequences for me?
7. Is this transition going to have a positive impact on me?
8. How eager am I to tackle this transition?
9. How much will I be affected by the outcome of this transition?
10. To what extent can I become a stronger person because of this transition?
11. Will the outcome of this transition be negative?
12. Do I have the ability to do well in my transition to work?
13. Does this transition have serious implications for me?
14. Do I have what it takes to do well during this transition?
15. Is there help available to me for dealing with this transition?
16. Does this transition tax or exceed my coping resources?
17. Are there sufficient resources available to help me in dealing with this transition?
18. Is it beyond anyone's power to do anything about it?
19. To what extent am I excited thinking about the outcome of my transition to work?
20. How threatening is this transition?
21. Is this transition unattainable by anyone?
22. Will I be able to overcome this transition?
23. Is there anyone who can help me to manage this transition?
24. To what extent do I perceive this transition as stressful?
25. Do I have the skills necessary to achieve a successful outcome?
26. To what extent does this transition require coping efforts on my part?
27. Does this transition have long-term consequences for me?
28. Is this transition going to have a negative impact on me?

STRESS WITH CAREER GOAL

Time 1-2

Using the rating scale above, please write down the number that corresponds to how stressed you are about your career goal.



CAREER GOAL-PROGRESS DISCREPANCY

Time 1-2

Thinking about your career goals, please report the extent to which you agree or disagree with the following statements.

1	2	3	4	5	6
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

1. My plans are not working out to get the career I really want.
2. What I have achieved to date doesn't give me confidence that I will reach my career goals.
3. I am making progress on my career goals, but I don't think I have achieved enough to get the career I want.
4. Despite my best efforts, I think I am going to miss out on my ideal career.
5. Even with my best efforts, I think I will have to settle for something less than my ideal career.
6. I am working hard, but still doubt I will end up with the career I would really like.
7. I doubt I can meet the standards of entry to my ideal career.
8. I have set my sights on a particular career, but I don't think that I am going to reach it.
9. I have an image of my dream job, but I think it is out of my reach.
10. I thought I had the ability to get the career I want, but now I am not so sure.
11. I know the career I want, but don't think I have what it takes to reach it.
12. I am not sure I am capable of meeting the requirements for the career I really want.

*TOLERANCE FOR UNCERTAINTY**Time 1-2*

Please indicate the degree to which you agree or disagree with each of the following statements.

1	2	3	4	5	6
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

1. I don't like situations that are uncertain.
2. I feel uncomfortable when I don't understand the reason why an event occurred in my life.
3. When I am confused about an important issue, I feel very upset.
4. In most social conflicts, I can easily see which side is right and which is wrong
5. I like to know what people are thinking all the time.
6. I dislike it when a person's statement could mean many different things
7. It's annoying to listen to someone who cannot seem to make up his or her mind
8. I feel uncomfortable when someone's message or intention is unclear to me
9. I'd rather know bad news than stay in a state of uncertainty

*OPTIMISM**Time 1*

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
-------------------	----------	-------------------	----------------	-------	----------------

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad

*COPING SELF-EFFICACY FOR SCHOOL**Time 1*

Each of the following items represent what students may do to deal with the stress associated with the pursuit of an academic goal. Please rate the extent to which you are confident in your ability to do the *following statements* in situations of academic-related stress.

How confident are you in your ability to ...

1	2	3	4	5
Do not agree at all	Agree a little	Agree moderately	Agree strongly	Agree totally

1. Visualize yourself doing your best academic performance.
2. Create a plan of action for your schoolwork.
3. Put effort in your work.
4. Eliminate your doubts about your schoolwork by thinking positively.
5. Ask for help to determine how to best accomplish your schoolwork.
6. Manage your nervousness by relaxing.
7. Seek to understand the situation in order to manage your academic work.
8. Picture yourself successfully completing your schoolwork.
9. Manage your time.
10. Give a quality effort.
11. Interpret the situation in a positive manner.
12. Seek out advice of knowledgeable people.
13. Use some techniques in an attempt to relax.
14. Identify the demands of your schoolwork.

APPENDIX E

Intervention Material

ALL PARTICIPANTS

DID YOU KNOW?

Coping strategies refer to the specific **mental and behavioural efforts** that people employ to **master, tolerate, reduce, or minimize** stressful situations.

People choose among a wide array of coping strategies to manage daily situations. This selection typically depends on the demands of the stressful situation and the preferences of an individual.

Below are just a few broad examples of the strategies people can use in the school context that are oriented *toward* the stressors and the resulting emotions.

For each broad category below, you may have more specific strategies in mind.

Mental Imagery

Mentally rehearse the execution of the academic tasks associated with the source of stress and visualize a positive end result.

Visualizing myself doing my best academic performance.

Picturing myself successfully completing my schoolwork.

Planning

Planning a set of steps for completing schoolwork.

Creating a plan of action for my schoolwork. Managing my time.

Thought Control

Restructure one's thoughts by emphasizing positive aspects of the academic situation.

