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# Narrative Identity Development: Integrating Sibling Conflict into the View of the Self

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NARRATIVE IDENTITY DEVELOPMENT: INTEGRATING SIBLING  
CONFLICT INTO THE VIEW OF THE SELF

By Ashley D. Paterson

M.A., University of Windsor, 2008

A Dissertation  
Submitted to the Faculty of Graduate Studies  
through the Department of Psychology  
in Partial Fulfillment of the Requirements for  
the Degree of Doctor of Philosophy  
at the University of Windsor

Windsor, Ontario, Canada

2013

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## DECLARATION OF ORIGINALITY

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## ABSTRACT

The purpose of the current study was to examine how sibling conflicts are processed and integrated into emerging adults' narrative identity. A total of 238 participants completed questionnaires and wrote about a sibling conflict. Fifty-five siblings of participants also completed the study allowing for a sample of 55 sibling pairs. Qualitative exploration indicated that the causes of sibling conflicts were related to the developmental tasks of the emerging adult participants (Arnett, 2004), suggesting that siblings use conflicts as opportunities to negotiate developmental challenges. Data from the total sample of non-matched target participants were used to test the initial steps in Pals' (2006) model of positive self-transformation in adulthood. Results indicated that exploratory narrative processing was related to ego development, but coherent positive resolution was not related to life satisfaction. In addition, male target participants who identified a female sibling as their sibling closest in age (who met the age criteria) had higher ego levels than male target participants who identified a male sibling. Examination of matched sibling data (i.e., subsample of target participants matched to their siblings) revealed that exploratory narrative processing, self-reported emotion complexity, and ego levels of older siblings positively related to the exploratory narrative processing, self-reported emotion complexity, and ego levels of the younger siblings; also, greater sibling warmth perceived by the younger sibling was associated with higher ego levels of the younger sibling. Having greater sibling warmth and an interdependent self-construal positively related to coherent positive resolution. Feelings of mastery, greater sibling warmth, and a high level of independent and interdependent self-construals positively related to life satisfaction. Matched sibling data indicated that the younger siblings'

perception of sibling warmth moderated the relation between older and younger sibling levels of life satisfaction.

Overall, this research shows that sibling conflicts are integrated into one's life story by developing and elaborating on internal narratives of the event, which in turn fosters ego development. This study also highlights the role of sibling warmth in narrative identity development. These results have the potential to inform sibling intervention programs by highlighting the importance of fostering sibling warmth in addition to conflict resolution for adaptive development.

## DEDICATION

This dissertation is dedicated to my loving and supportive siblings, Jason and Lindsay.

Without them, I would not be the person I am today nor would I ever become the psychologist I hope to be.

## ACKNOWLEDGMENTS

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I must also extend my sincere thanks to a number of individuals who were instrumental in creating the data that were included in this dissertation. I would like to thank all the participants who took the time and effort to complete my study and the

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Without the love and support from friends and family, completing a Ph.D. and a dissertation would have been an overwhelming experience. I am grateful to my family as they have supported me in the pursuit of my dream to be a psychologist. They have always been patient with me and supportive in times of stress. Also, the friendships I have made over the course of my graduate work have been equally important in my completion of this dissertation as the relationships I have had with those who supported me directly in my research. Without my friends' support, this dissertation would not be what it is today.

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As I reflect on this process, I fear that these pages do not truly express how grateful I am. This has been a lengthy process and I am thankful that I have had amazing people in my life who have been patient, kind, knowledgeable, and supportive. None of this would be possibly without each and every person I have mentioned.



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## CHAPTER I

### Introduction

The construction of an identity is a developmental task typically attributed to adolescents and emerging adults (e.g., Arnett, 2000; Erikson & Erikson, 1997; Fivush, Habermas, Waters, & Zman, 2011; Harter, 1998), but is also modified throughout one's life-course with new experiences (Cohler, 1993; Habermas & Bluck, 2000; Kroger, 2000; McAdams, 1993). Some would argue that through the task of reflecting on and narrating past events and integrating them into the current self, a sense of consistency, unity, purpose, and meaning evolves (Bauer, McAdams, & Pals, 2008; Pals, 2006). Therefore, by reflecting on and narrating previous experiences, whether they are life changing events, or everyday occurrences, narrative identity is developed and sustained (McLean & Pasupathi, 2012).

Many factors contribute to narrative identity development. Parental influence and factors such as socioeconomic status, ethnic or racial background, gender identity, sexual identity, and the interconnections between these factors likely affect aspects of the self that will make up who we will become (e.g., Solomontos-Kountouri & Hurry, 2008); however, we don't always give enough credit to our siblings for influencing and shaping us. Sibling relationships are fundamental to many people's upbringing and identity development. With the majority of people having at least one sibling, sibling relationships are thought to be one of the closest, most intimate, and influential relationships a person has, second only to the parent-child relationship (Buhrmester & Furman, 1990; Furman & Buhrmester, 1985; Irish, 1964; McHale, Updegraff, & Whiteman, 2012; Volling, 2003), in part because they are often the longest relationships people will experience in a

lifetime. The current study sought to better understand how siblings are integrated into one's narrative identity.

Narrative identity development and sibling relationships may be particularly important during emerging adulthood, which is defined as the years between the ages of 18 and 25 (Arnett, 2000; 2004). North American youth in transition to adulthood who seek greater educational attainments tend to delay asserting their independence from family and committing to a life partner (McAdams & Olson, 2010; Rustin, 2007). They typically have multiple dating relationships in the process of finding their life partners and they seemingly change jobs or career paths more often than older adults, all in the process of establishing their identities. In fact, people in this age group experience a great deal of change in their personal, professional, political, and relational identities on their way to becoming adults (Arnett, 2000). Arnett (2004; 2007) identifies five features to emerging adulthood: identity exploration, self-focus, instability, feeling in between two life phases, and an age of possibilities. Given their degree of exploration while remaining close to their families, one would expect that siblings would strongly influence the development of emerging adults.

Some of our sibling interactions are likely to fit into our self-perceptions and promote identity consistency over time and domain, whereas others, such as difficult life events including sibling conflict, may not fit and can promote growth and change in our identity (McLean, Pasupathi, & Pals, 2007; Pasupathi, Mansour, & Brubaker, 2007). Conflicts are defined as episodes of increased emotion surrounding events that are unlikely to be soon forgotten (Shantz, 1993). Sibling conflicts during emerging adulthood are likely to arise because of the degree of change, exploration, and instability. These conflicts may be particularly instrumental to identity development as they may challenge

siblings to take on each other's perspectives and re-negotiate their own narrative identities. Identifying the causes of sibling conflict may therefore further inform the important sibling relationship issues that are integrated into one's narrative identity. These issues and conflicts are likely to lead to increases in identity consistency (Bauer et al., 2008; Pals, 2006) while also promoting identity flexibility. Identity flexibility is the ability to alter the self to meet the needs of the sibling relationship, which is a valued characteristic among those who value relationships including women and people of various ethnic groups (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991; Markus & Kitayama, 1991).

The narrative identity framework is one that can be tested in ways that are sensitive to diversity in cultural understandings of the self in relation to others and in ways that are sensitive to gender differences in self-structure development. It is therefore the purpose of the current study to examine, within an ethnic- and gender-sensitive framework, how interactions with siblings, namely sibling conflicts, are processed and integrated into one's life story and how they can promote ego development and bring us greater overall well-being. Ego development is defined as the "search for coherent meanings in experience" (Hy & Loevinger, 1996), and for the purpose of the current study, well-being is defined as life satisfaction, the cognitive conceptualization of subjective well-being, and includes self-evaluations of progress towards self-identified needs, goals, and wishes (Sirgy, 2012). Since Freud's (1923) seminal work, the personality literature has highlighted the importance of balancing the desire to make mature choices consistent with cultural values with the desire to be happy. In Freud's work, this was reflected as the impact of the super-ego and the id on the ego. These two

pathways, replicated in the narrative identity literature, are therefore of equal importance, and according to Pals (2006), lead to greater self-transformation in later adulthood.

### **Narrative Identity**

To construct a narrative identity, an individual must first develop an autobiographical memory (Nelson & Fivush, 2004). Social cultural developmental theory (see Nelson & Fivush, 2004 for a review) postulates that autobiographical memory is culturally influenced and constructed within the context of social and cognitive development. With social interactions starting at birth, children develop a concept of the self and other and of the core self by the end of their first year. Then, language development and the establishment of the cognitive self facilitate the development of a complex representation of the self in relation to others. Conversations regarding past and future activities then help children understand the concept of the self over time (Nelson & Fivush, 2004), which is a central requirement for narrative identity construction. Also important for development, children recognize that people have different mental states (Nelson & Fivush, 2004). The integration of these many skills results in an organized system that enables children to have culturally laden autobiographical memories (Habermas & Bluck, 2000; Nelson & Fivush, 2004). Researchers argue that by reflecting on past events and relationships, youth learn about themselves (McLean & Breen, 2009) and as they integrate an increasing number of these events and relationships, their ideas about the self become more meaningful and sophisticated, reflecting a more stable self-structure that is more differentiated and coherent (e.g., Fivush et al., 2011; Habermas & Paha, 2001; McCabe, Capron, & Peterson, 1991; Pratt, Norris, Arnold, & Filyer, 1999). Fivush and colleagues (2011) argued that autobiographical memory is a central process involved in understanding the self and others. They stated that “individuals create a sense

of self as continuous and coherent through time, with a past that explains the present and projects into the future and places the individual within a family, a community, and a culture” (p. 323). It is the construction of a life narrative that determines who we are and how we should act (Fivush et al., 2011).

Two important factors facilitate meaning-making during adolescence. First, adolescents enter a phase in which the emerging development of one’s identity is of crucial importance (e.g., Erikson, 1968), and second, the development of new cognitive skills allows for greater perspective-taking and incorporation of multiple meanings (Katz & Ksanskak, 1994; Piaget, 1963). To date, researchers have examined narrative identity development among adolescents within the context of parental scaffolding (McLean & Mansfield, 2012), and among emerging adults within the context of volunteerism (Cox & McAdams, 2012). These researchers show that family and new opportunities experienced in emerging adulthood are important contributors to narrative identity development. The integration of sibling relationships into one’s life story appears to be an important contributor to identity development and, based on the current review of the narrative identity literature, has not, as of yet, been examined. In the following, a review of the narrative identity literature will be presented to provide a rationale for using sibling conflict narratives.

### **Sibling Conflict Narratives**

Current literature has examined parent (e.g., Dumas, Lawford, Tieu, & Pratt, 2009; Fivush & Nelson, 2004; Frensch, Pratt, & Norris, 2007; Pratt et al., 1999; Pratt, Norris, Hubblethwaite, & Arnold, 2008) and peer (e.g., Pasupathi & Hoyt, 2009) roles in narrative identity formations, but narrative identity researchers have not as of yet, based on the review conducted for this study, examined sibling impact on narrative identity

development with one exception. Scharf, Shulman, and Avigad-Spitz (2005) examined narratives regarding sibling relationships in youths. They interviewed 116 adolescents and emerging adults about their siblings and coded for the narratives' organization and coherence. They found that emerging adults ( $n = 60$ , age range = 21 to 25 years old) provided more balanced and coherent descriptions of their siblings compared to adolescents ( $n = 56$ , age range = 14 to 18 years old), indicating that with age narrative coherence increases with regards to sibling relationships. Narrative coherence is an indicator of narrative identity (Pals, 2006). This research therefore suggests that sibling relationships may be significant indicators of meaning-making and may inform narrative identity.

Narrative identity processing specifically refers to the continuous task of narrating, understanding, and integrating past events and memories into one's life story by exploring, reflecting on, and analysing the self (Pals, 2006). This process-oriented approach is needed within the sibling literature to further clarify how siblings impact one another (McHale et al., 2012). To this end, the current study has examined sibling relationships in emerging adulthood within the framework of narrative identity development (e.g., Habermas & Bluck, 2000; McLean & Breen, 2009; McLean et al., 2007; McLean & Pasupathi, 2012).

It is imperative that within this narrative identity framework, meaningful experiences are examined because these experiences are more likely to be integrated into one's narrative identity by either supporting or challenging existing self-beliefs (McLean et al., 2007; Pasupathi et al., 2007). Sibling conflicts impact the development of a sense of self and identity (Bedford, Volling, & Avioli, 2000) and are likely to be meaningful experiences that will inform narrative identity for several reasons. First, growth stories

have been used to better understand how people derive meaning from negative life events (e.g., Bauer & McAdams, 2004a, 2004b; Bauer, McAdams, & Sakaeda, 2005), such as sibling conflicts. Although all experiences, whether good or bad, shape an individual and experiences that are consistent with an individual's self-perception promote the stability and consistency of identity over time (McLean, 2008), it is the emotionally significant memories that provide meaning to a person's life (McAdams, 2001; Pals, 2006; Singer & Blagov, 2004; Singer & Salovey, 1993). These memories can challenge identity, subsequently providing an opportunity for growth (Pals & McAdams, 2004).

Second, adolescent and emerging adult narratives concerning mortality and relationships have been shown to be embedded with more meaning than narratives regarding achievement and leisure (McLean & Pratt, 2006; Thorne, McLean, & Lawrence, 2004). Narratives about family and peer relationships, especially with respect to difficult interactions, are therefore likely to be filled with meaning that affects development. For example, conflicts challenge people to gain perspective on the self, others, and their relationships. Sibling conflicts, compared to peer conflicts, are unique in that they can be particularly intense but do not typically lead to a dissolution of the relationship (Katz, Kramer, & Gottman, 1992; Volling, Youngblade, & Belsky, 1997). When escalated and long-lasting, sibling conflicts can be detrimental to one's well-being (Kim, McHale, Crouter, & Osgood, 2007), but it is also possible that disagreements and conflicts can have several benefits (e.g., Bank & Kahn, 1997). In fact, Freud (1930), Piaget (1965), and current developmental theorists (e.g., Lockwood, Kitzmann, & Cohen, 2001; McHale et al., 2012; Recchia & Howe, 2008, 2009a, 2009b; Ross, Siddiqui, Ram, Ward, 2004) view sibling conflict as a central process toward developmental changes, one that can, more specifically, lead to a stronger sibling subsystem (Bank & Kahn, 1997).

Sibling conflict narratives, therefore, are particularly relevant for developmental researchers who wish to chart social-cognitive development and pathways towards higher levels of complex thought of self and other (e.g., Damon & Hart, 1988, Loevinger, 1976).

Identifying the causes of sibling conflict among emerging adults may further inform the role of siblings in fostering developmental change. It has been shown that sibling conflicts typically concern possession, personal property, access to mother (Dunn & Munn, 1987), or equality and fairness (Campione-Barr & Smetana, 2010) in early childhood and privacy issues in later childhood and adolescence (Campione-Barr & Smetana, 2010; McGuire, Manke, Eftekhari, & Dunn, 2000). The causes of sibling conflict among emerging adults have not been studied, which is likely due to the fact that sibling relationships are typically congenial (Scharf et al., 2005).

### **Two Distinct Developmental Pathways: Ego Development and Life Satisfaction**

Several models have been proposed that examine narrative growth and identity development within the context of difficult life events, such as sibling conflict. In many of these models, two pathways of development are identified: first, the pathway toward higher ego development which is defined as the “search for coherent meanings in experience” (Hy & Loevinger, 1996) and an indicator of maturity (Bauer & McAdams, 2004a, 2004b; King & Raspin, 2004; Labouvie-Vief, 2003; Labouvie-Vief, Diehl, Jain, & Zhang, 2007; Pals, 2006), and second, the pathway toward well-being, which is defined here as life satisfaction, which is the cognitive conceptualization of subjective well-being, and includes self-evaluations of progress towards self-identified needs, goals, and wishes (Sirgy, 2012). Typically, the exploration of the self in relation to others and the integration of difficult life experiences into one’s life story relates to ego development and maturity (e.g., King & Raspin, 2004; King, Scollon, Ramsey, & Williams, 2000;



King & Smith, 2004; Westenberg, Blasi, & Cohn, 1998), whereas reflecting on personal agency, or achieving a positive resolution within the self or within a relationship, relates to subjective well-being and life satisfaction.

Generally, measures of ego development (e.g., Loevinger, 1976; Ryff & Keyes, 1995) do not correlate with measures of well-being (e.g., Diener, Emmons, Larson, & Griffen, 1988; Watson, Clark, & Tellegan, 1988), indicating that people with high levels of ego development may or may not also have high levels of well-being and/or life satisfaction, and people with high levels of well-being and/or life satisfaction, may or may not have high levels of ego development (Bauer et al., 2008; Bauer & McAdams, 2004a, 2004b). This supports the distinction between the two pathways of development. Pals (2006) argues that both pathways are necessary for positive self-transformation. The current study examines sibling conflict within her framework.

**Pals' (2006) model.** Based on several studies, Pals (2006) presented a model examining maturity (i.e., ego development) and life satisfaction within a narrative identity processing framework. The underlying assumption of her model was that emotionally significant memories were processed to provide meaning to one's life story. As in other models, two pathways of personality development were necessary to foster meaning and positive self-transformation in middle to later adulthood (see Figure 1).

First, Pals (2006) indicated that greater exploratory narrative processing of a difficult life event would lead to greater maturity. She broadly defined exploratory narrative processing as “the active, engaged effort on the part of the narrator to explore, reflect on, or analyze a difficult experience with an openness to learning from it and incorporating a sense of change into the life story” (p. 1081). In her work, individuals

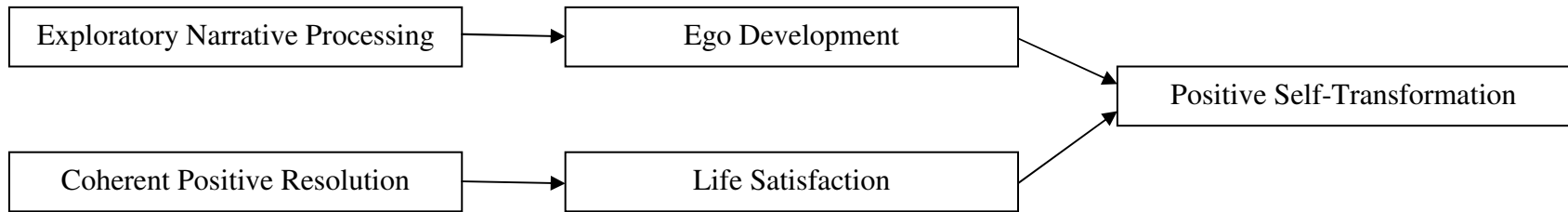


Figure 1. Pals' (2006) Model of narrative identity development.

who were rated as more mature wrote narratives that were more elaborated and filled with explorations, reflections, and analyses. The pathway between exploratory narrative processing and ego development depicted in Figure 1 represents this pathway from Pals' (2006) work. She also found that greater coping openness, defined as one's tolerance of negative and ambiguous thoughts and feelings, mediated the relation between exploratory narrative processing and maturity.

Other research has found similar factors contributing to ego development and maturity. For example, individuals with higher levels of ego development have been found to narrate growth stories and negative life events in more elaborated, integrated, and complex ways as compared to people with lower levels of ego development (King & Raspin, 2004; King et al., 2000; King & Smith, 2004; Westenberg, Blasi, & Cohn, 1998). Specifically, Bauer, McAdams, and colleagues (Bauer & McAdams, 2004a, 2004b; Bauer et al., 2005) revealed that people who emphasized exploration, learning, and integration of new information into their life goals (Bauer & McAdams, 2004b) or life transition (Bauer & McAdams, 2004a) narratives had higher levels of ego development. Overall, this research shows that narrating stories in ways that emphasize learning, exploring, and understanding, leads to greater ego development. Therefore, we might expect that siblings who narrate their conflicts in elaborated, integrated, and complex ways that promote learning, exploration, and understanding will have higher levels of ego development.

Second, Pals' postulated that arriving at a coherent and positive resolution to a difficult life event would lead to greater life satisfaction. Pals (2006) defined coherent positive resolutions as "the construction of a coherent and complete story of a difficult event that ends positively, conveying a sense of emotional resolution or closure" (p. 1082) and operationally defined coherent positive resolution using four variables:

coherence, positive ending, negative ending, and emotional resolution. Although Pals' had hypothesized that arriving at a coherent and positive resolution would relate to greater life satisfaction, this pathway was not significant. Instead, she found that increases in ego-resiliency mediated the relation between coherent positive resolution and life satisfaction. She defined ego-resiliency as "the capacity to adapt effectively to challenging life circumstances and maintain a positive outlook" (Pals, 2006, p. 1094).

Similarly, McAdams and colleagues (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001) examined the relation between redemption (i.e., deriving a positive outcome from a negative event) and contamination (i.e., deriving a negative outcome from a positive event) narrative themes and well-being in a sample of midlife adults and in a sample of undergraduate students. In both samples, results indicated that redemptive sequencing related to high levels of psychological well-being and in the midlife adult sample, contamination sequencing related to low levels of psychological well-being. The younger, undergraduate population may be unique because they have not, as of yet, experienced a number of stressful events that are typical of older populations (e.g., divorce, death of a parent, loss of a job). This limited experience of negative life events may have a protective function with regards to interpreting positive events that end poorly. McAdams and colleagues (2001) also found that the redemptive sequencing in narratives was a better predictor of self-esteem than the overall affective tone of the narrative.

Based on this literature, I would expect siblings who can turn a conflict scenario into a positive learning experience or transform the negative interaction into a positive one, to have greater life satisfaction. Specifically, with regards to Pals' (2006) model, I would anticipate that siblings who arrive at coherent and positive resolutions to sibling

conflicts to have higher levels of life satisfaction in comparison to siblings who do not arrive at coherent and positive resolutions to sibling conflicts.

In the current study, narratives of sibling conflict will be examined within the framework of Pals' (2006) model using integrative growth themes. The current model assumes a continuous pattern of development across the lifespan in which life events are brought to the forefront of one's experiences, processed, and integrated into the overall view of the self, thereby providing the opportunity for self-transformation. Specifically, the current study will examine exploratory narrative processing of self, sibling, and their relationship as it relates to ego development and coherent positive resolution of the sibling conflict as it relates to life satisfaction. Literature relevant to each pathway is described further below.

