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Career-Relationship Intersections for Emerging Adult Women in STEM: An Action Project Method Exploration

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by

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Abstract

Women are underrepresented in science, technology, engineering, and mathematics (STEM) careers, both in Canada and worldwide. Building on existing literature suggesting potential intersections between career development and romantic relationships, this study addressed the research question "*How do emerging adult women in STEM education programs jointly pursue their career plans with their romantic partners?"* The Action-Project Method (A-PM) was used to conduct interviews with six emerging adult couples from Western Canada, where there was a woman pursuing STEM-related university education. A consensus-based qualitative analysis strategy was applied both within and across cases, revealing that these couples were focused on projects (i.e., shared goals occurring over time) addressing: (a) the intersection of STEM career goals and other life goals commonly encountered during emerging adulthood and (b) career decision-making for the woman in STEM. Couples' STEM-related conversations were characterized by high levels of self-disclosure, comfort with sharing their perspectives with each other and, for several couples, warm and collaborative conversational tones. Furthermore, partners provided a variety of supports for the women to persist in their STEM career paths. Additional emergent themes included: (a) experiencing various challenges with pursuing STEM career paths; (b) family of origin expectations in pursuing STEM; (c) the assumption that both members of the couple would be working in the long term; (d) attempting to achieve work-life balance; and (e) discussion of the purpose of work in a person's life. These findings yielded several implications for counselling psychology practice.

Keywords: STEM, career development, romantic relationship, emerging adult

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Chapter 1: Introduction

Despite considerable efforts in both research and policy, the gender gap in science, technology, engineering, and mathematics persists in education (STEM; K. Wall, 2019). Worldwide, women make up only 35% of individuals enrolled in STEM-related post-secondary education and, in Canada, women accounted for approximately the same percentage of STEM bachelor's degree holders in 2016 (UNESCO, 2017; K. Wall 2019). Furthermore, only 15.3% of female bachelor's degree holders ages 25 to 54 had pursued that degree in STEM in Canada as of 2016 (Frank, 2019). Women's underrepresentation in STEM is problematic, in part, because STEM occupations are some of the most well paid and rapidly expanding employment opportunities (K. Wall, 2019). Understanding factors that influence the career development of these women is a critical step towards addressing this ongoing inequality.

The acronym "STEM" encompasses a range of educational and career disciplines, which fall under the broad categories of science, technology, engineering, and mathematics. Perhaps because of this broad definition, there is a lack of consensus on which specific disciplines should be included. Different stakeholders apply different definitions and many fail to provide a complete record of the specific disciplines included in those definitions (Koonce et al., 2011). I am primarily interested in the experiences of women entering fields where they are a minority. For this reason, the operational definition of STEM used in this thesis excludes the medical/ health sciences (Chan et al., 2021; UNESCO, 2017; K. Wall, 2019).

Emerging adulthood is a critical time for many people's career development (Domene, Landine & Stewart, 2015). Arnett (2018) has conceptualized emerging adulthood as a distinct developmental period in industrialized societies between the ages of 18-29, during which individuals "explore the available options for their lives in a variety of areas, especially

education, work, and love" (Arnett, 2018, p. 15). Considering emerging adulthood through the lens of Super's Life-span, Life-space theory of career development (1990, 1957), many emerging adults would align with the 'exploration' stage of career development. The major developmental task at this stage is for individuals to develop an understanding of themselves (i.e., a 'self-concept') and how that aligns with work, which is achieved through exploration and experimentation. According to Super's theory, this stage of career development typically ends when an individual settles into a specific career and may seek to progress in that career (i.e., the 'establishment' stage). The transition from exploration to establishment is promoted by self-knowledge, adaptation to the culture of work, and engagement in goal-directed actions aimed at career advancement (Super, 1957).

In the American context, key qualities of emerging adulthood include ongoing exploration of identity and a focus on the self, experiencing instability in life roles and a feeling of being in transition between adolescence and adulthood, accompanied by a sense of optimism about future possibilities (Arnett, 2015). At the same time, there is significant diversity across different individuals within this developmental period (Arnett, 2000; Tanner & Arnett, 2011). Arnett (2018; 2015) proposed that the decisions individuals make during emerging adulthood have the power to markedly determine the course of their future lives, more so than at any other point in their development.

Tanner and Arnett (2011) argued sufficient evidence justifies the existence of emerging adulthood as a developmental period that is distinct from both adolescence and young adulthood. This distinctiveness is evident in multiple aspects of development, including that of personality, emotion, and the brain. The nature of emerging adulthood is further distinguished through an extended period of transitioning into adult roles (e.g., entry into the workforce, to marriage, and

to becoming parents), rapid movement from dependence to independence, and changing relationships with parents, friends, and romantic partners.

Emerging adult romantic relationships are characterized by an increased capacity for commitment and intimacy when compared to earlier life stages (Arnett, 2015; Shulman & Connolly, 2013). Despite this capacity, these relationships are heterogeneous and range from causal hook ups to long-term commitments (Shulman & Connolly, 2013). In the present study, the terms "couples" and "romantic relationships" refer to committed relationships (e.g., married, cohabiting and non-cohabiting dating couples in serious relationships) but exclude more casual patterns of involvement (e.g., hook ups and casual dating).

Growing research evidence suggests that, during emerging adulthood, career and relationship goals are deeply interconnected (Barnett et al., 2003; Domene & Johnson, 2021; Domene et al., 2012; Kvitkovičová et al., 2017; Luyckx et al., 2014; Manning et al., 2011; Mortimer et al., 2002). Additionally, romantic partners have the power to help or harm an individual's career development (Domene & Johnson, 2021; Manning et al., 2011). Despite these important links, minimal research has explored the intersection of romantic relationships and career development amongst women in STEM.

Another key consideration for the thesis is gender, given the focus on women's experiences. There are a substantial number of gender theories (Lips, 2018, Chapter 2) illustrating the complexity and nuances of gender. This thesis was informed by the idea of gender as social construction. From this perspective, gender is not reducible to sex assigned at birth; instead, "gender is constantly created and re-created out of human interaction, out of social life, and is the texture and order of that social life" (Lorber 1994/2011, p.319). Gender as social construction suggests "there is no essential femaleness or maleness, femininity or masculinity,

womanhood or manhood, but once gender is ascribed, the social order constructs and holds individuals to strongly gendered norms and expectations" (Lorber 1994/2011 p.320). We were therefore interested in the experiences of anyone who self-identified as a woman; that is, who have adopted a female gender identity.

Students pursuing STEM education are engaged in a process of career decision-making, such as deciding whether to continue pursuing STEM or switch to something else, or what specific career to pursue. Therefore, it is important to understand the nature of career decision-making. In Amundson's (2018) view, career decisions are intertwined with other facets of an individual's life. Career decision-making is therefore impacted by: (a) 'decision triggers' (e.g., graduating university, reaching a particular age, goals); (b) 'external influences' (events in the environment such as "trade agreements between countries, stock market changes, labour market shifts" (p.74)); and (c) 'determining contexts,' or the "influences of culture, family, gender roles, other interpersonal roles, traumatic experiences, and the structure of the self (values, personality, self esteem, interests)" (p.77). Additional influences include the individual's perspective on the career problem and problem-related actions. This study was interested in one career-life intersection in particular: the intersection of career and romantic relationship.

Purpose of Thesis

This thesis research was designed to explore the intersection of career development and romantic relationship for emerging adult women pursuing careers in STEM. Specifically, the Action-Project Method, a qualitative approach to research, was employed to examine the role of romantic partners in the career development of these young women (Young et al., 2021; Young et al., 2005). The study was guided by the following research question: *How do emerging adult*

women in STEM education programs jointly pursue their career plans with their romantic partners?

This research shed light on the ways in which emerging adult women in STEM and their romantic partners navigate possibilities and goals in the realms of love and work. Furthermore, this study extended the existing literature on the interconnection between career and relationship during emerging adulthood. The implications that arose from my findings included the importance of attending to different stages of career development and decision-making, career values, work-life balance, and the relational contexts of career (e.g., familial, romantic). Furthermore, findings provide potentially useful insights for counsellors working to support the career development of emerging adult women in STEM.

Researcher Positionality

Guided by the A-PM, the findings of this study were co-constructed by participants and the research team, including myself. In this section, I aim to make explicit those experiences that may have influenced the ways in which I engaged with this work. Although I am not pursuing a career in a male-dominated STEM field, I am an emerging adult woman pursuing advanced education. I am currently completing a master's degree in the social sciences (counselling psychology), with plans to begin a PhD in September 2022.

Throughout my educational journey, my own partner has been instrumental in supporting my career development. He provides advice, encouragement, and practical support when I need it most. Together, we have co-constructed plans for the future that include our career and relationship goals. Therefore, my own life experience suggests that romantic partners can play a substantial, positive role in emerging adult women's educational and occupational pursuits. While I have experienced my relationship as a positive influence on my career, I recognize that

this is not a universal experience. I suspect romantic partners may impact career development both positively and negatively.

My perspective on career development has also been shaped by my work in vocational rehabilitation, which demonstrated important interconnections between career development, well-being, and life satisfaction. More recently, my counselling work with university students often included considerations of education, relationships, and occupation as I worked with clients to achieve their counselling goals. My perspectives on career have further been influenced by my experiences as a white, cisgender woman without a disability who was raised in a family that values education. I have been immensely privileged with the resources, support, and freedom to prioritize pursuing my passions through a career in counselling psychology.

Structure of Thesis

Chapter 2 provides an overview of the relevant literature and theoretical background which informed this study. This overview is followed by a discussion of methodology in Chapter 3 and a presentation of the findings in Chapter 4. In Chapter 5, I conclude with an integrative discussion of the findings, study strengths and limitations, directions for future research, and implications for counselling psychology practice.

Chapter 2: Literature Review

There is a persisting gender gap in STEM favouring men, particularly in math-intensive STEM degrees such as chemistry, computer science, engineering, mathematics, and physics. This gender gap is clearly observed at the level of STEM-related post-secondary education in Canada. For example, over the past 30 years, 24.2% of male undergraduates but only 5.4% of female undergraduates were enrolled in math-intensive STEM bachelor's degrees in British Columbia (Chan et al., 2021). Gender gaps were also observed at the level of degree completion, with women being 22.2% less likely to graduate from a STEM bachelor's degree within six years of completing high school.

The decision to persist in or exit STEM is complex and has multiple contributing factors. This complexity was illustrated by an informative, qualitative exploration into the adjustment of 286 male and female first year undergraduate engineering students in the United States by Miller et al. (2015). When asked "What were some positive things or people (such as tutoring or a supportive advisor or friends) that affected your academic progress or willingness to continue on in engineering this semester?" participants identified "social support (52% of responses), departmental and university support (35% of responses), personal resources (9%), non-academic organizations (3%), and personal interest (1%)" (p.55).

There is an extensive body of literature exploring factors that both promote and hinder the persistence of women in STEM at various life stages, including in the years before and during post-secondary. Some explanations that have been proposed to explain women's lower persistence in STEM include the existence of an unwelcoming climate and persistence of gender stereotypes; insufficient numbers of women to form a critical mass within educational and professional communities, leading to marginalization; reduced STEM-related achievement,

choice and self-efficacy; and family influences such as work-family conflicts and the amount of family support and resources being provided (Buck et al., 2020; Dabney & Tai, 2013). Notably, Buck et al. (2020) included "cisgender, transgender, and pangender individuals from multiple races and socioeconomic situations" in their definition of gender (p.290). Since my qualitative study explored relationship influences for women in STEM, it was guided by Contextual Action Theory rather than any particular theory of STEM persistence. The remainder of this chapter contains a review of existing research about social supports from outside the family on women's persistence in STEM career paths (including STEM education programs), with a particular emphasis on the role of romantic partners/ romantic relationships. Prior to discussing this literature, it is useful to understand the career development theory that informed this thesis. This theory was chosen because of its emphasis on the relational contexts in which career development takes place.

Contextual Action Theory

Contextual Action Theory (CAT) assumes intentional, goal-directed, and socially constructed action as central to understanding career development and human behaviour in general (Domene, Valach, & Young, 2015; Young & Domene, 2019; Young, Marshall, Valach, et al. 2011). According to CAT, individuals take actions to achieve their goals; however, they may or may not be conscious of those goals, and their actions may or may not make logical sense to external observers (Young & Domene, 2019). Furthermore, most actions (as well as projects and careers, defined below) are enacted within a social context, involving other individuals in addition to social and cultural meaning (Young & Domene, 2019). In other words, people tend to act in relation with others, rather than in isolation. Therefore, CAT theory and research typically emphasizes *joint action*, or the actions taken together by multiple people (e.g., families, friends,

couples) to achieve their goals. CAT focuses on the immediate social context of individuals and does not place an emphasis on broader structural or societal contextual influences.

Perspectives on Action

Within CAT, *action* is understood from three complementary perspectives (Young & Domene, 2019; Young, Marshall, Valach, et al. 2011): (a) observable, *manifest behaviour* (i.e., verbal, and nonverbal behaviour), (b) *internal processes* that have a steering function within the action (i.e., thoughts, emotions, and bodily sensations), and (c) the *meanings* that are socially constructed around an action. For a woman with the goal of pursuing a STEM career, joint action with her romantic partner might include a conversation about future schooling options. During that conversation, members of the couple might talk and listen (manifest behaviour), experience emotions of excitement and uncertainty (internal processes) and understand the conversation as reflecting their ability to successfully discuss their future together (meaning).

Organization of Action

Within CAT, action is also organized according to level of complexity (Young & Domene, 2019; Young, Marshall, Valach, et al. 2011): *elements* are the observable, measurable components of action (e.g., words used in conversation) which combine into *functional steps* (e.g., making a statement), representing sequential movement towards *goals* (e.g., to communicate an idea) and *intentional frameworks.* Intentional frameworks reflect the overall purpose of an interaction and overlap with specific goals. Goals reflect the *why* behind an action, while functional steps describe *how* individuals accomplish those goals and elements indicate *what* they do specifically (Jensen et al., 2022). These levels of action are all interconnected. Therefore, the overarching goals and intentional framework of an interaction are typically evident in the elements and functional steps (Domene, Valach, & Young, 2015). For example, an

individual aiming to resolve an argument with their significant other (goal) might laugh and make jokes (elements), thus lightening the conversational tone through humour (functional step).

Temporal System of Action

CAT also proposes a temporal sequence of action systems that increase in complexity over time (Young & Domene, 2019; Young, Marshall, Valach, et al. 2011). The previously described concept of *action* occurs in the short-term. Multiple, related actions that are organized around a shared goal are conceptualized as a *project*, which occurs over a medium time period, typically lasting weeks, or months. At the highest level of complexity is the concept of *career,* which typically subsumes several related projects over the long-term (e.g., a year or a lifetime). For example, a STEM career may include the action of studying and the project of completing post-secondary education. As Young and Domene (2019) explain, "people engage in specific, time-bound actions because they are seen as contributing to longer-term, more complex goals" (p.79). Importantly, CAT conceptualizes career as a system of action that can occur in any area of life (Domene, Valach, & Young, 2015). Therefore, although it makes sense to discuss work and occupation as a career (e.g., a career in STEM), the theory also conceptualizes long-term pursuits in other areas of life using the language of "career" (e.g., a marital career; a friendship career).

Given its focus on joint action, CAT is ideally suited to explore how couples act together to achieve STEM career goals, and how romantic partners may support women in pursuit of those goals. CAT's emphasis on goal-directed action captures the fact that a STEM career is an intentional goal that women must actively pursue. Furthermore, CAT's focus on actions over time rather than occupational outcomes is advantageous, considering women must take a wide range of actions over multiple years to attain an occupation in STEM. Thus, CAT provides an

optimal lens to explore the ways in which emerging adult women jointly construct a career in STEM with their romantic partners.

Non-Family Relational Influences on Women's Pursuit of STEM

Several studies have identified non-family social relationships as an important contributor to women's pursuit of STEM post-secondary education. Across three studies conducted by Lewis and colleagues (2017), online survey data indicated female undergraduate and graduate university students from the United States reported lower sense of belonging in STEM compared to their male peers. In the first study with 1,735 computing undergraduate students (including 453 women), lower sense of belonging predicted women's thoughts about switching to a major outside of computing, even after controlling for self-efficacy. The same pattern of results was observed in a second study with 855 computing graduate students (315 women), in terms of women's thoughts about leaving their graduate program. However, Lewis et al.'s third study produced mixed results. Survey data combined with the university records of 416 STEM majors (122 women) enrolled in an introductory, undergraduate physics course (83.7% engineering majors) suggested belongingness predicted women's actual persistence in STEM coursework (i.e., completing the second course in a sequence required for STEM majors within two years), even after controlling for self-efficacy and exam scores. Yet, when considering whether students actually switched to a major outside of STEM, the relationship between belonging and STEM persistence became non-significant once self-efficacy and exam scores were controlled for. Notably, these studies largely focused on individuals pursuing educations in computing and engineering and may not be reflective of individuals pursuing STEM more broadly.

Friends, peers, romantic relationships, departmental support, and faculty mentoring support have also been identified as important non-familial social supports for women pursuing

STEM post-secondary education and employment (Dabney & Tai, 2013; Denner et al., 2014; Espinosa, 2011; Hernandez et al., 2017; Hilts et al., 2018; Miller et al., 2015; Riegle-Crumb et al., 2020). Sources of non-familial social support which engineering students perceived as impacting their progress or persistence have been found to include "other members of underrepresented groups" (e.g., women) in addition to "friends, peers, study groups, … mentors, and romantic partners" (Miller et al., 2015, p. 55).

Several studies have focused on the role of peers in STEM persistence. For example, Hilts and colleagues' (2018) survey of 206 undergraduate students (73.3% female) in the Southwestern United States identified peer and classmate interaction as important factors in women's intentions to complete their STEM degree. According to multigroup path analyses, interaction with STEM peers/ classmates predicted enhanced sense of relatedness to other people in STEM, and in turn, women's relatedness predicted reduced "intentions to leave their STEM major" (p.752). Furthermore, classmate contact predicted reduced intent to leave directly as well as indirectly through enhancement of "perceived competence in STEM courses" (p.752). However, this sample was recruited from an anatomy and physiology course and included students majoring in health fields (e.g., nursing).

In a sample drawn from community college introductory programming courses at 15 institutions in California, regression analysis suggested peer encouragement to persist was related to women's intent to pursue a major in computer or information sciences at a four-year university (Denner et al., 2014). However, women in this study also reported receiving lower levels of encouragement compared to men. Interestingly, the influence of encouragement decreased over time for women and was no longer significant at one year follow-up. It is

important to note that peer support was only one of several influences on women's persistence intentions to pursue STEM examined by these authors.

Espinosa (2011) applied hierarchical generalized linear modelling to longitudinal survey data from 1,250 women of colour and 891 White woman pursuing undergraduate degrees in the United States. Discussing course content with peers outside of class was predictive of still being in a STEM major during their fourth year of education. However, membership in a club related to participants' academic major only predicted persistence amongst women of colour. Furthermore, simply having a higher percentage of students of any gender majoring in STEM enhanced the likelihood that women of colour would continue to pursue a STEM major. However, peer influences were amongst several predictors identified. Conversely, Riegle-Crumb et al.'s multivariate regression analysis (2020) found satisfaction with classmate interaction did not predict commitment to chemistry or chemical engineering occupations. Their sample included 229 White or Asian women in the final semester of their undergraduate or graduate chemistry or chemical engineering degrees in the United States.

Existing research findings generally lend support to the notion of peers being important to women's STEM career development. However, people's relationships with their classmates and friends may be very different from their relationship with their romantic partners. Therefore, it cannot be assumed that this body of research findings generalizes to romantic partners. Fortunately, there is a small but growing body of literature examining the influence of romantic relationships and the role of romantic partners on women's pursuit of STEM careers.

Romantic Relationships and Women's Pursuit of STEM Careers

Existing research suggests romantic relationships may influence the career development of women in STEM both positively and negatively. There is some evidence suggesting women in

STEM majors may enter romantic relationships with partners who have complementary expectations, values, and priorities in the realms of relationship, family, and career (Barth et al., 2016; Dunlap et al., 2019). However, findings from a series of studies conducted by Park et al. (2011) with college students in the United States suggest romantic goal activation may conflict with women's attitudes and behaviours related to STEM. Women who were primed with romance-themed images or conversations about a date, intended to trigger "romantic desirability" goals, indicated lower interest in STEM and lower preference for math/science majors than women exposed to primes related to intelligence (p.1261). This pattern of results also emerged when women overheard a conversation about a date compared to a conversation about spending time with a friend of the same sex. Finally, Park et al.'s survey conducted with women indicated the reported pursuit of romantic goals in a given day predicted engagement in fewer math-related activities that same day and the next day (while pursuing intelligence goals predicted more math activities).

Romantic relationships may also influence women's persistence and success in STEM education. Wang and colleagues (2017) investigated factors that may contribute to women's desire to transfer from STEM courses in two-year colleges into four-year STEM university degree programs. These authors employed multinomial logistic regression to analyze survey data from a sample of 696 women from a Midwestern state in the United States, 11.4% of whom were married. Relevant to the present thesis, married women were less likely to report intent to transfer to a four-year STEM program than non-married women. Instead, for these women, science self-efficacy and efforts to prepare for a transfer increased their intentions to transfer into non-STEM degrees. However, their study did not explore why being married was associated with decreased intention to pursue university-level STEM.

Dabney and Tai (2013) conducted a qualitative study where they interviewed 11 women from the United States who were pursuing, or had attained, physics doctorates about the intersections between their personal lives, graduate educations, support systems, and career choices. While four women felt that their romantic relationships helped them persist in graduate school, two identified their marriages as a hinderance to their work. One woman shared that time with her husband meant "emotional support" but also "less time available for work" (p.3). Another participant stated her partner was there "to pick up the slack" when she felt "really stressed" (p.6). Although Dabney and Tai (2013) noted romantic relationships played a role in shaping some participants' views of their STEM education and future occupations, their findings did not illuminate *how* these relationships shaped their views, or in what way their views were impacted.

Research by Wyss and Tai (2010) suggests romantic relationships may influence the career decision-making of women in STEM. Wyss and Tai (2010) interviewed individuals pursuing physics and chemistry at a range of career stages (i.e., graduate students, postdocs, faculty, and scientists working in industry) about their experiences with work-family intersections and conflicts. The sample was drawn from a larger investigation conducted in the United States about chemistry and physics graduate students' transition into science careers. Nearly 40% of the women in Wyss and Tai's sample revealed they had prioritized their family life (i.e., romantic relationships, marriages, and children) in certain career decisions. For example, several women selected their specific graduate school in order to be in the same location as their romantic partner— although some appeared to regret this decision. Interestingly, these authors concluded that the women in their sample seemed more open to prioritizing family

life/ a romantic relationship over their STEM career pursuits compared to the male participants, even when they were in newer, less committed romantic relationships.

Wyss and Tai (2010) also highlighted both consistencies and individual variation in how romantic relationships influenced their participants' career development. Specifically, there was variation across the sample in terms of which relationship behaviours were considered beneficial sources of support for women's STEM pursuits (e.g., emotional/advice, financial, assistance with household labour). At the same time, all participants who viewed their romantic partner as a source of support for their pursuit of STEM highlighted the importance of their partner's understanding towards their schedule, and at least two participants discussed the benefits of forming a team with a romantic partner to pursue STEM career goals. Nonetheless, the women in this sample also reported experiencing more work-family conflicts (e.g., long work hours) than the men, although these authors noted the reasons for this finding were unclear.

Relationships may impact women's success in STEM fields more broadly. Fisher et al. (2020) were interested on the impacts of entering into a marital or equivalent relationship on publication rate and STEM PhD completion time. These researchers applied multiple regression analyses to online survey results for 163 women and 64 men who pursued STEM PhDs at universities located throughout "17 countries in West Africa, East Africa, and southern Africa" during the previous two decades (p.4). Fisher and colleagues found women who entered into a marriage or marriage-like relationship during their programs had fewer publications than those who did not enter into these relationships, while the opposite was true for men. Interestingly, "33% of the married women surveyed agreed or strongly agreed with the statement "During your PhD studies, you felt pressure to downplay your achievements and career prospects to avoid issues with your spouse (e.g., making him feel insecure)"" (p.13). Although these findings

suggest that entering into a committed long-term romantic relationship can have a hindering effect on aspects of women's STEM career development, it is unclear how well the findings of a study conducted in Africa would generalize to the Canadian context. Additionally, these authors chose to define STEM more broadly than in the present study, including economics and psychology.

Some women may consider potential future career-relationship conflicts in their pursuit of STEM. Piatek-Jiminez (2015) conducted three phenomenological, semi-structured individual interviews with 12 White, female undergraduate mathematics majors in the Midwestern United States. Several of those women reported that they would not allow romantic relationships to interfere with the pursuit of their careers in the future. However, career-relationship intersections were not an explicit focus of this study; these researchers were interested in understanding why women select mathematics majors and influences on their career goals, with emphasis on gender and participant experiences during their undergraduate degrees.