Eliminating my doubts about my schoolwork by thinking positively.

Interpreting the situation in a positive manner.

Seeking Support

Obtain advice, feedback, or emotional support concerning the academic situation.

Asking for help to determine how to best accomplish my schoolwork.

Seeking out advice of knowledgeable people.

Relaxation

Reduce one's level of mental and physical tension associated with the academic situation.

Using some techniques in an attempt to relax.

Managing my nervousness by relaxing.

Logical Analysis

Analyze the demands associated with the academic situation.

Identifying the demands of my schoolwork.

Seeking to understand the situation in order to manage my academic work.

Effort Expenditure

Mobilize one's physical and mental resources in order to act directly on the academic situation.

Putting effort in my work.

Giving a quality effort.

*EXPERIMENTAL GROUP***Let's do a few thinking and writing exercises...**

When you entered university, you probably had certain adjustments to make, or encountered some difficulties that you were able to overcome. Similarly, over the years, you may have experienced moments during which you had to manage all your course requirements, group projects, assignments, or exams, in addition to your personal life and work hours.

These situations may have generated some difficulties along the way and may have had an impact on your academic experience. However, you are currently pursuing a university education, which means that you were able to successfully manage or move past most of these difficult or stressful experiences.

Each of your experiences are unique to you and likely more complex than the examples given above. Importantly, each situation is managed differently by every individual, depending on what works best for them.

This is because human beings set goals to help them organize and guide their behaviour and increase the likelihood of attaining personally valued outcomes. Some people may therefore invest more effort in some areas of their life compared to others.

Please read the above text before moving on to the next page.

Let's do a couple of thinking and writing exercises...

The goal pursuit process, however, is rarely a straight line to success. Most of us will inevitably encounter some barriers or setbacks along the way. In the face of such setbacks, we have the capacity to modify or adjust our thoughts and behaviours to find solutions or make the best out of the situation.

These setbacks give us opportunities to learn from our experiences and build up the tools to respond more efficiently to future setbacks.

These goal-related difficulties can therefore serve to help you anticipate potential barriers in the future and teach you which coping strategies are most likely to help you attain your goals.

Whether big or small, successfully moving past these difficulties can generate a sense of accomplishment and relief and can often serve as a motivational source of perseverance in the face of future difficulties.

Please read the above text before moving on to the next page.

Let's begin by focusing on your past experiences

1) Identifying past academic setbacks

We have all encountered some setbacks at one time or another during the pursuit of our academic goals.

In this exercise, we would like you to **identify, mentally review, and describe two (2)** academic setbacks that you encountered in the past and successfully managed.

These can be new or difficult situations for which you were able to actively manage the source of stress, act efficiently in response to your academic demands and achieve desired outcomes.

Describe a first setback:

--

Describe a second setback:

--

2) Moving past those setbacks

Now that you have described two situations for which you managed to transform a setback into a success...

- a) Take the time to **mentally review** the specific thoughts and behaviors that enabled you to move past the difficulties and achieve desired outcomes.
- b) For each, please **describe** the specific thoughts and behaviours that helped you for each of the two situations.
- c) In doing so, please **explain precisely what you did** to succeed, including specifically how, when, where, with whom, as well as any other pertinent detail. Please be as detailed and specific as possible.

Remember, **coping strategies** refer to the specific **mental and behavioral efforts** that people employ to master, tolerate, reduce, or minimize stressful situations.

How did you move past this setback?

#{q://QID44/ChoiceTextEntryValue}

How did you move past this setback?

#{q://QID45/ChoiceTextEntryValue}

Now let's focus on your future goals

1) Your goal for your transition to work

While in university, students can rarely predict what their transition to work will resemble, nor the specific opportunities and challenges that will arise.

Despite this inevitable reality, most students have an idea of how they want their transition to turn out and where they see themselves after graduation.

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

The career goal you described:

#{q://QID211/ChoiceTextEntryValue}

2) Getting to your goals

Now that you have described a career goal that you wish to attain upon graduation, **please take the time to mentally review the specific thoughts and behaviours that will enable you to achieve that desired outcome.**

In this exercise, we would like you to **describe** the specific thoughts and behaviours that will enable you to achieve the two goals.

In doing so, please **explain precisely what you will do to successfully attain it**, including specifically how, when, where, with whom, as well as any other pertinent detail. Please be as detailed and specific as possible.

If you find this exercise difficult, close your eyes and visualize yourself in the process of pursuing and successfully achieving your goal.

How will you reach this goal?

#{q://QID211/ChoiceTextEntryValue}

--

3) The barriers to the attainment of your goal

Although setting goals typically helps us organize and guide our behaviour to increase the likelihood of attaining desired outcomes, the goal pursuit process is rarely a smooth road to success.

During the pursuit of our goals, most of us will inevitably encounter some surprises, challenges, and setbacks.

Although not all setbacks can be predicted with accuracy, it can be beneficial to anticipate and plan for potential goal-related barriers.