### **Ego Development and the Self**

The first pathway in Pals' (2006) narrative identity model examined exploratory narrative processing as a contributor to ego development. Ego development occurs as an individual experiences a progression toward increasingly complex ways of thinking about the self in relation to others (Loevinger, 1976). This process of understanding the self has been described by Loevinger and her colleagues as requiring a balance between focussing on the thoughts, feelings, and behaviours of the self while also focussing on the thoughts, feelings, and behaviours of others (e.g., Hy & Loevinger, 1996). Generally, children and adolescents have an outward orientation, looking to others to inform cultural norms and standards, whereas mature adults reflect inwards to gain a better understanding of their values and beliefs (e.g., Gutmann, 1987; Labouvie-Vief, 1994; Neugarten, 1968).

Therefore, people discover self-meaning by first focussing on what other people say and do (Vygotsky, 1962). Belenky and colleagues (Belenky, Clinchy, Goldberger, & Tarule,

1997) argue that, historically, in male-dominant societies women have been under-represented in university settings and institutions that generate and disseminate knowledge, many have tended to look to more powerful others, especially men, for truths about themselves and the world, resulting in a skewed perspective in early development. According to Belenky and colleagues (1997), a shift in perception comes with advances in ego development. Instead of looking toward others for self-information, women with a more advanced ego development will turn inward and look to themselves for this information. Although this work highlights the importance of gender in identity and self-development, the model presented by Belenky and colleagues (1997) is a critique and a reflection on the historically male-focussed model that distinguished the need to focus on either the self or the other rather than on the relationship between the two.

### **Ego Development within the Context of Sibling Conflict**

Although the period of adolescence is central to identity development, understanding the self within the context of others, including our siblings, appears to be an ongoing process that extends past adolescence and possibly well into the adult years (e.g., Labouvie-Vief, 2003; Labouvie-Vief, Chiodo, Goguen, & Diehl, 1995). The somewhat inflexible cognitions about the self during childhood (Piaget, 1965), and even during adolescence (Broughton, 1981; Elkind, 1967; Perry, 1968) may impede constructive sibling conflict resolution in youth, but the increased integration of self and other perspectives and the increased understanding of relationships in adolescence and throughout emerging adulthood may then enable individuals to act more effectively in a range of situations (Bauer & Bonanno, 2001). For example, in sibling conflict situations, young children often focus on their own needs (McGuire et al., 2000), whereas older children develop an understanding of other people's mental states and therefore the focus

tends to include their siblings' goals and needs (Ross et al., 2004). The focus returns to the self in adolescence, but with greater understanding of siblings' perspectives. Arnett (2000; 2004; 2007) argues that emerging adults continue to be self-focussed, but this integration of each other's perspectives continues to develop well into adulthood, which may facilitate further changes in conflict negotiations, understandings, and resolutions.

Consistent with Kegan's (1982) and Loevinger's (1976; Hy & Loevinger, 1996) ego development models, sibling conflicts reflect a vacillation between the desire to understand the self (McGuire et al., 2000) and the desire to understand the sibling (Ross et al., 2004), which may result in an increasingly integrated and differentiated sense of the self and of the sibling. Specifically, according to Loevinger (Hy & Loevinger, 1996), an individual with a poorly developed ego will experience the world as rigid dichotomies or in terms of absolutes and therefore may not act effectively in sibling conflict situations, whereas an individual with a more developed ego will experience the paradoxes of the world and understand the complexities of the self, of others, and of relationships, thereby understanding the complexities involved in sibling conflicts. They will also have a greater focus on the notion of change and the view that the self and others can and will change over time. The integration of complex understandings of the self, the sibling, and the sibling relationship in one's narrative identity will foster ego development. For additional information describing levels of ego development, please see Table 1.

### **Erikson's Theory of Psychosocial Development: A Self-Centred Model of Identity Development**

Erikson's (1963, 1968) theory of psychosocial development has provided a foundation upon which several other models have been formed, including the narrative identity model used in the current study. The theory has been viewed as a self-centred

Table 1

*Descriptions of Loevinger's Ego Levels (Hy & Loevinger, 1996)*

Ego Level	Description
E2: Impulsive	Individuals are prompted by their physical needs and impulses and therefore depend on others for control. They typically have rigid dichotomous thinking patterns (e.g., good/bad; clean/dirty) with a poor understanding of rules. Their inner self is indistinguishable from their physical surroundings.
E3: Self-Protective	Individuals are very self-focussed and can see interpersonal relationships as exploitative. They are often focussed on immediate gratification. Although they understand rules, blame is typically afforded to others rather than the self.
E4: Conformist	Individuals are focussed on the behaviours and morals of others. They may assume that there is a right way to do things, which is the conventional or socially approved approach, and this approach is the same for everyone all the time. Interpersonal relationships are limited in emotional discussions.
E5: Self-Aware	Individuals are aware that not everyone, even the self, conforms perfectly all the time and therefore, although they continue to act in socially accepted ways, they allow for exceptions. Interpersonal interactions include some emotional discussions. They often feel very different from others and therefore develop feelings of loneliness and self-consciousness.
E6: Conscientious	The self has greater differentiation because they make a greater distinction between what ought to be and how things are. They are self-critical and therefore tend to set long-term goals to achieve a set of self-evaluative standards. They also feel an excessive responsibility towards others.
E7: Individualistic	Individuals have a greater tolerance for individual differences and have a more differentiated sense of self. Interpersonal relationships are cherished and they are seen as complex and continuing and changing over time.
E8: Autonomous	Individuals recognize other people's need for autonomy. They have also released some of their needs to continuously strive. They appreciate the complexities of other people and of situations and have a high tolerance for ambiguity.
E9: Integrated	This level is difficult to describe given the low prevalence of people who achieve this level of ego development. However, for these individuals identity problems typically involve reconciliation of roles, striving for one's own autonomy, individuality, self-fulfilment, and recognizing other people's rights.



model of development (Covington & Surrey, 1997). Erikson identified eight stages at which psychosocial crises occur, each providing new opportunities to reorganize and restructure past selves, including those that involve relationships with others. Unsuccessful completion of stages may result in maladaptive psychological or behavioural outcomes. Although he determined specific age ranges at which these crises must be overcome, individuals may return to previous stages throughout their lifetimes as they integrate new experiences and identities into their senses of self. According to Erikson, the development of the ego allows for adaptive outcomes with regards to each developmental stage.

The crisis to overcome during adolescence refers to the need to consolidate one's identity (Erikson, 1963). Erikson defined identity as "the accrued confidence [in] the inner sameness and continuity of one's meaning for others" (Erikson, 1963, p. 235). It refers to how people view themselves in relation to others, and is determined by specific aspects of the self that one values (e.g., gender, ethnicity, sexuality, religion, or profession, to name a few). He argued that, among adolescents, cognitive development in combination with an increase in awareness of the impact of the environment and relationships on the self prompt changes in perspectives and consequently feelings of vulnerability. This change in perspective and feelings of vulnerability set the stage for identity exploration, which Marcia (1966) defined as the examination of various identities to which one may commit. Identities are then synthesized when behaviours are predictable across social settings and are consistent with one's commitments. Commitments, defined by Marcia (1966), are assumed identities. Building on Erikson's work, Marcia (1980) identified 4 phases of identity development characterized by the degree of exploration of and commitment to an identity: diffusion (limited exploration

without commitment), foreclosure (commitment without exploration), moratorium (exploration without commitment), and achievement (high exploration with commitment). These identity development categories do not capture the fluid process of identity development that can be measured in narrative identity development research; rather, they depict identity states at single moments in time (Marcia, 2001). Therefore, although Erikson's work highlights the importance of exploration and commitment, research utilizing Marcia's status framework does not measure these important constructs. Instead, narrative identity research, such as the work conducted by Pals (2006), can measure exploration and commitment within its framework.

Erikson's (1963; 1968) theory is among several developmental models that have highlighted the importance of self and other constructs as independent entities that influence ego development (e.g., Adams & Marshall, 1996; Damon & Hart, 1988; Piaget, 1963, Kohlberg, 1969; Loevinger, 1976; Maslow, 1968; Selman, 1980). For example, Kegan (1982) argues that identity development occurs through a process of cultivating meaning in one's life experiences starting in late adolescence and continuing through early adulthood. He proposes that people have a life-long struggle with the desire to be included and the desire to be distinct. In adolescence, for example, Broughton (1981) argues that youth maintain a true inner self that includes their own ideas, opinions, and values, as well as a false outer self that consists of how they wish to appear to others. It becomes necessary that their unique inner self is kept secret from others to maintain their sense of self (Broughton, 1981). This struggle to be included and distinct results in a continuous pattern of wavering between favouring independence or inclusion. The end result is an integrated view of the self in relation to others. Damon and Hart (1988) present a model of self-understanding from childhood through adolescence. Consistent

with Kegan's view and current narrative identity models (e.g., see McLean & Pasupathi, 2012 for a review), people integrate past selves into an increasingly elaborated view of the self and other.

Although Erikson brought social aspects of ego development to the forefront, he continued to emphasize the distinct qualities of the self and of others with reference to how they impacted ego development. Other models view relationships rather than the distinctiveness of self and others as the cornerstone around which a self-structure develops. Also, some argue that Erikson's framework does not capture the increasingly fluid and flexible self-structure depicted in the development of self among women and among people from various ethnic groups (Jordan et al., 1991; Markus & Kitayama, 1991). Therefore, building on Erikson's (1963) work, other ego models suggest that although individuals' construals of the self and other have distinct qualities, the relationship between self and other represents a third entity that influences individuals' self development (Jordan et al., 1991; Markus & Kitayama, 1991). Thus, a number of relational self-construal models of identity development have been generated as described further below.

### **Relational Self-Construal Models of Identity Development**

Feminist and multicultural researchers often maintain that relationships, rather than stable internal attributes, are central features in the development of the self (e.g., Cross, Hardin, & Gerck-Swing, 2011). In their review, Cross and colleagues (2011) examine current conceptualizations of self-construals. They define self-construals as the process involved in defining and developing meaning about the self. Their summary of the literature highlights the importance of examining self-development not only within the context of independent self-reflections, but also within the context of relationships.

They argue that women and people with interdependent self-construals have a relational self-construal, meaning that they define themselves within the context of their relationships.

**Gender and the self.** Grounded in the work of Gilligan (1977, 1982), Belenky (Belenky et al., 1997), and Miller (1976), feminist scholars from the Stone Center have provided a self-in-relation model of women's development (e.g., Jordan et al., 1991; Miller, 1976) that affirms that women's identity is organized and developed within the context of important relationships, beginning with the mother-daughter relationship. By seeking relationships with important others, girls learn to integrate increasingly complex and flexible understandings of emotions and behaviours of the self and of others (Kaplan, Klein, & Gleason, 1991). These opportunities for mutual empathy enhance their sense of self and promote growth. Although prevailing stage models argue that separation from important others is necessary in the development of an adaptive self-structure (e.g., Erikson, 1963, 1968), feminist scholars from the Stone Center (e.g., Covington & Surrey, 1997; Jordan et al., 1991) view the maintenance of harmony in relationships as the core element to fostering a sense of identity, competence, and self-worth. To sustain these healthy relationships, it remains important to be able to prioritize relationship goals above individual goals, and to manage conflicts without the dissolution of the relationship. This ability to relate to others, maintain relationships, and empathize with one another promotes self-esteem. Proponents of the self-in-relation model argue that the process of self development has greater fluidity among women and girls compared to previous models that depict typical male development (e.g., Jordan et al., 1991; Covington & Surrey, 1997). For example, Erikson's (1963, 1968) model suggests the need for firm boundaries between self and other whereas the self-in-relation model focuses on the

relationships between the self and others that promote adaptive development. These ideas continue to have relevance today as several researchers have focussed on gender differences in relational self-construals and have found that women typically have higher scores on relational self-construal measures than men (e.g., Cross et al., 2011; Cross & Madson, 1997; Gabriel & Gardner, 1999). Although relationships are fundamental to women's psychological well-being, connections with others that provide opportunities for mutuality are empowering for men and women alike (Covington & Surrey, 1997).

Upon reflection of agency within relationships, Miller (1991) suggests that, historically, women were not typically encouraged to make use of all their faculties. Women have also been expected to nurture the psychological well-being of others (Covington & Surrey, 1997). Therefore, when confronted with situations that cause dissonance, women and girls have tended to alter their behaviours or their sense of self to maintain harmony within a relationship rather than hold firmly to their identity. For example, in a sibling conflict situation, females may engage in actions that promote resolutions rather than remaining vocal about their opinions or their unmet needs. This process that favours the relationship can prevent girls from bringing into the relationship aspects of themselves that they wish to develop, such as their ability to adaptively negotiate conflict resolutions. The challenge for girls is therefore to integrate their need to be in harmonious relationships while also fostering their need to make use of their capacities. An integrated sense of self for women would therefore result from relating to people in increasingly complex ways and in increasingly complex relationships. Although self-centred models (e.g., Erikson, 1963) maintain that an integrated sense of self results from the maintenance of a coherent and stable sense of self in relation to society and are argued to represent identity development among men, relationships are likely good

indicators of identity development among both men and women (Covington & Surrey, 1997).

**Independent and interdependent self-construals.** Similar to gender differences in identity development, according to Markus and Kitayama (1991), processes towards self-understanding differ greatly between people who maintain independent and interdependent self-construals. People with independent self-construals derive their sense of themselves from their internal attributes (e.g., traits, abilities, motives, and values) and behave in ways that express these internal attributes to affirm their identities. As such, their identities remain consistent across contexts and are highly differentiated from others. It is important for individuals with independent self-construals to be unique, express their inner feelings, affirm their inner attributes, and promote their own goals. In contrast, people with interdependent self-construals derive their sense of self primarily from the thoughts, feelings, and behaviours of others in relation to themselves and behave in ways that maintain these relationships to affirm their identities. This identity development process results in a more flexible identity that is situation-specific and less differentiated from others. It is important for individuals with interdependent self-construals to fit-in, maintain relationships, engage in appropriate behaviours, and promote the goals of others by understanding their needs. Both of these self-construals are considered stable personality traits (Markus & Kitayama, 1991).

More recent research examining self-construals has demonstrated that both independent and interdependent self-construals are umbrella constructs capturing a number of different factors. Specifically, Hardin, Leong, and Bhagwat, (2004), identified four independence factors (Autonomy/Assertiveness, Individualism, Behavioural Consistency, and Primacy of Self) and two interdependence factors (Esteem for Group

and Relational Interdependence). Cross and colleagues (2011) argue that the two interdependence factors map onto collectivism and interdependent self-construal, respectively. The focus of collectivism is on group membership, whereas the focus of an interdependent self-construal is on the construction of the self within the context of close relationships. Regardless, the consideration of others is captured under all factors.

For both independent and interdependent forms of self-construal, others are important for self-validation. However, the importance of others with regards to defining the self differs. For individuals with independent self-construals, others are necessary for self-comparison. For example, comparing academic, social, or other successes allows individuals to understand their own abilities and promote their own self-esteem. Individuals with interdependent self-construals experience a sense of accomplishment when they are able to maintain relationships and promote the goals of important others. Therefore, someone with an interdependent self-construal may experience greater satisfaction when able to help a sibling succeed academically rather than when they outperform the sibling (Markus & Kitayama, 1991). These differences in the conceptualization of relationships may therefore emerge as significant factors contributing to narrative identity development.

Overall, a relational self-construal may evolve as a consequence of a number of things including one's gender, ethnic groups, and family expectations. Although women are more likely to have a relational self-construal, they may develop more independent ways of thinking of the self and their siblings if their upbringing focuses on independence. Similarly, males can have interdependent ways of viewing the self given their upbringing. Therefore, the intersection between gender and self-construal is an important factor to consider.

Based on these various models, one would expect that the development of one's ego occurs within the context of reflections about the self, reflections about others, and reflections about relationships. As such, it appears necessary to provide a framework that allows for these three factors to be included. The current study therefore examines, within a narrative identity framework, how individuals make sense of sibling conflict. This approach thereby provides a space for reflections about the self, the sibling, and the relationship. Based on the literature reviewed above, individuals with relational self-construals (i.e., typically women and individuals with interdependent self-construals), may place more emphasis on constructing their identity related to a relational event (i.e., a sibling conflict).

### **Expansion of Current Model: Pathway toward Ego Development**

To integrate negative events into one's self-perception, Pals (2006) suggests a process model in which an individual first acknowledges the negative emotional impact of an event on the self, then explores its meaning, and finally constructs a positive ending by transforming the self. She demonstrates that coping openness in young adulthood mediates the relation between exploratory narrative processing and maturity in later life (Pals, 2006). The current study therefore sought to expand the first pathway by examining the specific contribution of emotions to exploratory narrative processing.

It has been shown that adult women use more emotion language in their autobiographical memories than men, as measured by the percentage of positive and negative emotion words in their narratives (Rice & Pasupathi, 2010). Other research has also shown that girls (Buckner & Fivush, 1998; Fivush, Haden, & Adam, 1995; Peterson & Roberts, 2003), female adolescents (Fivush, Bohanek, Zaman, & Grapin, 2012), and adult women (Niedźwieńska, 2003; Thompson, Skowronski, Larsen, & Betz, 1996;



Thorne & McLean, 2003) report longer, more elaborated, and more coherent narratives as compared to boys and men, which would provide greater opportunity for affective reflections. Fivush (1991) suggests that parents place more energy in resolving negative affect with their daughters than their sons, which may result in females developing a more elaborated affective self-concept resulting in longer narratives. Based on this literature, one may expect that females will write sibling conflict narratives that are longer and more elaborated, and that contain a greater degree of affective reflections as compared to males.

Influenced by the work of Loevinger (Hy & Loevinger, 1996; Loevinger, 1976), Labouvie-Vief and colleagues (Labouvie-Vief, 2003, 2005; Labouvie-Vief, DeVoe, & Bulka, 1989; Labouvie-Vief & Diehl, 2000; Labouvie-Vief et al., 2007; Labouvie-Vief, Hakim-Larson, & Hobart, 1987) examined the relation between emotions and narrative identity. They found that affective complexity, defined as the ability to integrate contrasting emotions into flexible and varied patterns of emotional experiences (Labouvie-Vief, 2003, 2005), related to skills in perspective-taking and greater ego development. Specifically, based on Labouvie-Vief's (2005) dynamic integration theory, they argue that cognitive and affective complexity increases with social interactions between self and the world. Labouvie-Vief also shows that affective complexity increases from childhood through middle adulthood, but declines thereafter (Labouvie-Vief, 2003). Consistent with this, Rice and Pasupathi (2010) showed that older adults had less emotionality in their narratives compared to younger adults. These results may suggest that younger adults are engaging in greater emotional exploration and focussing more efforts on constructing their sense of self, whereas older adults may not be as focussed on self-development.

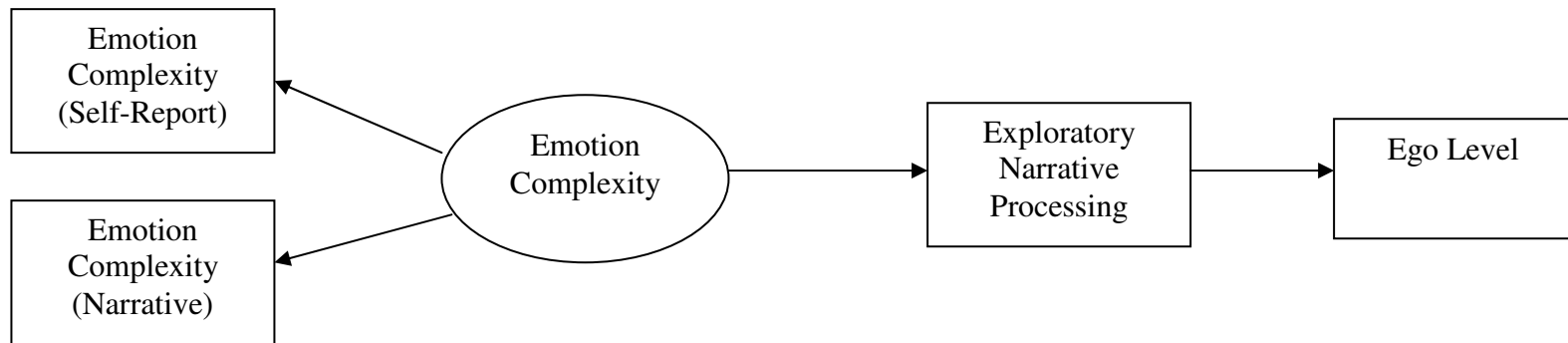
For the purpose of the current study, the variability in emotion language within a narrative and from a self-reported list of emotions was used to determine emotionality. Specifically, the number of distinct emotions identified, in the narrative and from the self-report questionnaire, was used to assess emotion complexity. Similar procedures were used by Rice and Pasupathi (2010) in their study examining emotionality among older and younger adults. Using a computer-based word counting program, they determined the percentage of positive and negative emotion words in a narrative. They also had participants rate their experience of 19 emotions on a 7-point Likert-type scale.

Based on this literature, one would expect relations to exist between emotion complexity, exploratory narrative processing, and ego development. Specifically, higher levels of emotion complexity seem to facilitate exploratory narrative processing, which in turn would lead to greater ego development. The proposed expanded pathway for ego development is presented in Figure 2.

### **Life Satisfaction and Well-Being**

The second pathway in Pals' (2006) narrative identity model examined factors such as coherent positive resolution that contribute to life satisfaction. Diener and colleagues (1985) defined life satisfaction as "a cognitive judgmental process [...] dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard" (p. 71). On the one hand, life satisfaction could be measured as a global judgment of one's life, but, as Frisch and colleagues (Frisch, Cornel, Villanueva, & Retzlaff, 1992) suggested, it could also be conceptualized as a number of specific domains (e.g., health, love relationships, neighbourhood).