Despite the findings emerging from the studies conducted by Barth et al., (2016), Dabney and Tai (2013), Dunlap et al. (2019), Fisher et al. (2020), Park et al. (2011), Piatek-Jimenez (2015), Wang et al. (2017), and Wyss and Tai (2010), the existing body of literature addressing romantic relationship influences on women's pursuit of STEM careers is small and may or may not be relevant to the Canadian educational and employment context. Furthermore, the processes through which these young women navigate career and relationships remains unknown. Enhanced understanding of this facet of career development is particularly important for counselling psychologists working with emerging adult women in STEM. Clearly, there is a need for additional in-depth, qualitative exploration into this area.

Career-Romantic Relationship Intersections During Emerging Adulthood

In light of the lack of research exploring romantic relationships and the career development of women in STEM, it is useful to consider the broader body of literature from outside of STEM addressing the intersection of career development and romantic relationships during emerging adulthood. Shulman and Connolly (2013) proposed a "transitional" stage in romantic relationship development, during which emerging adults seek to coordinate career and life plans with a partner (p. 27). Research findings support their proposition (Domene et al., 2012; Manning et al., 2011; Mortimer et al., 2002). Domene et al. (2012) conducted a Contextual Action Theory and Action-Project Method guided longitudinal study of 18 emerging adult couples from Western Canada. These researchers explored couples' joint projects during the transition from post-secondary into the workforce. Couples sought to support one another through this transition and treated each member's educational and career goals as shared tasks. Similarly, Mortimer and colleagues (2002) identified themes within interviews from 37 emerging adults in the United States who were participating in a larger longitudinal project about career during adolescence and adulthood. As part of the larger theme of "*Resources, Supports, and Obstacles*" (p.452), romantic partners were found to both influence and support career development. Notably, women discussed romantic partners more frequently than men, though many other influences on career were described.

In contrast to the studies by Domene et al. (2012) and Mortimer et al. (2002) identifying romantic partners as a source of career support, Kvitkovičová and colleagues (2017) found romantic partners may hinder emerging adults' career development. Kvitkovičová et al. (2017) conducted a longitudinal study with 18- to 30-year-old participants in the Czech Republic, 78% of whom were women. Structural equation modelling analysis on 751 participants who were in

romantic relationships revealed anxious attachment patterns with romantic partners hindered career decision-making processes; specifically, anxiety with romantic partners emerged as the only influential relationship on career decision-making over time. Unfortunately, these authors did not explore the potential influence of more secure attachments and did not examine the experiences of women separately from men.

Luyckx et al. (2014) utilized a longitudinal survey research design to examine the romantic and work-related identities of a large sample of 18- to 30-year-olds (65.5% women) in Germany. The results of their repeated measures ANOVAs indicated that greater identity commitment to these domains was psychologically advantageous: those participants whose romantic *and* work-related identities reflected commitment reported the least psychological symptoms, work stress, and family-work conflicts, and the greatest life satisfaction, work satisfaction, and self-efficacy in balancing work and family demands. At the same time, they also found that only 18% of the emerging adults in their sample had achieved a high level of commitment to both love and work by the end of their study, and 45% had not established strong commitments in either domain. Although this study supports the idea that many individuals are pursuing goals related to work and romantic relationships during emerging adulthood and that there are psychological benefits for doing so, Luyckx et al. did not examine how these domains intersect with each other. Thus, the question of how emerging adults' romantic relationships may influence their career development remains unanswered by this study.

Providing insights into the specific processes through which romantic partners impact emerging adults' educational and occupational development, Manning and colleagues (2011) investigated survey and interview data for a subsample of participants in a mixed method, longitudinal research project conducted in the United States (Ohio). Their subsample included

428 individuals who were in heterosexual dating relationships (mean age of 20.3 and 54% female), and semi-structured interviews were conducted with 155 of those participants. For participants in this study, partners tended to facilitate career goals; partners provided encouragement, support, and motivation, modelled positive educational or occupational behaviours, and made academic achievement a relationship standard. On the other hand, some participants indicated that partners drew attention away from educational and career pursuits. Additionally, participants largely placed importance on financial security in their relationships. Furthermore, these emerging adults were intentional in their relationship decision-making; participants ended or chose not to pursue relationships where those relationships did, or might, hinder their educational or occupational goals.

The degree to which emerging adults are concerned with career-relationship intersections may vary. In a study with a sample of college seniors from the Northeastern United States (mean age of 22.99 years), Barnett and colleagues (2003) found that participants who planned to get married and have children sooner were more worried about future conflicts between marriage and career. Conversely, in an American study of 66 heterosexual, college student couples, ANOVA results demonstrated that participants who were actively planning for marriage reported higher “knowledge/certainty” around balancing work and family than participants who were not (Peake & Harris, 2002, p. 412). Considering these two studies were conducted approximately two decades ago, it is unclear whether they would generalize to the experience of relationship and career for university students in the 2020s.

Emerging adults’ expectations may also play a role. Amongst 187 students enrolled in an introductory, undergraduate psychology class (ages 18 to 22), hierarchical regression revealed emerging adults with greater work-life balance self-efficacy also viewed themselves as more

knowledgeable about and committed to balancing these future roles (Basuil & Casper, 2012). However, there was no relationship between this sense of self-efficacy and participants' planning for (or current involvement in) taking on family and work roles together.

Clearly, emerging adults are thinking about the intersections between career and relationship. Furthermore, these intersections have tangible impacts on career and relationship development at this point in life. This thesis extends the existing body of literature by exploring career-relationship intersections for the specific population of emerging adult women in STEM education.

Present Study

To promote the retention of emerging adult women in STEM, there is an important need to better understand their career development processes. As described in this chapter, the larger body of research into career-relationship intersections suggests the importance of attending to the role of romantic partners in career development. While research suggests influences of various kinds of non-familial relationships on STEM persistence, including romantic relationships, there is a need for in-depth qualitative exploration of the phenomenon in the Canadian context.

The present study employed a qualitative approach grounded in Contextual Action Theory (CAT) and the Action-Project Method (A-PM). Because research into career-relationship intersections for emerging adult women in STEM is still at an exploratory stage, qualitative methods are advantageous for exploring this phenomenon. Additionally, since the phenomenon under investigation has a relational dimension, there may be substantial benefits to using a research method with a relational focus, over individual interviews alone. Research questions informed by CAT and A-PM are conceptualized according to goal-directed action, with joint action central to the analysis process (Young et al., 2021, 2005). This thesis was guided by the

following overall research question: *How do emerging adult women in STEM education programs jointly pursue their career plans with their romantic partners?* Underneath this overarching question, there are two specific sub-questions that are framed within core concepts of CAT:

1. *What kinds of projects do these women engage in with their romantic partners around pursuing a STEM career?*
2. *What kinds of goal-directed actions are taken together by women in STEM and their romantic partners to achieve their STEM career projects?*

Chapter 3: Methodology

Chapter 3 provides an overview of the methodology used to address the research questions posed in the preceding chapters. This chapter begins with an overview of the Action-Project Method (A-PM) and its guiding assumptions, which are informed by both CAT and social constructionism. This overview is followed by a discussion of participant recruitment and selection, and data collection and analysis procedures. Finally, the chapter concludes with a discussion of methodological integrity.

Research Design

The research design used in this thesis is a qualitative method designed to explore intentional, goal-directed action between participants within social and cultural contexts (Young et al., 2021, 2005). J. M. Wall et al. (2016) proposed CAT and the A-PM's "emphasis on description, intentional action, and relational context offers a unique understanding of how emerging adults engage with important others during the transition to adulthood" (p.38). The A-PM's suitability for conducting qualitative research with couples has also been suggested, given its emphasis on interdependent action and generation of "rich" data (Marshall et al., 2012, p.160). In practice, the A-PM has been applied to explore both the transition to adulthood (Young, Marshall, Foulkes, et al., 2011; Young et al., 2015), and the career development of emerging adult couples (Domene et al., 2012). In this thesis, I utilized a condensed version of the A-PM suggested by Young et al. (2021) for time-limited research.

The A-PM is grounded in a set of assumptions that are informed by CAT and social constructionism (Young et al., 2004). Those assumptions include "ideas about reality (ontology) and how we can gain knowledge of it (epistemology)" (Maxwell, 2013, p.42). As Gergen (2011) explains, within social constructionism, "what we take to be knowledge of the world and self

finds its origins in human relationships" (p.109). Similarly, CAT is relational in its epistemology and ontology (Valach et al., 2015). In other words, CAT "suggests that gaining knowledge is … a relational process" (Valach et al., 2015, p. 169). However, the assumptions that underlie A-PM diverge from typical social constructionism by proposing the centrality of action; specifically, "the cultural, social, and psychological worlds are constructed and co-constructed through individual and joint action, project, and career" (Young & Valach, 2004, p.505).

To elaborate, the A-PM assumes there are real actions that exist in the world, and that those actions construct or create our social reality (Domene, 2005). Domene also states that, in an A-PM study, the participants and research team jointly construct understandings of that social reality, but those constructions are based in observable actions that are present in the research data. Observable actions are interpreted in light of both the participants' "social meaning and … conceptual frame of reference" and the researchers' "socially meaningful conceptualizations" (Valach et al., 2015, p.169). Furthermore, CAT asserts that attending to all three perspectives on action (described in Chapter 2) promotes researchers' ability to obtain an in-depth understanding of the phenomenon under investigation (Domene, 2005). In summary, A-PM seeks to accurately identify actions which in turn promote the researchers' understandings of the larger phenomenon under investigation.

In addition, although the aim of A-PM research (i.e., its axiology) is to describe human action in daily life, in practice this research may also promote both understanding and change (Domene, 2005; Young et al., 2000). The A-PM does not seek to induce changes for participants; nonetheless, "people who volunteer for a specific research study are naturally interested in that topic and, therefore, are predisposed to gain new insight or take new action in that domain of functioning, irrespective of any research involvement" (Domene, 2005, p.15).

Sample Size, Recruitment and Participant Selection

Published A-PM studies have varied widely in the sample sizes used. Funded A-PM studies conducted by teams of researchers over three to five years have generally included less than 25 dyads (Young et al., 2021). However, there are also published A-PM studies that consist of only one or two cases. See, for example, Valach and Young (2013) and Young et al. (2000, 2007). Importantly, A-PM does not attempt to reach saturation or redundancy of a sample, but instead focuses on obtaining sufficient information to describe people's joint action (Young et al., 2021, 2005). Young and colleagues indicate that a larger number of participants allows for cross-case analysis of the data but descriptions of one or two cases can also expand understanding about a phenomenon. Consistent with previous master's theses and doctoral dissertations employing A-PM, the sample size in this thesis consisted of 12 participants, divided into six couples (Graham, 2009; Klaassen, 2010; Lee, 2010; Polak, 2014; Silva, 2019).

Participants were recruited through word of mouth and advertisements posted on Reddit, a news and discussion-based social media platform, and distributed within a university in Western Canada (see Appendices A, B, and C). STEM-related departments, faculties, and student associations or organizations were contacted via email and social media (Instagram) with the request to distribute recruitment flyers to their members. Additionally, recruitment information was posted to a university webpage for recruiting research participants. These materials invited women in STEM and their romantic partners to contact the researcher about participating in the study. Telephone screening interviews were conducted with potential participants to provide them with information about the study, address any questions they may have had, and to ensure both members of the couple knew they could consent or decline to

participate, and to determine whether they met the inclusion criteria. The full protocol for these screening interviews is provided in Appendix E.

In A-PM studies, participants are selected based on whether they are from the population of interest and whether they have experienced the phenomenon being studied (Young et al., 2005). In this thesis, the selection criteria included: (a) both members of the couple were between 18-29 years old; (b) both participants self-identified as being in a committed, romantic relationships spanning at least one year (including LGBTQ+ relationships); (c) at least one member of the couple self-identified as a woman pursuing full-time STEM post-secondary in Canada; (d) couples reported having a partner who supported the woman in STEM's career or educational plans; and (e) both members of the couple had conversational fluency in English. Criterion (a) is consistent with current definitions of emerging adulthood, "emerging adulthood lasts from roughly age 18, when most young people finish secondary school, to age 29, when most people have moved toward making the commitments that structure adult life: marriage (or a long-term partner-ship), parenthood, and a long-term job" (Arnett, 2018, p.14). Criterion (b) reflects the need for the relationship to have had sufficient time to have an influence on each member's career development. Previous research on career development in the context of committed relationships has selected for relationships lasting for a minimum of six months (Domene et al., 2012) or one year (Brosseau et al., 2010). Criterion (c) was aimed at selecting for individuals who are pursuing, rather than established in, STEM careers. Criterion (d) was implemented to ensure participants were experiencing the phenomenon under investigation. Lastly, criterion (e) is because English is the common language of the research team.

Two exclusion criteria also informed the selection of participants: (a) couples where either member was a parent, and (b) the STEM career that the woman was pursuing was in health

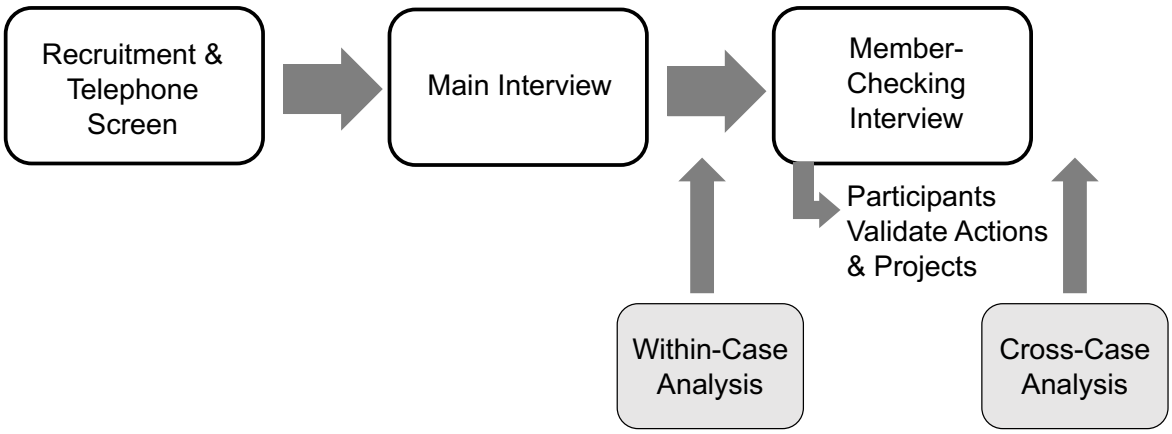
sciences (note, however, that individuals in biology programs who were considering STEM careers outside of the health sciences were not excluded). Parents were excluded because relationship and career dynamics are expected to be substantially different for families than for couples. Although the influence of children is an important contextual factor for career development, this is outside the scope of the present study. Finally, individuals pursuing health professions were excluded from the study because gender disparities in health professions are not the same as in other STEM fields and favor women (Chan et al., 2021; UNESCO, 2017; K. Wall, 2019). Furthermore, many definitions of STEM exclude the health professions (e.g., K. Wall, 2019). While these criteria served as a guide, final recruitment decisions were made based on the perceived fit of a participant dyad with the research questions.

Data Collection

Consistent with the condensed version of A-PM outlined by Young et al. (2021), I collected data using a multi-stage "main interview" and a follow-up "member-checking interview" for each pair of participants. The condensed A-PM data collection and analysis procedures are illustrated in Figure 1. Due to COVID-19-related health protocols, I implemented Campbell and Domene's (2022) online adaptation to Young and colleagues' method. This interview protocol is provided in Appendix F.

Figure 1

Condensed Action-Project Method Process



Main Interview

I conducted all the main interviews for this study using the Zoom video-conferencing platform. However, each couple was together in the same room. Informed consent documents were emailed to participants to be read, reviewed, and signed prior to this interview, along with a list of counselling resources (see Appendices D and H, respectively). At the beginning of the interview, I reviewed the informed consent with participants and provided them with the opportunity to ask questions. After the consent process was completed, video and audio recording were enabled for the remainder of the interview process.

The first stage of the main interview— the *warm-up,* was designed to build participant comfort while preparing them for the joint conversation. At this stage, participants were asked general questions about their careers and romantic relationship. Next, the couple engaged in the *joint conversation*, a data collection process that involved a self-directed (i.e., without the researcher present) discussion about pursuing a STEM career in the context of their romantic partnership. These joint conversations ranged in length from approximately 15 to 16.5 minutes across the sample. During this segment of the main interview, I turned off my video and

microphone but recorded the conversation. The joint conversation was followed by a 10-minute break. Next, I invited each participant within the couple to individually review the video-recorded joint conversation (the s*elf-confrontation session*). During the self-confrontation portion of the main interview, I played the recording of the conversation back to the participant, pausing every two minutes to allow the participant to comment on their thoughts and feelings during that segment. At the end of the self-confrontation, the participant was also asked about their overall intentions or goals for the joint conversation. Additionally, the participants were asked how typical their joint conversation was, in terms of the way the couple normally interacts. They were also provided with the opportunity to share any additional information that might be important for me to understand about the conversation.

At the end of the main interview, demographic information was collected (see Appendix G), and participants were invited to debrief and ask questions. I also invited the couple to return for their member-checking interview. As a token of gratitude for their participation and to offset the time and energy investment, each individual participant received a $25 Amazon.ca gift card.

Member-Checking Interview

Following the within-case analysis for a couple (see "Data Analysis" section of this chapter), participants returned for a *member-checking interview*. The member-checking interviews allowed participants to review the researchers' written narrative summaries of findings that emerged from the within-case analysis, as well as the descriptions of the joint projects that the researchers had identified for that couple. The member-checking interviews were conducted via telephone (n = 1 participant) or Zoom (n = 7 participants), depending on participants' preferences and took place 7.5 to 9 weeks after the main interview. One couple chose to withdraw prior to the member-checking interview. Instead, the woman in STEM in this

couple sent minor written revisions to her individual narrative via email. In the two instances where one member of the couple chose to withdraw from the study prior to the member-checking interview, we proceeded with a portion of that interview, focusing only on findings related to the remaining participant's experience and the project descriptions. The joint narrative and individual narrative for the other member of the couple were not reviewed for these participants. All participants who either attended the member-checking interview or provided feedback via email identified minor changes that needed to be made to their narratives, including editing quotes for conciseness or to remove filler words. Some participants also suggested alternate wording that better captured their perspectives, added additional details, corrected factual details, or changed the wording of projects.

Data Analysis

Within-Case Analysis

Following each couple's multi-part main interview (i.e., the warm-up, joint conversation, and self-confrontations), a within-case analysis was conducted, using the procedures described in Young et al. (2021). First, I transcribed the warm-up and joint conversation sections of the main interviews with the assistance of Zoom's automatic transcription feature. Filler words and speech errors were removed (e.g., um, uh, like, repeated words) because they are not considered meaningful units of data within A-PM. Any identifying information was removed or altered. In addition, I took notes to summarize the content of each participant's self-confrontation, after reviewing the recordings of these portions of the main interviews. Along with the demographic information that participants provided, these transcripts and notes formed the data set for the within-case analysis process.

Two researchers (myself and a graduate student research assistant) then used a consensus-based, inductive and deductive qualitative analysis strategy, identifying actions and joint actions, including elements, functional steps, and goals. The analysis involved considering the theoretical tenets of CAT, as well as close engagement with the data (particularly participant reflections from the self-confrontation). Elements were identified using a pre-existing code list that has been used in previous A-PM studies (see Appendix I). Functional steps and goals were identified by considering *how* participants were interacting and *why*, respectively. Finally, the overall goals or the intentional framework for the conversation were drawn from participants' reports of their goals/intentions for the conversation during the self-confrontation. Throughout the analysis process, the two analysts discussed possible interpretations until a consensus was reached about which interpretation was most plausible.

For each dyad, we compiled the results of this analysis into individual narrative summaries for each member, as well as a joint narrative for the couple as a whole (see Appendix J). The individual narratives summarize relevant contextual information (e.g., age, ethnic/cultural background, education, occupation, career goals, experiences pursuing STEM, and current priorities), actions (i.e., their observed pattern of interaction and the content of the conversation) and reported goals for the conversation. The joint narratives are similar in structure, except that they focus on context and actions for the couple as a whole (i.e., what the couple is doing together). The joint narratives also summarize couple's projects related to pursuing STEM career goals within their relationship together. Individual narratives ranged in length from just over one page to nearly three pages double spaced, while joint narratives ranged from just under two pages to three pages.

As a final step in the within-case analysis process, myself, the graduate research assistant, and my thesis supervisor met via Zoom. These meetings lasted 1.5 to two hours per couple and took place after compiling the narratives for a given couple but before the second meeting (i.e., the member-checking interview). Prior to those meetings, each member of the research team independently reviewed the full data set and the three narratives (i.e., the two individual narratives and the joint narrative). The thesis supervisor also provided written feedback on the narrative summaries. Finally, the three of us met to (a) modify the content of the narratives, (b) identify the couple's joint projects, and (c) identify any additional themes within the case. These discussions were guided by the overarching goal of obtaining consensus between team members in terms of our understanding of what was going on for each couple. Following the member-checking interviews, any corrections or additions to the narratives and project descriptions were considered in the cross-case analysis, described below. A description of the findings that emerged from each couple's within-case analysis is presented in Chapter 4.

Cross-Case Analysis

After the member-checking interviews were completed, the data sets were examined together in a *cross-case analysis,* conducted by the entire research team. Consistent with previous A-PM research, the cross-case analysis involved examining the data set for three cases at a time, prior to reviewing the entire data set together (Young et al., 2021). Specifically, we divided the participating couples into two groups of three using a random number generator. Then, the cross-case analysis followed the same consensus-based, inductive and deductive analysis strategy as in the within-case analysis, except that the data sets for multiple couples were examined to identify the broader patterns that were present across the different participants. Specifically, we focused on patterns of similarity and difference among the cases.

Procedures for Methodological Integrity

The A-PM incorporates multiple strategies to promote methodological integrity and rigour (Young et al., 2021, 2005). Specifically, the present study utilized: (a) a detailed audit trail, (b) triangulation of researcher perspectives, (c) member-checking interviews, and (d) multiple sources of information. Consistent with the A-PM, a detailed audit trail was maintained, which included records of potential and included participants, and all stages of data collection and analysis (Young et al., 2021, 2005). This audit trail was reviewed by the thesis supervisor. Additionally, recordings of the data collection and analysis procedures were audited by the thesis supervisor for one participating couple. For the most part, he agreed with the codes and coding, except for some of the functional steps. The supervisor then provided feedback to the other two members of the research team, who adapted their initial coding process for subsequent participants.

The triangulation of the three research team members' perspectives minimized the chances of any one researcher's biases and perspectives disproportionately shaping study findings (Young et al., 2021). As described in the "Data Analysis" section, triangulation of multiple researchers' perspectives was achieved through the A-PM's consensus-based approach to data analysis. Following the initial within-case analysis, participants had opportunity to review their draft narrative summaries and tentative joint projects in a member-checking interview. As described previously, this methodological integrity procedure was designed to align the analysis with participants' own perspectives and provided participants with the opportunity to revise the narrative summaries of the initial analysis (Young et al., 2005). The A-PM incorporates multiple sources of information which attend to all three perspectives on action (i.e., manifest behaviour, internal processes, and goals/ social meaning; Young et al., 2021). In the present study, for each

participant couple, conclusions were drawn from video recordings of the warm-up and joint conversation (manifest behavior) and summary notes of the self-confrontations with each individual participant (internal processes and goals/social meaning).

Summary

Chapter 3 provided an overview of the methodology that guided this exploration of the experiences of six emerging adult couples, in which one member of the couple was a woman pursuing a STEM career path. The A-PM's systematic, multi-part data collection and analysis procedures yielded a rich set of findings that are presented in Chapter 4.

Chapter 4: Findings

This chapter outlines study findings that emerged out of the consensus-based data analysis process utilized in the A-PM. The chapter begins with an overview of participant demographics. A detailed overview of the findings from the within-case data analysis is then presented, followed by findings emerging from the overall cross-case analysis. The chapter concludes with a summary of study findings. In this chapter, the term "career" is used to encompass both education and employment.

Participant Demographics

A summary of the demographic characteristics of the 12 participants is provided in Table 1, including names, reported ages, gender identities, degree programs (current or highest level completed), and current year of study. Some participants chose to identify themselves with pseudonyms, while others chose to use their real names. To enhance anonymity, ethnic/ cultural backgrounds have been separated from their other demographic information. Across the entire sample, the women in STEM reported the following ethnic/cultural backgrounds: European Canadian, Vietnamese, South Asian, Chinese Canadian, and Chinese-Vietnamese. For the romantic partners, reported ethnic/cultural backgrounds included European Canadian, Vietnamese, South Asian, and Mixed Ethnicity. In terms of relationship status, five couples were dating, and one of those five couples were cohabiting. The remaining couple was married. Relationships varied in length from nearly two years to over eight years. Most couples reported primarily speaking to each other in English, while one couple indicated mainly speaking to each other in the language of their shared country of origin.