In this exercise, we would like you to take the time to **identify, mentally review, and describe two (2) potential scenarios** in which specific barriers could come in the way of reaching your career goal.

Your goal:

`#{q://QID211/ChoiceTextEntryValue}`

Getting there:

`#{q://QID53/ChoiceTextEntryValue}`

Describe a first potential barrier:

Describe a second potential barrier:

4) Moving past those goal-related barriers

In the occurrence of such barriers, we have the capacity to modify or adjust our thoughts and behaviours to find solutions, adapt our goals, and make the best out of the situation.

Now that you have described four potential barriers to the attainment of your career goals, please take the time to **mentally review** the specific thoughts and behaviours that could enable you to manage them.

It can be helpful to think of the strategies that have helped you to successfully manage difficult situations in the past.

For each, please **describe** the specific thoughts and behaviours for each of the four scenarios. In doing so, please **explain precisely what you could do** to successfully move passed those four barriers, including specifically how, when, where, with whom, as well as any other pertinent detail.

Please be as detailed and specific as possible. If you find this exercise difficult, close your eyes and visualise yourself in the process of successfully managing and overcoming those barriers.

Remember, **coping strategies** refer to the specific **mental and behavioural efforts** that people employ to master, tolerate, reduce, or minimize stressful situations.

How will you move past this barrier?

#{q://QID57/ChoiceTextEntryValue}

How will you move past this barrier?

#{q://QID58/ChoiceTextEntryValue}

*CONTROL GROUP***Let's do a few thinking and writing exercises...**

When you entered university, you probably encountered some situations that were new to you.

Over the years, you may have also experienced moments during which you felt like you had to manage all sorts of different things in your life, such as your course requirements, group projects, assignments, and exams, in addition to your personal life and work hours.

These situations may have generated some difficulties along the way and may have had an impact on your academic experience.

Your experiences are unique to you and likely more complex than the examples given above. Importantly, each situation is managed differently by every individual, depending on what works best for them.

This is because human beings set goals to help them increase the likelihood of attaining personally valued outcomes. The goal pursuit process, however, is rarely a straight line to success and most of us will inevitably Encounter some barriers and setbacks along the way.

Please read the above text before moving onto the next page.

Let's begin by focusing on your past experiences

1) Identifying past academic setbacks

We have all encountered some setbacks at one time or another during the pursuit of our academic goals.

In this exercise, we would like you to take the time to **identify, mentally review, and describe two** (2) academic situations that you encountered in the past.

These can be new or difficult situations that you have encountered during the pursuit of your academic goals.

Describe a first setback:

Describe a second setback:

Now let's focus on your future goals

1) Your goal for your transition to work

While in university, students can rarely predict what their transition to work will resemble, nor the specific opportunities and challenges that will arise.

Despite this inevitable reality, most students have an idea of how they want their transition to turn out and where they see themselves after graduation.

A goal is something that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at.

The career goal you described:

`{q://QID211/ChoiceTextEntryValue}`

2) The barriers to the attainment of your goal

Although setting goals typically helps us organize and guide our behaviour to increase the likelihood of attaining desired outcomes, the goal pursuit process is rarely a smooth road to success.

During the pursuit of our goals, most of us will inevitably encounter some surprises, challenges, and setbacks.

Although not all setbacks can be predicted with accuracy, it can be beneficial to anticipate and plan for potential goal-related barriers.

In this exercise, we would like you to take the time to **identify, mentally review, and describe two (2) potential scenarios** in which specific barriers could come in the way of reaching your career goal.

Your goal:

#{q://QID211/ChoiceTextEntryValue}

Describe a first potential barrier:

Describe a second potential barrier:

APPENDIX F

Research Ethics Board

Research Ethics Board

Study 1

17/09/2020

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number	H-08-17-56
Titre du projet / Project Title	The pursuit of academic and career goals: Toward a better understanding of student success
Type de projet / Project Type	Recherche de professeur / Professor's research project
Statut du projet / Project Status	Renouvelé / Renewed
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	20/09/2017
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	19/09/2021

Équipe de recherche / Research Team

Chercheur / Researcher	Affiliation	Role
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Melodie CHAMANDY	École de psychologie / School of Psychology	Co-chercheur / Co-investigator

Conditions spéciales ou commentaires / Special conditions or comments

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Study 2

01/09/2020

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL**Numéro du dossier / Ethics File Number**
Titre du projet / Project TitleH-08-19-4854
On the work entry of new
graduates: Do the benefits of
academic coping transfer to the
career domain once students
have graduated from university?**Type de projet / Project Type**Thèse de doctorat / Doctoral
thesis**Statut du projet / Project Status**

Renouvelé / Renewed

Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)

16/09/2019

Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

15/09/2021

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Study 3

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

13/11/2020

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number

H-09-19-4934

Titre du projet / Project Title

From school to work: A randomized control study on coping with the pursuit of multiple goals

Type de projet / Project Type

Thèse de doctorat / Doctoral thesis

Statut du projet / Project Status

Renouvelé / Renewed

Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)

21/11/2019

Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

20/11/2021

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