Achieving greater life satisfaction, or happiness, is a motive driving many of our behaviours (Sirgy, 2012). Research has shown that happiness is an extraordinarily



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Figure 2. Pathway to ego development.

important and valuable goal in life (Diener, Sapyta, & Suh, 1998), more important than good health, a high income and material wealth, success, intelligence/knowledge, being attractive, experiencing love, finding meaning in life, and moral goodness (Diener & Oishi, 2004; King & Napa, 1998). In essence, the narrative identity framework argues that well-being, life satisfaction, and/or happiness are essential for the good life (e.g., Bauer et al., 2005) and necessary for adaptive development. Specifically, Pals (2006) argues that achieving greater life satisfaction in young adulthood is an important contributor to self-transformation in later adulthood. However, there are several different pathways one can take to achieve greater life satisfaction. For example, to increase life satisfaction, some choose to have fun, pursue higher education, or contribute to the community through volunteer work. All these activities may lead to greater life satisfaction, but in very different ways (Seligman, 2002).

Seligman (2002), the pioneer of positive psychology, has identified three pathways to life satisfaction in his authentic happiness theory: pleasure, engagement, and meaning. The first pathway assumes that if one pursues pleasurable activities, then that person will be happy in the long-term. This hedonistic approach states that a person is happy if he or she has high levels of positive affect and low levels of negative affect (Diener, Suh, Lucas, & Smith, 1999; Seligman, 2002). This pathway is equivalent to what Sirgy (2012) termed psychological happiness.

The second pathway, engagement, has been strongly influenced by Csikszentmihalyi's (1999) writings on flow, which is the psychological state that results from complete immersion in a meaningful activity. Although an individual may not experience happiness during the activity, they may feel some self-satisfaction with the end result of the activity. It is also argued that time appears to pass quickly and the sense

of self is not always at the forefront during these activities, instead the focus is on the activity. For example, engaging in sibling conflict may be an example of an activity that does not necessarily bring about happiness, but, if siblings completely immerse themselves not only in the conflict but also in the resolution process, they may feel self-satisfied by this experience and motivated to engage in further interactions with their sibling. This is similar to Sirgy's (2012) conceptualization of prudential happiness, which refers to leading a good life and includes feeling happy and seeking personal growth.

The third pathway toward life satisfaction (i.e., meaning) defines happy people as individuals who have found meaning in their lives (Seligman, 2002). This sense of purpose fosters goal development and actions that promote well-being (Baumeister & Vohs, 2002). Other research refers to this type of happiness as perfectionist happiness, which considers achieving excellence or virtue (Haybron, 2000), or eudemonia, which is defined as leading a purposeful and meaningful life (Sirgy, 2012). For example, an individual who volunteers at a local food bank may find greater meaning in his or her life, which would then promote well-being. If a sibling is able to derive meaning from a sibling conflict, this may also promote subjective well-being and greater life satisfaction.

All three pathways are argued to be essential to living a 'full life' (Schueller & Seligman, 2010). However, they do not contribute equally to life satisfaction and well-being. Specifically, Schueller and Seligman (2010) found that individuals with stronger orientations to engagement and meaning had stronger subjective well-being (i.e., life satisfaction and happiness) and objective well-being (i.e., education and occupational attainment) compared to individuals with strong orientations to pleasure. In addition, although all three orientations related to subjective well-being, only the engagement and meaning orientations related to objective well-being. These results suggest that fostering

engagement and meaning-making will likely be more effective in building resources to self-generate happiness and life satisfaction over time.

In sibling conflict scenarios, it may therefore be that those who engage in the conflicts by exploring its impact and accessing skills to arrive at a coherent and positive resolution to the conflict will have greater satisfaction in their lives as compared to those siblings who avoid working through conflicts. In addition, if a sibling is able to derive meaning from their negative interaction with their sibling instead of ignoring its impact, then they may also experience greater life satisfaction. This in turn, can lead to greater self-transformation in later life.

### **Expansion of Current Model: Pathway toward Life Satisfaction**

The literature reviewed below suggests that individuals with more advanced identity development will write narratives with greater coherence and positivity and in turn, this will be related to greater subjective well-being (i.e., life satisfaction). Several researchers have argued that individuals who have achieved higher levels of identity development are typically able to engage in more positive relationships (Erikson, 1963; 1968; Jordan et al., 1991) and typically perceive greater control over their lives (Burke, 1991; Erikson, 1963; Stets & Burke, 1994). Therefore, the current study defines individuals with more advanced identity development as those who have greater warmth and less conflict in their sibling relationships and who perceive greater mastery in their lives. Warm sibling relationships contain a high level of intimacy, admiration, affection, acceptance, similarity, knowledge of one another, and support; sibling relationships with a high degree of conflict are characterised by more quarrelling, dominance, antagonism, and competition amongst each other (Stocker, Lanthier, & Furman, 1997). Feelings of mastery is defined as “the extent to which people see themselves as being in control of the

forces that importantly affect their lives” (Pearlin, Menaghan, Lieberman, & Mullan, 1981, p. 340). The current model also suggests that individuals with relational self-construals will arrive at more coherent and positive resolutions to their sibling conflicts in part because of the importance of the relationship in the construction of identity (Cross et al., 2011). The latent construct of relational self-construal is measured by an interdependent self-construal and a female gender.

Researchers have found that individuals with more advanced identity development are better able to cope with future identity crises (e.g., Adams & Marshall, 1996; Bosma & Kunnen, 2001; Renk & Creasey, 2003). These findings suggest that individuals with more advanced identity development, as defined in the current study, will be more capable of achieving a coherent and positive resolution to a sibling conflict. Also, extant research has demonstrated that identities that reflect stability, consistency, positivity, and clarity are critical for maintaining well-being (Campbell, Assanand, & DiPaula, 2003; Diehl & Hay, 2007; Diehl, Jacobs, & Hastings, 2006; Donahue, Robins, Roberts, & John, 1993; Swann, 2000). This consistency and stability in one’s identity is related to lower levels of depression, anxiety, suicidality, and higher levels of self-esteem and general well-being (e.g., Donahue et al., 1993; Harter & Monsour, 1992). As a measure of subjective well-being, the current study examines life satisfaction, which is the cognitive component of well-being (Diener et al., 1985). The literature on well-being, life satisfaction, and happiness, sometimes does not differentiate between these constructs (e.g., Seligman, 2002). As such, the literature in all areas was considered to determine the function of life satisfaction in the study’s current model.

To adapt Pals’ (2006) model, one goal of the current study was to examine the expectation that coherent and positive outcomes of narratives mediate the relation

between the latent construct of identity, as defined by relationship qualities (i.e., warmth and conflict) and feelings of mastery, and life satisfaction. Specifically, it is anticipated that emerging adult siblings who enter sibling conflicts with more advanced identities will more likely be able to resolve their conflicts and in turn will have greater life satisfaction. To further expand this pathway, it is also the goal to examine the expectation that coherent and positive outcomes of narratives mediate the relation between the latent construct of relational self-construal, as defined by having a female gender and/or an interdependent self-construal, and life satisfaction. That is, it is expected that women and individuals who report higher levels of interdependent self-construal will more likely be able to resolve their conflicts and in turn will have greater life satisfaction. The pathways tested are presented in Figure 3. In the following section, an elaboration on this pathway will be provided with a rationale for using relationship qualities and feelings of mastery to represent identity, followed by a brief explanation for examining relational self-construal as it relates to coherent positive resolution.

**Identity: Sibling warmth and conflict.** Young adulthood, according to Erikson's model (1963, 1968), is characterized by the development of trust in another and the ability to commit and give oneself fully to another. An adaptive outcome of this developmental level is characterized by warmth and intimacy at the next developmental level whereas a maladaptive outcome is characterized by loneliness and isolation. According to Erikson, to be able to give oneself fully to another, young adults must have a firm foundation with regard to their values, beliefs, and goals. That is, they must have a more advanced level of identity development before they can enter an intimate or romantic relationship with another. Consistent with Erikson's model, research demonstrates that students with mature identity statuses (i.e., moratorium and achieved)



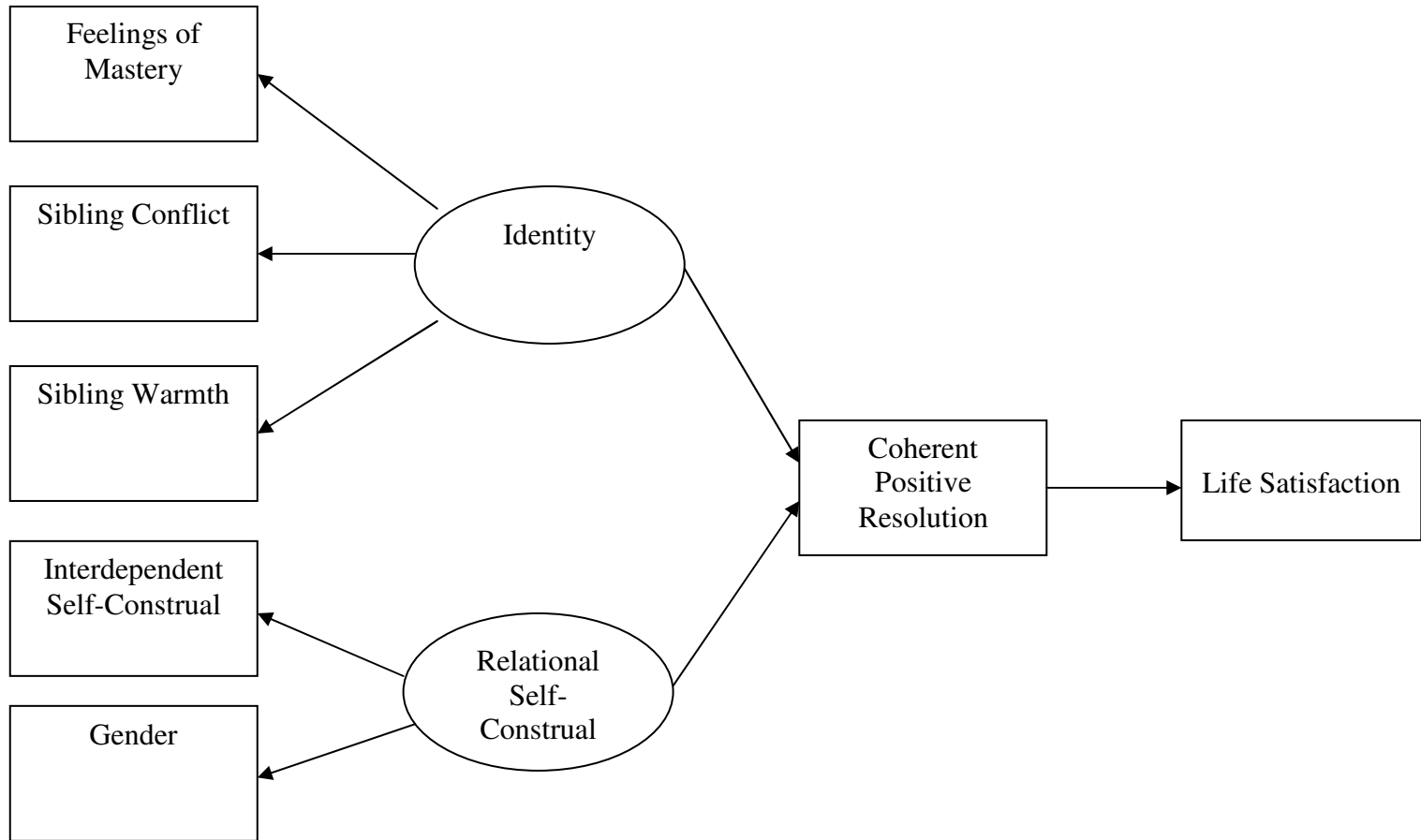


Figure 3. Pathway toward life satisfaction.

in their first or second year of college are more likely to establish intimate relationships with another person one year later compared to college students in diffused statuses during the first or second year of college (Fitch & Adams, 1983; see also Peterson, Ewigman, & Kivlahan, 1993). Therefore, having positive relationships is likely to reflect a more advanced identity level. This is consistent with self-in-relation models to development (e.g., Jordan et al., 1991) as they more directly examine identity development within the context of relationships. Specifically, proponents of these models argue that the ability to maintain harmonious relationships is an indicator of a more stable identity. This approach may be more representative of women's development and the development of an interdependent self-construal.

Sibling relationship qualities (i.e., warmth and low conflict) have been consistently associated with positive resolution to conflict and to subjective well-being throughout development (e.g., Kim et al., 2007). Demonstrating the link between sibling relationship qualities and conflict outcomes, Recchia and Howe (2009a) examined the relations between social understanding, sibling relationship quality, and conflict strategies in a sample of siblings aged 4 to 10. They found that social understanding and conflict behaviours were moderated by relationship quality, and in fact, sibling relationship quality was the strongest correlate with conflict strategies and outcomes. Rinaldi and Howe (1998) also found a positive relation between sibling warmth and constructive resolution strategies in their sample of 5<sup>th</sup> and 6<sup>th</sup> graders. Furthermore, supportive family relationships contribute to effective conflict resolution (Conger, Williams, Little, Masyn, & Shebloski, 2009; Davies & Cummings, 1994; Rueter & Conger, 1995, 1998). I may therefore anticipate that siblings with high levels of warmth and low levels of conflict in

their relationships will arrive at more coherent and positive resolutions to their sibling conflicts.

Sibling warmth and low levels of conflict have also been linked to overall well-being and life satisfaction (e.g., Kim et al., 2007; Sherman, Lansford, & Volling, 2006). Sherman and colleagues (2006) examined sibling and peer relationship qualities and well-being, assessed by self-esteem levels and feelings of loneliness, in a sample of undergraduate students. They found that sibling pairs characterized by high levels of warmth and low levels of conflict demonstrated high levels of well-being and sibling pairs characterized by high levels of warmth and high levels of conflict demonstrated low levels of well-being. Personal adjustment, however, appears to depend on the sibling relationship quality to a greater extent for women than for men. For example, Oliva and Arranz (2005) found that a good relationship with a sibling was related to higher levels of life satisfaction for girls, but not for boys in their adolescent sample. Regardless, these results demonstrate a clear relation between sibling relationship qualities and well-being.

Siblings may have warmer relationships if they have relational self-construals because of the emphasis on the relationship in the construction of their identity. In support of this, research suggests that women have warmer relationships than men across a number of ethnic groups (Furman & Buhrmester, 1985; Stocker & McHale, 1992; Updegraff, McHale, Whiteman, Thayer, Delgado, 2005). Same-sex sibling dyads, particularly sister pairs, are thought to have higher levels of warmth compared to mixed-sex sibling dyads in samples of Americans of European and Mexican descent and Israeli youth (e.g., Buhrmester, 1992; Scharf et al., 2005; Updegraff et al., 2005). Also, emerging-adult American college women indicated that they felt comfortable approaching their closest sibling for guidance, advice, and emotional support (Cicirelli,

1980). Similarly, among Brazilian adolescents, females reported higher sibling support than males (van Horn & Cunegatto, 2000). Findings also suggest that American brother pairs who were primarily of European descent experience more conflict, less intimacy, and less coping resolutions than sister pairs (Cole & Kerns, 2001). Consistent with the self-in-relation models, this literature suggests that sister pairs draw more positive meaning from their sibling relationships compared to brothers, or mixed-pairs. Therefore, sibling warmth may be a stronger indicator of conflict resolutions and well-being for women than for men.

Research further indicates that interdependence is related to familism and warm family relationships (Schwartz et al., 2010). Updegraff and colleagues (2005) found that reported level of 'familism' related to sibling level of intimacy and closeness in their sample of Mexican American adolescents. Also, Mexican American adolescent siblings spent considerably more time together than with other family members and they spent considerably more time together compared to European American adolescent siblings. Furthermore, in a sample of Americans with Filipino, Chinese, Mexican, Central and South American, and European backgrounds, an emphasis on family obligation related to more positive family relationships (Fuligni, Tseng, & Lam, 1999). Therefore, a focus on family and the interdependent construction of identity appears to relate to warm family relationships.

Overall, this literature suggests that a positive sibling relationship relates to adaptive conflict resolution strategies and in turn to greater life satisfaction. The quality of the sibling relationship, however, is likely to vary based on culture and gender.

**Identity: Feelings of mastery.** Mastery, defined as “the extent to which people see themselves as being in control of the forces that importantly affect their lives”

(Pearlin et al., 1981, p. 340), which may include independent or social accomplishments, is a significant contributor to identity development (Burke, 1991; Erikson, 1963; Stets & Burke, 1994). Erikson (1963), for example, defined identity as a process towards increased confidence in the self as it relates to others, which suggests an achieved level of mastery in social relationships. He further argued that asserting one's independence, and therefore having the ability to care for one's self, reflects an achieved identity. Other identity theorists view identity as a set of self-meanings that are under self-control (Burke, 1991; Stets & Burke, 1994), further suggesting a strong link between identity and feelings of mastery.

Although this approach to identity development is typified by males who are more likely to develop meaning from their achievements (Belenky et al., 1997; Gilligan, 1982), having the skills necessary to manage complex relationships may provide an individual with an increased sense of mastery. Specifically, Conger and colleagues (2009) argue that mastery skills are developed through social interactions, particularly within the family. Family conflict, in particular, may be a specific scenario in which people are faced with challenges of conflict resolution and problem solving that will likely not only be impacted by a sibling's mastery skills but will also further contribute to the development of mastery skills. Therefore, this construct seems relevant for individuals with varying levels of relational self-construal.

Adolescence and emerging adulthood are life-periods in which youth seek new experiences and explore their self-concept (e.g., Arnett, 2004; Erikson, 1968; Marcia, 1980). They are also experiencing more control over their life-choices (Liprie, 1993). This self-exploration and self-evaluation contribute to mastery development (Demo & Savin-Williams, 1983; Feldman & Elliott, 1990; Harter, 1999; Masten et al., 1995).

Therefore, the more individuals have engaged in the self-exploration process and consequently have more defined and stable identities, the more likely they are to have greater mastery skills. In support of this assertion, mastery has been shown to increase throughout adolescence (Conger et al., 2009; Mirowsky & Ross, 1999), particularly during the transition to adulthood (Lewis, Ross, & Mirowsky, 1999).

Feelings of mastery are also important contributors to psychological well-being across the lifespan (e.g., McFarlane, Parker, & Soeken, 1995; Mirowsky & Ross, 1999; Pearlin et al., 1981; Shanahan & Bauer, 2004; Smith et al., 2000; Thoits, 1995). People with a strong feeling of mastery are typically better equipped to cope with stress (e.g., Rodriguez et al., 2010; Rose & Bond, 2008; Spencer & Patrick, 2009) and negotiate identity conflicts (Lyons, Brenner, & Lipman, 2010). In a sample of 18 to 30 year old men and women, Spencer and Patrick (2009) identified mastery as a protective factor for gay men and lesbian women who are faced with increased identity development challenges compared to heterosexual men and women. Mastery has also been directly linked to well-being in a sample of adults aged 18 to 93 (Smith et al., 2000). In a review of control-related constructs, Skinner (1996) states that a sense of control is a strong predictor of physical and mental well-being and this sense of control does not need to reflect actual control.

Although mastery typically increases with age and identity development, and relates to well-being across genders, this process may differ depending on the extent to which individuals consider relationships in their construction of the self. Specifically, younger adolescent females report lower levels of mastery compared to younger adolescent males, but this difference disappears in later adolescence (Conger et al., 2009). Parents typically place more restrictions on their daughters than their sons (Brown &

Huang, 1995), which may limit their social experiences and consequently suppress mastery development that involves either agency or relationships. The measurement of mastery may include a bias toward independent male development, as females and/or individuals with interdependent self-construals may value mastery over the maintenance of harmonious relationships rather than mastery in independent achievement (Belenky et al., 1997; Gilligan, 1982).

Based on this literature, I would expect individuals with greater perceived mastery to resolve sibling conflicts with more coherence and positivity, and this might be particularly true for individuals with independent self-construals, whether they are male or female. I would further expect that individuals with high levels of mastery would experience greater life satisfaction.

***Identity construction: Self-construal.*** Individuals with independent self-construals (i.e., with a focus on self and others as independent) are likely to experience their sibling relationships very differently as compared to individuals with interdependent, or relational self-construals (i.e., with a focus on the self as embedded in relationships with others). Examining the relation between self-construal and the outcomes of sibling conflicts may therefore help clarify individual differences in narrative identity development. I would anticipate that individuals with relational self-construals (i.e., women and people with interdependent self-construal) will arrive at more coherent and positive resolutions to sibling conflicts because of the importance they place on the sibling relationship in the construction of their identities. As explained above, individuals with interdependent self-construals may have warmer relationships with their siblings because of the emphasis on familism. Nurturing these positive and warm relationships may afford individuals opportunities to explore conflict outcomes in ways that promote

resolution and coherence. This would be consistent with attachment theory (Ainsworth & Bowlby, 1991), which emphasizes the importance of a warm and secure parent-child relationship in the development of a child.

It is important for individuals with relational self-construals to maintain harmony within their relationships. This need may prompt positive resolutions to sibling conflict and over time this may lead to greater coherence in this process. The literature suggests that for some individuals who place great importance on family relationships, potential scripts exist for sibling conflict scenarios in which the older and younger siblings' roles are well-defined. For example, sibling dynamics in families living in mainland China reflect a greater hierarchy and little self-interest compared to families of European descent (Fang et al., 2003). In processes of moral development, Fang and colleagues (2003) found that older siblings in a Chinese family are granted greater authority than younger siblings and are expected to set a proper example for their younger sibling. Older siblings may therefore have greater power in conflict scenarios compared to the younger sibling, resulting in a predetermined outcome. Younger siblings may be required to change their behaviour to suit the expectations of the older siblings. With these defined scripts for behaviour in combination with the strong desire for harmonious relationships, resolutions to conflicts among siblings with interdependent self-construals may be more coherent and positive. Therefore, having a relational self-construal may lead to greater coherent positive resolutions, which in turn leads to greater life satisfaction.

### **Sibling Modeling**

The current study uses Pals' (2006) model to examine processes involved in the integration of sibling conflicts into one's life story. This process-oriented approach to studying sibling relationships is needed to help clarify how siblings impact one another



since the sibling literature to date has focussed on sibling relationship qualities as a function of birth order, gender, family composition, and family contexts (McHale et al., 2012). The current study therefore examines whether processes involved in narrating and integrating sibling conflicts into one's narrative self are modelled among siblings.