Table 1

Participant Demographics

Couple	Name	Age	Gender	Degree Program	Year in Current Degree Program
001	Aria	26	Female	PhD in Computer Science	1
	Fred	26	Male	PhD in Computer Science	1
003	Marya	24	Female	PhD in Biophysical Chemistry	3
	Frank	28	Male	Bachelor of Education & Bachelor of Kinesiology	Completed
005	T	20	Female	BSc in Biological Sciences	3
	Matthew	21	Male	BSc in Electrical Engineering	3
007	Emily	21	Female	BSc in Computer Science	3
	Andrew	22	Male	Diploma in Power Engineering Technology	Completed
009	Charlotte	20	Female	BSc in Biological Sciences	3
	Elle	21	Female	BA [major removed for anonymity]	3
011	Monica	21	Female	BHSc in Bioinformatics	4
	Adam	20	Male	BSc in Computer Science	4

Within-Case Findings

Summaries of the findings from the within-case analysis for each participating couple are presented below. These summaries were drawn from the individual and joint narrative summaries that were presented to the couples during the member-checking interviews (see

Appendix J). To protect participants' confidentiality, all identifying information has been removed or altered.

Couple 001: Aria and Fred

Background Information. This couple consists of a 26-year-old female (Aria) and male (Fred) who have been married for nearly three years and together for over eight years. Both members of the couple are international students enrolled in the first year of their PhD in computer science, after having completed their MSc at the same university. Aria has the career goal of becoming a professor in computer science or a related department and conducting research. Fred's goal is to work either as a computer science professor, or as a research scientist in industry.

Aria and Fred met pursuing their undergraduate degrees in computer science in their home country. The couple became study partners, best friends, and eventually, romantic partners. Despite some competitive behaviours earlier in their relationship, both members of the couple view their relationship as having become more collaborative over time. Fred is supportive of Aria's career plans, believes the couple is on the same page, and despite some concern about holding Aria back from her career opportunities or dreams, is optimistic about the future. Similarly, Aria seeks to make career decisions that benefit both members of the couple.

In terms of their future career and relationship, several topics emerged as potentially important. Currently, Aria and Fred are both focused on finishing their schooling and establishing their careers, while staying together in the same geographic location. However, Aria feels additional familial, cultural, and biological pressure to finish her education quickly so that she can have children. They are also considering how to solve the "two body problem"; that is, how to best achieve their individual career goals while still living in the same geographic

location. While Aria was interested in universities in the United States, Fred preferred to obtain permanent residency status in Canada. The couple discussed Aria's previous sacrifice of declining an offer to attend her preferred university in the United States given a lack of alignment with Fred's research interests. Ultimately, Fred and Aria chose to attend a Canadian university where both members of the couple's research interests aligned.

Actions. During the joint conversation, Aria and Fred participated equally. They reflected on the past and planned for the future. Fred elicited Aria's perspective on her priorities for both career and relationship and shared his own perspective. Both participants alternated between speaking and listening, made use of minimal prompts (e.g., mhmm, yeah, nodding) and interrupted one another to talk about the same or different topics, sometimes speaking together. Aria laughed and smiled frequently, and used words such as "dream," while Fred was less emotionally expressive and focused on practical matters (e.g., ensuring they settle in a country that will be beneficial to their next generation). Fred seemed focused on his partner and consistently made eye-contact. Aria demonstrated caring and concern for Fred, pride for her educational performance during her undergraduate, and optimism about the couple's future career goals and ability to make good decisions together. The emotional tone of the conversation was supportive, with both members of the couple sharing openly.

The couple reported that one atypical aspect of this conversation was that it was in English, instead of their mother tongue. At the beginning, the couple appeared aware that they were being recorded as part of a study, but soon began interacting with each other in an engaged and authentic way. Therefore, although the conversation may have been more formal and focused than their typical way of interacting, as Fred summarized, "everything we said in the

session, those were actually our true feelings […] the things that we said, those were actually genuine and that's what we think about our life, our relationship, and our career."

For Aria, the main goals of the conversation appeared to be to discuss: (a) Aria's graduate studies; (b) the couple's career goals and plans; (c) struggles they faced in their career paths; and (d) the impacts of these struggles on their relationship. Fred's main goals during the joint conversation seemed to be to determine: (a) how Aria felt about their relationship and him; and (b) how Aria prioritizes their mutual relationship relative to her career. Based on Aria's responses, Fred was left feeling confident that Aria prioritizes both of these life domains.

Aria and Fred generally view themselves as in agreement with each other, confident in one another's ability to be successful in their career and have built trust in each other's ability to make decisions that will benefit both members of the couple. As Aria explained:

> "*Right now, I think we are on the same path. We have the same kind of thinking. So in our career as well, and in our relationship as well we came into this stage that we think about each other's career too."*

Projects. The following statements summarize two current "joint projects" that Aria and Fred appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Supporting each other to complete our PhD Programs**
- **Figuring out how to establish our careers in a way that takes into account other life plans (e.g., living in the same geographic location, having children, maintaining our relationship)**

Couple 003: Marya and Frank

Background Information. Marya is a 24-year-old woman and Frank is a 28-year-old man. They have been in a relationship for over five years and have lived together for less than a year. The couple met when Marya approached Frank about a university group he created. Frank stated that he both appreciates Marya's hard work and values spending quality time together. He tries to support Marya's career "in whatever way" he can. Frank is employed as a substitute teacher in the public school system and also does seasonal work. While Frank's career goal is to become a physical/ outdoor education teacher, it has been challenging to find a permanent teaching job. Marya is a third year PhD candidate in a biophysical chemistry program and is employed as the president of a student organization. Marya is focused on completing her PhD and exploring various different STEM-related career options or becoming a full-time parent. However, she also stated that she is open to "following opportunities that arise that we haven't even thought about, but still exist."

Although Marya stated she loves graduate school, she also explained that it has posed challenges. The heavy workload can disrupt her self-care routines (i.e., eating, sleeping, working out) and lead to anxiety. Marya also shared experiences of female underrepresentation, discrimination, sexist comments, being looked down upon, and "thought to be not as good as a chemist due to being a female." Nonetheless, Marya stated she feels supported by her male supervisor and a post-doc in her lab and found it impactful to have female representation on her master's thesis committee. Marya also faces pressures from her extended family to prioritize family-oriented goals (i.e., getting married and having children) and appears to have internalized some of the conflict between family-oriented goals and STEM career goals.

In terms of the couple's future career and relationship, several topics emerged as potentially important. They are both invested in helping Marya figure out a career path that feels fulfilling for her. Frank encouraged Marya to think about and take steps to further explore her career options. The couple also discussed how to balance Marya's career pursuits with their goal of living in a small town where they can engage in outdoor activities. Although Marya and Frank do not know what the future holds, they retain an optimistic outlook:

> *F: "At the beginning, Marya's talking about not closing any doors and things and I just love that perspective […] I mean there's an optimism to it but then also the world's her oyster sort of thing […] I just think that's such an awesome perspective and something that we share."*

Actions. During the conversation, Marya and Frank were equal participants. The couple appeared attentive to one another, comfortable, and connected. The conversational tone was respectful, supportive, and included a lot of humour and laughter. Marya spoke more quickly thank Frank, used more gestures, and expressed greater uncertainty. Frank seemed to insert optimism into the conversation. Additionally, he seemed to take a pragmatic approach to the couple's goals and offered suggestions. Both participants shared openly and used minimal prompts (e.g., mhmm, yeah, nodding) to encourage one another to speak. Overall, Marya felt supported and re-assured by her partner, despite some misunderstandings around her role as a graduate student.

Frank noted the conversation felt "a bit forced" at the beginning, while Marya indicated the couple provided more contextual information than they typically would because they knew they were participating in a study. However, Marya and Frank soon began to relate to one another in a more natural way:

F: "I think by the end for sure it was very much like how we interact with each other, especially when we're talking about things like that […] and I say that because I didn't even notice when you popped back in […] that was probably a pretty good representation of how we've talked about that sort of thing before."

For Marya, the main goals of the conversation were: (a) to communicate clearly; (b) to listen to Frank's perspective; and (c) "to have an open, honest conversation on the topic." Frank's goals in the conversation were: (a) to explore the couple's feelings about Marya's career in STEM and impacts on their relationship; and (b) to reflect on whether anything had changed since their previous conversations on this topic or required further discussion.

Projects. The following statements summarize two current "joint projects" that Marya and Frank appear to be engaged in together, related to pursuing Marya's STEM career goals within their relationship together:

- **Working together to identify a career that feels fulfilling for Marya**
- **Exploring and discovering potential careers for Marya while balancing our other life goals**

Couple 005: T and Matthew

Background Information. T is a 20-year-old woman and Matthew is a 21-year-old man. They have been dating for two years. T and Matthew are in the third year of their Bachelor of Science degrees in Biological Sciences and Electrical Engineering, respectively. Matthew hopes to work for an engineering company after graduation, but his ultimate goal is to be self-employed in either machine learning or prosthetics. Although T is proud to be a woman in STEM and passionate about her degree, she is still considering various career paths, such as research, fieldwork, lab work, or pursuing a master's degree.

T: "Well, I feel most of the time as a woman in STEM, I get a lot of pride, I guess. I feel as though I'm proud to be— especially coming from my family being a first-generation child of my family to even go to […] university and complete— hopefully complete my degree. […] I guess the biggest challenge right now is just trying to figure out what I want to do with my life […] because right now I'm not very set on a specific career path"

T and Matthew live in university residence and met when they sat at the same table for dinner. They view the relationship as serious and long-term, and see each other every day. Although T's grades took "a bit of hit" early into their relationship, the couple have since tried to balance their priorities. T is focused on completing her degree and exploring her future career directions, including education. Similarly, Matthew is invested in completing his degree, encouraging T to prioritize her education, and helping her create a plan for her future career. Matthew explained he is proud of T and does not want to hold her back. Both members of the couple want to get "on the same page" about their careers while considering their relationship.

Currently, T and Matthew are negotiating where to live after completing their current degrees, including the possibility of needing to be in long-distance relationship. The couple is also trying to figure out how T can apply her degree and her interests to pursue a career in STEM. They both view T's decision to explore computer science and coding as a positive step towards clarifying her career choices, with T considering the possibility that their relationship, and specifically, Matthew's education, could have enhanced her interest in coding.

Actions. The style of the joint conversation was generally direct, with both participants making eye contact and occasionally interrupting one another or speaking simultaneously. In addition, both members of the couple seemed very comfortable sharing their thoughts and opinions with each other. Matthew tended to speak more and used hand gestures, while T

listened and acknowledged what he was saying, occasionally making use of sarcasm. Matthew was persistent in ensuring T understood his perspective, at times rephrasing his statements and questions. He expressed his opinion, made suggestions, and inquired into T's opinions and the rationale behind her perspective and choices. Although she spoke less than her partner, T seemed comfortable clarifying and expressing her opinions and perspectives and disagreeing when Matthew's perceptions did not fit for her. As the conversation came to a conclusion, the tone was warm and included smiling.

During the couple's typical conversations, they would usually be more comfortable and casual and less formal. Additionally, T noted that she felt "kind of awkward" within the research context and would usually speak more. Although their interactional style may have been atypical, the couple noted that the content of the conversation reflected things that they typically discuss.

T's primary goal in the conversation was to keep an open line of communication with Matthew. Matthew's goals in the conversation were: (a) to come to an agreement on the couple's futures in STEM while balancing their relationship; and (b) to explore T's future education and career plans. For Matthew, the conversation seemed to promote acceptance of T's current stage in her career development and optimism for her future.

Projects. The following statements summarize two current "joint projects" that T and Matthew appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Identifying a long-term career path that makes T happy**
- **Planning together for our future careers in STEM while considering our individual and relationship goals (e.g., where to live after completing our current degrees)**

Couple 007: Emily and Andrew

Background Information. Couple 007 are a 22-year-old man (Andrew) and a 21-year-old woman (Emily) who have been dating for over three years and are planning to move in together. The couple met in high school and had a similar friend group. During Emily's senior year of high school, the pair re-connected through social media. Emily described how the pair shifted from "friends dating and hanging out" to "a serious relationship."

Andrew currently works as a power engineer in a fly-in fly-out job. Emily is a third year Bachelor of Science student majoring in Computer Science. She is considering different possibilities for her future career, including pursuing graduate school and academia, or working in industry (e.g., software development, computer systems project management). She likes to dream about possibilities and is not afraid to push for what she wants or pursue career options that might be difficult or time-consuming. In pursuing a STEM career, Emily is looking for "the best option that makes [the couple] both happy and fulfilled."

Although Emily's experience as a woman in STEM has generally been positive, she recounted experiences with female underrepresentation in her field, having male classmates minimize or disregard her knowledge and expertise, and sexual harassment. As the president of a STEM student organization, Emily is actively working to increase inclusivity in STEM.

When it comes to supporting Emily's STEM education, Andrew is "happy and proud of what she's managed to accomplish." He takes the role of reminding her to do things and provides company and words of encouragement while she completes schoolwork. Andrew would like to see Emily obtain an internship and try different career options, while Emily has some concern about how to keep their future lives organized and wants the couple to both contribute to household labour and income.

The couple is negotiating how to pursue their future together in connection to Emily's STEM career possibilities, including: (a) considering what Emily's future career might look like; (b) discussing her different career possibilities; and (c) figuring out how Emily can pursue those possibilities while accounting for Andrew's career and goal of buying a house. Although they are both interested in Emily pursuing a career in computer science, they differ in their expectations for that career. While finding a fulfilling career is important to Emily, Andrew does not believe fulfillment can come from a job and encouraged Emily to be more pragmatic in considering her future. Additionally, Emily prefers to keep her educational and career options open and to be flexible in pursuing them, while Andrew prefers to know the plan.

Actions. Emily took a leading role in the joint conversation, which involved a lot of eye contact and some moments of silence. The couple generally took turns speaking, but occasionally interrupted one another. Emily proposed future possibilities and expressed her wants and desires. Andrew responded by providing information, sharing his perspective, and raising concerns. He explained the reasons behind his perspective including past experiences and the practicalities of his career (i.e., challenges associated with relocating) and their future living situation (i.e., owning a house). In turn, Emily provided suggestions for how the couple might plan for Andrew's concerns. Emily appeared thoughtful in her choice of words, pausing, and speaking more slowly. On two occasions, she made use of sarcasm. Andrew listened and provided space for his partner to speak, often using minimal prompts (e.g., mhmm, yeah). At times, he experienced feelings of frustration and anxiety. Although Andrew spoke less than his partner, he readily offered his perspective on the topics that were discussed.

The joint conversation covered the same content as their previous discussions and was typical in terms of the amount of time they each spent talking. Those conversations also follow a

similar pattern, with Emily discussing life plans, and Andrew sharing his thoughts about those plans. However, their usual conversations are more causal (e.g., sitting next to each other or lying in bed), considering they are "not trying to articulate it for an audience." Andrew also noted that Emily's interactional pattern seemed more "stilted" than usual, while Emily explained that their conversations do not always progress to discussing specific concerns.

Emily's goals in the conversation were: (a) to get affirmation from Andrew that he is okay with their lives being "flexible," "dynamic", and "inordinary"; (b) to get Andrew's thoughts and opinions on her different educational and career options; and (c) to encourage Andrew to be open to different possibilities (i.e., for himself, Emily, and the couple). Emily is grateful to be able to communicate, plan with, and get a second opinion from Andrew. The conversation left her feeling hopeful and excited about the couple's ability to effectively discuss her STEM career:

> *"He really would probably try to support me if an opportunity came up, or whatever. Like, we're having this good conversation, this is good, this means that, when this is not a hypothetical conversation, then he will be willing to actually discuss it and discuss the things that he is concerned about so that we can work together to make a plan and, like I said, actually pick the best option, you know?"*

While Andrew expressed openness to discussing the possibilities Emily raised, he was uncertain about how he might make those possibilities work and did not want to make any promises. Andrew's goals in the conversation were: (a) to figure out Emily's plan for her future career; and (b) to communicate the complexity of making life changes:

> *"And then also just kind of my goal is to, try and communicate that, life is not as fluid as we'd like it to be, right? It's not as easy to make big changes as you'd hope […] In terms*

of changing career, in terms of changing the province you live in, the country you live in, right?"

Projects. The following statements summarize two current "joint projects" that Emily and Andrew appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Achieving the next step in Emily's career path**
- **Negotiating how to pursue our future together in connection to possible next steps in Emily's STEM career**

Couple 009: Charlotte and Elle

Background Information. Couple 009 consists of a 20-year-old woman in STEM (Charlotte) and a 21-year-old woman (Elle) who have been dating for over two years. Both women are third year university students and driven to excel in their careers, in part due to parental expectations. Charlotte is majoring in Biological Sciences. Elle is pursuing a Bachelor of Arts degree. Additional information was removed to protect her anonymity. While Elle has a clear career goal, Charlotte has not yet decided on a career but is considering pursuing pharmacy, forensic science, or biology.

The couple started off as friends and bonded over their similarities, shared interests, and being amongst the few "girls that were into girls" in their friend group. Elle considers Charlotte her best friend and is committed to supporting her career pursuits. Elle does not want Charlotte to "strain [her] mental health over trying to be the best." At the same time, she understands the complexity of navigating career alongside parental expectations and the pressures Charlotte faces. Describing some of those pressures, Charlotte shared:

> *"I think it's, hard, 'cus one, the courses are really rigorous, and I think there's a huge double standard, with men that, I feel the need to kind of prove myself, in my major and also career wise. […] I feel like, I have to perform just as well, or even better, as them. I think also, my parents, they tend to push me a lot, to do well."*

Furthermore, Charlotte compares herself to her peers and to her sister, who she considers a "very ambitious person." Charlotte takes her education very seriously, which can sometimes lead her to neglect her mental health and push herself to the point of burnout.

The couple seems most focused on helping Charlotte to identify the next steps in her career while figuring out how to navigate the internal and external pressures she faces. Charlotte described multiple factors that complicate her career decision-making including disappointing her mother, financial and time investment, career options and locations for work, uncertainty around what careers she might enjoy, competition with other students, and the risk of failure. Elle would like Charlotte to prioritize her own interests and happiness, and thinks it is better to start over than to be left wondering "what if?"

Actions. Although Elle took a leading role in the conversation, the focus was on Charlotte. Elle took the role of providing support. She communicated empathy and understanding by providing advice, approval, and validation, and acknowledging what Charlotte was saying. She shared her opinions and beliefs and made supportive and re-assuring statements (e.g., "you deserve to have that chance for yourself," "starting over isn't always so scary"). Elle provided an optimistic perspective and lightened the conversational tone through humour (Elle indicated that the couple tends to deflect their feelings with laughter). Elle's body language appeared comfortable and relaxed. In one instance, Elle's passion for her belief in Charlotte came through in the form of more expressive body language.

Charlotte listened attentively and seemed to agree and engage with what Elle was saying. She also occasionally took the initiative in steering the conversation. She expressed her feelings of uncertainty and self-doubt, and shared her beliefs and desires related to her future career, and specifically, what she did *not* want to happen. Overall, the couple appeared comfortable and connected, making eye contact, and sometimes laughing together. The emotional tone was supportive. Notably, the couple indicated their typical conversations about this topic are shorter and less in-depth.

Charlotte identified the following goals for the conversation: (a) to "get someone else's perspective, kind of an objective point of view on what I should do, or at least some sort of, advice to help me, choose what I want to do" and (b) "letting [Elle] know my own thoughts and fears about my own sort of future, and kind of letting her in to that part of my life." Despite her uncertainty about the future, Charlotte felt validated and supported by Elle. Overall, Elle's goals in the conversation were: (a) to try to get Charlotte to be "easier on herself" and (b) "to make sure that [Charlotte] felt like she was being heard and understood":

> *"I think that I was just trying to, just let her know that if she, has a problem, even if we talk about it for like 15 minutes or like 15 years, I'm always gonna listen to it."*

Project. The following statement summarizes a current "joint project" that Charlotte and Elle appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Working together to figure out the next step in Charlotte's education and career, while considering the internal and external pressures she faces**

Couple 011: Monica and Adam

Background Information. Couple 011 are a 21-year-old woman (Monica) and a 20-year-old man (Adam) who are "coming up on two years together" in their relationship. They are both pursuing STEM education and first met in a computer science course. At times, it has been tricky for Monica and Adam to see one another because they live on opposite ends of the city and due to taking online courses during the COVID-19 pandemic. Adam is in the fourth year of a Bachelor of Science majoring in Computer Science, while Monica is in the fourth and final year of a Bachelor of Health Sciences, majoring in Bioinformatics. In addition to her studies, Monica works as a database developer and maintains extensive extracurricular involvement, including serving in leadership roles for multiple student clubs.

Adam would like to pursue a career in software development, ideally in website or game development. Monica's main focus is completing her thesis and graduating in time to start a tech analyst job she has been offered. At the same time, Monica is still considering her career options and can see herself pursuing a range of STEM careers in the future, such as software development, tech consulting, data science, or project management.

Although Monica's STEM classmates are "predominantly male," she described having "a lot of close friends" and noted, "I don't find that it's a big concern for me community wise." However, she sometimes compares herself to high achieving peers. Although workloads and schedules have posed a challenge to balancing Monica's STEM education/career goals with her relationship, Monica views Adam as "really supportive."

Sometimes, it can be tricky for Adam to know how to best support Monica because she is still exploring possible career paths. While Adam appreciates Monica's ambition and recognizes

the competitive nature of STEM, he sometimes wishes she would “slow down” and “take a breath.” He would also like Monica to enjoy her life and develop interests outside of school.

Several topics emerged as potentially important to the couple at this time. They are in the process of reconciling their different values related to career. Specifically, Adam is concerned Monica would prioritize her salary over finding a career she enjoys. They are also trying to figure out how to pursue their future lives together. Adam is motivated to have new experiences and move to a different country. On the other hand, Monica would like to stay in the city where they currently reside for at least a few more years and thinks she can satisfy her own "need for a new place" through travel. Nonetheless, they are both excited about the prospect of moving in together and seem motivated to support one another as they plan for their future lives:

> *M: “Adam is very, very hard working and he inspires me to, pay more attention to what I’m putting my time towards, and, putting myself in the shoes of others, so I feel like he just inspires me to be a better person overall.”*

Actions. Monica and Adam equally contributed to the conversation; at times they went back and forth and occasionally they continued each other’s statements. They took turns steering the direction of the conversation. Monica seemed motivated to keep the focus on her career. She provided information and context about her future job, expressed worry, listened to Adam’s perspectives, and shared her own. Adam listened attentively and shared his own perspective and concerns. Adam also provided encouragement and reassurance, and once, directly asked Monica how he could support her. The conversational tone was loving and included ample smiling, laughter, and eye-contact. In one instance, Adam used humour to gently disagree with Monica. The couple also conveyed affection by holding hands. Monica and Adam often discuss the future and careers, both in-person and over text. Although the content of the conversation was typical,

Adam noted, “it’s pretty rare for us to actually like sit down and look each other in the eyes and have a conversation like that.”

Monica’s goals during the conversation were: (a) to figure out if there was anything related to her career the couple had not talked about; (b) “to discuss more about plans” (e.g., career plans and moving out) and see if they were “on the same page”; and (c) “getting to know [Adam] better.” Looking ahead, Monica “can’t wait” for Adam to be done with his internship-related stress, so they can discuss topics outside of career. Adam’s goals in the conversation were: (a) to talk more seriously than usual and really listen; and (b) to find a balance between encouraging Monica and telling her how to live her life. Nonetheless, Adam feels confident about the couple’s future together.

Projects. The following statements summarize two current “joint projects” that Monica and Adam appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Working together to figure out how to pursue our future lives together, alongside our STEM careers**
- **Working together to help Monica graduate in time to have a smooth start to her job**

Cross-Case Findings

The cross-case analysis revealed numerous similarities, differences and unique patterns related to the two specific A-PM-informed research questions that were addressed in this thesis. In addition, the analysis process identified several additional emergent themes that contribute to answering the overall research question: *How do emerging adult women in STEM education programs jointly pursue their career plans with their romantic partners?* Cross-case findings are presented next.

Sub-Question 1: Joint Projects

In answering the overarching research question, the first sub-question addressed in this study was: *What are the projects that these women engage in with their romantic partners around pursuing a STEM career?* Cross-case analysis revealed several similarities across projects (i.e., multiple related actions over a medium time period) that couples constructed related to women pursuing a STEM career. Those projects focused on the intersection of STEM career goals and other life goals commonly encountered during emerging adulthood and career decision-making for the woman in STEM. Interestingly, only one couple was engaged in a project related to the transition from post-secondary into the workforce.

Projects related to the intersection of STEM career goals and other life goals commonly encountered during emerging adulthood. In pursuing a STEM career, five of the six couples (001, 003, 005, 007, and 011) considered how the woman's STEM career goals might intersect with the couple's other life goals. Specific life goals varied but included relationship progression, marriage, deciding where to live, and having children (see Table 2). The following quote from Marya (003) exemplifies this consideration:

> "*What's also challenging then is to pull that non-target into some of the life-family career paths of we want to live in a small kind of town in [province in Canada] and go skiing all the time and go hiking and do all these activities that we love, and I've never had those line up with my career trajectory yet."*

Table 2

Projects Related to the Intersection of STEM Career Goals and Other Life Goals Commonly Encountered During Emerging Adulthood

Couple	Project
001	Figuring out how to establish our careers in a way that takes into account other life plans (e.g., living in the same geographic location, having children, maintaining our relationship)
003	Exploring and discovering potential careers for Marya while balancing our other life goals.
005	Planning together for our future careers in STEM while considering our individual and relationship goals (e.g., where to live after completing our current degrees)
007	Negotiating how to pursue our future together in connection to possible next steps in Emily's STEM career
011	Working together to figure out how to pursue our future lives together, alongside our STEM careers

For Emily and Andrew (007), the intersection of STEM career goals and other life goals seemed complicated by the fact that, despite their similar ages and numerical classification as emerging adults, they appear to be in different life stages from each other. Specifically, Andrew has completed more of the markers of achieving adulthood than Emily (e.g., completed school, engaged in full time employment, ready to purchase a home/settle down). More typical of emerging adulthood, Emily is at the stage of considering possibilities for her life. She is in school and focused on different career options, which may include re-locating. This couple also seems

to lack awareness or acknowledgement of their differing life stage. This discrepancy appears to be leading to conflict amongst the couple:

E: "I have heard a lot that you should study at different universities and not only stay at the same one, but I'm not sure how I feel about that […] But, I don't know if a really good opportunity presents itself somewhere else, I might consider that, and I don't know if I will take it or not, but that's an opportunity. And, yeah. If, I want, like a job or career that is fulfilling, then that might be a possibility."