The extensive contact and companionship between siblings during childhood and adolescence provides numerous opportunities for them to shape each other's development. Much of the literature has suggested that older siblings model behaviours to their younger siblings (e.g., Brim, 1958; Bryant, 1982; Cicirelli, 1975; Sutton-Smith & Rosenberg, 1970; Tucker, Barber, & Eccles, 1997; Whiteman & Christiansen, 2008). For example, research using Bandura's (2001) approach to observational learning and modelling has demonstrated that siblings develop similar attributes, behaviours, and attitudes (e.g., Bouchey, Shoulberg, Jodl, & Eccles, 2010; Mchale, Updegraff, Helm-Erikson, & Crouter, 2001; Slomkowski, Rende, Conger, Simons, & Conger, 2001). As such, siblings offer unique opportunities for social-cognitive development. Childhood sibling conflicts, for example, have been shown to impact siblings' abilities in perspective taking, emotional awareness and understanding, negotiation, persuasion, and problem solving (Brown, Donelan-McCall, & Dunn, 1996; Dunn, 2007; Howe, Rinaldi, Jennings, & Petrakos, 2002). Older siblings have also been shown to serve as models for gender roles (McHale et al., 2001), prosocial behaviours (Brody, Kim, Murry, & Brown, 2003; Whiteman, Mchale, & Crouter, 2007), moral development (Fang et al., 2003), empathy (Lam, Solmeyer, & Mchale, 2012; Tucker, Updegraff, Mchale, & Crouter, 1999), deviant activities (Slomkowski et al., 2001), and academic engagement and attainment (Bouchey et al., 2010; Melby, Conger, Fang, Wickrama, & Conger, 2008). In addition, Tucker and colleagues (1997) found that younger siblings and female siblings received

more advice and support from, and were more influenced by their siblings than older and male siblings. Although emerging adult siblings spend less time together, they nonetheless continue to impact one another (Arnett, 2000; 2004). However, this area of research has largely been ignored (see Conger & Little, 2010 and Wong, Branje, VanderValk, Hawk, & Meeus, 2010 for exceptions).

Sibling conflict scenarios among emerging adults may provide unique opportunities for siblings to model conflict behaviours and resolution strategies that possibly will, in turn, be integrated into one's narrative identity. Based on the literature, I would expect older siblings who engage in more processing and reflection about conflicts to encourage younger siblings to engage in more processing and reflection as well. Also, older siblings who recognize the importance of harmony in relationships and positive resolutions to conflicts, may model resolution strategies that lead to positive resolutions. Although the focus is on modelling practices of older siblings, regardless of birth order, siblings likely influence one another and therefore bidirectional modelling is likely to occur. This may be particularly true for North American emerging adults of European descent because the hierarchical sibling structure present in younger children and adolescents is mostly eliminated by emerging adulthood (Buhrmester & Furman, 1990).

Males and females may model narrative identity processes to varying degrees. I would therefore anticipate that younger siblings of older male siblings compared to younger siblings of older female siblings will differ with regard to the modelling that occurs. Specifically, females typically write longer and more elaborated narratives with greater emotional content than males (Rice & Pasupathi, 2010; Thompson et al., 1996) and some research suggests that females have higher levels of ego development than males (Mabry, 1993; Westenberg & Block, 1993). Based on this literature, one may

expect that females will not only write sibling conflict narratives that are longer and more elaborated, and that contain a greater degree of affective reflections as compared to males, but older female siblings in comparison to older male siblings will be more likely to serve as models for these processes when they interact with their siblings. Therefore, younger siblings of older female siblings are expected to write longer narratives with greater emotional content than younger siblings of older male siblings. I may also anticipate that younger siblings of older female siblings will have a higher level of ego development than younger siblings of older male siblings.

### **Summary of Model and Rationale**

The proposed model for the current study, as depicted in Figure 4, is an expansion of Pals' (2006) narrative identity development model. Two distinct pathways of equal importance are central to adaptive development (e.g., Pals, 2006; Bauer & McAdams, 2004a; Bauer & McAdams, 2004b). First, it is hypothesized that emotion complexity contributes to exploratory narrative processing, which in turn leads to greater ego development. This pathway is supported by the work of Labouvie-Vief (2003, 2005) and Pals (2006). Second, it is anticipated that more stable identities, as measured by sibling relationship qualities and feelings of mastery, and a relational self-construal, as measured by interdependent self-construal and gender, will lead to the achievement of a more coherent and positive resolution to a sibling conflict, which in turn leads to greater life satisfaction. This pathway is supported by the work of Erikson (1963), Jordan and colleagues (1991), Recchia and Howe (2009a, 2009b), and Rodríguez and colleagues (2010). In Pals' (2006) model, these two pathways are argued to lead to greater self-transformation in later life. The current study does not measure self-transformation,

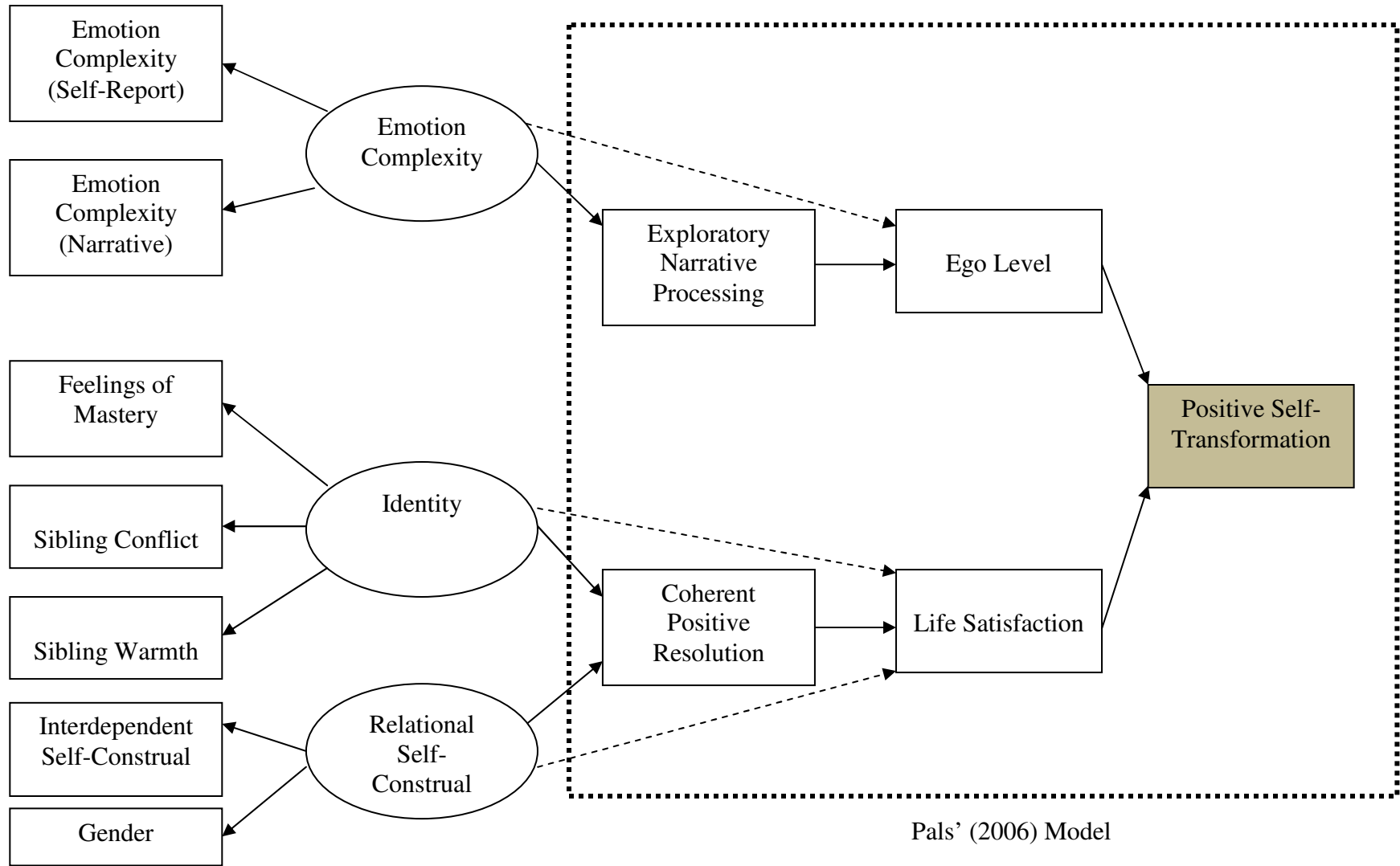


Figure 4. Complete study model.

instead, it examined, within a cross-sectional design, factors that contribute to ego development and life satisfaction, which are thought to lead to greater self-transformation in later life. This model is tested by examining individual siblings' experiences of their sibling relationship.

In addition to the examination of personal factors leading to ego development and life satisfaction, older siblings are expected to model processes involved in narrating sibling conflicts (e.g., exploratory narrative processing and coherent positive resolution) and the adaptive development of younger siblings (e.g., ego development and life satisfaction). Sibling dyads were examined to determine if siblings possibly shared similarities in these processes. To further inform the model, individual sibling reports were used considering the gender of the sibling closest in age (who met the age criteria) to determine if gender of the older sibling related to the younger siblings' narrative identity development.

To this end, several approaches to analyses, including qualitative examination of narratives and quantitative exploration of narrative identity trajectories, helped in the understanding of narrative identity development within the context of sibling relationships among emerging adults. Individual sibling experiences and similarities across sibling dyads were examined to answer the research questions. In this study, target participants were those whose sibling did not complete the study as well as those who completed the study first before their siblings did (i.e., the participant who was initially recruited). A subsample of matched siblings to target participants was also recruited by the target participants. Data were collected using an online survey not only for its practicality and efficiency, but also because using a web-based survey facilitated the recruitment of siblings. Online methods of data collection allow researchers to access

marginalized populations, people from many different communities, provinces, and countries, as well as people with limited mobility who cannot get to the research centre (Holmes, 2009; Whitehead, 2007). For further reviews of the validity and reliability of Internet-based research as well as ethical issues that are raised in such research, please see Gosling, Vazire, Srivastava, and John (2004), Holmes, (2009), and Whitehead (2007).

In the following, the research questions and hypotheses will be presented grounded in a brief review of relevant literature. Specific approaches to analyses will also be clarified.

### **Research Questions and Hypotheses**

**Research question #1: What are the typical causes of sibling conflicts for late adolescents and emerging adults?** Understanding what emerging adult siblings argue about appears to be of central importance to understanding how these sibling conflicts impact identity formation. Given the current state of the developmental literature on emerging adult sibling relationships, an exploratory approach to analysis was required to answer this research question. In addition to possession, personal property, access to mother, equality and fairness, and privacy issues that have been indicated as sources of conflict among siblings (Campione-Barr & Smetana, 2010; Dunn & Munn, 1987; McGuire et al., 2000), additional conflict themes were identified based on the sibling conflict narratives collected in this study using a directed approach to content analysis (Hsieh & Shannon, 2005). This examination will help clarify whether siblings use each other to navigate developmental tasks of emerging adulthood.

Sibling experiences of conflict were examined to clarify the content of conflicts, whether or not they had a sibling who also participated in the study. Among the subsample of matched sibling pairs, if siblings discussed different conflicts, both of their

experiences were considered; however, if sibling pairs identified the same conflict, only the target participant's experience was considered.

**Research question #2: Do these data fit Pals' (2006) model of narrative identity development?** Pals (2006) presents a two-pathway model of personality development. She first argues that engaging in greater self-exploration and questioning in narratives of difficult life events (i.e., exploratory narrative processing) contributes to maturity (i.e., ego development). She then argues that arriving at a coherent and positive resolution in narratives of difficult life events (i.e., coherent positive resolution) contributes to subjective well-being (i.e., life satisfaction). This two-pathway model was tested within the context of individual sibling conflict experiences using Structural Equation Modelling with target participants and is outlined in Figure 4 on page 44. The following hypotheses were tested:

**Hypothesis #2:** The model fits Pals' (2006) model:

- i. More exploratory narrative processing relates to higher ego level.
- ii. Arriving at a coherent positive resolution to sibling conflict relates to higher life satisfaction.

**Research question #3: What factors contribute to exploratory narrative processing and coherent positive resolutions?** The literature suggests that thinking flexibly about emotions relates to narrative identity development (Labouvie-Vief, 2003; 2005). Therefore, the expanded model proposes that people with high levels of emotion complexity will engage in more exploratory narrative processing of their sibling conflict. This, in turn, will lead to greater ego development. The mediated pathway tested is presented in Figure 4 on page 44 and was contrasted with the direct pathway model depicted by the dotted arrows. The following hypotheses were tested:

**Hypothesis #3a:** The data fit the pathway towards ego development presented in Figure 4: Greater emotion complexity relates to greater exploratory narrative processing which in turn relates to higher ego level.

**Hypothesis #3b:** The data demonstrate a better fit for the mediated pathway model towards ego development as compared to the direct pathway model toward ego development.

Developmental theory also postulates that increased levels of mastery and positive relationships with others reflect more stable identities (Erikson, 1963). Research identifies a positive link between sibling relationship qualities and feelings of mastery (i.e., more advanced identity development) and one's ability to cope with stress and conflict resolution (i.e., coherent positive resolution; Recchia & Howe, 2009b; Rodríguez et al., 2010). Therefore, I would expect coherent positive resolution to mediate the relation between identity and life satisfaction. This mediated model presented in Figure 4 on page 44 was contrasted with the direct pathway model depicted by the dotted arrows also presented in Figure 4.

The literature also suggests that people with relational self-construals (i.e., women and individuals with interdependent self-construals) will derive their sense of self primarily from the thoughts, feelings, and behaviours of others in relation to themselves and will behave in ways that maintain these relationships to affirm their identities and to promote group goals (Cross et al., 2011; Markus & Kitayama, 1991). I would therefore expect that within the context of sibling conflict, women and individuals with interdependent self-construals will focus on the needs of the relationship above their own needs or goals. Based on the literature, I would also expect these siblings to place more



effort in resolving conflicts positively to maintain harmonious sibling relationships and to promote one's own well-being. The following hypotheses were tested:

**Hypothesis #3c:** The data fit the pathway towards life satisfaction presented in Figure 4: Identity, as measured by high levels of sibling warmth and feelings of mastery and low levels of sibling conflict, relates to greater coherent positive resolutions, which in turn relates to greater life satisfaction.

**Hypothesis #3d:** The data demonstrate a better fit for the mediated pathway model towards life satisfaction compared to the direct pathway model towards life satisfaction.

**Hypothesis #3e:** The data fit the pathway towards life satisfaction presented in Figure 4: Women and individuals with highly positive interdependent self-construals narrate greater coherent positive resolutions, which in turn relates to greater life satisfaction.

These pathways were tested on target participants using Structural Equation Modelling. Testing these pathways can help clarify specific factors that contribute to narrative identity development and positive self-transformation. It will also help clarify differences in narrative identity development between individuals who primarily construct their identities within the context of the individual self and within the context of relationships. This contribution to the literature will facilitate the exploration of narrative identity development models that are sensitive to individual differences in identity development.

**Research question #4: Do older and younger siblings processes identity integration similarly?** Observational learning and modelling research indicates that older siblings often care for younger siblings and act as a primary socialization agent (e.g., Bandura, 2001; Brim, 1958; Bryant, 1982; Cicirelli, 1975; Sutton-Smith & Rosenberg,

1970). Research indicates that younger siblings typically model older sibling behaviours (Whiteman et al., 2007; Whiteman & Christiansen, 2008). Furthermore, sibling relationship qualities likely relate to the amount of modelling that occurs (Whiteman et al., 2007; Whiteman & Christiansen, 2008) such that distant siblings (i.e., siblings low in warmth and conflict) fail to use their sibling as a referent (Whiteman et al., 2007). Based on this literature, I would expect younger siblings to model their older siblings in cognitive, social, and emotional ways. Specifically, research indicates that older siblings act as models for gender roles (McHale et al., 2001), suggesting that they influence identity development in younger siblings. Siblings also positively relate on measures of academic engagement (Bouchey et al., 2010) and psychological adjustment (Slomkowski et al., 2001) suggesting that siblings would relate on measures assessing identity, cognitions, and well-being. This modeling is most likely to occur in close and warm relationships. Given the cross sectional design of the current study, similarities across siblings could be tested, but not specific modeling behaviours. Based on this literature, the following hypotheses were tested with regression analyses on the matched sibling pairs:

***Hypothesis #4a:*** Older sibling characteristics relate to younger sibling characteristics. Characteristics tested include level or degree of:

- i. exploratory narrative processing
- ii. coherent positive resolution
- iii. emotion complexity
- iv. ego level
- v. life satisfaction

**Hypothesis #4b:** Sibling warmth moderates the relation between younger and older sibling characteristics.

**Research question #5: Does the gender of the participant and gender of the participants' older sibling relate to the processes involved in narrative identity development?** Older male and female siblings are anticipated to influence their siblings differently. Gender differences in narratives have been indicated in relation to content and elaboration. Women report more intimacy and communal themes (McAdams et al., 2004; McAdams et al., 2006), use more emotion language (Rice & Pasupathi, 2010), and produce longer narratives (Thompson et al., 1996) compared to men. It was therefore expected that sibling gender would relate to narrative processing and ego development. In addition, siblings of older females' siblings were anticipated to show greater narrative processing, demonstrate greater emotion complexity in their narratives, and have higher levels of ego development compared to siblings of older male siblings. Analyses on target participants were used to test the following hypotheses:

**Hypothesis #5a:** Women, compared to men, will:

- i. type longer narratives
- ii. engage in more exploratory narrative processing
- iii. have greater emotion complexity
- iv. have higher ego levels.

**Hypothesis #5b:** Younger siblings who identified an older sister as their sibling closest in age who met the age criteria will differ from younger siblings who identified an older brother in that they will:

- i. type longer narratives
- ii. engage in more exploratory narrative processing

- iii. have greater emotion complexity
- iv. have higher levels of ego development

Testing similarities between siblings will inform developmental trajectories of emerging adults, an area that has received little attention in the academic literature and will help clarify the roles of male and female siblings on identity development.

## CHAPTER II

### Method

#### Participants

The current sample included 238 target participants (119 females and 117 males) and 55 sibling pairs who were between the ages of 15 and 30. Target participants included individuals who could not be matched to a sibling who completed the study and the first participant who completed the study within the sibling pairs. The subsample of matched siblings of target participants was recruited from the target participants. Target participants were directed to recruit the sibling closest in age who was within 5 years of their own age and who was between the ages of 15 and 30 years.

Although 411 study entries were completed, including 71 sibling pairs, 115 (27.98%) participants were excluded for several reasons. Participants were excluded if they or their identified siblings failed the age criteria ( $n = 13$ , 3.16%), if they failed one of the validity questions ( $n = 46$ , 11.19%), if they were suspected to be a duplicate entry determined by similar match information, sentence completions, or narratives ( $n = 29$ , 7.06%), or if they did not complete any data past the background information form ( $n = 20$ , 4.87%). Amongst target participants who did not have a sibling complete the study, those who did not complete a narrative and the majority of the questionnaires (i.e., more than 50%) were also excluded ( $n = 3$ , .01%). Also, 2 ( $> .01\%$ ) siblings of target participants were excluded because they were twins and therefore it was impossible to identify the older and younger sibling for analytic purposes. Two ( $> .01\%$ ) other siblings of target participants were excluded because, although they met all criteria to be included, their siblings were excluded, and 2 ( $> .01\%$ ) target participants were excluded because

they were not students and therefore were likely the siblings of other participants, but based on the information provided, they could not be matched to a sibling.

The resulting target participant sample included 238 individuals. The target participants ranged in age from 18 to 30 ( $M = 20.94$ ,  $SD = 2.50$ ) and included 119 females and 117 males (two did not report gender). Target participants reported that they were university students completing an undergraduate degree ( $n = 233$ , 97.90%). Compared to the identified sibling in the study, 101 target participants indicated that they were the younger sibling, 126 indicated that they were the older sibling, 5 indicated that they were twins, and 6 did not provide enough information to classify. Given that a large number of participants did not provide information about their family composition, possibly because of the effort required to understand and complete the family section of the background information form, only those who provided information for at least one parent are included in the following ( $n = 178$ ): 178 identified having a mother ( $n = 174$ ) and/or a step-mother ( $n = 4$ ) and 164 identified having a father ( $n = 154$ ) and/or a step-father ( $n = 10$ ). The siblings identified for the purpose of this study included 126 sisters (including one step-sister) and 110 brothers (including one step-brother and one half-brother). Almost half of the target participants indicated having other siblings ( $n = 116$ ). The total number of siblings per participant ranged from 1 to 6 ( $M = 1.74$ ,  $SD = .98$ ). These additional siblings were not considered in analyses. Only the sibling they identified as being closest in age and meeting the age criteria was considered.

The majority of target participants also indicated that they spoke English with their siblings ( $n = 219$ , 92.02%). Just over half of target participants also lived with their identified sibling ( $n = 133$ , 55.88%), whereas 58 (24.37%) indicated that they lived within the same or in nearby town/city, 34 (14.29%) indicated that they lived in the same

country, and 11 (4.62%) indicated that they lived in another country. Additional information regarding sibling contact is presented in Table 2.

Ethnic background was determined based on their self-identified ethnic category and ethnic groupings from Statistics Canada. According to Statistics Canada, people who self-identify as 'Canadian' are collapsed under the North American category, which includes Aboriginals (i.e., First Nations, Métis, and Inuit). For the purpose of the current study, those who self-identify as non-Aboriginal Canadian, White, Caucasian, or of any European country were combined and defined as people of European descent. The sample was primarily of European descent ( $n = 149$ , 62.61%). Additional demographic characteristics are presented in Table 2.

Sibling pairs ( $n = 55$ ) were included in the analyses for research question #4. The younger siblings ranged in age from 15 to 29 years old ( $M = 19.83$ ,  $SD = 2.97$ ) and the older siblings ranged in age from 18 to 30 years old ( $M = 22.47$ ,  $SD = 3.23$ ). Sibling pairs included 15 sister pairs (27.27%), 10 brother pairs (18.18%), 16 mixed pairs in which the sister was older (29.09%), and 14 mixed pairs in which the brother was older (25.45%). Additional older and younger sibling characteristics are presented in Table 3.