A: "Yeah, that's what concerns me because I'm out here looking for a house now, to buy. And then, I'm gonna buy a house, and then you're gonna go disappear somewhere for five years."

This category of projects also included discussion of the possibility of relocating or resolving couple's future geographic locations. Fred and Aria (001), for example, considered how to pursue their individual careers while staying together in the same place:

F: "You might get job in another city, I might get job in another city. There might be in different countries as well, so, as you mentioned, we have to be the same place that's also obviously the same for my case. I also want to be the same place, but […] if I have to sacrifice some good things to keep us together, I will do that. So, sometimes I worry about your opinion, in that case, because from the very beginning, you are, a way better student than me. So you have a better career compared to mine. So, […] will you be able to do any sort of such sacrifices if needed?"

A: "Yeah definitely because if it keeps us in the same place, then I'm okay to do this kind of sacrifice."

For 005, the woman in STEM (T) expressed openness to moving for her partner's career, but the partner (Matthew) preferred the decision to equally reflect each person's career opportunities. Since Matthew is more certain about his career goals, T perceives her own situation as more flexible and believes she may be able to find her calling by accompanying Matthew after they complete their degrees. In one exception to this pattern of similarity, the data provided by Charlotte and Elle (009) included no discussion of how they might coordinate their career and relationship goals to integrate their individual lives. This divergent finding indicates that, for at least some women pursuing STEM careers, considering how to pursue career goals alongside relationship goals is not a priority.

Projects related to career decision-making for the woman in STEM. Four couples (003, 005, 007, and 009) were engaged in projects related to career decision-making for the women in STEM. Those projects are presented in Table 3. For example, T (005) expressed uncertainty about selecting a career:

> *"I like sitting in a class learning about stuff and I like, going to the labs and being given a problem and then solving that whatever. But no job comes to mind, when I think about like, 'oh, a job, where I can sit in a lecture learn about,' you know? […] I like my major but I don't know how I'm gonna apply that someday."*

The exceptions to this pattern of similarity (001, 011) seemed to be couples where the woman in STEM already had a specific post-graduation career in mind, and in the case of Monica (011), a post-degree job offer in place.

Table 3

Projects Related to Career Decision-Making for the Woman in STEM

Couple	Project
003	Working together to identify a career that feels fulfilling for Marya
005	Identifying a long-term career path that makes T happy
007	Achieving the next step in Emily's career path
009	Working together to figure out the next step in Charlotte's education and career, while considering the internal and external pressures she faces

Notably, across the six couples, the women in STEM were at different stages in their career decision-making processes. Marya (003) was primarily considering STEM careers but had not entirely ruled out other career possibilities, including becoming a full-time parent. T (005) was passionate about her STEM education, but unsure of what she wanted to do for a career. Emily (007) was considering different specific occupations and education levels within one STEM field (computer science). Charlotte (009) was weighing the merits of continuing to pursue a career in pharmacy or switching to something else. Finally, the exceptions to this pattern, Monica (011) and Aria (001), seemed to have completed their career decision-making processes, at least for the time being. Although Monica had a specific job lined up after she graduated, she still seemed open to changing course later on, while Aria had at least generally decided on a specific STEM career field. Notably, most of the women in STEM were currently pursuing (001, 003), or considering (005, 007, and 009) graduate school. This may reflect the fact that many STEM career paths require advanced degrees (UNESCO, 2017).

A project related to transitioning into the workforce. In this study, only one of the women in STEM was actively engaged in the transition into the workforce. Couple 011 was

concerned with ensuring Monica completed her thesis and graduated in time to begin a job offer. Adam explained:

> *"I feel like she really just needs to, kind of, slow things down and just, focus on what she really needs to, which is her thesis and just kind of wrapping school up, instead of, really trying to pursue those different avenues or find out, different roles she can do, in terms of clubs […] At a certain point it's just like, you need to slow down. You're not gonna be able to do, absolutely everything, that you want to do. So, I feel like she just needs to kind of, discover, what really are her priorities."*

Sub-Question 2: Actions

The second sub-question considered in answering the research question was: *What kinds of goal-directed actions are taken together by women in STEM and their romantic partners to achieve their STEM career projects?* Patterns of action that were similar across the couples included (a) using warm and collaborative conversational tones; (b) high levels of self-disclosure/ participant comfort with sharing their perspectives; and (c) partners providing a variety of supports for the women to persist in their STEM career paths. Additionally, several patterns of actions varied across couples. Specifically, variation was observed in terms of (a) engagement in planning versus going with the flow; (b) level of optimism for the future; and (c) who initiated or directed the conversation.

Conversational tone was warm and collaborative. For four couples (001, 003, 009, and 011), the joint conversations were characterized by a tone that was warm and collaborative. These couples appeared connected and in-tune with each other, acting as a team in pursuit of their goals. In contrast, the conversation was more debate-like for the other two couples. This debate-like quality is exemplified by T and Matthew's (005) discussion of whether their

relationship, and specifically Matthew's education, influenced T's decision to take a coding course:

> *T: "I don't think me being exposed to you doing things like that, like coding and stuff all the time would make me— like if I see you do something like a hobby or something a lot and I try it, I don't think the fact that you like it would make me like it too."*
>
> *M: "I beg to disagree. Before I came to university, I never played volleyball once in my life, and I was a swimmer, and you liked volleyball. And I came here and I started liking volleyball because you liked volleyball and now I'm on a volleyball team."*

Interestingly, Emily and Andrew (007) seemed to have different overall perceptions of the conversation from each other, as indicated by what they disclosed during the self-confrontation portion of the main interview. Reflecting on a segment of the latter portion of the conversation, Emily thought the couple had moved towards having a more constructive discussion:

> *E: "So this is where it felt like it started being more constructive, because he was explicitly expressing the things he was concerned about, which I appreciate because we can then talk about, actually how we would handle those things."*

Andrew expressed a different perception in his self-confrontation:

> *A: "We're both just kind of saying the same thing back and forth to each other, like our own thing. Neither of us is convincing the other person, right? You're just saying what you think back and forth to the other person, right?"*

Conversation featured high levels of self-disclosure/ comfort sharing their perspectives. The conversations of all six couples featured high levels of self-disclosure. Participants in this study appeared comfortable sharing their individual perspectives with one

another. This theme was present even when perspectives differed between the two members of a couple. Exemplifying that comfort, Charlotte (009) explained:

> *"It's just very natural, very comfortable to talk about it, 'cus I know she won't judge me for anything."*

Partners provided a variety of supports for the women to persist in their STEM career paths. Across couples, partners provided a variety of supports for the women to persist in their STEM career paths. This was especially prominent in couples 001, 003, 009, and 011, while less obvious but still present in 007 and 005. The specific nature of the support varied across couples, but included providing (a) emotional support (e.g., keeping company, physical touch, words of encouragement, reassurance, validation, listening, and encouraging attention to mental well-being), (b) verbal support (e.g., suggestions/advice, reminders, assisting with career planning), (c) practical support (e.g., household labour), (d) modelling/setting a positive example, and (e) making career decisions that benefit both members of the couple. Frank shared how he provided practical support to Marya (003) during her PhD candidacy:

> *"So, yeah, just supporting in whatever way that means. Like, when you're doing your candidacy, it was trying to be here to make all the meals and just do that sort of housework, or that sort of thing, while you were super focused on getting prepped for your candidacy and yeah, I don't know. Just little things like that that make a difference I think."*

Charlotte shared an example of emotional support from her partner, Elle (009):

> *"I know she re-assures me, a lot, and kinda tries to drill that idea of like, my academic performance does not equate to my self-worth."*

Although Emily (007) does not currently live with her partner, she still made an explicit connection between household labour and support for her STEM career during the couple's joint conversation:

> *"I know that I'd appreciate it if, during the times when things are, much more busy, if you can help me remember things and help me focus on things and, I don't know, possibly pick up extra slack."*

For two couples (005 and 011), support included figuring out the appropriate amount of support that does not overwhelm the woman in STEM's independence. In his self-confrontation, Adam (011) explained:

> *"I guess one thing that I struggle with a bit is, what extent I push her to do things that I think that would be good for her, and trying to find the balance of, encouraging and not just trying to, tell her how to live her life […] it's just hard for me to do, so I just want to get better at that, just because she, has her, own spirit, yeah, she likes to do exactly what she wants."*

Furthermore, for two couples (001, 011), this support was reciprocal. That is, there were indications that the woman in STEM also provided support for her partner's career pursuits. As Adam (011) described:

> *"It kind of goes both ways, where, I try to help her out and she tries to support me. Just 'cus there's a number of things I probably wouldn't have done, but did, because you know, she was in my corner."*

Although the research team did not identify support reciprocal for the other couples, this may have been a function of the research question, which was focused on the woman in STEM. That is, participants were aware that the study was about supporting the career of the woman in

STEM, so they may not have focused on the ways that the woman in STEM supported her partner's career.

Patterns of action that varied across the couples. Couples varied from each other in terms of planfulness, optimism, and directiveness, which may be reflective of broader variations in terms of how emerging adults interact with each other within a couple. There was significant variation in terms of engagement in planning versus going with the flow in pursuing couple's goals for the future. For couples 005 and 007, the woman in STEM wanted to go with the flow, while the partner preferred having a plan. For 011 and possibly 009, the woman in STEM preferred a plan while the partner wanted to go with the flow. On the other hand, both members of 001 seemed to engage in planning ahead. No clear pattern was observed for 003 in terms of this action. Couples also varied in their level of optimism for the future, or their sense that things would ultimately "work out." Optimism was observed in both members of 001 and 003. Frank, for example, expressed optimism that the couple could balance personal goals with Marya's (003) STEM career goals:

> *"I think we both need to think outside the box […] You're like oh, we can't have it both ways sort of thing, but, I don't know if that's necessarily true. I think maybe it won't be the easiest path to try to merge both those but why not?"*

For couples 009 and 011, optimism was more present amongst the partners than the women in STEM, while for 007 it was mainly observed in the woman in STEM. Optimism was less strongly evident for 005, though still expressed by Matthew.

> *"I think I came more so to a realization that it's okay to not have a plan. […] And I think that's, you know, people are different. I would be anxious all the time if I didn't have a*

plan but that works for some people and […] things will align themselves eventually, I'm sure they will. Once she pursues what she likes, it will work out."

Finally, couples also varied in terms of who acted to initiate topics and direct the conversation. For 005 and 009 the partners (male and female, respectively) took the lead, while for 007 the woman in STEM led. On the other hand, couples 001, 003, and 011 contributed equally to directing the conversation. Furthermore, couple 011 was distinct in the way they frequently alternated speaking turns. They engaged in a turn-taking or back-and-forth approach that the researchers likened to a tennis match. This pattern was also reflected in the couple's joint conversation transcript, which featured more lines than any other couple.

Additional Emergent Themes

Going beyond the identified patterns in participants' projects and actions, the cross-case analysis process identified five additional themes that were relevant to the overarching research question. These themes included: (a) the woman in STEM identified various challenges with pursuing these career paths; (b) family of origin expectations in pursuing STEM; (c) assumption that both members of the couple will be working in the long term; (d) pursuing work-life balance; and (e) discussion of the purpose of work in a person's life.

The women in STEM identified various challenges with pursuing these career paths. In four couples (003, 005, 007, and 009), the woman in STEM discussed various challenges associated with pursuing a STEM career path that were not connected to their romantic relationship. Challenges included peer-to-peer competition and comparison, academic rigour, fear of failure, female underrepresentation, and for two of these women (003 and 007), experiences of gender discrimination. Forms of gender discrimination included sexual harassment, sexist comments, being looked down upon, and having others minimizing their

knowledge and expertise. Both of the women who described experiences of discrimination were also actively engaged in efforts to increase inclusivity in STEM. Furthermore, both women spoke to their perceptions that, although there are still problems, the climate of STEM for females has improved over time. As Marya (003) explained:

> *"In terms of being a female actually in STEM I really do a lot of equity diversity and inclusion work because, I just think it's important. But we're almost there in terms of equality in the science field, particularly mine. But definitely there's been times, where I've been you know discriminated against, or looked down upon, or thought to be not as good as a chemist, due to being a female."*

The exception to this similarity were couples 001 and 011. While Monica (011) described the underrepresentation of women in her field and engaged in peer-to-peer comparison, these factors did not seem to be a concern for her. Aria (001) had not noticed gender-related discrimination or differences in the number of students in her courses and stated that the top students in her classes tended to be women.

Family of origin expectations in pursuing STEM. Three women (001, 003, and 009) described family of origin expectations in pursuing their STEM careers. Those expectations varied but included encouragement to prioritize marriage and family-oriented goals, what future life options to pursue (within or outside of STEM), and school performance. For all three of these women, family expectations seemed to carry significant weight. In her discussion about whether or not to pursue a career in pharmacy, Charlotte (009) expressed this pressure:

> *"And then also with [my mom] just telling all of our family members, and family friends that I'm going into it, it just, feels like I have, an even bigger expectation to go into it […] It's just if I don't go into it, I feel like I'm just gonna break my mom's heart. 'Cus that's*

all she wants for me, and, I guess both of my parents, they just came here, sacrificed everything just so I can get a good education, where it's like, I feel like I have to."

Assumption that both members of the couple will be working in the long-term. For five of the six couples (001, 005, 009, 011), the research team noticed an underlying assumption that both members of the couple would be working in the long-term. Consider, for example, Charlotte and Elle's (009) discussion of shifting career paths over the lifespan:

E: "Yeah. I feel like people change up their lives all the time, and it doesn't mean that, you can't restart your life at 30. It doesn't mean that you can't restart your life at 40. Like, it's a little late, but, better late than never."

C: "Yeah no, I get that. But yeah I have the rest of my life to kind of do what I want. It's just I don't wanna start over and just start at zero again, and kind of work my way up. It just seems like, even more work."

E: "I think at the end of the day, […] it's always going to be more work. I don't think that you're starting at zero, I think you're going back, into something with a different experience and a different mindset because, by the time you figure it out you're not going to be the same person that you are now, right?"

One possible exception was Marya (003), who mentioned full-time parenting as an option, but was also exploring various STEM career paths. Still, the option of being a full-time parent did not appear to be a priority for her:

"There's also a part of my brain that says, and it's a lot of my upbringing, that well I could also just be a mom and just, not do science. And so it's well maybe, you could move out to a small [Province in Canada] town and live there and do all your things and not

work in science and to me that, just blows my mind, because, I haven't had a single day, where I haven't thought about advanced science."

This finding needs to be interpreted in light of another aspect of the sample; only two couples (001, 003) were considering how to fit children into their future lives. As Table 1 reveals, these were also the oldest two couples in the sample. The possibility of having children and, by extension, the impact of becoming parents on career plans may become more salient for couples in their mid to late 20s than in their early 20s.

Work-life balance. Three couples (001, 003, and 005) and one partner (011) were negotiating their work-life balance. That is, these participants were considering how to balance their career development with other facets of their lives (e.g., their relationships, mental health, or other interests/ hobbies). In his self-confrontation, Adam shared his desire for Monica (011) to focus more on developing interests beyond her STEM career:

" I really appreciate just being able to like, if on the weekend I want to do something, it's really no big deal. I can just go ahead and do it. But for her, she probably has to worry about this meeting, that meeting, all sorts of different things, and it's just like… we're still so young. […] I just guess that I want her to have things that she's interested in outside of school, and work, and everything else that's always gonna be there."

Notably, this work-life balance seemed to be aspirational, an ongoing negotiation rather than something the couples have attained. Exemplifying this negotiation, Marya (003) shared the following in her warm-up:

"Things like that of managing anxiety have been huge for me […] making sure I'm eating, sleeping, working out, and having those, I guess, self-care and those personal pieces built into my everyday because […] when things get too busy at work or in school,

what starts going is sleeping. What starts going is like, oh I just will skip this meal or, I won't work out today. And that's where I have flexibility to make those decisions, and so it's really focusing on those pieces for me to ensure that those are all components of my day."

Discussion of the purpose of work in a person's life. All six couples had joint conversations that included some discussion of the overarching purpose of work in a person's life. For some couples (007, 009, 011) this discussion took the form of expressing disagreement, while other couples (001, 003, 005) were in agreement. For couples 009 and 011, the woman in STEM prioritized practical/ pragmatic considerations for her future career (e.g., earning potential, financial and time investment) while the partner prioritized happiness, enjoyment, and/or the pursuit of non-work interests. Andrew and Emily (007) showed the opposite pattern, with the partner prioritizing pragmatic considerations while the woman in STEM prioritized fulfillment. For example, during their discussion of whether fulfillment can come from a job, they stated:

A: "I think my general experience in this world is that jobs are not fun. Any job you have, no matter how fun it is in one, week 100 you'll be sad."

[…]

E: "I would like to not, have a career that I dislike. […] I refuse to have and maintain a career that bores me because, doing things makes me feel fulfilled, and, I am not going to give that up. I need something that makes me feel fulfilled and like I've accomplished something."

On the other hand, members of 003 and 005 were in agreement with each other about prioritizing fulfillment in career and were seeking an occupation that the woman in STEM will "love" or feel

"passionate" about. In contrast, Aria and Fred (001) both seemed more concerned with pragmatic aspects of career (e.g., reconciling their individual careers with their desire to live in the same place).

Summary of Findings

Within- and cross-case analyses revealed a complex picture of the ways in which emerging adult women in STEM education programs, similar to many emerging adults (Domene & Johnson, 2012; Domene, Landine, & Stewart, 2015), jointly pursue their career plans with their romantic partners. In pursuing STEM career goals within their relationships together, couples constructed projects related to: (a) the intersection of STEM career goals and other life goals commonly encountered during emerging adulthood and (b) career decision-making for the woman in STEM. Couples drew on a range of goal-directed actions in pursuit of these projects; specifically: (a) conversations had warm and collaborative tones; (b) conversations featured high levels of self-disclosure/ comfort with sharing their perspectives; and (c) partners provided a variety of supports for the women to persist in their STEM career paths. However, variation was observed in how comfortable couples were living with uncertainty/ going with the flow in terms of their future, their level of optimism for that future, and who took the lead in the conversation. Additional emergent themes further suggest that many of the women in STEM faced various challenges and navigated family of origin expectations in pursuing their careers. Furthermore, couples generally seemed to be operating from the assumption that both members of the couple would be working in the long-term, an assumption that seems to have influenced the nature of their STEM persistence projects. Finally, couples were considering their work-life balance and the purpose of work in a person's life. In Chapter 5, study findings are discussed in the context of

existing literature. Study strengths, limitations, directions for future research, and counselling practice recommendations are also presented.

Chapter 5: Discussion

Using the A-PM, this study explored how emerging adult women in STEM education programs jointly pursue their career plans with their romantic partners. Data analysis revealed two kinds of commonly occurring projects and numerous goal-directed actions taken by the six couples in pursuing the woman's STEM career. Furthermore, several additional themes emerged which contributed to understanding these women's career and relationship development. In this chapter, the major findings are summarized and considered in light of the existing literature. Strengths and limitations of the present study are examined, followed by suggested directions for future research. The chapter concludes with implications and recommendations for counselling.

Connections to Existing Research

Similarities in Joint Projects

Five of the six couples were navigating the intersection of STEM career goals with a range of other life goals commonly encountered in emerging adulthood, such as relationship progression, marriage, deciding where to live, and having children (Arnett, 2015; Domene, Landine, & Stewart, 2015; Kvasková et al., 2022). Domene et al.'s (2012) A-PM study of 18 emerging adult couples' transition from post-secondary to work revealed a similar category of projects related to "balancing multiple priorities" (p. 20). Domene et al. also identified a project separate from but overlapping with balancing multiple priorities titled "deciding where to live" (p. 20). In the present study, the project of balancing STEM career goals with other life goals also included discussing the possibility of relocating or where to live. Findings from the present study also align with findings from Wyss and Tai (2010). In Wyss and Tai's study, described in Chapter 2, several women interviewed at a range of career stages within physics and chemistry indicated they had prioritized family life in making certain career decisions, including choosing

graduate schools that allowed them to maintain proximity to their romantic partners. Therefore, the present study combined with existing literature indicates that, regardless of their specific stage of career development, emerging adult couples seem to be considering how their careers and lives outside of work intersect.

At times, participants experienced tension between their careers and other life goals, or uncertainty around how those realms might align. Using the A-PM, Young et. al. (2022) reported some conflicting priorities among the career-related, identity-related, and relationship-related goals and actions of 12 newcomers, most of whom were emerging adults, who took part in a brief intervention program to support their transition to Canada. Similarly, Youmans et al. (2022) applied a thematic data analysis to semi-structured interviews with 12 emerging adult women in the United States who were pursuing or had attained a college education and were in romantic relationships. These authors identified challenges with integrating career and relationship/family goals.

Some participants in the study by Youmans et al. (2022) expressed uncertainty over their relationships, relating to "instability anxiety," or uncertainty around their future lives (e.g., where they might live, possibilities for graduate school), and viewing committing to a relationship and independence as in conflict (p.808). Somewhat at odds with our findings, many of the women in the study by Youmans et al. (2022) were prioritizing individual rather than joint goals, which these authors deemed a response to instability anxiety. It is also possible that the prioritization of individual goals was reflective of the younger age of their sample overall (19 to 22 years-old with an average age of 20). Furthermore, at least one participant explicitly identified her age as contribute to her relationship uncertainty. In contrast, couples in both the present study and the study by Domene et al (2012) approached goals as a joint effort between both members of the

couple. Even where their individual goals seemed to be in conflict, participants discussed potential solutions to such conflicts that involved both members of the couple. Overall, pursuing career goals alongside other life goals appears to be a priority for at least some emerging adult couples— although there may be ambiguity around what balancing those goals will look like.

Four couples in this study were pursuing projects related to career decision-making for the woman in STEM; that is, identifying careers or the next step in the woman in STEM's career path. Across the entire sample, couples varied significantly in their stage of career decision-making. This finding is not surprising, considering emerging adulthood tends to be a period of both career exploration and individual variation (Arnett 2018; 2000). Projects related to career decision-making have also been identified in other A-PM studies focusing on emerging adults. Domene et al.'s (2012) study similarly identified projects related to "pursuing and implementing career plans," including those related to both education and occupation (p.20). In an A-PM study of 15 emerging adult peer dyads, most of whom were pursuing post-secondary education, Young et al. (2015) observed career development projects, which encompassed "navigating and exploring educational choices and experiences as well as considering and pursuing specific occupations" (p.174). Similarly, a study of 12 emerging adults and their counsellors identified a category of joint projects related to the emerging adults' educational and occupational pursuits (Young, Marshall, Foulkes, et al., 2011). Finally, analyses of data from 14 Saudi Arabian dyads composed of individuals ages 17 to 23 and older family members (parents, siblings) identified projects related to "negotiating educational and career futures [emphasis removed]" (Khalifa et al., 2018, p.146). The present study extends the previous finding that career decision-making is a priority in the joint projects of at least some emerging adults and their social supports to the population of women in STEM and their romantic partners.

Similarities in Actions

Partners in this study provided a wide variety of supports for the women to persist in their STEM careers paths (i.e., emotional, verbal, and practical support; modelling/setting a positive example; and making career decisions that benefitted both members of the couple). As mentioned in Chapter 2, other authors have also identified romantic partners as a potential source of support for women in STEM (Dabney & Tai, 2013; Wyss & Tai, 2010) Findings related to the provision of support are also consistent with literature identifying romantic partners as a source of career support for emerging adults, discussed in Chapter 2 (Domene et al., 2012; Manning et al., 2011; Mortimer et al., 2002). For example, the present findings build on Domene et al.'s (2012) observations that couples' projects related to pursuing and implementing career plans during the transition to work seemed driven by their desire to support one another. These authors also observed actions related to practical and instrumental support. Unlike the Domene et al. study, the current study only identified support as reciprocal in two cases (i.e., the woman in STEM supporting the partner). However, as noted in Chapter 4, this may have been a function of the study's emphasis on the woman in STEM.

In Domene et al. (2012), support also emerged in couples' interactional pattern during the joint conversations, "which involved actions such as active listening and paying attention, using humor and verbally supportive language, and engaging in physical gestures of support and affection" (p. 20). All of these actions were observed in the present study, with four couples' joint conversations being characterized as warm and collaborative. Overall, partners in our study seemed motivated to support the women in STEM.