## Measures

Questionnaire and narrative data were collected for the current study. From questionnaires, scores for the following constructs were calculated: sibling warmth, sibling conflict, feelings of mastery, ego development, life satisfaction, and emotion complexity. From the narratives, scores for the following constructs were obtained: exploratory narrative processing, coherent positive resolution, emotion complexity, and word count. Details on the measurement of these constructs are presented in Table 4.

Table 2

*Demographic Characteristics of Target Participants (N = 238)*

Characteristic	N	(%)
<b>Marital status</b>		
Single or in a relationship but not living together	218	(91.6)
Living together	8	(3.4)
Married (including common-law and same-sex unions)	4	(1.7)
Separated	1	(.4)
Other: engaged	1	(.4)
<b>Born in Canada</b>		
Yes	182	(76.5)
No	48	(20.2)
<b>Ethnic/Cultural background</b>		
European descent (including self-identified Canadians, Caucasians, and those who identified a European country of origin)	149	(62.6)
African descent (including those who self-identified Black or who identified an African country of origin)	12	(5.0)
Caribbean descent	5	(2.1)
Latin, Central and South American)	1	(.4)
Asian descent (including those who self-identified as Middle Eastern, South Asian, East and Southeast Asian)	53	(22.3)
North American Aboriginal origin	3	(1.3)
Oceania origin (including Australian, New Zealander)	1	(.4)
Mixed origin	9	(3.8)
<b>Sibling Contact</b>		
How often do you and your sibling see each other?		
Every day	123	(51.7)
Every few days	17	(7.1)
Every week	18	(7.6)
Every month	34	(14.3)
Several times a year	36	(15.1)
Very infrequently	7	(2.9)
Never	2	(.8)
How frequently does your sibling telephone you?		
Every day	28	(1.8)
Every few days	50	(21.0)
Every week	42	(17.6)
Every month	22	(9.2)
Several times a year	12	(5.0)
Very infrequently	44	(18.5)
Never	38	(16.0)

(continued)



Characteristic	N	(%)
How frequently do you telephone your sibling?		
Every day	30	(12.6)
Every few days	48	(20.2)
Every week	37	(15.5)
Every month	25	(10.5)
Several times a year	9	(3.8)
Very infrequently	48	(20.2)
Never	38	(16.0)
Parental Marital Status		
Married to each other (including common-law and same-sex unions)	156	(65.5)
Living together	9	(3.8)
Separated	13	(5.5)
Divorced	37	(15.5)
Widowed	16	(6.7)
Other	2	(.8)
Level of Education: Mother		
Elementary school (Grades 1-6)	5	(2.1)
Middle school (Grades 7-8)	4	(1.7)
High school (Grades 9-12)	50	(21.0)
Some university or college, or CEGEP	33	(13.9)
University/college	130	(54.6)
Graduate school	11	(4.6)
Level of Education: Father		
Elementary school (Grades 1-6)	4	(1.7)
Middle school (Grades 7-8)	6	(2.5)
High school (Grades 9-12)	52	(21.8)
Some university or college, or CEGEP	33	(13.9)
University/college	107	(45.0)
Graduate school	22	(9.2)

Table 3

*Characteristics of Sibling Pairs (N =55)*

Characteristics	Younger sibling		Older sibling	
	<i>n</i>	(%)	<i>n</i>	(%)
Education				
Students	47	(85.5)	40	(72.7)
<i>Current level of education:</i>				
High school (Grades 9-12)	10	(18.2)	0	(0)
University/college	34	(61.8)	40	(72.7)
Graduate school	0	(0)	0	(0)
Not a student	7	(12.7)	14	(25.5)
<i>Highest level of education:</i>				
High school (Grades 9-12)	3	(.1)	3	(.1)
Some university or college or CEGEP	2	(<.1)	0	(0)
University/college	2	(<.1)	10	(18.2)
Graduate school	0	(0)	1	(<.1)

Table 4

*List of Operationalized Constructs and Measures*

Constructs	Operationalized definitions	Reference for scoring	Data
<b>Scores obtained from the narratives:</b>			
Exploratory Narrative Processing (ENP)	The “active, engaged effort on the part of the narrator to explore, reflect on, or analyze a difficult experience with an openness to learning from it and incorporating a sense of change into the life story” (Pals, 2006, p. 1081).	Scores were provided based on Pals’ (2006) coding protocol.	Interval
Coherent positive resolution (CPR)	The degree to which the conflict appears to have a clear and identifiable ending.	Scores were provided based on Pals’ (2006) coding protocol.	Interval
59 Narrative Word Count	Total number of words in the narrative.	Used the word count function in Microsoft Word.	Ordinal
Emotion Complexity (Narrative)	The conscious insight one has about emotions. Operationally defined as the total number of distinct emotions identified in the narrative divided by the word count of the narrative and then multiplied by 1000.	Scores were obtained based on Fivush, Brotman, Buckner, and Goodman (2000) coding protocol and Lazarus’ (1991) emotion categories.	Interval
<b>Scores obtained from questionnaire data:</b>			
Emotion Complexity (Self-Report)	The conscious insight one has about emotions. Operationally defined as the total number of reported distinct emotions experienced as a result of the sibling conflict.	Reported emotions experienced by the self and by the sibling based on Lazarus’ (1991) emotion categories.	Interval

(continued)

Constructs	Operationalized definitions	Reference for scoring	Data
Sibling Warmth	Warm sibling relationships contain a high level of intimacy, admiration, affection, acceptance, similarity, knowledge of one another, and support (Stocker, Lanthier, & Furman, 1997).	Adult Sibling Relationship Questionnaire (Short form) (Lanthier, Stocker, & Furman, 2000)	Interval
Sibling Conflict	Siblings with a high degree of conflict experience more quarrelling, dominance, antagonism, and competition amongst each other (Stocker, Lanthier, & Furman, 1997).	Adult Sibling Relationship Questionnaire (Short form) (Lanthier, Stocker, & Furman, 2000)	Interval
Feelings of Mastery	“The extent to which people see themselves as being in control of the forces that importantly affect their lives” (Pearlin et al., 1981, p. 340).	Mastery: Pearlin Mastery Scale (Pearlin et al., 1981)	Interval
⊗ Independent Self-Construct	“An independent view of the self that emphasizes the separateness, internal attributes, and uniqueness of individuals” (Singelis, 1994, p. 580).	Self-Construct Scale (SCS: Singelis, 1994)	Interval
Interdependent Self-Construct	An “image of the self stressing connectedness, social context, and relationships” (Singelis, 1994, p. 580).	Self-Construct Scale (SCS: Singelis, 1994)	Interval
Gender	Self-identified gender		Categorical
Life Satisfaction	The degree of satisfaction with one’s life.	Satisfaction with Life Scale (Diener et al., 1985)	Interval
Ego development	The progression toward increasingly complex ways of thinking about the self in relation to others.	Washington University Sentence Completion Test of Ego Development – Short Form (Holt, 1980; Hy & Loevinger, 1996)	Ordinal (Ordered categorical)

**Background Information Form.** A demographic questionnaire was used to obtain age, gender, ethnicity, family composition, highest level of education, and occupation (see Appendix A).

**Sibling Contact Questionnaire (SCQ; Doody, Hastings, O’Neill, Grey, 2010).**

Four questions were used from the SCQ: “How far does your sibling live from you?” (response scale: 1 (*same house*), 2 (*same neighbourhood*), 3 (*same town/city*), 4 (*nearby town/city*), 5 (*within the same country*), 6 (*in another country*)), “How often do you and your sibling see each other?”, “How frequently does your sibling telephone you?”, and “How frequently do you telephone your sibling?” (response scales: 1 (*every day*), 2 (*every few days*), 3 (*every week*), 4 (*every month*), 5 (*several times a year*), 6 (*very infrequently*), 7 (*never*)). The SCQ also requested information about contact with mothers and fathers. This information was not necessary for the current study and was not included in the protocol.

**Narrative.** Based on narrative identity protocols (Pals, 2006), participants were asked to describe a scenario in which they had a disagreement with their sibling. Parallel to Pals’ (2006) instructions, the instructions for the current study stated: “All of us have times of personal difficulty with our sibling(s). Please think of and write about a disagreement or argument you have had with your sibling *in the past few years*. Choose a situation that has had the most impact on your values, self-concept, and the way you look at yourself, your sibling, your family, and the world. Following your description, you will be asked to answer some questions.”

**Narrative coding.** Narratives were coded for four constructs: exploratory narrative processing, coherent positive resolution, emotion complexity, and narrative word count. Exploratory narrative processing and coherent positive resolution were scored based on

Pals' (2006) coding procedures, with slight modifications that are presented below.

Emotion complexity was scored based on Fivush and colleagues' (2000) coding procedures with considerations given to Lazarus' (1991) emotion categories. Narrative word count was calculated using the word count function in Microsoft Word.

*Training for exploratory narrative processing and coherent positive resolution.*

To adapt Pals' (2006) coding protocol to be relevant to the current data, the primary investigator and a research assistant reviewed pilot narratives and narratives from participants of this study, provided preliminary scores, discussed the results in meetings, and made appropriate clarifications in the coding scheme to reflect specific content that involved sibling conflicts. The principal investigator then trained two other research assistants to code the narratives. The training consisted of reviewing the coding scheme in meetings, which included specific definitions, examples for every code, and sample narratives, and then each coder practiced coding 50 narratives of the current study, which were divided into two batches of 25 narratives each. After completion of each batch, codes were reviewed in meetings and discrepancies were resolved. Adjustments were made to the coding scheme if necessary to provide further clarification. The rest of the narratives were then coded in 13 batches of up to 25 participants each, 7 of the batches were coded by two separate coders (61% of the data). When batches were coded by two individuals, discrepancies were resolved in meetings.

*Exploratory narrative processing (Pals, 2006).* Exploratory narrative processing (ENP) is defined as the “active, engaged effort on the part of the narrator to explore, reflect on, or analyze a difficult experience with an openness to learning from it and incorporating a sense of change into the life story” (Pals, 2006, p. 1081). Two dimensions

of exploratory narrative processing were identified by Pals (2006) and coded for in the current study: richness/complexity and open-exploratory vs. closed-minimizing.

Pals (2006) defined richness/complexity as “the extent to which the style of narration conveyed a willingness to tell the story and amplify its significance through elaborating on the impact of the experience and grappling with its difficulty and complexity” (p. 1090). Narratives were rated on a 5-point scale with 1 reflecting *a very limited narrative in which the narrator provides minimal and unelaborated details*, and 5 reflecting *a very elaborated response in which the narrator provides many complex details*.

Pals (2006) defined open-exploratory versus closed-minimizing approaches to coping as “coping via opening the self up to exploring the impact of the experience and trying to gain something new from it (e.g., introspection, self-analysis, questioning)” versus “coping via attempting to minimize the impact of the experience and distancing the self” (p. 1090). Pals (2006) obtained a single score for open exploratory versus closed minimizing as reflected in the overall narrative. However, for the current study, two scores were obtained. First, open exploratory versus closed minimizing was scored based on the degree to which the narrator explored the impact of the conflict on the self, and second, open exploratory versus closed minimizing was scored based on the degree to which the narrator explored the impact of the conflict on his or her sibling. The purpose of the separate scores was to give equal weight to the amount of self-reflection and the amount of sibling-reflection, which is consistent with developmental models of the self in relation to others (e.g., Loevinger, 1976; Erikson, 1963; Kegan, 1982). It is also relevant within the context of a sibling conflict, as this situation involves two people. Ratings of

open-exploratory versus closed-minimizing were measured on a 5-point scale in which 1 reflected *a very closed response* and 5 reflected *a very open response*.

In the current study, participants who skipped the narrative or stated that they did not argue or have conflicts with their siblings were given scores of 1 on all three exploratory narrative processing scales. This was decided because these responses speak to their willingness or ability to explore and provide a narrative about a conflict with their siblings.

In Pals' (2006) protocol, the overall exploratory narrative processing score was obtained by averaging the richness/complexity and open-exploratory versus closed-minimizing scores. She obtained a Cronbach's alpha of .70 in her study. In the current study, a two step-process was used to calculate a single score for exploratory narrative processing. First, the standardized scores for open-exploratory versus closed-minimizing for the self and for the sibling were averaged. This score was then averaged with the standardized score for richness/complexity. This two-step process ensures that equal weight is given to the narrator's elaboration and the narrator's degree of exploration, which is consistent with Pals' (2006) method.

In the present study, intraclass correlations and Cronbach's alphas based on all three coders of the training batches ( $n = 40$ , 10.64%) were excellent for the overall exploratory narrative processing score ( $r = .84$ ,  $\alpha = .94$ ) and reliability remained high for the remaining batches ( $n = 135$ , 35.90%) that were coded by two individuals ( $r = .78$ ,  $\alpha = .88$ ). Intraclass correlations and Cronbach's alphas on individual items comprising the exploratory narrative processing score were also good ranging from .67 to .71, and .80 to .87, respectively.



*Coherent positive resolution (Pals, 2006).* Coherent positive resolution (CPR) is defined as the “construction of a coherent and complete story of a difficult event that ends positively, conveying a sense of emotional resolution or closure” (Pals, 2006, p. 1082). The same operational definition and scales used in Pals’ (2006) study were used in the current study, but additional clarifications specific to sibling conflict narratives were provided for each rating. That is, coherent positive resolution was obtained using four variables: ending coherence, positive ending, negative ending, and emotional resolution. She defined ending coherence as “the extent to which the narrative has an identifiable and clear ending that signals to the reader that the story is complete” (p. 1090). It was rated on a 4-point scale ranging from 1 (*very incoherent*) to 4 (*very coherent*). Pals (2006) referred to positive and negative endings as the valence of the story’s conclusion. Separate scores were obtained for positive endings and negative endings and these scores were rated on 3-point scales ranging from 1 (*not positive or not negative*) to 3 (*very positive or very negative*). Describing a narrative given by a woman in her sample, the fourth indicator of coherent positive resolution, emotional resolution, referred to “the extent to which the woman described herself as having achieved emotional closure so that her story was no longer ‘stuck’ in the grip of the negative emotions generated by the experience” (Pals, 2006, p. 1091). This item was scored on a 4-point scale ranging from 1 (*very unresolved narratives*) to 4 (*very resolved narratives*). In the current study, participants who skipped the narrative or stated that they did not argue or have conflicts with their siblings were not given a coherent positive resolution score because there was no reported conflict to resolve.

Based on the scale construction by Pals (2006), a two-step process also was used to measure overall coherent positive resolution. First, the standardized scores of ending

coherence, positive ending, and negative ending were averaged, creating a coherent and positive ending index. This score was then standardized and averaged with the standardized emotional resolution score. This two-step process was to ensure that equal weight was assigned to the quality of the narrative ending and the emotional resolution of the event in the overall score of coherent positive resolution. The Cronbach's alpha for the overall coherent positive resolution scale was .92 in Pals' (2006) study.

Intraclass correlations and Cronbach's alphas based on all three coders of the training batches ( $n = 36$ , 10.56%) were excellent for the overall coherent positive resolution score ( $r = .92$ ,  $\alpha = .97$ ). Interrater reliability remained high for the remaining batches ( $n = 135$ , 39.59%) that were coded by two individuals ( $r = .78$ ,  $\alpha = .89$ ). Intraclass correlations and Cronbach's alphas on individual items ranged from .67 to .85 and .80 to .91, respectively.

**Emotion complexity.** For the purpose of the current study, the number of distinct emotions identified in the narrative and from the self-report questionnaire, were used to assess emotion complexity. Similar procedures were used by Rice and Pasupathi (2010). The current study also distinguishes between the emotion language used to describe the siblings' experiences in the conflict scenario. Details on these two procedures are provided below.

*Narrative coding of emotion complexity (Fivush et al., 2000; Lazarus, 1991).*

The coding protocol for the current study was developed based on the work by Fivush and colleagues (2000) and by Lazarus (1991). For the purpose of the current study, emotion complexity coded from the narrative was operationally defined as the total number of distinct emotions identified in the narrative divided by the word count of the

narrative and then multiplied by 1000. Only the procedures to obtain this score are described below.

Each word or words referring to a specific emotional state or emotional behaviour was identified, which captured the number of specific, explicit references to emotion. The person experiencing the emotion was then identified as either the self, the sibling, or other. Emotional states and behaviours were then classified into 15 emotion categories based on Lazarus' (1991) work: anger, anxiety, fright, guilt, shame, sadness, envy, jealousy, disgust, happiness, pride, relief, hope, love, and compassion. These categories were the same as those presented in the self-report questionnaire. These procedures were also followed if the narrator negated the experience of an emotion (e.g., "My brother was not happy"). However, given the ambiguity in these statements, they were not included in analyses. For example, if a narrator wrote "My brother was not happy", it is unclear if the brother was mad, sad, or any of the 14 other emotions used based on Lazarus' (1991) work. This occurred 37 times across the 299 narratives. The sum of the total number of distinct emotions identified for the self, for the sibling, and for another individual was then used to calculate emotion complexity. Protocols in which the participants skipped the narrative or stated that they did not argue or have conflicts with their siblings were given scores of zero for emotion complexity coded from the narrative.

A team of 4 research assistants were first trained in segmenting by reviewing the segmenting rules, examining and discussing the segments of sample narratives, and by comparing each other's work during meetings. Two coders were then selected to code all the narratives. Training included reviewing the coding protocol, practicing with sample narratives and then with 40 additional narratives. Codes were reviewed in meetings and

discrepancies were resolved. The rest of the narratives were then coded in 13 batches, all of which were coded by the two research assistants.

Two indicators of reliability were calculated. Percent agreement was used as this was the method used in Fivush and colleagues' (2000) work. First, to assess the coders' reliability in the identification of emotions terms, percent agreements were obtained by dividing the total number of emotions identified by both coders by the total number of distinct emotions identified by the coders. Coders agreed on 77.55% of the emotion terms identified. Second, based on the agreed upon emotion terms, percent agreement was obtained for the classification of these emotions terms by dividing the number of agreed upon classifications by the total number of identified emotion terms. Coders agreed on 74.28% of the emotion classifications.

*Self-reported emotion complexity (Lazarus, 1991, adapted by Paterson, 2013).* A self-report measure based on the work by Lazarus (1991) was used to measure the number of distinct emotions experienced by the self and by the sibling during the conflict. These emotions were: anger, anxiety, fright, guilt, shame, sadness, envy, jealousy, disgust, happiness, pride, relief, hope, love, and compassion. Emotion complexity was defined as the total number of emotions experienced by the self plus the total number of emotions perceived to be experienced by the sibling in the conflict situation described. Participants were asked to rate the degree of their experience of each emotion and the degree of their sibling's experience of each emotion on a 3-point Likert-type scale ranging from 0 (*not at all*) to 2 (*very much*). To obtain a score for the number of different emotions endorsed, emotions were re-coded as either present (score = 1), which included emotions that were identified as either '*somewhat*' experienced or '*very much*'

experienced, or absent (score = 0), which included emotions that were *'not at all'* experienced.

**Adult Sibling Relationship Questionnaire - Short-Form (ASRQ-S; Lanthier et al., 2000).** The ASRQ-S assesses sibling relationship qualities in young and older adults. It assesses the participants' perceptions of their behaviors and feelings toward their siblings, as well as their perceptions of their siblings' behaviours and feelings toward them. The ASRQ-S consists of 47 items that are grouped into 8 scales. Based on factor analysis, however, they are scored along three dimensions: Warmth (18 items), Conflict (17 items), and Rivalry (12 items). For the purpose of the current study, only the warmth and conflict scales were administered and used.

Sample items of the Warmth scale include: "How much do you talk to your sibling about things that are important to you", "How much does your sibling try to cheer you up when you are feeling down", and "How much does your sibling know about you?" Sample Conflict items include: "How much do you and your sibling argue with each other?", "How much do you irritate your sibling?", and "How much do you dominate this sibling?". For all items on the Warmth and Conflict scales, participants were asked to rate the extent to which each item is characteristic of both themselves and their siblings on a 5-point Likert-type scale ranging from 1 (*hardly at all*) to 5 (*extremely much*). Average scores were computed with high scores indicating high levels of warmth and conflict.

The Warmth and Conflict scales of the long form of the ARSQ have high levels of internal consistency and test-retest reliability (Doody et al., 2010; Stocker et al., 1997). The Warmth and Conflict scales also demonstrate low correlations between one another and with a social desirability measure (Stocker et al., 1997). Convergent validity between siblings and discriminant validity between factors has been demonstrated (Stocker et al.,

1997). In the current study, the Warmth and Conflict scales demonstrated excellent internal consistency,  $\alpha = .96$  and  $\alpha = .91$ , respectively.

**Pearlin Mastery Scale (Pearlin et al., 1981).** Mastery is defined as “the extent to which people see themselves as being in control of the forces that importantly affect their lives” (Pearlin et al., 1981, p. 340) and was assessed using the 7-item Pearlin Mastery Scale. Sample items include: “I have little control over the things that happen to me”, “What happens to me in the future mostly depends on me”, and “There is little I can do to change many of the important things in my life.” The response scale ranged from 1 (*strongly agree*) to 5 (*strongly disagree*). Average scores were computed with high scores indicating high levels of mastery. The Pearlin Mastery Scale has demonstrated good internal consistency (Matthews, Owens, Edmundowicz, Lee, & Kuller, 2006). Matthews and colleagues (2006) also demonstrated that mastery increased with age and was higher for men than women. Demonstrating its validity, scores on the Pearlin Mastery Scale are also related to stress and coping (Pearlin et al., 1981) and are negatively related to symptoms of depression (Marshall & Lang, 1990). In the current study, this measure demonstrated good internal consistency,  $\alpha = .80$ .