Unique to our study, the research team observed that couples' joint conversations featured high levels of self-disclosure and comfort sharing their perspectives. Regardless of the

degree of alignment (or lack there-of) in the perspectives of individual members of the couple, these couples showed striking openness with one another. Under the theme of "*Factors Keeping Partners Together,"* Youmans et al. (2022) identified "commitment, shared values, communication, and long-term relationship planning emerge as protective elements against instability" (p.809). Interestingly, Youmans et al. (2022) found emerging adult women who experienced "safety, deep connection, and intimacy" as well as "good communication" often reported an expectation that they would remain together as a couple with their romantic partner (p.809). Perhaps, then, the high level of openness in our sample was reflective of the committed nature of couples' relationships.

Additional Emergent Themes

The women in STEM identified various challenges with pursuing these career paths. While the specific challenges varied, four of the women in STEM identified challenges with pursuing STEM that were not related to their romantic relationships. These findings confirm the continued presence of numerous barriers for women in STEM education that have been identified in previous research, such as underrepresentation (Frank, 2019; UNESCO, 2017; Wall, 2019), perceived lack of belonging (Lewis et al., 2017), sexual harassment and gender-related bias (Leaper & Starr, 2019), and sexism enacted with both positive/ well-meaning and hostile intentions (Kuchynka et al., 2018). As two participants explicitly stated, it appears that, while the climate of STEM education programs may be improving, there is still much work to be done.

Family of origin expectations in pursuing STEM. Arnett (2018) suggests that, while emerging adulthood is a time in which individuals make decisions independent of their families of origin, the influence of those families remain with them. Consistent with Arnett's conceptualization, half of the women in the present study described how family of origin

expectations (mainly from parents) influenced their pursuit of STEM careers. Findings related to family of origin expectations also add to the existing body of literature investigating the role of family of origin influences in STEM education, and specifically parental influences. A large portion of that research focuses on children and adolescents rather than emerging adults. From their literature review, Thomas et al. (2020) also concluded most research on parents' engagement in their children's STEM education has focused on math and science rather than STEM more broadly. For example, longitudinal research out of the United States explored the impacts of an intervention aimed at helping parents of high school students convey the value of math and science to their children (Rozek et al., 2017). Structural equation modelling found the intervention was associated with increased STEM preparation (i.e., math and science scores on a standardized college entry exam) and later STEM career pursuits.

Although there are fewer studies, existing research suggests parents can have a significant influence on post-secondary students' STEM career development. Craig and colleagues' (2018) narrative investigation of two graduate students and one undergraduate student revealed how childhood experiences with parents set the groundwork for their participants' subsequent STEM pursuits. As a component of a larger, mixed methods longitudinal study, Puccia and colleagues (2021) conducted a thematic analysis of interviews from 55 undergraduate White women and underrepresented minority women and men attending universities across the United States. Reflecting on high school and their first year of undergraduate engineering, most (42) participants viewed their parents as influential to their decision to pursue, and especially to persist, in STEM education. Participants reported experiences of a wide range of supportive behaviours from their parents.

Similar to our study, Ikkatai et al. (2019) found some parents had opinions about what career their adult child should pursue. Regression analyses with 618 mothers and 618 fathers in Japan found "parents with egalitarian gender role attitudes" tended to endorse their daughter's autonomy to select a STEM field, most often because they had faith in their employment prospects (p. 2254). On the other hand, "parents that disagreed expressed a variety of reasons, including negative perceptions of STEM fields such as lack of employment opportunities (biology, mathematics, physics and information science) and unsuitability for women (engineering)" (p. 2254). When considered in light of previous research, the present study findings point to the importance of attending to the family context of career for women in STEM.

Assumption that both members of the couple will be working in the long-term. The research team noticed that couples in this study seemed to be operating from the implicit assumption that both members of the couple would be working in the long-term. This observation aligns with the increasing normalcy of dual career couples (e.g., Arnett, 2018). As noted in Chapter 4, this finding should be considered in light of the fact that the two oldest couples in this sample were thinking about children, while the three younger couples were not. In 2016, the average age that Canadian women had their first child was 29.2 years-old— a number which has been rising over the past several decades (Provencher et al., 2018). The average age for men's first child was even higher, at 32.2 years-old. Therefore, having children may simply not have been a relevant concern at this stage in the lives of many of the participants. However, it should be noted that couples where either partner was already a parent were excluded from the study. One additional explanation for couples' expectations that both partners would be working may be that we recruited women who were actively pursuing STEM and therefore had career

goals in mind. It makes sense that these women expected to be working in the long-term. Furthermore, the participating couples were mostly heterosexual. In the context of traditional, yet persisting gender roles in Canada, if the woman is pursuing a career, it is likely both members of the couple will be.

Work-life balance. Similar to the project relating to balancing career and other life goals, three couples and one partner were considering how to balance their career development with other facets of their lives (i.e., their work-life balance). Those facets included their romantic relationships, mental health, or other interests/hobbies. Consistent with our findings, ten of the eleven female physicists interviewed by Dabney and Tai (2013) spoke to their desire to balance graduate school with their lives outside of school, and seven spoke to their desire for balance in their careers. Similar to the aspirational nature of work-life balance in the present study, Dabney and Tai (2013) described this balance as something "just outside of [participants'] reach" when it came to educational pursuits (p. 4). Notably, participants in their study described a sense of guilt associated with pursuing a life outside of school— something that was not observed amongst our sample. Perhaps this difference is reflective of the shifting discourse around work in Canadian society that has accompanied the COVID-19 pandemic, raising the topic of work-life balance as a consideration for workers (Como et al., 2021).

Discussion of the purpose of work in a person's life. Couples in this study discussed the purpose of work. Typically, participants fell into one of two camps: 1) those who emphasized the practical/pragmatic aspects of work (e.g., considering earning potential, financial and time investment) and 2) those who emphasized the importance of obtaining fulfillment, happiness, or the pursuit of passions through their work. These different perceptions were not only present across different couples, but also within some of the couples, as well, where one person fell into

one camp while their partner fell into the other. These camps mirror two categories of messaging emerging adults may receive: to either "get a real job" or "follow your passion" (Domene et al., 2017, p. 407). The latter camp also overlaps with the notion of career as calling, or "work that a person perceives as his purpose in life" (Hall & Chandler, 2005, p. 160). Hall and Chandler (2005) argue contextual factors such as socio-economic status and the economy may promote or constrain a persons' ability to pursue calling in career. Perhaps exemplifying the role of context, one partner in our study described his decision to forgo his ideal career in order to enter the workforce and secure an income sooner. Furthermore, one woman in STEM described her concern over the potentially wasted financial investment of changing career paths. Although participants provided some clues into the reasons behind their differing values around career, additional research with a different focus is required to fully understand the reasons behind their prioritization of passion versus practicality, both in the specific context of pursuing STEM careers and also more generally.

Strengths and Limitations

The present study had several strengths. Young et al. (2021, 2005) have identified several strengths of the A-PM itself. Rather than requiring participants to retroactively recall relational influences on their careers, the A-PM allowed the research team to observe couples negotiating career-relationship intersections in real time. At the same time, participants still provided relevant historical and contextual details throughout their interviews, especially during the warm-ups. The A-PM also has several procedures to ensure methodological integrity, as discussed in Chapter 3. Finally, the A-PM is designed to be participant-led, which allowed for the emergence of unanticipated findings, such as couples negotiating their understandings of the purpose of work in their lives. Thus, this study provided a rich account of the career and relationship

processes for emerging adult women in STEM. For a more comprehensive description of the strengths of the method, see Young et al. (2021, 2005).

There were also several strengths specific to this study. In terms of participant characteristics, the women in STEM reflected a range of STEM disciplines and included individuals studying at both the graduate and undergraduate level. The women in STEM also reflected several different stages of career development and decision-making. Furthermore, participants reported a range of ethnic/cultural backgrounds. The research team also consisted of individuals at various stages of career development, including two researchers who were pursuing graduate education in a health-related discipline. Also, all three researchers were in committed romantic relationships. As such, the research team was familiar with some of the issues raised by participants, which enriched the discussion during the consensus-based analysis process. Finally, one of the major strengths of the study is its focus on relational processes rather than outcomes. The few previous studies that have explored the role of romantic partners in women's pursuit of STEM careers have tended to focus on STEM outcomes and have tended to focus solely on the perspective of the individual who is pursuing a STEM career. Therefore, the present study contributed to the literature by identifying and describing ways that these women pursued their careers together with their partners.

In addition to these strengths, it is important to be mindful of the limitations of the present study in interpreting the findings that emerged. While the full, longitudinal version of the A-PM investigates actions over time (Young et al., 2021, 2005), the present study implemented a condensed version of the A-PM recommended by Young et al. (2021) to address time constraints imposed by graduate student thesis research. Young and colleagues caution that "this adaptation may compromise the capacity of the method to explore dyads' actual pursuit of projects over

time" (p. 338). Thus, this study provided a snapshot into couples' actions at one moment in time but did not explore the evolution of their relationship projects and processes over time.

Another limitation inherent to the A-PM is that "the process of guiding participants toward generating a conversation may jeopardize the assumption that the observed topics and actions are typical for the dyad" (Marshall et al., 2012, p.170). To consider this possibility, participants were explicitly asked about how well the video-recorded joint conversation reflected they typical patterns of interaction (Marshall et al., 2012). While participants in this study reported some abnormalities in terms of their interaction patterns during the joint conversations (e.g., greater formality, longer conversations, and feelings of awkwardness), they also described ways in which the conversation mirrored both the content and interaction patterns of their day-to-day interactions.

A related limitation is that there may have been a social desirability bias, considering participants were aware of the study purpose and there was no deception involved. Specifically, some participants may have responded in a socially desirable way, both in terms of how they interacted with one another during the joint conversations and in their responses during the self-confrontations. For example, some of the participants may have been motivated to represent "women in STEM" well, and to encourage other women to persist in STEM through their narratives. However, self-confrontations provided evidence that there may have been both authentic and socially desirable responses. Furthermore, many of the themes that emerged in this study are consistent with existing research about STEM persistence and about career development in emerging adulthood more generally, which suggests that social desirability did not exert a greater influence in this study than in other similar studies.

There were additional limitations specific to the present study. First, four of the 12 participants declined to return for the member-checking interview, and in cases where only one member of the couple returned, only that member's individual narrative and the joint project statements were reviewed. Therefore, it was not possible to confirm whether the participant who withdrew agreed with the researcher team's interpretations. Furthermore, due to scheduling limitations on the part of both myself and the research participants, member-checks were scheduled 7.5 to 9 weeks after the main interview, which is longer than Young et al. (2021) recommend for conducting the second interview. This extended duration may have impeded participants' abilities to recall details of the first interview.

Although this study originally sought to explore the experiences of emerging adult women in post-secondary STEM education programs more broadly, all six women were attending university. In addition, although the study originally sought to explore the experiences of women across emerging adulthood, nine participants were under 25 years old. Also, five of the six couples were in heterosexual relationships. Furthermore, half of the women in STEM in this sample were taking on student leadership roles (007, 003, and 011)— which may be indicative of greater commitment to STEM. As an exploratory, qualitative method, the A-PM is not designed to produce generalizable results. Nonetheless, the characteristics of the couples who participated lead to the conclusion that the findings may not adequately reflect the experiences of women completing STEM post-secondary education outside of university settings (e.g., non-university apprenticeships, certificates, or diplomas offered by colleges and institutes of technology), women in the latter half of emerging adulthood, women in 2SLGBTQ+ relationships and women in STEM who do not choose to pursue leadership roles.

This study sought to explore the experiences of women in STEM fields where they are not dominant and hence excluded the medical/health sciences (Chan et al., 2021; UNESCO; K. Wall, 2019). However, the sample included two individuals who were enrolled in science degrees (biology, chemistry) at the time of their research involvement but who revealed that they were considering a health profession (pharmacy, medicine) among the future career options that they were contemplating. Therefore, one limitation of the study is that the screening process did not work as intended, possibly because some of the participants were at relatively early stages of career decision-making. In retrospect, it may have been more effective to have used self-reported intention to pursue a STEM career outside of medicine/health as the inclusion criterion, rather than the nature of their education program.

Future Directions for Research

An inclusion criterion for this study was that couples reported having a partner who supported the woman in STEMs career or educational plans. Therefore, it is recommended that future A-PM studies be conducted with a broader range of couples to capture the influence of partners and relational dynamics that may be less supportive (e.g., career-hindering influences). Considering the influence of family of origin that emerged for at least some of the women in this sample, future A-PM studies should focus on the projects that emerging adult women in STEM engage in with members of their families (e.g., parent-child dyads). Furthermore, although participants reported a range of ethnic/ cultural backgrounds, research that focuses on the experiences of women from specific cultural groups that are under-represented in STEM education would be beneficial. Buck et al. (2020) has highlighted the need to consider intersectionality (Combahee River Collective, 1977/2014; Crenshaw, 1989, 1991) when researching gender disparities in STEM. Buck et al. (2020) also identified a lack of research on

other underrepresented genders in STEM, which should be addressed in future research. Longitudinal A-PM research might provide a fuller picture of the ways in which the projects and actions identified in the present study evolve over time. Finally, quantitative, longitudinal follow-up research might also examine whether any of the actions or projects identified are related to STEM persistence outcomes (e.g., degree completion, obtaining a STEM occupation).

Implications for Counselling

Career Decision-Making

Couples in this study were at varying stages in their career decision-making. In counselling emerging adult women in STEM, practitioners must be cognizant of this individual variation. An important finding that emerged from this study is that, while some women in STEM education programs may have a specific career goal in mind, others may be at an exploratory stage even if they are graduate students. Therefore, counsellors working with this population should assess clients' stage of career development rather than assuming that a woman enrolled in a STEM university program has already decided on a specific STEM occupation. This assessment should also guide the selection of interventions that are appropriate for the woman's needs. For example, someone selecting between a few different STEM occupations that their degree may lead to might benefit from engaging in informational interviews, creating pro-con lists, or decision-making grids (Amundson, 2018). On the other hand, someone who is trying to obtain employment in a specific STEM occupation might be more suited to strategies like behavioral rehearsal of job interviews or assistance with preparation of an effective academic CV (Amundson, 2018). In working with women in STEM, and with emerging adults in general for that matter, a priority should be to select interventions that are appropriate to the client's career stage.

Couples' Career Values

Couples in this study were considering the purpose of work in a person's life— in other words, what they value in career. Other research suggests variation in job values in the period from adolescence to young adulthood, but movement towards greater stability and placing importance on a smaller number of values over time (Kirkpatrick Johnson, 2001). Thus, a major task in career counselling with women enrolled in STEM education programs may be to assist them in gaining a deeper understanding of their career values. Targeted interventions such as values card sorts can facilitate this exploration (e.g., Amundson, 2018). It may also be beneficial to normalize the idea that career values may not be static and that different members of a couple may have different priorities for their future work. In the realm of couple counselling, it may be important to make explicit each individual romantic partner's career values and to identify any discrepancies or conflicts that are present across the couple. If such conflicts exist, it may be beneficial to implement relationship counselling interventions designed to resolve general differences in values and priorities, even if these interventions are not specifically designed as career interventions (Domene & Johnson, 2021; Domene, Landine, & Stewart, 2015).

Work-Life Balance

Careers do not exist in a vacuum. Our study lends support to counselling psychology researchers who have highlighted the inseparability of career and other domains of life (e.g., Domene & Johnson, 2021; Hudson Breen & Lawrence, 2021). In his comprehensive book on career counselling, Amundson (2018) eloquently described this inseparability: "most people come to counselling with life problems that do not fall neatly into the categories of career or personal; life just does not define itself that neatly" (p.3). While the participating couples were very much engaged in career development efforts, they were also focused on other facets and

goals for their future lives together (e.g., where to live). In assisting emerging adult women in STEM to clarify their career path, it may be important to encourage reflection on the kind of life they would like to lead outside of work, and how a given career path does or does not cohere with that ideal. This is particularly important in light of the number of years of education required by many STEM careers, and existing research indicating that students in STEM post-secondary programs and adult women in the STEM workforce express concerns about managing their work-life balance in a STEM career (Beddoes & Pawley, 2014; Brue, 2019; Tan-Wilson & Stamp, 2015). In many cases, the role of the counsellor may be to assist the client in developing creative solutions to real or anticipated work-life conflicts (Amundson 2018; Hudson Breen & Lawrence, 2021).

Attending to the Relational Context of Career

For the couples in this study, pursuing a STEM career was a joint process. In other words, career goals were constructed in relationship and involved not just the woman in STEM but also their romantic partner. Both family of origin and romantic relationships emerged as potentially influential. Thus, counsellors should assess for the relationships that may be influential in young women's career development and for the impact of those influences (Domene, Landine, & Stewart, 2015). For at least some women, there may be a need to reconcile personal values and desires with family expectations. This study also indicates romantic relationships may be an important resource to harness, offering tangible support and collaborative/ team effort during the woman's pursuit of their STEM career path. Furthermore, for some couples, what presents as a career problem may be better suited to couple or family counselling (Domene & Johnson, 2021; Domene, Landine, & Stewart, 2015).

Conclusion

Overall, this study has revealed some of the important ways that emerging adult women in STEM degree programs pursue their career goals together with their romantic partners, as well as the nature of those projects. For emerging adult couples in the current Canadian labour market and social context, career development may include consideration of the purpose of work in in a person's life. All couples in our study were negotiating what role work would fill in their lives, and for some this negotiation was connected to trying to maintain work-life balance as a value. Furthermore, most couples placed importance on figuring out how to pursue STEM career goals alongside their other life goals. Somewhat more problematically, despite the fact that all of the women in STEM were at least in the third year of their undergraduate degree or were in graduate programs, many of the projects were focused on career decision-making, indicating that these women were still undecided about their future in STEM. Therefore, in promoting the career development of emerging adult women in STEM, it may be a priority to assist these women to figure out what they want out of a career and how to reconcile those desires with their career options. Despite work-life balance emerging as a value for at least some of the women in this study, STEM fields are not always conductive to achieving this balance (e.g., Dabney & Tai, 2013). Therefore, it may be beneficial for STEM educators and student services personnel, including counselling psychologists, to explore additional ways to increase work-life balance for students in their programs. .

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Appendix A: Recruitment Advertisement

Appendix B: Initial Contact Letter: Email Template

Subject: Seeking participants for a study on women pursuing science, technology, engineering, and mathematics careers

Hello,

My name is Lindsay Warner and I am a student in the MSc Counselling Program at the University of Calgary, Werklund School of Education. Under the supervision of Dr. José Domene, I am studying the career development of young women in science, technology, engineering, and mathematics. We are interested in how young women and their partners plan for, discuss, and work together towards the woman in STEM's career plans and goals.

We are recruiting couples who would be willing to talk to us, and to each other, about this topic. Couples would be asked to participate in two interviews, conducted virtually via Zoom. The first interview will take about 1.5 to 2 hours. The second interview will take about 45 minutes. This study has been approved by the University of Calgary Conjoint Faculties Research Ethics Board (REB21-1275). Each participant will receive a $25 CAD Amazon.ca gift card, for $50 total per couple.

Would you be able to share the attached recruitment flyer with students who may be interested in participating?

Should you require additional information, please feel free to contact me at [email redacted].

My supervisor, Dr. José Domene, can be contacted at [email redacted].

Sincerely,

Lindsay Warner
She/her
Counselling Psychology MSc Student
Werklund School of Education
University of Calgary

I respectfully acknowledge that the University of Calgary is located on the traditional territories of the people of the Treaty 7 region in Southern Alberta, which includes the Blackfoot Confederacy (comprising the Siksika, Piikani, and Kainai First Nations), the Tsuut'ina First Nation, and the Stoney Nakoda (including the Chiniki, Bearspaw, and Wesley First Nations). The City of Calgary is also home to Métis Nation of Alberta, Region III.

Appendix C: Initial Contact Letter: Reddit Post

Post title: Seeking participants for a study on women pursuing science, technology, engineering, and mathematics careers

My name is Lindsay Warner and I am a student in the MSc Counselling Program at the University of Calgary, Werklund School of Education. Under the supervision of Dr. José Domene, I am studying the career development of young women in science, technology, engineering, and mathematics. We are interested in how young women and their partners plan for, discuss, and work together towards the woman in STEM's career plans and goals.

We are recruiting couples who would be willing to talk to us, and to each other, about this topic. Couples would be asked to participate in two interviews, conducted virtually via Zoom. The first interview will take about 1.5 to 2 hours. The second interview will take about 45 minutes. This study has been approved by the University of Calgary Conjoint Faculties Research Ethics Board (REB21-1275). Each participant will receive a $25 CAD Amazon.ca gift card, for $50 total per couple.

If you are interested in participating, or have any study-related questions, please email [email redacted].

My supervisor, Dr. José Domene, can be contacted at [email redacted]

[Recruitment flyer will go here]

Appendix D: Informed Consent Form

Name of Researcher, Faculty, Department, Telephone & Email:

Lindsay Warner, BA
Counselling Psychology MSc Student
Werklund School of Education
Educational Studies in Counselling Psychology
[Phone number redacted]
[Email redacted]

Supervisor:

Dr. José Domene, PhD
Werklund School of Education
Educational Studies in Counselling Psychology
[Phone number redacted]
[Email redacted]

Title of Project

Career-Relationship Intersections for Emerging Adult Women in STEM: A Qualitative Action Project Method Exploration

This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Participation is completely voluntary and confidential.

Purpose of the Study

The purpose of this study is to learn about the role of romantic partners in the career development of young women in Science, Technology, Engineering, and Mathematics (STEM). We are studying how couples plan for, talk about, and work together towards the STEM career plans and goals.

What Will I Be Asked to Do?

You will be asked to reflect on and talk about your experiences pursuing (or supporting your partner in pursuing) a STEM career within your relationship together. With your partner, you will meet with the researcher twice. The first meeting will be online, using Zoom. You can choose to do the second meeting by Zoom or telephone.

The first meeting will be audio and video-recorded. You will be asked to have a conversation with your partner. This conversation will be about your careers, your relationship, and pursuing a STEM career. You will also discuss these topics 1-on-1 with a researcher. As part of the discussion, the researcher will ask you to individually (i.e., without your partner present) watch the video-recorded conversation. You will be asked to describe your thoughts, feelings, and goals or intentions during that conversation. Recordings will be transcribed by the researchers so that the conversations can be accurately and thoroughly analyzed. Finally, you will be asked to complete a short demographics questionnaire. In total, the first meeting will take about 1.5-2 hours. After the meeting, we will email you and your partner a $25 CAD Amazon.ca gift card each.

The second meeting will be about 6 weeks after the first meeting. Before the second meeting, the researchers will email each of you a description of what we think are the main ideas and information from the first interview. In the second meeting we will ask you and your partner to offer your feedback on what we have written. This feedback is to make sure the description accurately reflects your experience. The second meeting will not be recorded. However, the researcher will take written notes to record any changes you suggest. You will be asked if you want a summary of the results. If you do, the summary will be emailed to you after the study is done. The second meeting will last about 45 minutes.

Your involvement in this study is completely voluntary. If you feel uncomfortable with anything you are asked to talk about during the study, you may decline to answer, leave out specific details, and/or withdraw from the study at any time, up to one week after the second interview without prejudice or negative consequence. However, both you and your partner need to take part in the first interview for the interview to proceed.

What Type of Personal Information Will Be Collected?

Should you agree to participate, you will be asked to provide your age, gender, ethnic or cultural background, relationship status, length of relationship, educational history, and occupational information. If relevant, you will also be asked to provide your academic major, year of study, and educational institution.

The audio and video-recordings will be securely stored. These recordings will be destroyed immediately after study completion. Only the research team will have access to the recordings. They will never be shown in public.

Are there Risks or Benefits if I Participate?

It is possible that sharing your experiences will make you feel uncomfortable or embarrassed. You may experience psychological fatigue due to the length of the interviews. If this happens, you will be permitted to take breaks or stop your involvement entirely without any negative consequences. Further, all participants will be provided with information about how to access potential counselling service providers.

All information will be kept confidential and shared only with other members of the research team, unless required by law.

By participating in the study, you will have the opportunity to share your experiences. You may feel more closely connected to, and understood by, your partner. Additionally, you will be offered a $25 CAD Amazon.ca gift card after the first meeting. The gift card will be provided even if you do not participate in the second meeting.

What Happens to the Information I Provide?

All information you provide will be strictly confidential. Conversations will be audio and video-recorded and transcribed by the research team. If you want your identity to be anonymous, you will be asked to provide a pseudonym. The pseudonym will be applied to all research materials. All names and locations that you provide in our conversations will be changed to ensure confidentiality upon transcription. Only the primary researcher (Lindsay Warner) the thesis supervisor (Dr. José Domene), and a research assistant will have access to the recordings and written documents. The research assistant will sign a confidentiality agreement before they are allowed access to the data. All documents will be securely stored by using password protected electronic files on a computer hard drive. Copies of the password-protected files will be stored on the student researcher's password protected, University of Calgary OneDrive account. If any documents are printed, they will be stored in a locked file cabinet. All research data, including anonymized transcripts, analysis documents, and electronic and hard copies of all documents will be retained for 5 years after the research is complete. After that time, these documents will be destroyed. Any electronic copies of anonymized transcripts and analysis documents that are distributed to other members of the research team for analysis purposes will be encrypted, password protected and securely stored by these researchers. Should you, or your partner, wish to withdraw your participation in this research at any point during data collection procedures, all of your information will be destroyed.