**Self-Constraint Scale (SCS: Singelis, 1994).** The SCS is a 24-item measure with two subscales: independent and interdependent self-construal. An independent self-construal is defined as “an independent view of the self that emphasizes the separateness, internal attributes, and uniqueness of individuals” (Singelis, 1994, p. 580) and an interdependent self-construal is defined as an “image of the self stressing connectedness, social context, and relationships” (Singelis, 1994, p. 580). Both scales contain 12 items. Sample items include: “I am comfortable with being singled out for praise or rewards” (Independent scale) and “It is important for me to maintain harmony within my group”

(Interdependent scale). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

Singelis (1994) provided support for the validity of this measure. He first argued that the items possessed high levels of face validity. He also demonstrated construct validity by comparing an Asian American sample to a Caucasian American sample and found that Asian Americans were more interdependent than Caucasian Americans and Caucasian Americans were more independent than Asian Americans. Furthermore, he provided evidence for predictive validity. He showed that, as expected, individuals who scored higher on the interdependent self-construal scale were more likely to make situational attributions, which is characteristic of individuals with interdependent self-construals. Singelis also reported that the SCS has adequate internal consistency in the two samples on the Independent scale ( $\alpha = .69$ ) and on the Interdependent scale ( $\alpha = .73$ ). Similarly, in the current study, Cronbach's alphas were .69 for the Independent scale and .73 for the Interdependent scale.

**Satisfaction with Life Scale (SWLS: Diener et al., 1985).** The SWLS is a well-validated 5-item measure of overall life-satisfaction. Sample items include: "In most ways, my life is close to my ideal", "The conditions of my life are excellent", and "I am satisfied with my life." The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). Demonstrating its validity, this measure is strongly correlated with other measures of well-being (Diener et al., 1985). Based on a review of this scale (Pavot & Diener, 1993) this measure has good to excellent internal consistency and test-retest reliability, and demonstrates construct and discriminant validity. This measure demonstrated excellent internal consistency in the current study as measured by Cronbach's alpha ( $\alpha = .87$ ).

**Washington University Sentence Completion Test of Ego Development – Short Form (Holt, 1980; Hy & Loevinger, 1996).** This semi-projective measure consists of 18 sentence-stems that participants are asked to complete and measures one's level of ego development. Each participant is assigned an ego level for each response as well as an overall ego level based on their overall protocol. From least developed to most developed, the 8 ego levels are: Impulsive (E2), Self-Protective (E3), Conformist (E4), Self-Aware (E5), Conscientious (E6), Individualistic (E7), and Autonomous (E8), and Integrated (E9). See Table 1 on page 16 for descriptions of each ego level.

There are male and female versions of this measure and participants were directed to the appropriate form depending on their self-identified gender. If they failed to complete the gender question, they were directed to a form that was created for this study using both phrasings of the sentence stem. Six participants did not enter their gender, but it was possible to surmise their gender based on information they provided in other sections (e.g., sibling gender constellation, narrative, name provided for remuneration purposes) and score them according to the protocol provided for their gender. Sample sentence stems include: "Crime and delinquency could be halted if..." (all versions), "A woman should always..." (female version), "A man should always..." (male version)", "A man/woman should always..." (no identified gender version), and "A good mother..." (all versions).

Cohn and Westenberg (2004) reported on the reliability of this test throughout the literature. They indicated that inter-rater agreement per item averages 85%, and inter-rater agreement within one level is typically close to 95%. Many studies have also reported that Cronbach's alpha values are .90 or higher. In addition, ego levels assessed using this measure and assessed by interview and other projective tests of personality have been



found to correlate (Gilmore & Durkin, 2001). Tests of discriminant validity show that ego levels determined with the sentence completion task moderately correlate with intelligence, fluency, and socioeconomic variables, indicating that ego development is a related but separate construct (Gilmore & Durkin, 2001; Noam, Young, & Jilnina, 2006). This measure continues to be widely used with adolescent and adult males and females (e.g., Syed & Seiffge-Krenke, 2013).

***Sentence completion training and scoring.*** Four graduate students and the principal investigator were trained to score this measure according to the coding manual (Hy & Loevinger, 1996). That is, each coder scored the twelve practice protocols that are available for training purposes and codes were discussed and compared (Hy & Loevinger, 1996). Intraclass correlations based on absolute agreement between the four coders on the 12 practice protocols was excellent ( $r = .96$ ). Coders who obtain 85% agreement with the practice material (i.e., Hy & Loevinger, 1996) are typically deemed competent and reliable to continue further independent coding (e.g., Bauer & McAdams, 2010). The four coders therefore continued coding the study data.

Scoring each protocol involved several steps. First, a research assistant who was not involved in coding the items created batches consisting of 25 participants. For each batch, 18 sheets were created (i.e., one for each item of the sentence completion task). Each sheet had the responses of 25 participants presented in randomized order. For example, one sheet would contain 25 different responses from 25 different participants for the first sentence stem. These procedures allowed each coder to score each participant's items independently of their other item responses. Once each individual item was given a code, the coder would return their responses to the research assistant who was not involved in the coding to re-create each participants total protocol that included

their responses and the codes for each of the 18 items on the sentence completion task. The resulting 25 protocols were then returned to coders to be reviewed and a total protocol score was given based on three criteria. First, all items were read in the context of the original protocol and a score was given based on the coders' perception of the participants' ego level using impressionistic judgement based on ego development theory. Second, an item sum total score was obtained by summing the scores for each item. Ego level was then determined from the item sum total based on a table provided in Hy and Loevinger's (1996) scoring manual. A third measure of ego level was determined by a scoring system based on the distribution pattern of the number of items coded into each ego level. This scoring system is also provided in Hy and Loevinger's (1996) scoring manual. Coders then used these three indicators of ego level to assign a final ego level, again using impressionistic judgement if there was a discrepancy among the indicators. Participants who failed to answer more than four items on the sentence completion task were deemed to have an invalid ego measure ( $n = 5$ ).

In addition to achieving over 85% agreement with the practice material, approximately 50% ( $n = 144$ , 50.17%) of the sentence completion protocols were coded by two independent coders and compared for discrepancies, which were then resolved. Percent agreement was 65.27 and percent agreement within one ego level was 97.22. Other researchers using this measure do not typically review post-training reliability (e.g., Bauer & McAdams, 2010).

### **Procedure**

After ethics clearance by the University of Windsor Research Ethics Board, participants and their siblings were recruited through the university's participant pool ( $n = 276$ , 67.15%), from a mandatory 1<sup>st</sup> year course ( $n = 4$ , .01%), and from sibling

solicitation ( $n = 70$ , 17.03%). Three separate studies were created through the participant pool in an effort to maximize ethnic and gender diversity. A general study was created that allowed all students to register for the study who were between the ages of 15 and 30 and who had a sibling within this age range who was no more than 5 years older or younger. A second study was created that recruited only males who met the study criteria and a third study was created that recruited individuals who were born in a country other than Canada or the United States who also met the study criteria. In addition, an e-mail was sent to all students in a mandatory first year course across disciplines. Although the response rate from this recruitment procedure was quite low ( $n = 4$ , .02% of the target participants), it is likely that several of the students who were in this course were also eligible for bonus marks through the participant pool because the participant pool includes many first year courses; therefore, some of these students may have opted for this option. The information provided in the participant pool advertisements and the e-mail sent to students identified a web address at which they could access the survey and provided them with a generic user ID and password. Siblings were then recruited by asking the target participant to contact their siblings to request their participation.

Once participants accessed the survey, they were instructed to read the consent form and print it (see Appendix B). Given that target participants were asked to recruit their siblings, the likelihood that participants would speak to one-another about some aspects of the study was increased, which may have increased measurement error. It was therefore made clear to participants on the consent form that they could not speak about the content of the study until they had both completed it. If they agreed to participate, they were asked to click on the icon that stated “I agree to participate”, and if they did not want to participate, they were asked to click on the icon stating “I do not want to

participate” and were subsequently directed to a page that thanked them for their interest. If they had already participated but wanted to complete it again, they were asked to click on a third icon that stated this. This icon was used to alert the primary investigator of potential duplicate entries. It also allowed the primary investigator to identify participants who stopped completing the survey part-way through and then returned to the survey at a later time.

Similar to other sibling research procedures (e.g., Melby et al., 2008; Slomkowski et al., 2001), each participant was asked to recruit their sibling who was closest in age, who was between the ages of 15 and 30, and who was within 5 years of the participant’s own age. To help participants determine which sibling was required to participate, a series of yes/no questions were asked leading them to their identified sibling. Once they identified a sibling, they were prompted to e-mail that sibling with the brief introductory letter to request their participation. They were also instructed that if they e-mailed their sibling with this letter and then e-mailed the primary investigator indicating that they had done so, participants would be entered into a draw for one of 20 five dollar gift cards at a coffee chain (see Appendix C for the list of questions asked to identify study siblings and a copy of the brief introductory letter). These instructions were followed by soliciting information to allow matching of siblings. The following information about participants and about their siblings was obtained: birth day and month, and initials.

Participants were then asked to complete the background information form (see Appendix A), followed by the sentence completion task, and then participants were prompted to write a narrative concerning a recent sibling conflict. These projective measures were administered first to limit the influence of the questionnaire items on their responses. Participants then completed the two self-reported emotion complexity

measures (i.e., emotions experienced by the self and emotions experienced by the sibling), which were counterbalanced resulting in half of the participants first completing the emotion complexity related to the self and the other half first completing the emotion complexity related to the sibling. These questionnaires were presented after the narrative because they directly related to the participant's experience of the sibling conflict. All other measures followed in a randomized order.

The online nature of this study had several benefits, but several issues were also considered to ensure that the resulting data were valid. Of primary consideration was the risk of measurement error. Whitehead (2007) argues that the ease of completion of an online study may lead to random responses and skipping items. Therefore, to increase the validity of the final sample, two questions were embedded within the questionnaires that directed participants in answering specific items. One item was embedded within the Adult Sibling Relationship Questionnaire and stated: "Please click on the 'somewhat' option." The other item was embedded within the Self-Construal Scale and stated "Please click the 'Agree' option." The same scales used for these questionnaires were used for the validity items. Participants who failed at least one of the two items were removed from the sample as it was assumed that they were not adequately attending to the questions. In addition, several measures were used to determine if participants were duplicates: cross reference of birth day, birth year, and initials, examination of written responses (i.e., sentence completions and narratives), and an option to indicate that they were completing the survey a second time. Participants were also given the option to comment at the end of the survey on any issues that may have arisen for them.

To minimize the potential for negative emotional reactions to the current study, a "leave the study" link appeared on every page of the survey if participants wished to quit

before finishing. If they clicked on this icon, they were directed to a post-survey information page that included several contact numbers for mental health agencies.

Upon completion of the study, all participants were directed to the post survey information sheet and were asked if they wished to be contacted for future studies. Also, participants were provided with the opportunity to be compensated for their efforts if they completed the entire study or if they clicked on the 'Leave the Study' icon after having completed the narrative. Participants were then asked to indicate whether they wished to receive one participant pool bonus mark or be entered into a draw for one of 20 five dollar gift certificates at a coffee shop. Once they submitted this information, they were asked, a second time, to e-mail their siblings with the brief information sheet that was printed on the screen.

A follow-up e-mail was sent to all primary participants in an effort to maximize sibling participation. This e-mail included the brief introductory letter that they were instructed to e-mail to their siblings. It was reiterated to them that if they e-mailed the primary investigator indicating that they e-mailed this letter to their siblings, they would be entered into the draw for one of 20 five dollar gift cards. Once the study was completed, 25 participants were contacted via e-mail to inform them that they had been selected in the draw and gift cards were sent to them via postal mail.

Additional considerations were made with regards to storing data since this survey was conducted online. To reduce the possibility that participants' confidentiality would be breached, the current research design allowed for separate recordings of personal identifiers (i.e., name identified to receive a bonus mark through the university's participant pool and name identified in the draw) and study data by the data collection computer program (Holmes, 2009).

## CHAPTER III

### Results

The following results section describes the data screening and preliminary analyses conducted on the narrative and questionnaire data then it examines each research question and hypothesis. Research questions and hypotheses were examined using qualitative and quantitative approaches. First, a directed content analysis was conducted on the narratives to determine the typical causes of sibling conflicts among emerging adults. Target and sibling participants were included in this analysis. Second, structural equation modelling using Maximum Likelihood estimations were used to determine if the target participant data fit Pals' (2006) model and the hypothesized expanded model of this study. Third, hierarchical regression analyses using the sibling pair data were conducted to assess if siblings related on measures of emotion complexity, exploratory narrative processing, coherent positive resolution, ego level, and life satisfaction. Fourth, using only the target participants, three-way ANOVAs were conducted to examine whether the gender of the target participant and the gender of their identified sibling related to narrative word length, exploratory narrative processing, emotion complexity, and ego level.

#### Preliminary Analyses

Data were collected from narratives and from questionnaires. Constructs derived from the narratives included: exploratory narrative processing, coherent positive resolution, emotion complexity (narrative), and narrative word count. Constructs derived from questionnaire data included: ego level, life satisfaction, sibling warmth, sibling conflict, feelings of mastery, independent self-construal, interdependent self-construal, emotion complexity (self-report), age, and gender. Study variables are presented in Table

5, which includes the range of scores, means, standard deviations, and the number of participants who completed each measure. Intercorrelations between study variables are presented in Table 6.

**Missing data.** Twenty-three participants were excluded because they did not complete large portions of the study. Amongst the participants included in the current study, several participants did not receive scores for specific questionnaires because they either skipped that portion of the study or did not respond to sufficient items to receive a valid score. See Table 5 for the number of valid responses for each questionnaire.

Some participants skipped the narrative ( $n = 11$ ), stated that they never argued or had conflicts with their siblings ( $n = 8$ ), or wrote about an event that was not a conflict ( $n = 3$ ). These narratives were included in analyses because these responses were indicative of the degree to which the participant was willing and able to explore and narrate conflict with his or her sibling. However, as per the scoring instructions, these participants received scores for exploratory narrative processing, but not coherent positive resolution because there was no identified conflict to resolve. Also, they received scores of 0 on narrative emotion complexity and on narrative word count.

A number of participants skipped large portions of the self-reported emotion complexity scales. If the participant failed to respond to all items on either the questionnaire about the emotions experienced by the self or the questionnaire about the emotions experienced by the sibling, they were not given a self-reported emotion complexity score ( $n = 11$ ). However, several participants provided responses to a number of the emotions on both the self and sibling versions but also left more than 25% of the items blank ( $n = 9$ ). It is possible that these participants only provided answers to the



Table 5

*Descriptive Statistics of the Target Variables*

Study Variables	All Target Participants ( <i>n</i> = 238)				Sibling Pairs ( <i>n</i> = 55)							
	Range of Scores	<i>M</i>	<i>SD</i>	<i>n</i>	Younger Sibling				Older Sibling			
					Range of Scores	<i>M</i>	<i>SD</i>	<i>n</i>	Range of Scores	<i>M</i>	<i>SD</i>	<i>n</i>
Ego Level	3.00-8.00	5.03	.94	230	3.00-7.00	5.09	1.09	54	3.00-8.00	4.94	.99	53
Life Satisfaction	1.20-7.00	4.66	1.34	238	1.20-6.80	4.54	1.39	54	1.80-7.00	4.59	1.41	55
ENP	-2.78-4.07	-.04	1.92	238	-2.78-4.07	.31	1.91	54	-2.78-3.62	-.07	1.91	55
CPR	-2.60-3.40	-.01	1.91	217	-2.60-3.40	.44	1.92	49	-2.16-3.40	.22	1.93	48
Sibling Warmth	1.00-5.00	3.23	.94	238	1.06-5.00	3.33	1.00	54	1.39-5.00	3.28	.88	55
Sibling Conflict	1.00-4.50	2.39	.75	238	1.00-3.80	2.32	.74	54	1.00-3.31	2.22	.65	55
Mastery	1.43-5.00	3.78	.74	235	2.14-5.00	3.88	.75	54	2.14-5.00	3.88	.66	53
Independent	2.25-6.92	4.90	.73	238	3.58-6.42	5.10	.76	54	3.42-6.67	4.86	.62	55
Interdependent	3.08-6.92	5.18	.67	238	3.67-6.50	4.95	.62	54	3.25-6.42	5.05	.74	55
Emotion Complexity (SR)	2.00-30.00	13.23	5.38	232	4.00-30.00	12.52	4.83	50	2.00-22.00	11.34	4.34	52
Emotion Complexity (Nar)	.00-153.85	17.60	23.72	238	.00-500.00	22.55	67.64	54	.00-80.81	18.26	18.32	55
Narrative word count	.00-550.00	105.23	87.87	237	.00-369.00	119.93	85.17	54	.00-330.00	97.36	70.89	55

*Note.* ENP = exploratory narrative processing; CPR = coherent positive resolution; Mastery = feelings of mastery; Independent = independent self-construal; Interdependent = interdependent self-construal; SR = self-report; Nar = coded from the narrative.

Table 6

*Intercorrelations between Study Variables for Target Participants*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Ego Level	-											
2. Life Satisfaction	-.01	-										
3. ENP	.20**	-.07	-									
4. CPR	.05	.05	.46**	-								
5. Sibling Warmth	.13*	.22**	.14*	.22**	-							
6. Sibling Conflict	-.11	-.12	.03	-.03	-.22**	-						
7. Mastery	.02	.39**	-.07	-.01	.10	-.28**	-					
8. Independent	-.01	.29**	-.01	.05	.15*	-.14*	.28**	-				
9. Interdependent	.10	.14*	-.01	.17*	.20**	.09	-.13*	-.10	-			
10. Emotion Complexity (SR)	.05	.05	.03	.12	.18**	.01	-.13	.09	.02	-		
11. Emotion Complexity (Nar)	.01	.02	.03	-.11	-.07	.03	-.08	-.01	.10	.01	-	
12. Narrative Word Count	.26**	-.02	.68**	.37**	.20**	.01	-.02	.07	-.02	.13	-.14*	-
13. Age	.01	-.11	.08	.01	.03	-.30**	.16*	.17*	-.03	-.03	-.02	.09
14. Gender	-.01	-.06	-.01	.02	-.17**	.04	.14*	.03	-.09	.02	-.03	-.08

*Note.* ENP = exploratory narrative processing; CPR = coherent positive resolution; Mastery = feelings of mastery; Independent = independent self-construal; Interdependent = interdependent self-construal; SR = self-report; Nar = coded from the narrative; Gender: 1 = female and 2 = male.

\*  $p < .05$ . \*\*  $p < .01$ .

emotions they or their sibling experienced. Therefore, they were provided with emotion complexity scores.

Based on visual examination of the remaining questionnaire data, each questionnaire had at least 1 participant skip 1 item, but participants did not skip large portions of the items (i.e., more than 25%). Therefore, to obtain construct scores, average scores were computed using the number of items completed. No further steps were taken to change the missing data.

#### **Examination of missing data specifically for Structural Equation Modelling.**

Structural Equation Modelling requires a complete data set and therefore, participants who fail to complete a portion of the protocol cannot be included in the analyses. Of the target participants, the coherent positive resolution variable had the greatest number of missing cases because participants who failed to write a narrative about a specific sibling conflict did not receive a score on this scale ( $n = 21$ ). Nine other cases were removed for failing to complete a valid sentence completion test ( $n = 8$ ), the self-reported emotion complexity measure ( $n = 6$ ), and/or the mastery scale ( $n = 3$ ). Thirty cases were removed using listwise deletion for a total sample size of 208. This sample size provides sufficient power to test goodness of fit (MacCallum, Brown, & Sugawara, 1996). Visual examination of missing data from valid target participants did not reveal a pattern of systematic omissions. Structural equation modelling was conducted on the complete sample of 208 and on a sample with 2 outliers removed ( $n = 206$ ). Analyses testing whether the data fit Pals' (2006) model and testing the expanded model toward life satisfaction used the sample of 208 participants, and the analysis testing the expansion of this model toward ego level used the sample of 206 participants. Both samples were used because the model examining the pathway toward ego development had two additional

outliers. Ranges, means, and standard deviations of the variables included in the structural equation models for both samples are presented in Table 7.

**Narrative word count.** Narrative word count was measured using the Microsoft Office Word 2007 word count function. Narrative word count was first examined based on all participants, including target and sibling participants ( $N = 290$ ). Narratives ranged in length from zero words for those participants who did not write a narrative, to 2,419 words ( $M = 112.76$ ,  $SD = 160.45$ ). The longest narrative exceeded the second longest narrative by 1,869 words and was therefore considered an outlier. This narrative was removed from analyses that considered narrative word count (i.e., the first hypothesis under research question #5) but this participant's data were included for all other purposes. With the exclusion of this narrative, the word count ranged from 0 to 550 words with a mean word count of 104.75 words ( $SD = 86.19$ ) for all target and sibling participants.

Narrative word count was then examined based solely on target participants. These data are presented in Table 5. Table 6 shows the correlations between narrative word count and other study variables. Participants who wrote longer narratives had higher ego levels, higher scores on exploratory narrative processing and coherent positive resolution, had warmer sibling relationships, and had lower emotion complexity coded from the narrative scores. Narrative word count did not relate to either independent or interdependent self-construals, feelings of mastery, sibling conflict, or life satisfaction.

**Emotion complexity: Validity.** To further assess the validity of the emotion complexity measures, Pearson product moment correlations (see Table 8) were conducted assessing the relation between various indicators of emotion complexity on both measures. Several emotion complexity categories were examined based on emotion

Table 7

*Ranges, M, and SD of the Variables Included in the Structural Equation Models*

Study Variables	No Outliers Removed ( <i>n</i> = 208)			Two Outliers Removed ( <i>n</i> = 206)		
	Range of Scores	<i>M</i>	<i>SD</i>	Range of Scores	<i>M</i>	<i>SD</i>
Ego Level	3.00 – 8.00	5.06	.94	3.00 – 8.00	5.06	.93
Life Satisfaction	1.20 – 7.00	4.63	1.34	1.20 – 7.00	4.63	1.34
ENP	-2.78 – 4.07	.18	1.83	-2.78 – 4.07	.19	1.82
CPR	-2.60 – 3.40	.00	1.92	-2.60 – 3.40	.02	1.92
Sibling Warmth	1.00 – 5.00	3.20	.95	1.00 – 5.00	3.21	.95
Sibling Conflict	1.00 – 4.50	2.40	.76	1.00 – 4.25	2.39	.74
Mastery	1.43 – 5.00	3.78	.74	1.43 – 5.00	3.79	.75
Independent	2.25 – 6.92	4.88	.73	2.25 – 6.92	4.88	.74
Interdependent	3.08 – 6.92	5.16	.68	3.08 – 6.92	5.17	.68
∞ Emotion Complexity (SR)	2.00 – 29.00	13.07	5.27	2.00 – 29.00	13.01	5.25
Emotion Complexity (Nar)	.99 – 153.85	18.64	24.20	.00 – 107.14	17.47	21.11

*Note.* ENP = exploratory narrative processing; CPR = coherent positive resolution; Mastery = feelings of mastery; Independent = independent self-construal; Interdependent = interdependent self-construal; SR = self-report; Nar = coded from the narrative.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 8

*Pearson Correlations between Self-Reported Emotion Complexity and Emotion Complexity Coded from the Narrative*

Study Variables	Self-Reported Emotions								
	Positive Self	Positive Sibling	Negative Self	Negative Sibling	Total Positive	Total Negative	Total Self	Total Sibling	Total Emotions
<b>Emotions Identified in the Narrative</b>									
Positive - Self	<.01	-.04	-.02	-.04	-.03	-.04	-.02	-.05	.02
Positive - Sibling	<b>.15*</b>	<b>.21**</b>	.04	-.02	<b>.20**</b>	.01	.11	.12	<b>.17*</b>
Negative - Self	-.06	-.11	.05	.04	-.09	.05	<.01	-.04	-.01
Negative - Sibling	.04	<b>-.15*</b>	-.07	.05	-.06	-.01	-.02	-.06	-.04
Total Positive	.07	.09	.01	-.02	.09	-.01	.05	.04	.08
Total Negative	<.01	<b>-.14*</b>	.01	.06	-.08	.04	.01	-.04	-.01
Total Distinct	.01	-.12	.08	.10	-.06	.11	.06	<.01	.07
∞ Emotions									

Note.  $N = 299$ . Significant correlations are in bold.

\*  $p < .05$ . \*\*  $p < .01$ .

valence (i.e., positive or negative) and who experienced the emotion (i.e., the self, the sibling, or both combined). Positive emotions are generally pleasant to experience and included: happiness, pride, relief, hope, love, and compassion; and negative emotions are generally unpleasant to experience and included: anger, anxiety, fright, guilt, shame, sadness, envy, jealousy, and disgust. Significant correlations were in the expected directions. For example, participants who identified a greater number of positive emotions experiences by the sibling in their narratives also reported a greater number of positive emotions experienced by the self,  $r(237) = .15$ , and the sibling,  $r(237) = .21$ , on the self-report emotion questionnaire. Also, participants who identified more negative emotions experienced by the sibling in the narrative, reported fewer positive emotions experienced by the sibling on the self-report questionnaire,  $r(237) = -.15$ .

In addition to these correlations, the relation between the total number of distinct emotions identified in the narrative without controlling for word count and the two variables of exploratory narrative processing and ego level was examined. This emotion variable positively correlated with exploratory narrative processing,  $r(237) = .49$ ,  $p < .001$ , and ego level,  $r(229) = .13$ ,  $p = .05$ .

**Gender differences.** Gender differences were further examined for sibling relationship quality indicators (i.e., sibling warmth and conflict), for feelings of mastery, and narrative word count. Using the target participant data, independent sample *t*-tests were conducted on sibling warmth, conflict, and feelings of mastery. Results indicated that females compared to males reported higher levels of sibling warmth,  $t(234) = 2.68$ ,  $p = .01$  (females:  $M = 3.39$ ,  $SD = .94$ ; males:  $M = 3.07$ ,  $SD = .92$ ). In addition, males compared to females reported higher levels of mastery,  $t(231) = -2.11$ ,  $p = .04$  (females:  $M = 3.68$ ,  $SD = .78$ ; males:  $M = 3.88$ ,  $SD = .69$ ). Males and females did not differ in

reported level of sibling conflict,  $t(234) = -.64, p = .52$  (females:  $M = 2.35, SD = .78$ ; males:  $M = 2.42, SD = .72$ ). Narrative word count did not differ by gender,  $t(233) = 1.21, p = .22$  (males:  $M = 98.33, SD = 89.67$ ; females:  $M = 112.26, SD = 86.60$ ).

Target participants were examined based on their gender and the gender of their identified sibling for the current study. That is, target participants were grouped into four categories: sister pairs, brother pairs, mixed pairs in which the female was older, and mixed pairs in which the male was older. Differences in sibling warmth, sibling conflict, and feelings of mastery were then examined across these four groups. A one-way ANOVA on the target participants using a Ryan, Einot, Gabriel and Welsch Q procedure (REGWQ),  $F(3, 228) = 5.25, p = .002$ , indicated that sister pairs ( $M = 3.58, SD = .89$ ) reported greater levels of sibling warmth compared to brother pairs ( $M = 2.97, SD = 1.00$ ) and compared to mixed pairs in which the male was older ( $M = 3.06, SD = .95$ ). Mixed sibling pairs in which the females were older ( $M = 3.22, SD = .83$ ) did not significantly differ from other types of sibling pairs. Two other one-way ANOVAs indicated no significant difference between the sibling types in reported levels of sibling conflict,  $F(3, 228) = .36, p = .78$ , or feelings of mastery,  $F(3, 225) = 1.24, p = .29$ .

**Ethnicity differences and self-construals.** To lend support to the notion that self-construals differ across ethnic groups, further examination of these variables were conducted. Levels of independent and interdependent self-construal were compared across participants who self-identified as being of European descent, of African descent, and of Asian descent. Individuals who self-identified under other categories were not included because of their low frequency. Two one-way ANOVAs were conducted on self-categorised ethnic background with independent and interdependent self-construals entered as dependent variables. Post hoc analyses were conducted using Tukey's test.



Level of independent self-construal did not differ across ethnic categories,  $F(2, 211) = .13, p = .88$ . Level of interdependent self-construal, however, differed across ethnic categories,  $F(2, 211) = 5.82, p = .003$ , in that individuals of Asian descent had significantly higher interdependent self-construal scores ( $M = 5.47, SD = .68$ ) as compared to individuals of European descent ( $M = 5.11, SD = .63$ ).

**Examination of excluded participants.** A large number of participants either failed one of the two validity items that were interspersed among the questionnaires ( $n = 46$ ) or did not meet the age criteria ( $n = 13$ ). These participants were excluded from analyses. Target participants who were included in the analyses were compared to those excluded for the aforementioned reasons to determine if a systematic difference between samples existed within the data. Independent sample  $t$ -tests and chi-square analyses indicated that there were no significant differences between the included target participants and excluded participants based on age,  $t(276) = .20, p = .84$  (Included:  $M = 20.94, SD = 2.90$ ; Excluded:  $M = 20.86, SD = 3.18$ ). Chi Square analysis indicated that gender did not relate to inclusion,  $\chi^2(1) = .57, p = .45$  (Included: 119 females and 117 males; Excluded: 33 females and 26 males) nor did it relate to self-categorised ethnicity,  $\chi^2(2) = 5.12, p = .08$ . Only participants who self-identified as either of European, African, or Asian descent were included in this analysis because too few participants self-identified in other ethnic groups.

Included and excluded participants did not differ on measures of sibling warmth, sibling conflict, mastery, independence, interdependence, life satisfaction, coherent positive resolution, and emotion complexity coded from the narrative (all  $p$  values  $> .05$ ). Included participants, compared to the participants with invalid protocols, however, had higher ego levels,  $t(285) = 2.45, p = .02$  (Included:  $M = 5.03, SD = .94$ ; Excluded:  $M =$

4.68,  $SD = 1.02$ ), engaged in more exploratory narrative processing,  $t(293) = 2.33, p = .02$  (Included:  $M = -.04, SD = 1.92$ ; Excluded:  $M = -.69, SD = 1.70$ ), and had higher self-reported emotion complexity scores,  $t(74.54) = 2.15, p = .04$  (Included:  $M = 13.23, SD = 5.38$ ; Excluded:  $M = 11.03, SD = 17.35$ ). These results suggest that participants who were not attentive to the instructions or questions were not completing the written portions of the survey in an effortful manner. These results, however, should be considered with caution given that the excluded participants either failed the validity items or did not meet the age criteria and were therefore not likely reading the questions and instructions attentively.

**Comparison of participants with and without a matched sibling.** Independent sample  $t$ -tests indicated that included participants who had a sibling complete the study did not significantly differ from included participants who did not have a sibling complete the study on measures of sibling warmth, sibling conflict, feelings of mastery, independent self-construal, interdependent self-construal, ego level, life satisfaction, exploratory narrative processing, coherent positive resolution, and emotion complexity coded from the narrative (all  $p$  values  $> .05$ ). They did, however, differ on self-reported emotion complexity,  $t(230) = -2.30, p = .02$ , such that participants who had a sibling complete the study ( $M = 11.92, SD = 4.92$ ) indicated that they experienced fewer distinct emotions during their sibling conflict compared to participants who did not have a sibling complete the study ( $M = 13.73, SD = 5.48$ ).

## **Main Analyses**

**Research question #1: What are the typical causes of sibling conflicts for late adolescents and emerging adults?**

*Directed content analysis.* After having read through the narratives several

times during coding procedures, causes of sibling conflicts were identified using a directed approach to content analysis (Hsieh & Shannon, 2005). The principal investigator and a research assistant first identified the primary cause of the sibling conflict. This was done for all participants in this study. Based on previous literature and the first review of the causes of conflict, several conflict themes were identified (e.g., invasion of privacy (Campione-Barr & Smetana, 2010), personal possessions (Dunn & Munn, 1987), sibling relationship, academic/career choices). The descriptions were then distributed into these separate conflict themes. Raw data were also reviewed to ensure appropriate categorisation. To increase the trustworthiness of the analysis, new conflict themes were created for narratives that did not fit a predetermined theme.

After this first round of categorisations, the narratives were reviewed and re-categorised when necessary. Narrative conflict themes were also reviewed for consistency and validity. That is, conflict themes that appeared to reflect several ideas were broken down into several conflict themes and conflict themes that contained few narratives and that appeared to reflect a similar idea as narratives in another conflict theme were combined. These procedures were repeated until the existing conflict themes reflected consistency and validity with regards to the cause of the sibling conflict. This resulted in 21 conflict themes (see Table 9), including a category for narratives that did not have enough information to ascertain the cause of the conflict. All target and sibling participants were included in this process because it was anticipated that siblings would discuss different conflicts. Matched sibling pairs were then examined and sibling participants who identified the same conflict as their matched target participant ( $n = 9$ ) were removed from further analyses and are not reported in Table 9.

Table 9

*Results from the Directed Content Analysis: Causes of Sibling Conflict*

Source of Conflict	Conflict Themes and Descriptions	Examples
<p><b><i>Impulsive</i></b> (n = 41):</p> <p>Individuals whose source of conflict results from an inability to achieve their egocentric needs. For example, wanting to complete the study quickly and therefore skipping the narrative portion would be considered an attempt to meet one's egocentric needs. These participants have a poor understanding of rules and conflicts may result from dichotomous thinking patterns.</p>	<p><i>Did not write a narrative</i> (n = 8):</p> <p>Included participants who left the narrative portion of their data blank.</p>	Left narrative portion blank
	<p><i>Does not identify a conflict</i> (n = 13):</p> <p>Included participants who deny arguing with their sibling or who discussed an event with their sibling that did not include a conflict between them and their sibling.</p>	"we dont really fight" (male, 18 years old)
	<p><i>Discusses a conflict with or amongst others</i> (n = 4):</p> <p>Participants who discussed conflicts with individuals other than their siblings, or discussed a family conflict without specifying the conflict between them and their siblings.</p>	"my brother and dad were arguing about taking her or that she wasn't sick" (male, 24 years old)

(continued)

Source of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Not enough information to classify</i> (n = 16):</p> <p>Narratives in which there was insufficient information to determine the cause of the conflict.</p>	<p>“disagreement [sic] over a person” (female, 18 years old)</p> <p>“We started arguing and kept yelling at each other for a while. I am not sure what we were arguing about but it must have really upset her because she took a piece of wood and threw it at my head.” (male, 20 years old)</p>
<p><b>Self-Protective</b> (n = 38):</p> <p>Conflicts that result because individuals are self-focussed. They often blame the sibling in an attempt to protect their tenuous sense of self.</p>	<p><i>Many minor fights</i> (n = 6):</p> <p>Participants who identified several fights of menial importance to them.</p> <p><i>Personal insults</i> (n = 19):</p> <p>Sibling conflicts that occurred because one sibling was emotionally hurt by their sibling by direct insults.</p>	<p>“We usually only argue about small things. For example, who gets to drive the car or to turn down the music.” (female, 19 years old)</p> <p>“My brother has very strong religious beliefs when it comes to me being a homosexual, and we had gotten into an argument about me eating his dessert. Instead of speaking maturely and calmly he was screaming at me “you're a faggot, you will burn in hell”.” (male, 21 years old)</p>

(continued)

Source of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Privacy (n = 4):</i></p> <p>Conflicts that arose because one sibling failed to respect the other sibling's privacy.</p>	<p>"I was not respecting my brother's privacy, and looking at some of his documents on his computer." (male, 18 years old)</p>
	<p><i>Annoying behaviour (n = 9):</i></p> <p>Conflicts that occurred because one sibling considered the behaviours of their sibling to be annoying.</p>	<p>"we were boxing day shopping at a very busy mall and my sister was not paying attention at all and kept getting lost. i was frustrated because it was so busy and people were being pushy and rude and i had to keep turning around to grab my sister out of the crowd." (female, 23 years old)</p>
<p>94 <b>Conformist (n = 72):</b></p> <p>Conflicts that result because one sibling is focussed on the behaviours and morals of other and they assume that there is a correct and socially appropriate way of doing things.</p>	<p><i>Personal choices (n = 12):</i></p> <p>Narratives in which the narrator disagreed with a personal choice the sibling has made.</p>	<p>"...we clash a lot such as the time when she quit the swim team and I was really angry because I am a person who is very active and dislike people who are very lazy." (female, 19 years old)</p> <p>"My brother and I will sometimes argue about how i do not go to church or do not participate in the catholic faith as much as i should." (male, 21 years old)</p>

(continued)

Sources of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Treatment of parent(s)/Regarding the parent relationship (e.g., divorce) (n = 14):</i></p> <p>Conflicts about the treatment of a parent or about the general parent relationship.</p>	<p>“He and my mom were fighting more and more and I was getting caught in the middle of things. My brother started lying about what he was doing and where he was going, and started to not come home when he was supposed to. I confronted him about it one day...” (female, 22 years old)</p> <p>“Me and my brother have always had different opinions about what our relationship to our father should be. [...] We have gone back and forth about our father and have argued about it since the divorce.” (female, 20 years old)</p>
	<p><i>Personal and shared possessions/spaces (e.g., clothes and family car) (n = 39):</i></p> <p>Conflicts that evolved from sharing, borrowing, or breaking/ruining personal or shared possessions/spaces.</p>	<p>“Sometimes I would take her clothes back to school with me and she would take some of my clothes back to her house with her and when we wanted to wear something it was never there.” (female, 22 years old)</p> <p>“this situation occurred when he wants to have friends over, and so do i and we both want to use the basement.” (female, 15 years old)</p>

(continued)

Sources of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Taking on adult responsibilities (n = 7):</i></p> <p>Conflicts that begun because one sibling disagreed with a decision made by the other sibling to either have a child, move out of the family home, and/or move in with a partner.</p>	<p>“I was thinking and looking for a house to buy to move out with my boyfriend. My sister made it very clear that she didnt think that this would be a good idea to do.” (female, 25 years old)</p>
<p><b>Self-Aware (n = 52):</b></p> <p>Conflicts occur because of an awareness of individual differences and feelings of loneliness and self-consciousness.</p>	<p><i>Quality of the sibling relationship (e.g., spending time together) (n = 13):</i></p> <p>Sibling conflicts that evolved from one sibling attending to the sibling relationship less than the other.</p>	<p>“I was upset because I had gone a far way just to see her and she didn’t want to spend time with me in the same way I wanted to spend time with her.” (female, 20 years old)</p> <p>“My sister and I had a fight because I would hide everything from her and rather share it with my cousins.” (female, 22 years old)</p>
	<p><i>Dislike of romantic partner (n = 26) or friend (n = 3):</i></p> <p>Conflicts that occurred because one sibling disliked the other sibling’s romantic partner or their friends.</p>	<p>“Me and my sister used to argue about her friends. She had a perception that her friends would always be there for her and it always seemed to me like she valued her friends more than her family.” (male, 23 years old)</p>

(continued)



Sources of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Competition (n = 5):</i></p> <p>Sibling conflicts that were rooted in a competition with one another.</p> <p><i>Taking sides in a family argument (n = 5):</i></p> <p>Conflicts that evolved from one sibling choosing sides in an argument with a third party.</p>	<p>“We were playing basketball and I won the match, my brother was furious and started using excuses as to why I beat him.” (male, 18 years old)</p> <p>“Last year, my sister was mad at my brother and i decided to help stop the fight. By doing so, she assumed that i had chose to take his side of the fight and became very mad at me.” (male, 18 years old)</p>
<p><i>Conscientious (n = 76):</i></p> <p>Conflicts that arise because they are self-critical, or critical of their sibling, with respect to long-term goals. Conflicts occur because one sibling feels an excessive responsibility toward the sibling.</p>	<p><i>Advice, particularly around academic/career choices (n = 22):</i></p> <p>Conflicts that begun because one sibling offered another sibling advice.</p> <p><i>Obligations to one another (n = 15):</i></p> <p>Sibling conflicts that evolved from one sibling failed to complete an obligation to the other sibling.</p>	<p>“My sister was having difficulties in school and we were having issues because she wasn’t completely focussed on her studies.” (male, 23 years old)</p> <p>“My brother wanting me to pick him up from a friends house when I already had plans with my friends. He got mad at me and started yelling at me.” (female, 21 years old)</p>

(continued)

Sources of Conflict	Conflict Themes and Descriptions	Examples
	<p><i>Family or Household obligations/responsibilities (e.g., chores) (n = 29):</i></p> <p>Conflicts about completing responsibilities at home or the fulfilment of family obligations.</p>	<p>“the biggest argument i had with my sister was one regarding house rules and how my parents gave me a little more privileges because i am older. [...] my parents always had a way of finding out, and if they did, my ass is grass too because i was supposed to inform them about stuff like that.” (male, 23 years old)</p>
	<p><i>Negative/delinquent behaviour (n = 10):</i></p> <p>Conflicts that occurred because one sibling engaged in behaviours that the other considered delinquent.</p>	<p>“Me and my sibling had a huge fight over his life. [...] Being in a wrong company made him end up getting caught by cops.” (female, 25 years old)</p>
<p><b>Individualistic (n = 4):</b></p> <p>Conflicts occur with an awareness of individual differences. The sibling relationship is cherished within the context of the conflict.</p>	<p><i>Philosophical topics (n = 4):</i></p> <p>Participants who discussed a disagreement with their siblings on a topic of academic interest.</p>	<p>“My brother and I disagreed and had a dispute about our respective beliefs regarding the economic system and how it affects people's lives.” (female, 23 years old)</p>
<p><i>Note.</i> Sources of Conflict are modifications of Loevinger’s ego levels (Hy &amp; Loevinger, 1996) and modelled after Labouvie-Vief, Hakim-Larson, and Hobart (1987) sources of stress.</p>		

The reasons for conflicts are likely to vary according to a person's level of ego development and therefore the meaning that a person makes of a conflict with the sibling may vary by level of ego development. The conflict categories were therefore combined into groupings based on the type of ego involvement. Labouvie-Vief, Hakim-Larson, and Hobart (1987) presented a model for the sources of stress to difficult life events using Loevinger's (Loevinger & Wessler, 1978) ego development levels as a benchmark to determine the sources of stress. The current study presents a similar framework to understand the meaning behind the causes of sibling conflicts by categorising the conflict themes into sources of conflict that are based on levels of ego development. Six sources of conflict were identified: impulsive, self-protective, conformist, self-aware, conscientious, and individualistic. Table 9 shows these results and provides explanations for each category and each source of conflict. Among target participants, sources of conflict did not relate to age,  $r(221) = .12, p = .09$ , or ego level,  $r(229) = .05, p = .50$ , and sources of conflict did not relate to ego development when controlling for age,  $r(211) = .06, p = .36$ , or gender,  $r(225) = .04, p = .53$ .

**Research Question #2: Do the data from the target participants fit Pals' (2006) model of narrative identity development?**

*Preliminary analyses for research question #2.* The second and third research questions examine Pals' (2006) model in the context of sibling conflict and factors from the narratives that may contribute to exploratory narrative processing and coherent positive resolution. The data were tested using AMOS software and Maximum Likelihood estimations on the sample of target participants ( $n = 208$ ).

No evidence of multicollinearity was present as indicated by intercorrelations that did not exceed .80, variance inflation factors (VIF) that did not exceed 10, and tolerance

values greater than .1. Independence of errors could also be assumed with a Durbin-Watson value of 2.20. Although the normal P-P plot of regression standardized residuals for the model predicting life satisfaction revealed a linear relationship between observed and expected values, this same plot for ego development was non-linear, which may affect the generalizability of the findings (Field, 2009). Normality and multivariate outliers were examined individually for each model tested. With regards to normality, of particular concern is kurtosis since this affects tests of variance and covariance and structural equation modelling is based on analysis of covariance structures. Univariate and multivariate kurtosis were determined by individual kurtosis values greater than seven and the multivariate kurtosis value (i.e., the critical ratio) greater than five (Byrne, 2010). Multivariate outliers were determined individually for each model tested by squared Mahalanobis distances  $D^2$  that subjectively differed from the rest (Byrne, 2010).

***Main analysis for research question #2.*** The first model tested used a confirmatory approach to structural equation modelling to determine if the data fit Pals' (2006) model (see Figure 5). It was predicted that greater exploratory narrative processing would lead to higher ego level and greater coherent positive resolutions to sibling conflicts would lead to greater life satisfaction. The data appeared normal and no multivariate outliers were identified.