I understand that audio-recording and video-recording are necessary to conduct this study, and I give permission to be audio- and video-recorded *Yes: ___ No: ___*

The pseudonym I choose for myself is: _____

OR

You may quote me and use my name: *Yes: ___ No: ___*

I would like to receive a summary of the study's results *Yes: ___ No: ___*

If *yes,* please provide your contact information (e-mail address, or phone number) in the space below:

Signatures

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

In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) _____

Participant's Signature: _____ Date: _____

Researcher's Name: (please print) _____

Researcher's Signature: _____ Date: _____

Questions/Concerns

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

Lindsay Warner, BA
Counselling Psychology MSc Student
Werklund School of Education
Educational Studies in Counselling Psychology
[Phone number redacted]
[Email redacted]

OR

Dr. José Domene, PhD
Werklund School of Education
Educational Studies in Counselling Psychology
[Phone number redacted]
[Email redacted]

If you have any concerns about the way you've been treated as a participant, please contact the Research Ethics Analyst, Research Services Office, University of Calgary at [Phone number redacted] or [Phone number redacted]; email [Email redacted]. A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.
REB Number: REB21-1275

Appendix E: Telephone Screening Interview

Date:

Participant Names:

Thank you for your interest in this study. Where did you hear about the study?

We are studying the career development of young women pursuing careers in science, technology, engineering, and mathematics (or "STEM"). More specifically, we are interested in how young women and their partners plan for, discuss, and work together to pursue the career plans and goals of the woman in STEM.

We are looking for couples who would be willing to talk to us and to each other about how they navigate STEM career development and goals in the context of their relationship with one another. For example, we might ask questions about what they do individually and together related to both career and relationship development.

Participation will involve two interviews, conducted using Zoom. Both members of the couple will need to participate. Each member of the couple would receive a $25 CAD Amazon.ca gift card after the first interview, for $50 total per couple.

Are you still interested in participating in this study? **Y/N**

[If yes, continue with the screening interview. If no, thank the participants for their time and end the call.]

Perfect! We may not be able to accept every couple, so I am going to ask you some questions to determine whether you are eligible:

How old are you both?

What genders do you identify with?

Are you both comfortable having a conversation in English?

How long have you been together as a couple (in years and months)?

Would you describe yourselves as in a committed, romantic relationship? **Y/N**

Are either of you parents? **Y/N**

Would one of you describe yourselves as a woman pursuing STEM? **Y/N [confirm which member(s)]**

[If yes, continue with the remainder of the eligibility questions. If no, skip to "*Do you have any questions at this point?"]*

[For the woman pursuing STEM only]:

What kind of post-secondary are you pursuing?

[If not answered] ***What is your major or field of study?***

Are you a full-time student? **Y/N**

Are you pursuing your post-secondary education in Canada? **(*Follow-up: Where in Canada? Through which institution?*)**

What is your career goal?

The interviews will include portions where you are interviewed both individually and as a couple by a researcher. For one part, you will also be asked to have a conversation with each other. The first interview will also be video-recorded.

Do you have access to reliable, high speed internet? **Y/N**

Do you have access to a computer, tablet, or cell phone with a camera, microphone, and Zoom? **Y/N**

[If they do not have Zoom installed, ask the participant if they know how to download Zoom. If they do not, explain it to them and check into their comfort with this.]

Do you have access to a private space, with minimal distractions, where you could have an in-person conversation together about the research topic, in front of the computer (or phone or tablet) camera? **Y/N**

In that same location where you would complete the interview, do you also have access to a space where you could have a 1-on-1 conversation with a researcher, without your partner listening in? **Y/N**

If you are selected for this study, what days and times would work well for you both to schedule an interview?

Do you have any questions at this point?

Thank you for going through those questions with me. I will touch base with my supervisor and get back to you within a week to discuss whether we will be able to include you in the study and, if we are able, to schedule the first interview. If you are selected for this study, all information you provide will be kept confidential.

Would you prefer to be contacted by phone or email? (If phone: If you don't answer the phone, is it okay for me to leave a message?)

Confirm telephone number or email address for follow up:

[Thank them for their time and end the call]

Appendix F: Action-Project Method Zoom Interview Protocol: Couples

Interview 1

Pre-interview Set Up (before participants arrive)

- ☐ Test Zoom features:
  - ☐ Recording
  - ☐ Screen Sharing
- ☐ Have documents accessible to discuss with participants
  - ☐ Consent Form
  - ☐ Demographics Questionnaire
  - ☐ 2x $25 virtual Amazon.ca gift cards, to be emailed after the interview

[Start Zoom Meeting]

Orientation and Consent Confirmation

- ☐ Ensure participants are both visible on the screen (able to see heads and upper bodies (i.e., shoulders and arms))
- ☐ Encourage participants to close all other windows or applications to ensure there isn't anything else interfering with our connection speed
- ☐ Encourage participants to silence any computer or cellphone notifications

- ☐ Explain all 3 components of today's interview:
  - ☐ "First the three of us will talk together."
  - ☐ "Then, the two of you will have a 15-minute conversation ***with just each other.***"
  - ☐ "Finally, I will have a conversation with each of you individually as you reflect on your conversation that you had together."
  - ☐ "As a reminder, this study is looking at how women in STEM and their partners plan for, discuss, and work together towards the woman in STEM's career plans and goals. So, the conversations should focus on that."

- ☐ Confirm consent and ensure electronic copies are signed
  - ☐ Display consent form on screen using the share screen function (participants should have already been emailed, reviewed, and signed the informed consent form prior to the interview)
  - ☐ Remind participants that their participation is voluntary and that they may choose to withdraw from the study at any point and without penalty
  - ☐ Ask if participants if they have any questions
- ☐ Encourage Participants to sit facing one another (still visible on camera and able to see heads and arms)

☐ Explain: to allow for a smooth transition to the recorded portion of the interview

[*Record****]***

Prime for Joint Conversation

☐ "Okay so before I leave you guys for your joint conversation it is helpful to get things started by talking about your career development and relationship a bit."

[the researcher continue to ask questions until the participants appear comfortable and primed to move on to the next portion of the interview]

Potential Questions:

☐ "How did you two meet?"

☐ "Can you tell me a bit about your relationship with each other?"

☐ "Can you both tell me a bit about your future career or educational plans?"

[Follow up if needed] "[Woman in STEM's name], what has your experience been like as a woman pursuing STEM?"

☐ "How has it been, balancing [Woman in STEM's name's] STEM career goals with your relationship together?"

Lead into joint conversation

☐ "If you had to pick one or two things that you feel would be the most relevant or urgent right now, for you two to focus on regarding [Woman in STEM's name's] career path in the context of your relationship together, what would it be?" (get both opinions)

☐ "Great, so in this research we want to observe the process of how couples talk these things out and how couples navigate career and relationship plans."

☐ "I am going to "leave" the chat room now so you can have your conversation. Take the next 15 minutes to talk together about [Woman in STEM's name] career path and your relationship together and I will come back in 15 minutes so that we can move into the next part of today's interview."

[Stop my video → Hide self-view → Mute → Start timer for 15 minutes]

After 15-minute joint conversation

[Show self-view → Start video → Unmute]

"The video needs to be converted before viewing. So, you can leave the meeting and take a 10-minute break. I'll email you a new zoom link and then you will each do the self-confrontation portion individually with me. Which one of you would like to go first? I'll email the link to your personal email address. Once we're finished, I will do the same thing with [name]."

[End recording and exit out of zoom meeting]

Preparation for Self-confrontation

☐ Get video ready
☐ Email new zoom link
☐ Start zoom meeting

[*Record****]***

☐ Share video window
☐ Explain: "Now we're going to review the conversation to get more information about your perspective: what you were thinking, what you were feeling, and what you and your partner's goals were during your conversation."
☐ "I will stop the video every 2 minutes to ask you those questions *and* if anything important comes up for you, you can ask me to stop the recording to tell me about it."
☐ "Do you understand what we're going to do? Are you ready to start?"

[Play the video, stopping every 2 minutes]
2 minutes → 4 minutes → 6 minutes → 8 minutes → 10 minutes → 12 minutes → 14 minutes
- ☐ How were you feeling in that section?
- ☐ What thoughts were going through your mind in that section?

[Stop screen share once the video has ended]

At the end of the video ask:
☐ "Overall, what were your goals; what were you trying to accomplish in the conversation with [name of partner]"?
☐ "How typically was that conversation in terms of the way you two normally interact?"
☐ "Is there anything else that would be useful for me to know about that conversation?"

[Stop Recording]

Demographics

[Go through "Demographics Questionnaire" with Participants to obtain required information—please see the attached document for relevant questions]

☐ "That's it, thank you! I will email you the link for the $25 gift card to Amazon today"
☐ "I will also be in touch in approximately 6 weeks to book the follow-up phone or Zoom meeting after doing a preliminary analysis of your data. That meeting will be much shorter and will just be checking with you to see if we're on the right track with our analysis".

[Exit out of zoom meeting]

[*Repeat Self-confrontation and Demographics for the second participant****]***

<u>Interview 2</u>

Pre-interview Set Up

☐ Ensure copies of individual and joint narratives are accessible to record changes on

Introduction

☐ "Today's interview will be much shorter than last time and is mainly to confirm our interpretation of what was going on for you in the first interview. There will be some one-on-one time, and some time with everybody together."

☐ "First, I want to check in with each of you individually, to see if we understood you correctly in the conversation review time (when we kept stopping the tape). Who would like to go first?"

Feedback (separately: one partner is invited to go to a private space to talk with the researcher to review their individual narrative)

☐ "So, in the last few weeks, we did a preliminary analysis on the conversation and self-confrontation that you did last time and wrote up a summary of it. What we want to do today is to check with you to make sure we were on the right track… We want to ensure what we say makes sense from your own perspective."

☐ "I'm going to read out the narrative that we came up with to you. Please stop me at any time if you have questions, or we got something wrong. If you want any changes made, I want you to tell me what it should say instead."

☐ Read narrative, slowly, pausing at each paragraph (to get confirmation) and asking some variation of **"does that fit with you?"** At the end of the entire narrative ask: **"Is there anything important that we missed?"**

[Make changes to the document, as requested by the participant]

[**Repeat <u>FEEDBACK</u> same way with other partner individually once they have gotten to a private space****]**

Confirming the Joint Narrative, Actions, and Project (together)

☐ "As you probably remember, the point of this study is to figure out how women in STEM and their partners plan for, discuss, and work together towards the woman in STEM's career plans and goals. So, for our research, we'd like to figure out what relationship or career-related goals, or decisions, or tasks you are focusing on as a couple right now. We call these

things "projects.""

- ☐ "With that in mind I am going to read out the narrative that we came up with for you as a couple based on our last interview, including the main projects we interpreted you guys as working on right now. Please stop me at any time if you have questions, or we got something wrong. Again, if you want any changes made, I want you to tell me what it should say instead."
- ☐ Read narrative, slowly, pausing at each paragraph (to get confirmation) and asking some variation of **"does that fit with you?"** At the end of the entire narrative ask: **"Is there anything important that we missed?"**

[make changes to the document, as requested by the participant]

- ☐ **"Next, I want to make sure that we have a good understanding of the "projects" that you are working on together, and fix the wording so that it fits with how you two would say things."** Read the tentative project(s) to the participants. **"Does that wording make sense to you, or would you prefer to change something?" [**Get both participants' opinions about the wording and change the document to match. If there is not consensus between partners, make a note of this]

What will be some signs that you successfully completed the project(s)?

[*Get concrete examples of indicators of success; observable, behavioral indicators*]

Conclusion

- ☐ Thank them for their time
- ☐ Ask them if they have any questions
- ☐ Confirm whether participants would like to be emailed a summary of the results once the study is complete.

Appendix G: Demographics Questionnaire

Date:

Participant #:

The background information you provide below will be used to describe who is participating in this study. Providing this information is completely voluntary and you may choose not to answer some, or all, of these questions. Choosing not to complete some, or all, of these questions will not affect your ability to participate in the remainder of the study.

Age (in years): _____

Self-identified gender: _____

Cultural or ethnic background (e.g., Latino, French-Canadian, Indigenous):

_____

What language do you and your partner use when speaking to each other? If you use more than one language, please circle the language you use most often:

_____

What is the highest level of education you have completed (e.g., high school diploma or equivalent, some post-secondary education, bachelor's degree, graduate degree)? If applicable, please specify (e.g., BA, MBA, diploma):

_____

What is (are) your current occupation(s) (e.g., student, engineer, barista)?

_____

If you are a student, what degree/ program/ certification are you pursuing (e.g., Bachelor of Science in Engineering, Business Administration Diploma, Master of Fine Arts)?

_____

If you are a student, what year of your program are you in?

_____

If you are a student, what is your major (if applicable)?

_____

If you are a student, which institution are you pursuing your education through (e.g., the University of Calgary)?

_____

After all your schooling is finished, what is your current goal for your future career?

_____

How would you describe your relationship status with your partner (e.g., married, common-law, dating, other)?

_____

How long have you and your partner been together as a couple (in years and months)?

Years: _____ and Months: _____

Appendix H: Counselling Resources for Study Participants

Canada-wide Resources

- Crisis Services Canada
  Toll Free Phone (24/7): 1 (833) 456-4566

  Text support (4pm-12am ET daily): 45645

  Website: https://www.crisisservicescanada.ca/en/

  Details: Crisis, distress, and suicide support

- Better Help
  Website: www.betterhelp.com

  Details: Online counselling services

- The LifeLine App
  Website: www.thelifelinecanada.ca

  Details: Website and free smartphone/ tablet app with a variety of resources

Counselling Resources in Calgary

- The Distress Centre
  Phone (24/7)*:* (403) 266-4357 (or 403-266-HELP)

  Text Support (3pm-10pm MST on weekdays or 12pm-10pm MST on weekends): (403)

  266-4357 (or 403-266-HELP)

  Website: http://www.distresscentre.com/

  Details: Crisis intervention, support, and referrals for counselling

- Eastside Community Mental Health Services (ECMHS)
  Phone (see Website for hours): (403) 299-9699

  Website: https://www.woodshomes.ca/programs/eastside-community-mental-health-

  services/

  Details: Connects callers to community resources based on their needs (including single session or extended counselling services)

Appendix I: Template for Codes for Analysis (Elements)

Acknowledges
Minimal statements, that acknowledges the statement by the other
"Um-hmmm"
"Yes"
"Sure"
"OK"

Advises
"I think the best idea for you is to get a job in the short term and then think about your educational concerns in the long-term."

Agrees
"Yes, I agree"
"That's true"
"You're right"
"I concur"
"We see eye to eye".

Ambiguous response
Response is unclear, not readily interpretable, has more than one possible meaning, hazy or fuzzy meaning.

Answers question

Apologizes
"Sorry, I apologize"
"Oops"
"My-bad"

Approves
Positive evaluative or judging statement
"It's a great idea that you're _____"
Validates
"That's fantastic", "It's good", "It's fine"

Asks for clarification (further explanation or expansion)
"Can you tell me more about that?"
"I'm wondering which of your dilemmas seems to have the most importance for you right now?"
"Can you give me more details about that situation?"
"Can you expand on that?"

Asks for confirmation
"Am I getting this right?"

"Is that what you mean?"
"So, you'll be here for next week's appointment?"

Asks for feeling state
"How do you feel about that?"
"What does it feel like when you _____?"
"Tell me more about that sadness"

Asks for information (more factual in nature)
"When was it that you moved out of your parents' home?"

Asks for justification or reasons
"Why was that?"
"What was your rationale for making that choice?"

Asks for opinion or belief
"What do you think about that?"
"What do you believe to be the most important aspect of becoming an adult?"

Asks for speculation or hypothetical scenario (challenges)
"What if . . . ?"
"Let's say _____ happened?"
"How do you think you would handle _____?"

Change of Topic/ Conversation switch
"But yeah…"

Clarifies
Usually in response to asks for clarification. Involves giving more information to clear up an ambiguity or a misinterpretation.

Complains
"My employer gives me every crappy shift. It ruins my weekend plans."

Confirms
Response to a request for further information
"So you are coming for dinner tonight?"

Continues other's statement
After an interruption
Continues own statement after a pause

Demands
Tells the other what to do

Describes experience
Describes perception of an event

Describes future
"My mother will be visiting next week."

Describes other (in the annotation – describe who the "other" is)
"It seems to me that you _____." (is usually used with expresses perception)
"It sounds to me that your sister is really trying to work things out with the family."

Describes past
"I told my mother that I was grateful for everything she has done for me."
"I went to college 5 years ago."
"When I was a kid, I was bit by a dog and now I can't seem to get over it."
"I used to hate my brother."

Describes possibility or hypothetical situation
"If I can't get into UBC I know I will be disappointed." (sometimes used with other codes – i.e. describes self, expresses perception)

Describes self
"I suck at tennis."
"I'm a generous person."
"It really wasn't like me to behave that way."

Describes situation or event
Or describes present

Disagrees (denies)

Partial Disagreement

Disapprove
Negative evaluative or judgment statement
"I don't like them."
"She really should have known better than to behave like that."

Dismissive or diminishing statement
"Oh c'mon."
"Don't be silly."
"That's nonsense."
"Whatever."

Elaborates
Extends a previous statement

Provides more information, adds depth to a previous statement, gives a deeper explanation.

Encourages
Give confidence, cheer, hearten

Evaluative or judging statement
Focused on a phenomenon, or event, or person with approving or disapproving

Expresses anger (irritation, exasperation, rage, disgust, envy, torment)
"I was so pissed off with him."
"I was furious."

Expresses belief or disbelief (concrete as opposed to tentative)
"I just know things are going to work out."
"I don't believe in God."
"I can't believe this is happening to me."

Expresses desire/need
I need, I want, I wish….

Expresses disgust (usually more of a facial expression, distaste, expression of not liking or loathing)
"It totally grossed me out. It was disgusting to be in that cell with all those crack addicts."

Expresses dissatisfaction/discontent
"School isn't what I thought it would be."
Expression of dissatisfaction sometimes coded with expresses sadness or some other emotion.

Expresses doubt
"I'm not sure I can handle that."
"I doubt I have the ability to get into university."
Questioning, has emotional content, not about indecisiveness
"I don't know about that, I don't know if that fits for me."
Possible others - disagrees, dismissive statement

Expresses exhaustion

Expresses fear (horror, nervousness)
Overwhelmed or expressing a lot of concern.

Expresses frustration
"It totally sucks that I didn't get the job I wanted."

Expresses guilt

Expresses gratitude
"Thank you."
"I really appreciate what we are doing here."
"I'm thankful for this opportunity."

Expresses humor
Tells a joke
Says something funny (either intentional or unintentional)
Contextual use of humour, use of wit, lightheartedness, kidding around

Expresses joy
Happiness, cheerfulness, zest, contentment, pride, optimism, enthrallment, relief

Expresses hope

Expresses
Liking of idea, object, person; not love

Expresses love (affection, lust, longing)

Expresses perception or opinion or hunch
Is usually a tentative statement or interpretation
"It seems to me that you may be quite similar to your dad in that way."
"Correct me if I'm wrong but I think _____."
"I think_____"

Expresses realization
Client expresses an "ah-ha" moment in the present tense.
"I realize that these people are very important to me."
"Wow, I've never thought about that before." (add surprise to the code)
"Oh no, really. I hadn't thought about that consequence before." (add disappointment to the code)

Expresses sadness
Suffering, disappointment, embarrassment, shame, neglect, regret, sympathy
"I was so depressed about it."
"I was really hurt when my stepmother attacked me like that."

Expresses satisfaction

Expresses surprise
More of a facial expression
"I was really surprised that she reacted that way."
"Oh wow!"

Expresses uncertainty
Is about decision-making. Not being able to sort something out. Not able to accurately predict.
"I'm not sure."
"I can't decide what option to take."

Expresses understanding
"I get that."
"I see where you're coming from."
"That makes sense."
"I see what you mean."

Expresses worry
"I'm worried about my exam."

Incomplete statement
Can be questions, statements, or sentences.

Interrupts

Invites or elicits a response
Use of hand gesture to elicit a response from a client
"You know what I mean?"
"Right?"

Justifying

Laughs

Paraphrasing
Repeats previous statement (in different words)
Repeats a previous statement in your own words

Partial agreement
Half-hearted agreement
"Sort of." (specifying the amount of agreement)

Pause
A break in the sentence or dialogue, silence, a pregnant pause

Praises
Compliments, admiring remark, accolade, congratulates
"Good for you"
"Look at you!"
"Congratulations."
"It's terrific that you have such great insight."

Provides information
"You can get an application on-line if you go to the website."

Provides example

Provides explanation

Reflects affect
Capturing an image that is beyond what was previously stated
Beyond paraphrasing
Advanced empathy, empathy
"You felt disappointment when you didn't get into UBC this year."

Reflects cognition
Advanced empathy, empathy
"That was a tough situation for you."
"You didn't think that was the right way to go."
"So you've been thinking about a number of career options over the last year."

Requests
Asks the person to do something. Asks for
"Could you sign this form?"

Statement

Restates
Repeats

States a plan
"I'm going to go to school next term."
"I will be here next week for my appointment."

Suggests
Or offers a suggestion
"I'd like to suggest that your father didn't mean to hurt your feelings."

Suggests a topic for discussion (i.e., "I think we could start with…")

Summarizes

Unintelligible response
Can't be understood on tape or through transcription

Validates
"I know"

Appendix J: Narrative Summaries

001 Individual Narrative: Aria

The conversation was between a man and a woman who have been married for nearly three years. The woman (Aria) is a 26-year-old, first year PhD student in computer science with the career goal of becoming a professor in computer science or a related department and conducting research. Aria's main priority is finishing her PhD in four years or less and establishing her career before having children. As a woman, Aria is concerned about cultural, family, and biological pressures to finish her education quickly. Additional priorities for Aria include staying in the same geographic location as her husband (Fred) and making career and educational decisions that benefit both members of the couple:

> A: So, it kind of felt like I *should* go there. But in your case, you also get an offer from Professor in the same university, but it felt like the research interest was not
> F: Yeah.
> A: overlapping with your research interest, because we didn't want to end up in some research… doing some research that
> F: Yeah.
> A: we don't like so that we cannot, we will not be able to continue
> F: Mhmm.
> A: because it's a four-year commitment.
> F: Yeah.
> A: So that's why then we decided to be in Canada again, so that it's good for both of us.

Despite compromising on her dream to attend a U.S. university, Aria likes her PhD research and research lab, and has confidence in her ability to conduct good research.

Aria took an equal role in the conversation, openly sharing her perspective and providing space for Fred to share his. Aria lightened the conversational tone by smiling and laughing and took the role of reflecting on the past and planning for the future. Aria demonstrated caring and concern for Fred, pride for her educational performance during her undergraduate, and optimism about the couples' future career goals and ability to make good decisions together. Aria also

views their relationship as having become less competitive and more collaborative over time. Aria's primary concerns seemed to be: 1) where the couple will live in the future and how they will stay together in the same place, 2) how each one of them will balance their own career opportunities with their partner's career opportunities, and 3) how she will balance educational and career goals with having children. While Aria feels more confident in her ability to handle difficult career or relationship decisions or situations compared to her partner, and considers herself to be independent, she noted:

A: We have become the strength of each other.

Over time, Aria's confidence in Fred's ability to be successful in his career has grown significantly. For Aria, the main goals of the conversation appeared to be to discuss: 1) Aria's graduate studies including the research topic; 2) the couples' career goals and plans; 3) struggles they faced in their education and career paths and impacts on their relationship.

001 Individual Narrative: Fred

The conversation was between a man and a woman who have been married for nearly three years. The man (Fred) is a 26-year-old, first year PhD student in computer science with the career goal of working either as a computer science professor, or as a research scientist in industry. Fred is appreciative of the respect and understanding he receives from his wife, Aria. Additionally, Fred is very supportive of his wife's educational and career plans, views her as a "very talented person," perceives that "whatever she does, she does it will her full potential [… and] her complete effort," and feels that she deserves to achieve her career goals. Although Fred identified previous competitive behaviour from his wife, he perceives their current dynamic as collaborative. Despite some concern about holding Aria back from her career opportunities or dreams, Fred is optimistic about the future:

> F: I always try to think this way that whatever it takes we will stay together in the same place and we will work together to like, to fulfill our career dreams.

Furthermore, Fred believes that he and his wife are on the same page:

> F: It's like whatever she's saying that's almost my feelings as well so, because both of us are in the same domain, both of us have the same career choice, both of us have the same types of ambitions. Our thoughts overlap a lot in this perspective actually.

During the joint conversation, Fred was an equal participant, asking for Aria's perspective, sharing his own, and providing space for Aria to speak. Fred seemed focused on his partner and consistently made eye-contact. He was less emotionally expressive than Aria and seemed to come from a place of realism, practicality, and future-orientation:

> F: I try to think for the long term,
> A: Yeah, long term goal.
> F: So I always prefer to have status in this country […] because, after having a permanent status here, you can choose whether you want to work here or in the US or you want to do a postdoc in the US universities or not. We will have option if we can make a good status in this country. That's what I think about. Also like, there are some uncertainties in the US.

In the conversation, Fred seemed most concerned with assessing whether Aria would be willing to make career sacrifices for their relationship and goal of being in the same place, and to share his perspective on Aria's previously competitive behaviour. Additionally, Fred re-assured Aria about her past educational sacrifice. Fred's main goals during the conversation seemed to be to determine: 1) how Aria felt about their relationship and him and 2) how Aria prioritizes their relationship with her career. Based on Aria's responses, Fred was left feeling confident that Aria prioritizes both of these life domains.

001 Joint Narrative: Aria and Fred

The joint conversation was between a 26-year-old female (Aria) and a 26-year-old male (Fred). At the time of the interview, the couple had been married for nearly three years and together for over eight years. Both members are international students in the first year of their PhD in computer science at the [university in Western Canada], after completing their MSc there. They are from [country removed to preserve anonymity], where they met pursuing their undergraduate degrees in computer science. The couple became study partners, best friends, and eventually, romantic partners. During their undergraduate degree, the couple motivated one another in their studies— a dynamic which appears to continue into their current studies. Aria received her first computer shortly after enrolling in the program. Fred recounted: "from the very beginning I taught some of the programming stuffs to her, but after learning everything she like, outperformed me in every aspect." Before moving to Canada for graduate school, the couple worked together in the same university department in their home country. They chose not to disclose their relationship due to potential impacts on the workplace environment, students' perceptions, and cultural expectations around dating leading to marriage. Currently, they are both focused on finishing their schooling and establishing their careers, while staying together in the same location. However, Aria feels additional familial, cultural, and biological pressure to finish her education quickly so that she can have children.

During the joint conversation, Aria and Fred reflected on the past and planned for the future. Fred elicited Aria's perspective on her priorities for both career and relationship and shared his own perspective. Both participants alternated between speaking and listening, made use of minimal prompts (e.g., mhmm, yeah, nodding) and interrupted one another to talk about the same or different topics, sometimes speaking together. Aria laughed and smiled frequently,

and used words like “dream,” while Fred seemed more serious and focused on practical matters (e.g., ensuring they settle in a country that will be beneficial to their next generation). The emotional tone of the conversation was supportive, with both members of the couple sharing openly. The couple reported that one atypical aspect of this conversation was that it was in English, instead of their mother tongue. At the beginning, the couple appeared aware that they were being recorded as part of a study, but soon began interacting with each other in an engaged and authentic way. Therefore, although the conversation may have been more formal and focused than their typical way of interacting, as Fred summarized, “everything we said in the session, those were actually our true feelings […] the things that we said, those were actually genuine and that’s what we think about our life, our relationship, and our career.”

In terms of their future career and relationship, several topics emerged as potentially important. The couple is trying to figure out how to balance the goal of Aria completing her PhD and establishing her career with their goal of, and family expectations to, have children. They are also considering how to solve the “two body problem”; that is, how to best achieve their individual career goals while still living in the same geographic location. While Aria had interest in universities in the United States, Fred preferred to obtain permanent residency status in Canada. Aria described the relational impacts of declining her offer to attend a U.S. university for her PhD, given lack of overlap with Fred’s research interests:

> A: Also it has to have some impact on our relationship as well like that
> F: Relationship, yeah.
> A: was our like, our career or our study,
> F: Mhmm,
> A: but it also has some impact on our relationship. Like sometimes I don’t think about like, I just get biased
> F: Yeah.
> A: and maybe blame you a little bit.

For Aria, accepting the offer to attend a U.S. university was an easy decision given overlapping research interests. However, it was not as easy for Fred because the research interests did not align for him. Since Fred and Aria's research interests both aligned at the [university in Western Canada], Aria ultimately chose to sacrifice her preferred university.

However, the couple generally views themselves as in agreement, confident in one another's ability to be successful in their careers and have built trust in each other's ability to make decisions that will benefit both members of the couple. Describing her shift from a previously competitive orientation, Aria explained:

> A: So if you become good than me, sometimes it was also a little bit warning for me because also I during my study, or during my goal I didn't want to consider about what is my relationship with you, or anything else, because I always wanted to be the top one [Laughs].
> F: Yeah.
> A: So that's why sometimes I took a decision, a little bit more like, self-centered decisions maybe. So that— but right now, I think we are on the same path. We have the same kind of thinking.
> F: Yeah.
> A: So in our career as well, and in our relationship as well we came into this stage that we think about each other's
> F: Yeah.
> A: career too.

The following statements summarize two current "joint projects" that Aria and Fred appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Supporting each other to complete our PhD Programs**
- **Figuring out how to establish our careers in a way that takes into account other life plans (e.g., living in the same geographic location, having children, maintaining our relationship)**

003 Individual Narrative: Marya

The conversation took place between a man and woman who have been dating for over five years and living together for less than a year. The woman (Marya) is a 24-year-old, [ethnic/cultural background removed to preserve anonymity]. While Marya experienced academic challenges during her undergraduate, her enjoyment of doing independent research changed her trajectory. After graduating with a Bachelor of Science in Biochemistry (honours) from the [university in Western Canada], Marya was offered a master's position there and soon encouraged to pursue an accelerated PhD program. As a third year PhD candidate in Biophysical Chemistry, she is also employed full-time as the president of a small, not-for profit student organization.

Marya is working towards completing her PhD and is exploring her career options. Although Marya does not have a specific occupation in mind, she is considering three main possibilities: 1) STEM industry; 2) academia (in STEM); and 3) working at an intersectional, not-for-profit, science-based organization (e.g., one that provides STEM education), but also stated that she is open to "following opportunities that arise that we haven't even thought about, but still exist." When it comes to career, Marya is driven and does not want to close any doors for herself. In addition, she appears to perceive Frank's career as more mobile than her own, although she is sensitive to his recent difficulties in finding a permanent teaching position.

Although Marya loves graduate school, it has posed challenges. The heavy workload can disrupt her self-care routines (i.e., eating, sleeping, working out) and lead to anxiety. Marya also faces pressures from her extended family to prioritize family-oriented goals:

> M: So I'm a first-generation grad schooler, and so I get a lot of feedback in a polite manner from aunts, uncles, grandparents of you know, essentially what are you doing? You should be getting married, should be having kids. No one values my PhD the way I do because they have never done it and don't understand. So there is a lot of family pressure to be

> getting married and to have kids […] it's been a lot of *wow*, I love what I'm doing and I also have to love what I'm doing.

Marya also appears to have internalized some of the conflict between family-oriented goals and STEM career goals:

> M: There's also a part of my brain that says, and it's a lot of my upbringing, that well I could also just be a mom and just, not do science. And so it's well maybe, you could move out to a small [province in Canada] town and live there and do all your things and not work in science and to me that, just blows my mind, because, I haven't had a single day, where I haven't thought about advanced science.

Marya plans to wait to get married until she has more time, financial stability, and overall life stability. Given her decision to wait to get married and have children, Marya considers herself to be at a different life stage compared to many of her friends. Furthermore, Marya shared experiences of female underrepresentation, discrimination, sexist comments, being looked down upon, and "thought to be not as good as a chemist due to being a female." However, Marya feels supported by her male supervisor and a post-doc in her lab and found it impactful to have female representation on her master's thesis committee.

Marya was an equal participant in the conversation and appeared comfortable and attentive. She was relaxed in her posture, made eye contact, and laughed often— usually in response to her partner, Frank's, use of humour. She was more animated in her hand gestures and spoke more quickly compared to Frank. Marya described her experience, expressed uncertainty, and allowed space for Frank to share his perspective. Marya felt supported and re-assured by her partner, despite some misunderstandings around her role as a grad student.

For the majority of the conversation, Marya seemed focused on 1) exploring her career possibilities; and 2) considering how she might balance her career options with the couple's other goals (i.e., moving to a small town where they can spend time outdoors). However, Marya was less enthusiastic about the prospect of moving to the town where Frank grew up. She also

described options of leaving STEM to be a mom or going back to school to pursue teaching or medicine, although both members of the couple questioned whether these options would be fulfilling. Marya suggested a variety of types of work including academia, non-profit work, a combination of the two, and entrepreneurialism. Additionally, Marya suggested options for work that would allow her to pursue STEM while living in a small town such as: working online, commuting to work in a city, and working in a lab in Europe. Marya described both appreciation and uncertainty over her future career prospects:

> M: I feel like it's at this weird crossroads and it's kind of neat that I've gotten to be 24 without closing any doors for myself really. But, it's like oh wow. Now I have all these opportunities for jobs at the end of this, really […] but not knowing what that target point is at the end is really an ambiguous field of fog for me […] and what's also challenging then is to pull that non-target into some of the life-family career paths of we want to live in a small kind of town in [province in Canada] and go skiing all the time and go hiking and do all these activities that we love, and I've never had those line up with my career trajectory yet.

Marya attributes part of her uncertainty to her observation of her parents' love for their jobs, while she has not yet experienced a similar love. At the same time, she remains optimistic about the future. For Marya, the main goals of the conversation seemed to be to: 1) communicate clearly; 2) listen to Frank's perspective; and 3) "to have an open, honest conversation on the topic."

003 Individual Narrative: Frank

The conversation was between a man and woman who have been dating for more than five years and living together for less than a year. The man (Frank) is a 28-year-old Canadian with [ethnic/cultural background removed to preserve anonymity], who has a Bachelor of Education and a Bachelor of Kinesiology. Throughout his education, Frank attended several universities. Currently, he is employed as a substitute teacher in the public school system for grades 5 to 12, with the goal of becoming a physical/ outdoor education teacher. Additionally, he does seasonal work, which involves frequent international travel for long durations of time. Pursuing teaching has been harder than expected, and it has been challenging to find a teaching job in [city in Western Canada]. When it comes to his partner, Marya, Frank both appreciates her hard work and values quality time together (e.g., working out together). Overall, he is very supportive of his partner's educational and career development:

> F: So, yeah, just supporting in whatever way that means. Like, when you're doing your candidacy, it was trying to be here to make all the meals and just do that sort of housework, or that sort of thing, while you were super focused on getting prepped for your candidacy and yeah, I don't know. Just little things like that that make a difference I think.

Frank took an equal role in the conversation. He made eye contact, was relaxed in his posture, spoke more slowly compared to Marya, and connected with her through humour. Frank appeared to be attentive, listening to and acknowledging his partner's perspective while offering suggestions. He seemed to take a pragmatic approach to the couple's goals. Frank seemed most focused on: 1) assessing how Marya viewed her career as relating to the couple's personal goals (i.e., living in a small town where they can engage in outdoor activities); 2) sharing his own thoughts and ideas about Marya's career possibilities and balancing them with their life goals; and 3) encouraging Marya to think about and take steps to further explore her career options

(e.g., researching options, job shadowing). Furthermore, Frank tried to understand Marya's perspective and explored how the couple could achieve his goal of living in a small town. Frank also felt positively about the idea of moving to the town where he grew up.

Although Frank described both uncertainty and excitement about his partner's career possibilities, he was optimistic that the couple could balance their goals:

> F: I think we both need to think outside the box […] You're like oh, we can't have it both ways sort of thing, but, I don't know if that's necessarily true. I think maybe it won't be the easiest path to try to merge both those but why not?

At the same time, he recognized that finding their desired balance may take some "trial and error."

Frank's main goals in the conversation appeared to be: 1) to explore the couple's feelings about Marya's career in STEM and impacts on their relationship; and 2) to reflect on whether anything had changed since their previous conversations on this topic, or required further discussion.

003 Joint Narrative: Marya and Frank

The conversation took place between a 24-year-old woman (Marya) and a 28-year-old man (Frank) who have been in a relationship for over five years. They are newly living together, for less than a year. Marya is a third year PhD candidate in biophysical chemistry and is employed as the president of a small, not-for profit student organization. Frank is working as a substitute teacher and does seasonal work. The couple met when Marya approached him about a university group he created:

> M: So I approached him, and introduced myself, and kind of went along the lines of like, "Hey I'm Marya. You're Frank. I want to be a part of [student organization]." And Frank—
> F: I was like, who *is* this person?
> […]
> M: Ball of energy. But then Frank matched my energy because he was quite passionate about [student organization] and so he said, you know "we don't have any positions right now that are available, but I'll look and see what I can do."

Currently, Frank is focused on finding a position as a physical/outdoor education teacher and supporting Marya's educational and career development. Marya is focused on exploring her career options and completing her PhD. They are also both actively involved with figuring out how to balance Marya's STEM career with their other life goals.

During the conversation, Marya and Frank were equal participants. The couple appeared attentive to one another, comfortable, and connected. The conversational tone was respectful, supportive, and included a lot of humour and laughter. Marya spoke more quickly, used more gestures, and expressed greater uncertainty. Frank seemed to insert optimism into the conversation and was realistic in his perspective. Both participants shared openly, and used minimal prompts (e.g., mhmm, yeah, nodding) to encourage one another to speak. At the beginning, the conversation felt "a bit forced" and, knowing they were participating in a study,

the couple provided more contextual information than they typically would. However, the couple soon began to relate to one another in a more natural way:

> F: I think by the end for sure it was very much like how we interact with each other, especially when we're talking about things like that […] and I say that because I didn't even notice when you popped back in […] that was probably a pretty good representation of how we've talked about that sort of thing before.

In terms of the couple's future career and relationship, several topics emerged as potentially important. They are both invested in helping Marya figure out a career path that feels fulfilling for her. At the same time, they are considering how to balance Marya's career with their goal of living in a small town where they can engage in outdoor activities. Although Marya and Frank do not know what the future holds, they retain an optimistic outlook:

> F: At the beginning, Marya's talking about not closing any doors and things and I just love that perspective […] I mean there's an optimism to it but then also the world's her oyster sort of thing. […] I just think that's such an awesome perspective and something that we share.

The following statements summarize two current "joint projects" that Marya and Frank appear to be engaged in together, related to pursuing Marya's STEM career goals within their relationship together:

- **Working together to identify a career that feels fulfilling for Marya**
- **Exploring and discovering potential careers for Marya while balancing our other life goals**

005 Individual Narrative: T

The conversation was between a man and a woman who have been dating for two years. T is a 20-year-old woman with [ethnic/ cultural background removed to preserve anonymity] who speaks two languages. At the time of the conversation, T was pursuing a Bachelor of Science through the [university in Western Canada], with a major in Biological Sciences. When asked about her experience as a woman pursuing STEM, T explained:

> T: Well, I feel most of the time as a woman in STEM, I get a lot of pride, I guess. I feel as though I'm proud to be— especially coming from my family being a first-generation child of my family to even go to […] university and complete— hopefully complete my degree. And yeah, I guess being in this program there's a lot of times, where it'll be pretty difficult for me, but I still get the overall sense of, oh, […] this is a good thing, I guess.
>
> T: I guess the biggest challenge right now is just trying to figure out what I want to do with my life […] because right now I'm not very set on a specific career path […] I want to finish my degree and then I'll explore what kind of options are going to be available to me, once I'm done. And I guess there's always the challenge of wanting to do well, obviously, for my well-being but also for my parents and everything.

Although T is passionate about her degree, she is not sure how she will apply it. However, she is considering research, fieldwork, or lab work. Additionally, she is thinking about pursuing a master's degree. Currently in the third year of her program, T ultimately hopes to find a career that feels "fulfilling, that will make [her] happy in the long run."

In the conversation itself, T spoke less than Matthew and tended towards listening and acknowledging what he was saying. Notably, T reported that she talks more during the couple's typical conversations. Although she spoke less than her partner, T seemed comfortable clarifying and expressing her opinions and perspectives and disagreeing when Matthew's perceptions did not fit for her. Occasionally, T interrupted or spoke simultaneously with her partner and made use of sarcasm. While her posture was initially closed (i.e., knees up and arms around her knees),

it became more open as the conversation progressed (i.e., letting go of her knees and leaning forward).

During the conversation, T expressed her uncertainty about her future education and career:

> T: I like sitting in a class learning about stuff and I like, going to the labs and being given a problem and then solving that whatever. But no job comes to mind, when I think about like, *oh, a job, where I can sit in a lecture learn about*, you know? […] I like my major but I don't know how I'm gonna apply that someday.

T discussed her willingness to move where Matthew goes after they complete their current degrees, gauged his perspective on this, and tried to re-assure him that she would not be sacrificing what she wanted for the relationship. Instead, T thought moving with Matthew might help her figure out her career. Additionally, she discussed her excitement about taking a computer science course. She felt that her interest in coding stemmed from a previous course she had taken and was not related to her relationship. During the conversation, she seemed to become open to the possibility that their relationship, and specifically, Matthew's education, could have enhanced her interest in coding.

Overall, T's primary goal in the conversation was to keep an open line of communication with her partner:

> T: We've already had this conversation and I believe that we'll continue to have the same conversation, but I think the overall goal is […] to be on the same page I guess. Just keeping or making sure that we're both on the same page and that we're letting each other know our feelings and our thought process throughout. Like, as we start wrapping up school and everything.

005 Individual Narrative: Matthew

The conversation was between a man and a woman who have been dating for two years. Matthew is a 21-year-old male [ethnic/ cultural background removed to preserve anonymity]. Matthew is fluent in three languages. Additionally, he is trying to learn [language], which his partner speaks. Matthew is in the third year of his Bachelor of Science in Engineering, with a major in Electrical Engineering. When it comes to the future, Matthew likes to have a plan. After graduation, he hopes to work for an engineering company. However, his ultimate goal is to be self-employed in either machine learning or prosthetics. Education is a top priority for Matthew:

> M: So I think based also on previous conversations that we've had, we're both of the mindset that education is essentially number one. Our relationship is also number one. Like, one's not more than the other, but they're different. […] We'll have all the time in the world [for] our relationship. You know until we die, whatever. We'll have that time in the future so it's okay to sacrifice some time right now to get our priorities straight. And I think that's a conclusion we came to at the end.

Matthew is proud of his partner, T, happy she is pursuing her interests and expanding her skillset through coding and does not want to hold her back.

Matthew took a leading role in the conversation. He expressed his opinion, made suggestions, and inquired into T's opinions and the rationale behind her perspective and choices. He was persistent in ensuring T understood his perspective, at times rephrasing his statements and questions. His posture was open, and he was expressive in his hand gestures. At times, he glanced at the camera.

Matthew focused on 1) understanding T's current uncertainty about her future career; 2) encouraging her to make a more specific career plan; 3) exploring how he could help her make that plan; and 4) ensuring that T does not compromise her own career development for him:

> M: I mean, I know you really well right? You talk to me about everything. So, if this relationship can offer anything towards your career path in STEM, it would be that, from

> my perspective, you always tell me about what you like and what you don't like, so I have a good idea of what it is that I think that you should end up doing in the future.

He was also interested in determining whether T's interest in coding was influenced by their relationship, considering programming is a large component of his education. Furthermore, Matthew encouraged T to prioritize her education and provided reassurance about their relationship:

> M: I think everything will work out as it's meant to work out. I just think that what's most important right now is that you just take your degree and pursue what you want to pursue. Don't worry about the relationship.
> T: I think we should both do that.
> M: Of course, yeah. And don't worry about the relationship. The relationship will be there.

Matthew's goals in the conversation were: 1) to come to an agreement on their futures in STEM while balancing their relationship; and 2) to explore T's future education and career plans. For Matthew, the conversation seemed to promote acceptance of T's current stage in her career development and optimism for her future:

> M: I think I came more so to a realization that it's okay to not have a plan. […] And I think that's, you know, people are different. I would be anxious all the time if I didn't have a plan but that works for some people and […] things will align themselves eventually, I'm sure they will. Once she pursues what she likes, it will work out.

005 Joint Narrative: T and Matthew

This conversation was between a 20-year-old female with [ethnic/cultural background removed to preserve anonymity] (T) and a 21-year-old male of [ethnic/cultural background removed to preserve anonymity] (Matthew). At the time of the conversation, they had been dating for exactly two years. The couple live in residence and met when they sat at the same table for dinner. They view the relationship as serious and long-term and see each other every day. Although T's grades took "a bit of hit" early into their relationship, the couple have since tried to balance their priorities:

> M: At the beginning of the relationship, when you're in that honeymoon phase you want to spend all your time with the other person and like you [T] said you end up in this situation where school is taking a backseat, but, eventually, over time, you snap out of that and you realize that your priorities have to be balanced, properly. You have relationship, and you have school and one's not more than the other. They need to be equal because you need to give equal time to both.

T and Matthew are in the third year of their Bachelor of Science degrees in Biological Sciences and Electrical Engineering, respectively. T is focused on completing her degree and exploring her future career directions, including education. Similarly, Matthew is invested in completing his degree, encouraging T to prioritize her education, and helping her create a plan for her future education and career. Both members of the couple want to get "on the same page" about how to pursue their education and careers while considering their relationship.

The style of the joint conversation was generally direct, with both participants making eye contact and occasionally interrupting one another or speaking simultaneously. In addition, both members of the couple seemed very comfortable sharing their thoughts and opinions with each other. Matthew tended to speak more and used hand gestures, while T listened and acknowledged what he was saying. As the conversation came to a conclusion, the tone was warm and included smiling. During the couple's typical conversations, they would usually be more

comfortable and casual and less formal. Additionally, T noted that she felt "kind of awkward" within the research context and would usually speak more. Although their interactional style may have been atypical, the couple noted that the content of the conversation reflected things that they typically discuss.

The couple discussed several topics that seem relevant to them at this time. They are negotiating where to live after completing their current degrees. Since Matthew is more certain about his career goals, T perceives her own situation as more flexible and believes she may be able to find her calling by accompanying him after they complete their degrees. However, Matthew prefers for the decision of where to live to equally reflect each person's education and employment opportunities:

> M: But shouldn't it be even, like 50/50? Like, we both find places that we want to go after we finish our degree, whether it be to study more like to find a job […] we find a middle point where we can both get what we want.
> […]
> T: 50/50.
> M: Yeah, so you finish your degree, start your job search, or if you want to do your master's, start looking for places to apply to, apply to different places and then I do the same and I look for different places, and then we find somewhere that suits both of us rather than just one of us.

Although the couple prefers not to be in a long-distance relationship, they believe they could manage this because "the relationship will be there" even if they are living apart. The couple is also trying to figure out how T can apply her degree and her interests to pursue a career in STEM. They both view T's decision to explore computer science and coding as a positive step towards clarifying her career choices.

The following statements summarize two current "joint projects" that T and Matthew appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Identifying a long-term career path that makes T happy**
- **Planning together for our future careers in STEM while considering our individual and relationship goals (e.g., where to live after completing our current degrees)**

007 Individual Narrative: Emily

The conversation was between a man and a woman who have been dating for over three years and are planning to move in together. The woman, Emily, is 21-year-old Canadian with [removed to preserve anonymity] ancestry. She is a third year Bachelor of Science student with a major in Computer Science. Emily is uncertain about, but considering possibilities for, her future career:

> E: I'm not really sure what I want to do with my life quite yet. I sort of bounce back a lot between going to grad school and possibly getting a PhD and just, you know, working at the University either researching or as a professor and […] getting a job in industry somewhere, because, they're two quite different fields, and so, when we're discussing this, that's definitely why it's quite uncertain […] It's, you know, hard to know which direction, what even to talk about.

In terms of industry, Emily is particularly interested in software development or project management related to computer systems. In pursuing a STEM career, Emily is looking for "the best option that makes [the couple] both happy and fulfilled." She likes to dream about possibilities and is not afraid to push for what she wants or pursue options that might be difficult or time-consuming. Additionally, Emily wants to ensure she and her partner, Andrew, "both contribut[e] to" their future "household income and household work." She has some concern about how to keep their future lives organized and does not want household tasks to become only her responsibility.

Although Emily's experience as a woman in STEM has generally been positive, she recounted experiences with female underrepresentation in her field, having male classmates minimize or disregard her knowledge and expertise, and sexual harassment. As the president of a STEM student organization at her university, Emily is actively working to increase inclusivity in STEM:

> E: [You] feel kind of out of place when, you're the only woman in the room, but, you don't really let that stop you […] I'm the president of the [STEM-related student club] […] and a big part of my effort there has been to make the undergraduate community more welcoming to women and to non-binary people and, you know, diverse people just sort of in general. My experience hasn't been bad, but definitely, I could have felt more included at times and so, that's what I try to do for other people.

Emily took a leading role in the joint conversation. She tended to propose possibilities for her future education and career, to suggest how the couple might pursue those possibilities, and to openly shared her wants and desires for the future. She appeared thoughtful in her choice of words, pausing and speaking more slowly. She made eye contact, and on two occasions, made use of sarcasm.

During the conversation, Emily appeared focused on expressing her desire to keep her educational and career possibilities opportunities open to consideration and emphasized her commitment to finding a fulfilling and interesting career. Reflecting on the conversation, Emily explained:

> E: Sometimes I feel a bit rushed to figure it all out and get a job and make money, and, I don't want to rush it because I want to keep my options open for as long as possible so that I don't, I don't know, settle for something when I could have had something more fun, with more opportunities.

Emily problem-solved and brainstormed solutions to Andrew's concerns about the potential to move for Emily's graduate school, considering his career and their future living situation (i.e., purchasing a house). Furthermore, Emily set expectations for her future career based on her "dynamic" and "chaotic" work style, requested Andrew contribute more to household labour, and provided an example about a scholarship opportunity involving moving to a different country.

Emily's goals in the conversation were 1) to get affirmation from Andrew that he is okay with their lives being "flexible," "dynamic", and "inordinary"; 2) to get Andrew's thoughts and

opinions on her different educational and career options; and 3) to encourage Andrew to be open to different possibilities:

> E: Not just open to my possibilities, but open to his own and open to ours as well. […] I don't want him to feel like, he can't bring up unusual possibilities, you know?

Emily is grateful to be able to communicate, plan with, and get a second opinion from Andrew. The conversation left her feeling hopeful and excited about the couple's ability to effectively discuss her STEM career:

> E: He really would probably try to support me if an opportunity came up, or whatever. Like, we're having this good conversation, this is good, this means that, when this is not a hypothetical conversation, then he will be willing to actually discuss it and discuss the things that he is concerned about so that we can work together to make a plan and, like I said, actually pick the best option, you know?

007 Individual Narrative: Andrew

The conversation was between a man and a woman who have been dating for over three years, with plans to move in together. The man, Andrew, is a 22-year-old [ethnic/cultural background removed to preserve anonymity] who is employed as a power engineer. Andrew plans to continue with his current job for a five to ten years before seeking employment in [city in Western Canada]. Andrew completed one year of a Bachelor of Arts in Political Sciences, with ambitions to become a lawyer. Ultimately, he chose to pursue a career that would allow him to enter the workforce sooner:

> A: I didn't make a super grandiose sacrifice in my life. I'm still doing fine, right? But at the end of the day, I'm not doing what I thought my dream was, right? And I don't think I ever will, right? And it's, mostly just because […] at some point I just realized, well that's, is that actually going to make me happy, or is it going to be 10 years from now and I'm gonna be in a shitload of student debt and then I'm just going to be stressed about that, right? Is it gonna make me happy or is it just deferring the sadness?"

Currently, Andrew is looking for a house to buy. He would also like to see his partner, Emily, obtain an internship and try career options. When it comes to supporting Emily's STEM education, Andrew is "happy and proud of what she's managed to accomplish."

He takes the role of reminding her to do things and provides company and words of encouragement while she completes schoolwork.

During the conversation, Andrew listened and provided space for his partner to speak, often using minimal prompts (e.g., mhmm, yeah). He provided information, described his experience, and expressed concern. He generally made eye contact, occasionally looking at the camera. At times, he experienced feelings of frustration and anxiety. Although Andrew spoke less than his partner, he readily offered his perspective on the topics that were discussed.

During the conversation, Andrew seemed focused on the practicalities and constraints associated with navigating Emily's educational and career possibilities. He tried to picture what

Emily's future workload might look like. He also communicated that it would be difficult for him to relocate if Emily's were to pursue educational opportunities in a different city or country. In particular, he perceives his career as less mobile and is concerned about financial commitments once he buys a house. Andrew also encouraged Emily to be pragmatic in considering her future. For example, he set the expectation that it could take several months for him to move, and suggested that many jobs are maintenance and not product development. Furthermore, Andrew expressed concern that Emily may try a job and hate it, based on his perspective that "jobs are not fun":

> A: I'm just concerned that she has, this feeling that, just, doing— going all the way [with graduate school], doing that is going to magically solve the problems. At the end of the day, you gotta find fulfillment in your life from outside your work, 'cus you can't rely on your work to make you happy.

While Andrew expressed openness to discussing the possibilities Emily raised, he was uncertain about how he might make those possibilities work and did not want to make any promises. Andrew's goals in the conversation were 1) to figure out Emily's plan for her future career; and 2) to communicate the complexity of making life changes:

> A: And then also just kind of my goal is to, try and communicate that, life is not as fluid as we'd like it to be, right? It's not as easy to make big changes as you'd hope […] In terms of changing career, in terms of changing the province you live in, the country you live in, right? It's easier when you're a student. It's not as easy when you have, you have to have a career.

007 Joint Narrative: Emily and Andrew

The conversation was between a 22-year-old man (Andrew) and a 21-year-old woman (Emily), both [ethnic/cultural background removed to preserve anonymity], who have been dating for over three years and are planning to move in together. Emily is in university, while Andrew works as a power engineer. The couple met in high school and had a similar friend group. During Emily's senior year of high school, the pair re-connected through social media:

> E: Yeah we started off just sort of going for dates either during my lunch break at school or after school, and then after that we started hanging out more often and more regularly, and then I guess now we're planning for the future together, planning on living together in the summer or around there. And, yeah so, it just sort of, I don't know, started off as like friends dating and hanging out and now it's like, a serious relationship.

The couple is negotiating how to pursue their future together in connection to Emily's STEM career possibilities. Andrew is interested in buying a house and is aware of his current work commitments, while Emily is considering possibilities for her future education, including the potential to attend graduate school in a different location. Additionally, Emily wants to ensure household labour is evenly distributed between the couple.

The conversation involved a lot of eye contact and some moments of silence. The couple generally took turns speaking, but occasionally interrupted one another. Emily spoke more than Andrew, proposing future possibilities and expressing her wants and desires. Andrew responded by providing information, sharing his perspective, and raising concerns. He explained the reasons behind his perspective including past experiences and the practicalities of his career and their future living situation (i.e., owning a house). In turn, Emily provided suggestions for how the couple might plan for Andrew's concerns.

Topics that seem important to the couple at this time include: 1) considering what Emily's future career might look like, including consideration of her workstyle; 2) discussing

Emily's educational and career possibilities; and 3) figuring out how to pursue those possibilities while accounting for Andrew's career and goal of buying a house. Although they are both interested in Emily pursuing a career in computer science, they differ in their expectations for that career. While finding a fulfilling career is important to Emily, Andrew does not believe fulfillment can come from a job:

> A: I think my general experience in this world is that jobs are not fun. Any job you have, no matter how fun it is in one, week 100 you'll be sad.
> […]
> E: I would like to not, have a career that I dislike. […] I refuse to have and maintain a career that bores me because, doing things makes me feel fulfilled, and, I am not going to give that up. I need something that makes me feel fulfilled and like I've accomplished something.

Emily prefers to keep her educational and career options open and to be flexible in pursuing them, while Andrew prefers to know the plan.

The couple have discussed similar topics before. This conversation covered the same content to their previous discussions and was typical in terms of the amount of time they each spent talking. Those conversations also follow a similar pattern, with Emily discussing life plans, and Andrew sharing his thoughts about those plans. However, their usual conversations are more causal, considering they are "not trying to articulate it for an audience" (e.g., sitting next to each other or lying in bed). Andrew also noted that Emily's interactional pattern seemed more "stilted" than usual, while Emily explained that their conversations do not always progress to discussing specific concerns and they sometimes finish the conversation at another time.

The following statements summarize two current "joint projects" that Emily and Andrew appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Achieving the next step in Emily's career path**

- **Negotiating how to pursue our future together in connection to possible next steps in Emily's STEM career**

009 Individual Narrative: Charlotte

The conversation was between two women who have been dating for over two years. Charlotte is a 20-year-old woman with [ethnic/cultural background removed to preserve anonymity]. She in the third year of a Bachelor of Science degree at the [university in Western Canada], majoring in Biological Sciences. Charlotte is considering pursuing additional education in either pharmacy (Doctor of Pharmacy/ PharmD), forensic science (certificate), or biology (master's degree). Charlotte is focused on performing well in her current degree and figuring out the next steps for her education/career.

As a woman in STEM, Charlotte faces multiple sources of pressure to succeed:

> C: I think it's, hard, 'cus one, the courses are really rigorous, and I think there's a huge double standard, with men that, I feel the need to kind of prove myself, in my major and also career wise. […] I feel like, I have to perform just as well, or even better, as them. I think also, my parents, they tend to push me a lot, to do well.

> C: Yeah no, I know my how I perform in school doesn't determine my self worth but it's just, a really hard pill to swallow, sometimes. Yeah, I feel like I get tunnel vision sometimes with that. That, how I do in school and career wise, […] it determines who, I am as a person, and my own self-worth.

Furthermore, Charlotte compares herself to her peers and to her sister, who she considers a "very ambitious person." Charlotte takes her education very seriously, which can sometimes lead her to neglect her mental health and push herself to the point of burnout.

During the conversation itself, Charlotte spoke less than her partner, Elle. She listened attentively, acknowledged what Elle was saying, and made eye contact. Charlotte also occasionally took the initiative in steering the conversation. Charlotte seemed to agree and engage with what Elle was saying. She expressed her feelings of uncertainty, self-doubt, and shared her beliefs and desires related to her future education and career, and specifically, what she did *not* want to happen.

Charlotte described multiple factors that complicate her education/career decision-making, and specifically, whether to pursue pharmacy or switch to something else. Regarding forensic science, Charlotte expressed hesitation about limited career options and locations for work. Considering the possibility of graduate school, Charlotte noted it felt intimidating to find a research lab and principal investigator and expressed doubt in her ability to compete with other students:

> C: There's *so* many other students who have done previous research, applied for, the [name of research grant], that I'm just like, I don't know if I really have it in me to… or at least take the initiative to do that, but also, I think… it's, seeing other people's successes, I think, is what holds me back, that I'm afraid that I'm going to fail, and that I can't do it.

Charlotte expressed uncertainty about career options following a master's degree and whether she would enjoy research. Charlotte did not want her time and financial investment to go to waste if she did not pursue pharmacy. Adding further complexity to her decision, Charlotte described expectations to pursue pharmacy coming from her mom:

> C: And then also with [my mom] just telling all of our family members, and family friends that I'm going into it, it just, feels like I have, an even bigger expectation to go into it […] It's just if I don't go into it, I feel like I'm just gonna break my mom's heart. 'Cus that's all she wants for me, and, I guess both of my parents, they just came here, sacrificed everything just so I can get a good education, where it's like, I feel like I have to.

Reflecting on the conversation, Charlotte described both "resentment" towards her mom and understanding for her point of view.

Charlotte identified the following goals for the conversation: 1) to "get someone else's perspective, kind of an objective point of view on what I should do, or at least some sort of, advice to help me, choose what I want to do" and 2) "Letting [Elle] know my own thoughts and fears about my own sort of future, and kind of letting her in to that part of my life." Despite her uncertainty about the future, Charlotte felt validated and supported by Elle:

C: It’s just very natural, very comfortable to talk about it, ’cus I know she won’t judge me for anything.

009 Individual Narrative: Elle

The conversation was between a couple who have dating for more than two years. Elle is a 21-year-old woman with [ethnic/ cultural background removed to preserve anonymity]. She is in the third year of a Bachelor of Arts degree at the [university in Western Canada], majoring in [name of major]. Elle has ambitions to pursue graduate school in [removed to preserve anonymity] and one day, to open her own [removed to preserve anonymity]. Elle is driven to excel in career, in part due to her upbringing:

> E: I'm hard on myself because [my parents are] hard on me, and I've developed, I'm competitive with myself to the point where […] it feels like it's almost unachievable. But it's like me always trying to, be the best of the best, because I need to believe that I'm the best, but if I'm competing with myself then I need to be even better, because I just need them to, not lose faith in me, I guess.

Elle considers her partner, Charlotte, to be her best friend and is committed to supporting her educational and career pursuits. At the same time, Elle does not want Charlotte to "strain [her] mental health over trying to be the best." Elle appears to have a lot of empathy for the pressures Charlotte faces pursuing a STEM education:

> E: It just feels like there's so much pressure to, in order to be taken seriously [as a woman in STEM], you have to, as she said, be better or… which just puts a lot of strain on, just the ability to just, not treat school as if it's, the only thing, that, gives her value, I guess. […] Regardless of just school on its own, she's valid outside of that, like her academic marks don't determine her self worth. But I feel like being in a major that's so competitive, it's very hard to not feel that way.

> E: I think it's just very hard growing up, when your parents are always like, they start pushing you, when you're able to walk, you know? And they engrave this idea that if you don't, go down one of these career paths, you're not gonna make any money and you're not gonna be happy.

Although Elle spoke more than Charlotte, she took the role of providing support. Elle seemed to insert optimism and encouragement into the discussion. She communicated empathy and understanding by providing advice, approval, and validation, and acknowledging what

Charlotte was saying. Furthermore, she shared her opinions and beliefs and made supportive and re-assuring statements (e.g., “you deserve to have that chance for yourself,” “starting over isn’t always so scary”). Elle maintained eye contact and lightened the conversational tone through humour. During the reflection portion of the interview, Elle indicated that the couple tends to deflect their feelings with laughter. Elle’s body language appeared comfortable and relaxed. In one instance, Elle’s passion for her belief in Charlotte came through in the form of more expressive body language.

Elle encouraged Charlotte to pursue a career she loved, even if it meant starting over and investing more time and money. She verbalized her support of Charlotte pursuing pharmacy, while simultaneously encouraging her to explore other options. In one part of the conversation, Elle shared anecdotes to express that failures can be a learning opportunity. Elle normalized her partner’s uncertainty, communicated her belief that Charlotte’s success was not contingent on the success of other people, and expressed optimism that Charlotte’s "time will come" and that she is “destined for great things.”

Although Elle understands the complexity of navigating career alongside the expectations of “traditional [ethnicity/culture removed to preserve anonymity] parents,” she encouraged Elle to prioritize her own interests and happiness:

> E: You deserve to have that chance for yourself, you know what I mean? Disappointing your mom, regardless of whatever it is, regardless of it’s, just changing your career path, I don’t want to say that your mom will get over it, because I don’t know, maybe she never will, but as a parent, I feel like just seeing that your child is happy, despite what you want, […] they should feel something you know?

At the same time, Elle was aware of how difficult this advice might be to follow:

> E: When I talk to Charlotte and I give her advice, and I’m telling her how I see things, it’s never advice that I can take for myself, because, I think just, the need for my parents’ approval, is so prominent, in my life. So I can understand why she feels like she doesn’t want to let her mom down.

Overall, Elle's goals in the conversation were: 1) to try to get Charlotte to be "easier on herself," and 2) "to make sure that [Charlotte] felt like she was being heard and understood":

> E: I think that I was just trying to, just let her know that if she, has a problem, even if we talk about it for like 15 minutes or like 15 years, I'm always gonna listen to it.

009 Joint Narrative: Charlotte and Elle

The conversation was between a 20-year-old woman with [ethnic/ cultural background removed to preserve anonymity] (Charlotte) and a 21-year-old woman with [ethnic/cultural background removed to preserve anonymity] (Elle) who have been dating for over two years. They met at a party, through a mutual friend. The couple started off as friends and bonded over their similarities, shared interests, and being amongst the few "girls that were into girls" in their friend group. As Elle recounted, "it just kind of naturally happened." Both women are university students, majoring in Biological Sciences and [name of major], respectively.

While Elle has a clear aim to become a [occupation], Charlotte has not yet decided on a career. However, she is considering continuing her education in either pharmacy (Doctor of Pharmacy/ PharmD), forensic science (certificate), or biology (master's degree). Both members of the couple are focused on supporting Charlotte in finding a career that makes her happy, while considering the pressure she faces. Elle is also concerned with ensuring Charlotte does not sacrifice her mental health for her academics.

Although Elle took a leading role in the conversation, the focus was on Charlotte. While Charlotte voiced her uncertainty, doubts, beliefs and desires, Elle offered encouragement, advice, and an optimistic perspective. The couple appeared comfortable and connected, making eye contact and sometimes laughing together. The emotional tone was supportive. Notably, the couple indicated their typical conversations about this topic are shorter and less in-depth.

At this time, the couple seems most focused on helping Charlotte to identify the next steps in her education/career while figuring out how to navigate the internal and external pressures she faces. In considering pursuing something other than pharmacy, Charlotte is concerned about disappointing her mother, financial and time investment, and the risk of failure.

However, Elle would like Charlotte to prioritize her own interests and happiness, and thinks it is better to start over than to be left wondering "what if?" Elle seemed more open to Charlotte taking her time, changing her mind, and trying different options, such as research or taking an online forensic science course:

> E: Yeah. I feel like people change up their lives all the time, and it doesn't mean that, you can't restart your life at 30. It doesn't mean that you can't restart your life at 40. Like, it's a little late, but, better late than never.
> C: Yeah no, I get that. But yeah I have the rest of my life to kind of do what I want. It's just I don't wanna start over and just start at zero again, and kind of work my way up. It just seems like, even more work.
> E: I think at the end of the day, […] it's always going to be more work. I don't think that you're starting at zero, I think you're going back, into something with a different experience and a different mindset because, by the time you figure it out you're not going to be the same person that you are now, right?

The following statement summarizes a current "joint project" that Charlotte and Elle appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Working together to figure out the next step in Charlotte's education and career, while considering the internal and external pressures she faces**

011 Individual Narrative: Monica

The conversation was between a man and a woman who have been dating for almost two years. The woman, Monica, is a 21-year-old [ethnicity/ cultural background removed to preserve anonymity]. Monica is in the fourth and final year of a Bachelor of Health Sciences at the [university in Western Canada], majoring in Bioinformatics. In addition to her studies, Monica works as a database developer and maintains extensive extracurricular involvement, including serving in leadership roles in multiple student clubs. Monica can see herself pursuing a range of STEM careers in the future, such as software development, tech consulting, data science, or project management:

> M: I found it hard to choose my career path. For me it was because I felt like I had a lot of different passions and, I guess in the end, I just had to figure something out, in a short amount of time and, talk to a lot of people to figure out what I want.

Monica's main concern is completing her thesis and graduating in time to start a job she has been offered, as a tech analyst for a tech-focused consulting firm. She is also anxious to get her start date for that role. Additionally, she has "high goals" and expectations for her future salary, but is hesitant to share those expectations with Adam because she does not want him to "raise his expectations," view her as "a greedy person," or feel "unsatisfied" with his own salary.

Although Monica's classmates in her STEM courses are "predominantly male," she described having "a lot of close friends" and noted, "I don't find that it's a big concern for me community wise." She sometimes compares herself to high achieving peers. While workloads and schedules have posed a challenge to balancing Monica's STEM education/career goals with her relationship, Monica views Adam as "really supportive."

During the conversation, Monica was an equal participant. She laughed often, sometimes in response to Adam's use of humour. She provided information and context about her future

job, expressed worry, listened to Adam's perspectives, and shared her own. Monica sometimes re-directed the conversation and seemed motivated to keep the focus on her career. Overall, she related very affectionately to her partner.

Monica expressed worry about completing her thesis and explained she has a tendency to put it off in favour of other activities. She also discussed her desire to have a concrete start date for her future job, and provided Adam with information about that job. Additionally, Monica brought up her concern that Adam might not be satisfied if he had a lower salary than her:

> M: Here's my chance to talk about this. Like, this is an opportunity for me to, bring it up 'cus I feel like salary is always, an iffy topic, 'cus you don't want to compare yourself to your partner […] so I was a little hesitant as well, and, I was just kinda hoping that he would understand, where I'm coming from.

Monica tried to get Adam excited about travelling and expressed both her desire to stay in [city in Western Canada] for a few years and her openness to moving to another country. However, she implied that Adam might miss home. In the conversation review, Monica questioned whether Adam realized how much he would miss his family and dog if he moved out. She also described conflicting feelings about moving countries:

> M: Probably before I met Adam I never thought about moving out of the country. […] I just couldn't really picture the appeal, if I couldn't picture a partner with me. So having a partner kind of opens more doors, but then kinda separates me from my family. So it's kinda like a bittersweet feeling. So it's like sadness, mixed with like excitement."

Monica's goals during the conversation were: 1) to figure out if there was anything related to her career the couple had not talked about; 2) "to discuss more about plans" (e.g., career plans and moving out) and see if they were "on the same page"; and 3) "getting to know [Adam] better." Looking ahead, Monica "can't wait" for Adam to be done with his internship-related stress, so they can discuss topics outside of career.

011 Individual Narrative: Adam

The conversation was between a man and a woman who have been dating for nearly two years. The man, Adam, is a 20-year-old Canadian with [ethnic/cultural background removed to preserve anonymity] ancestry. Adam is in the fourth year of a Bachelor of Science in Computer Science through the [university in Western Canada]. Currently, he is interning as a software developer. In line with this internship, he aims to become a software developer, ideally in website or game development. Adam is working to finish his current internship and get another, before completing his final year of university.

Beyond his education/career, Adam wants to "try new things and […] break out of [his] shell," such as by moving out, moving to a different country, and meeting and becoming friends with new people. He is also focused on supporting his partner, Monica, in her STEM education/ career goals, including motivating her to complete her thesis. Sometimes it can be tricky for Adam to know how to best support Monica, because she is still exploring possible career paths. While Adam appreciates Monica's ambition and recognizes the competitive nature of STEM, he sometimes wishes she would "slow down" and "take a breath:"

> A: I feel like she really just needs to, kind of, slow things down and just, focus on what she really needs to, which is her thesis and just kind of wrapping school up, instead of, really trying to pursue those different avenues or find out, different roles she can do, in terms of clubs […] At a certain point it's just like, you need to slow down. You're not gonna be able to do, absolutely everything, that you want to do. So, I feel like she just needs to kind of, discover, what really are her priorities.

He would also like Monica to enjoy her life and develop interests outside of school.

Adam was an equal participant in the conversation. He listened attentively and shared his perspective and concerns. At times, he steered the direction of the conversation. Adam lightened the conversational tone through humour and laughter. In one instance, he used humour to gently

disagree with Monica. Adam provided encouragement and reassurance, and once, directly asked Monica how he could support her. His tone was affectionate.

Adam encouraged Monica to focus on her thesis. He expressed his concerns about Monica's heavy extracurricular involvements, the possibility of her signing a mortgage, and that Monica would prioritize her salary over exploring her options and finding a career she enjoys. Additionally, he sought Monica's input on where to live and when and expressed his desires to have new experiences and for the couple to move in together.

In the conversation review, Adam responded to Monica's concerns that he might be bothered if she made a higher salary than him by clarifying that this was not a concern for him. He also indicated some frustration over Monica's tendency to compare herself and the couple to Monica's friends, stated he sometimes wished she could live her own life instead of following the path of others, and shared his perception that Monica may not have "a complete picture of" his desire to try new things. Overall, Adam seemed most focused on supporting and encouraging Monica during their conversation because of his perception of her:

> A: She's really good at managing people and stuff, but, when it comes to her own talents and her building things, I feel like she doesn't really, see as much potential in that, even though I feel like there's plenty.

Adam's goals in the conversation were: 1) to talk more seriously than usual and really listen; and 2) to find a balance between encouraging Monica and telling her how to live her life. Nonetheless, Adam feels confident about the couples' future together:

> A: It might just be because the part of our lives we're at and everything, kind of moving into careers, but, I don't know. I just, can't help but feel confident that, regardless of what happens, I feel like we'll be able to figure something out together […] I feel like we're doing well and that what we have is pretty great, so.

011 Joint Narrative: Monica and Adam

The conversation was between a 21-year-old [ethnic/ cultural background removed to preserve anonymity] woman (Monica) and a 20-year-old Canadian man (Adam) with [removed to preserve anonymity] ancestry, who are "coming up on two years together." Monica is three months older than Adam. Both members of the couple live with their families. They are both pursuing STEM education and first met in a computer science course. At times, it has been tricky for Monica and Adam to see one another because they live on opposite ends of the city and due to online courses as a result of the COVID-19 pandemic. Monica and Adam are in the fourth year of Bioinformatics and Computer Science majors, respectively. While Adam would like to pursue a career in software development, Monica is still considering possibilities for her career in STEM. Adam is focused on completing his internship and finding another and supporting Monica's STEM education/ career. Monica is focused on completing her thesis and graduating in time to start a job offer.

Monica and Adam equally contributed to the conversation; at times they went back and forth and occasionally they continued each other's statements. Both members of the couple took turns steering the direction of the conversation. The conversational tone was loving and included ample smiling, laughter, and eye-contact. The couple also conveyed affection by holding hands. Monica and Adam often discuss the future, their educations, and careers— maybe "five out of seven days of the week." These conversations occur both in-person and over text. Although the content of the conversation was typical, Adam noted, "it's pretty rare for us to actually like sit down and look each other in the eyes, and have a conversation like that."

Several topics emerged as potentially important to the couple at this time. They are in the process of reconciling their different values related to career. While Monica has high goals for

her future salary, Adam thinks it is more important for her to select a career she enjoys. They are also trying to figure out how to pursue their future lives together (i.e., where to live and when, and what life experiences to pursue). Adam is motivated to have new experiences, meet new people, and move to a different country. On the other hand, Monica would like to stay in [city in Western Canada] for at least a few more years and thinks she can satisfy her own "need for a new place" through travelling. While open to the possibility of moving, she worries they would both miss their families. They are both excited about the prospect of moving in together. They also seem motivated to support one another as they plan for their future lives. Both members of the couple identified positive impacts of the other on their life:

> M: Adam is very, very hard working and he inspires me to, pay more attention to what I'm putting my time towards, and, putting myself in the shoes of others, so I feel like he just inspires me to be a better person overall.
>
> A: It kind of goes both ways, where, I try to help her out and she tries to support me. Just 'cus there's a number of things I probably wouldn't have done, but did, because you know, she was in my corner.

The following statements summarize two current "joint projects" that Monica and Adam appear to be engaged in together, related to pursuing STEM career goals within their relationship together:

- **Working together to figure out how to pursue our future lives together, alongside our STEM careers**
- **Working together to help Monica graduate in time to have a smooth start to her job**