Examination of the variance/covariance matrix with Maximum Likelihood (ML) estimation demonstrated that the data of the current study fit Pals' (2006) model,  $\chi^2(3) = 4.59, p = .20$  (see Table 10 for the covariance matrix). Several fit indices were examined, including the root-mean-square error of approximation (RMSEA) = .05, 90% CI [.00, .14], comparative fit index (CFI) = .97, and Bollen's delta 2 (IFI) = .97. Using a cutoff of .97 for incremental fit indices, as suggested by Schermelleh-Engel, Moosbrugger, and

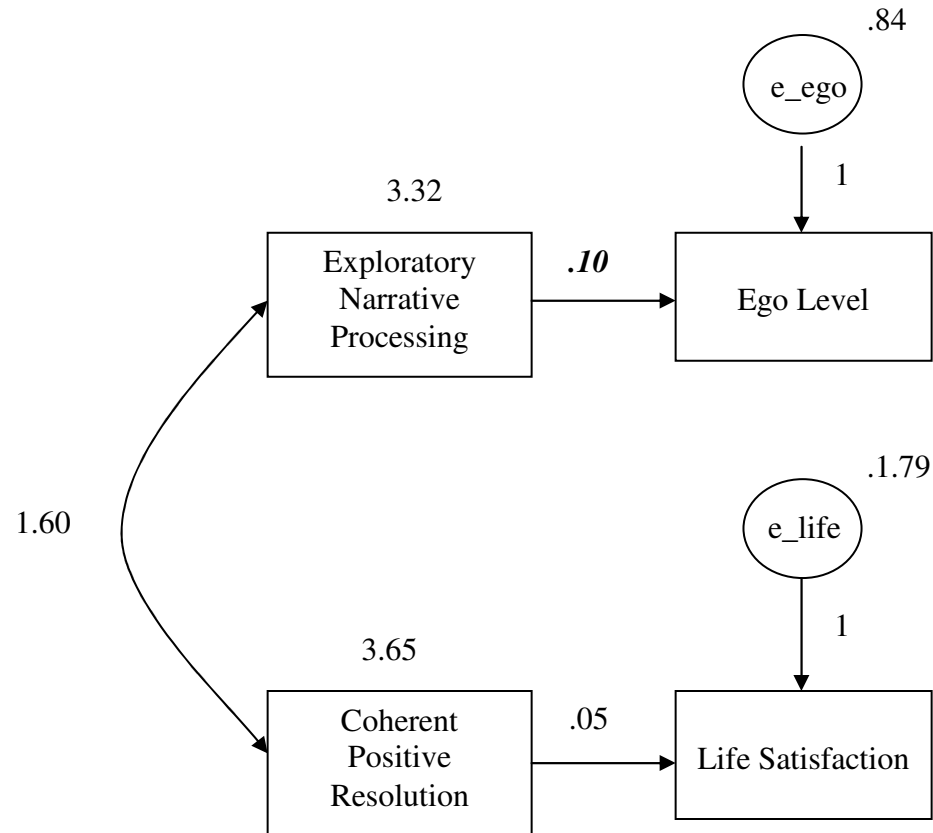


Figure 5. Model 1: Pals' (2006) proposed model.

Note. Standard estimates of significant pathways ( $p < .05$ ) are in bold and italicized.

Table 10

*Covariance Matrix of Pals' (2006) Model*

Variable	1	2	3	4
1. Exploratory Narrative Processing	3.32			
2. Ego Development	.35	.87		
3. Coherent Positive Resolution	1.60	.17	3.65	
4. Satisfaction with Life	.08	.01	.17	1.80

Müller (2003; or Hu and Bentler, 1999, for a cutoff of .95) and a cutoff of .05 for RMSEA as suggested by Browne and Cudeck (1993; as cited in Kline, 2011), these results indicate an overall good fit of the model. Further examination of the unstandardized regression coefficients indicated a significant path between exploratory narrative processing and ego level, but not between coherent positive resolution and life satisfaction (see Table 11). Exploratory narrative processing accounted for 4% of the explained variance in ego development.

An alternative model was tested examining the reverse effects. That is, the possible contribution of ego development and life satisfaction to exploratory narrative processing and coherent positive resolution, respectively. This model did not fit the data,  $\chi^2(3) = 54.06, p < .001$ .

### **Research Question #3: What factors contribute to exploratory narrative processing and coherent positive resolutions?**

The third research question was also tested using AMOS software and Maximum Likelihood estimations on target participants ( $n = 208$ ). Assumptions tested for the previous research question are also relevant here. Two cases were removed because they were multivariate outliers, resulting in a sample size of 206. The data met criteria for normality.

*Expanded model toward ego development.* Several research models examining pathways towards ego development and well-being have indicated that these pathways are separate and uncorrelated (e.g., Pals, 2006). As such, the two pathways were then tested separately. Given the theoretical rationale presented in this paper, a model was tested examining the association between emotion complexity and exploratory narrative processing. Measures of emotion complexity were obtained from self-report and from

Table 11

*Effect Estimates for Models*

Effect	Estimate	SE	<i>p</i>	Standard Estimate	<i>R</i> <sup>2</sup>
<b>Model 1: Pals' (2006) Proposed Model</b>					
Pathway Toward Ego Level:					.04
ENP	.10	.04	.003	.20	
Pathway Toward Life Satisfaction:					.00
CPR	.05	.05	.33	.07	
<b>Model 2: Expanded Model Toward Ego Level: Hypothesized Model</b>					
Pathways Toward ENP:					.01
Emotion complexity (SR)	.03	.02	.24	.08	
Emotion complexity (Nar)	.00	.01	.70	-.03	
Pathway Toward Ego Level:					.05
ENP	.11	.04	.001	.22	
<b>Model 2: Expanded Model Toward Ego Level: Alternative Model</b>					
Pathway Toward Emotion Complexity (SR)					.01
ENP	.24	.20	.23	.08	
Pathway Toward Emotion Complexity (Nar)					.00
ENP	-.34	.81	.67	-.03	
Pathway Toward ENP Ego Level					.05
Ego Level	.43	.13	.001	.22	
<b>Model 3: Expanded Model Toward Life Satisfaction</b>					
Pathways Toward CPR:					.08
Interdependent	.41	.20	.04	.15	
Independent	.13	.19	.49	.05	
Mastery	-.03	.19	.87	-.01	
Sibling Conflict	-.04	.18	.84	-.01	
Sibling Warmth	.39	.14	.007	.19	
Pathway Toward Life Satisfaction:					.24
Interdependent	.31	.13	.01	.16	
Independent	.29	.12	.01	.16	
Mastery	.72	.12	<.001	.40	
Sibling Conflict	.09	.12	.43	.05	
Sibling Warmth	.18	.09	.05	.13	

*Note:* ENP = exploratory narrative processing; CPR = coherent positive resolution; Mastery = feelings of mastery; Independent = independent self-construal; Interdependent = interdependent self-construal; SR = self-report; Nar = coded from the narrative.



coded narratives. Self-reported emotion complexity was defined as the total number of reported emotions experienced by the self plus the total number of reported emotions experienced by the sibling in the conflict situation described. Emotion complexity coded from the narrative was defined as the total number of distinct emotions experienced by the self, sibling, and others divided by the narrative word count and then multiplied by 1000. Although it was anticipated that a latent emotion complexity variable would be used in the structural model comprising of these measures, the measures of emotion complexity did not significantly correlate ( $r = .02$ ), suggesting that the self-reported and coded measures of emotion complexity were not good indicators of a single latent construct.

A scatterplot examining the relation between these variables indicated that the distribution of scores in self-reported emotion complexity differed from the distribution of emotion complexity scores obtained from the coded narrative, thereby failing to meet the assumption of homoscedasticity. Therefore, separate direct pathways were tested toward exploratory narrative processing from self-reported emotion complexity and from coded emotion complexity.

The first model tested presented in Figure 6, fit the data of the current study,  $\chi^2(2) = 1.47, p = .48, RMSEA = .00, 90\% CI [.00, .13], CFI = 1.00, IFI = 1.05$  (see Table 12 for the covariance matrix). Further examination of the unstandardized regression coefficients indicated a significant path from exploratory narrative processing to ego level, but not from the emotion complexity measures to exploratory narrative processing (see Table 11 for estimates).

An alternative model was tested examining the reverse effects (see Figure 7). The data fit this model,  $\chi^2(3) = 1.74, p = .63, RMSEA = .00, 90\% CI [.00, .10], CFI = 1.00,$

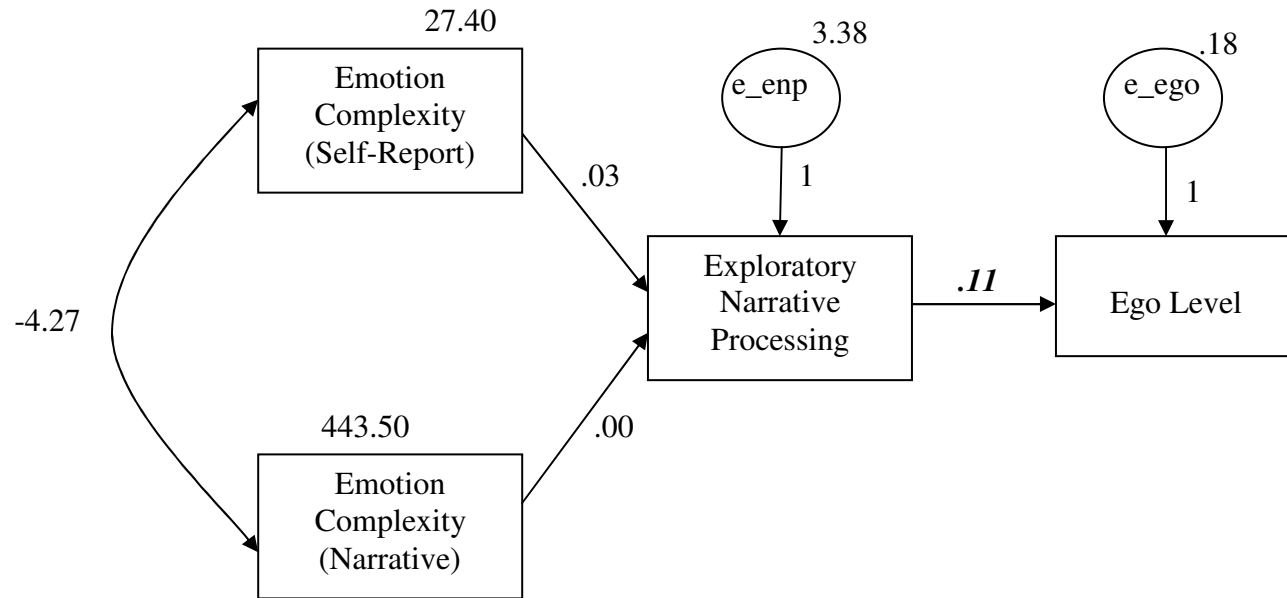


Figure 6. Model 2: Expanded pathway toward ego development: Hypothesized model.  
 Note. Standard estimates of significant pathways ( $p < .05$ ) are in bold and italicized.

Table 12

*Covariance Matrix of the Expanded Model toward Ego Development*

Variable	1	2	3	4
1. Emotion complexity (Nar)	443.50			
2. Emotion complexity (SR)	-4.27	27.40		
3. Exploratory Narrative Processing	-1.14	.79	3.31	
4. Ego Level	.33	.47	.37	.86

*Note:* SR = self-report; Nar = coded from the narrative.

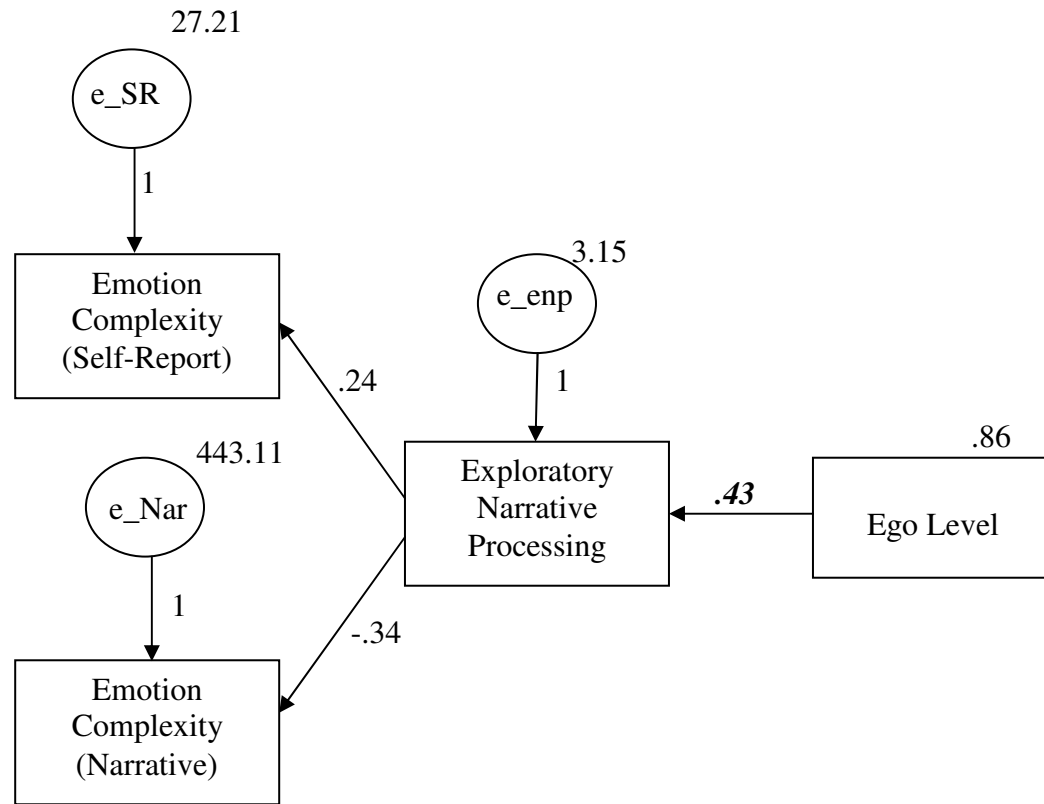


Figure 7. Model 2: Expanded pathway toward ego development: Alternate model.  
 Note. Standard estimates of significant pathways ( $p < .05$ ) are in bold and italicized.

IFI = 1.12. Specifically, the path from ego level to exploratory narrative processing was significant, but the paths from exploratory narrative processing to the emotion complexity measures were not (see Table 11 on page 104 for estimates).

***Expanded model toward life satisfaction.*** The previous structural equation model testing Pals' (2006) model within the context of the current data revealed that achieving a coherent and positive resolution to sibling conflict did not relate to having greater life satisfaction. This pathway was therefore removed and both the coherent positive resolution and life satisfaction constructs were used as outcome variables as depicted in Figure 8. These changes provided a significantly different model than the model originally proposed and therefore an exploratory rather than a confirmatory approach to structural equation analysis was used.

It was originally theorized that sibling relationship qualities as well as feeling in control of personal outcomes would indicate a more advanced identity. As such, sibling warmth, sibling conflict, and feelings of mastery were tested as indicators of an identity latent variable. Cronbach's alpha for this latent variable was .40, suggesting that these variables are not good indicators of a single latent construct. Therefore, instead of assessing the relation between the identity latent variable and coherent positive resolution, direct pathways from the three indicator variables were tested. Also, because gender did not relate to either coherent positive resolution or life satisfaction, as shown in Table 6 on page 82, it was not included in analyses. The data met criteria for normality and did not have any multivariate outliers. The sample of 208 participants with no outliers removed was used for these analyses. The model fit the current data,  $\chi^2(1) = .00, p = .96$ , RMSEA = .00, 90% CI [.00, .00], CFI 1.00, IFI = 1.01 (see Table 13 for the covariance matrix). Further examination of the unstandardized regression coefficients indicated that sibling

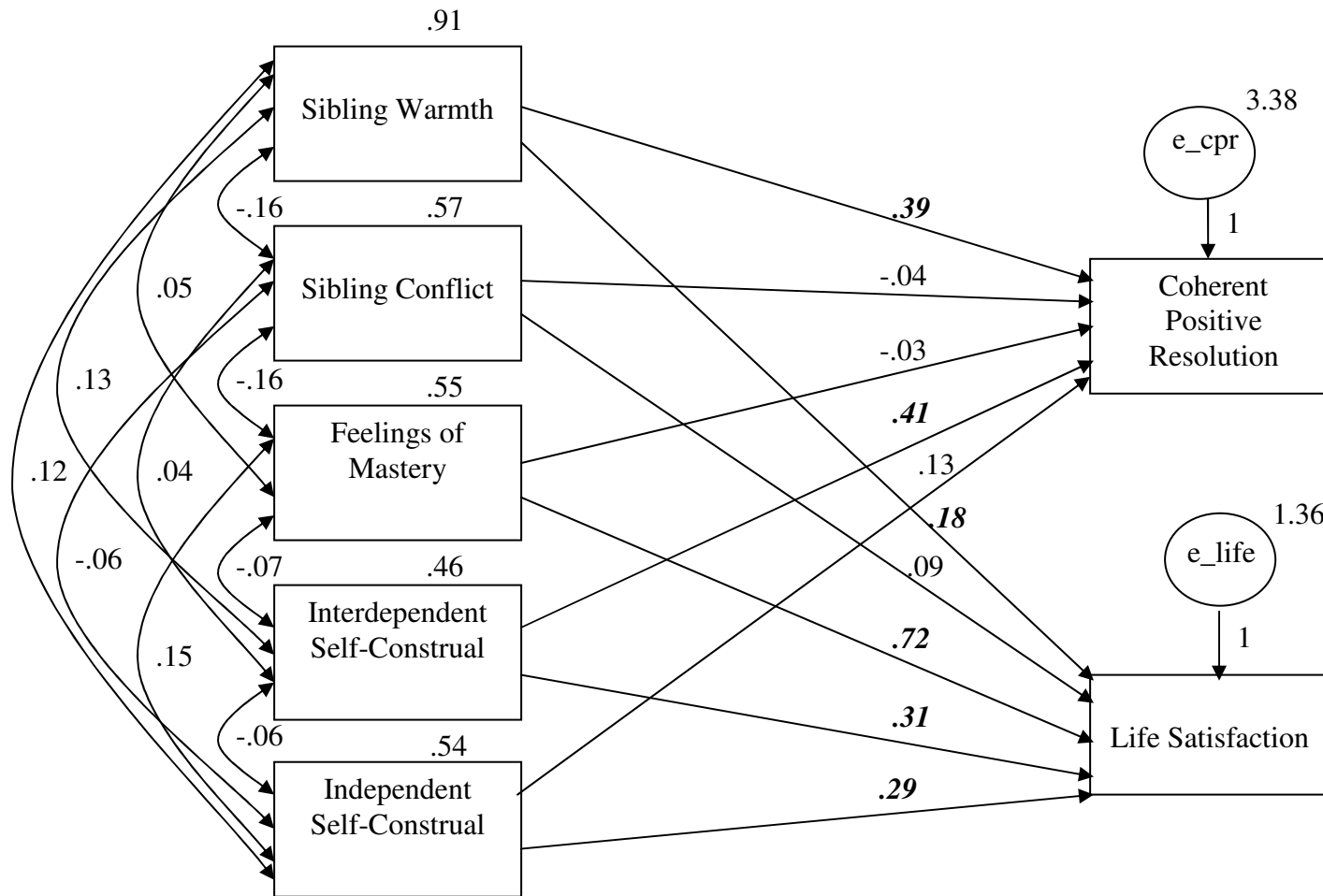


Figure 8. Model #3: Expanded model toward life satisfaction: Exploratory model.

Note. Standard estimates of significant pathways ( $p < .05$ ) are in bold and italicized.

Table 13

*Covariance Matrix of the Exploratory Model toward Life Satisfaction and Coherent Positive Resolution*

Variable	1	2	3	4	5	6	7
1. Interdependent	.46						
2. Independent	-.06	.54					
3. Mastery	-.07	.15	.55				
4. Sibling Conflict	.05	-.06	-.16	.57			
5. Sibling Warmth	.13	.12	.05	-.16	.91		
6. Life Satisfaction	.10	.26	.41	-.09	.26	1.80	
7. Coherent Positive Resolution	.23	.09	.00	-.07	.42	.17	3.65

*Note.* Interdependent = interdependent self-construal; Independent = independent self-construal.

warmth and having an interdependent self-construal significantly and positively related to achieving a coherent and positive resolution to a sibling conflict. In addition, several measures significantly and positively related to having greater satisfaction in life. These include: greater feelings of mastery, greater sibling warmth, and having a higher independent and/or interdependent self-construal score. Please see Table 11 on page 104 for the regression coefficients. This final model explains 24% of the variance in life satisfaction and 7.5% of the variance in coherent positive resolution.

**Summary of the expanded model.** Emotion complexity, as measured in the current study, does not relate to exploratory narrative processing. But, siblings who engaged in more exploration and processing of their sibling conflict typically had higher levels of ego development. Siblings who were able to write sibling conflict narratives with coherent and positive endings identified greater warmth in their overall sibling relationship and reported a higher level of interdependent self-construal. However, arriving at a coherent and positive resolution to a sibling conflict did not relate to achieving greater life satisfaction. Instead, having greater feelings of mastery, sibling warmth, and having higher scores on measures of independent and interdependent self-construals related to having greater life satisfaction.

**Research question #4: Do older and younger siblings process identity integrations similarly?**

The fourth research question examined the relation between the older and younger siblings' cognitive, emotional, and behavioural development. It was hypothesized that older siblings' characteristics would predict younger siblings' characteristics, and that this relation would be moderated by the younger siblings' perception of sibling warmth.



Hierarchical regression analyses were conducted to assess whether older siblings' emotion complexity, exploratory narrative processing, coherent positive resolution, ego development, and life satisfaction would predict that of their younger siblings. The sample included 55 matched sibling pairs. None of the assumptions related to regression analyses were violated and no transformations were necessary, although to limit multicollinearity that occurs in moderation models, the centred values of the variables were used. Centering is a process of transforming a variable into deviations around a fixed point (Field, 2009). Table 14 contains the correlation matrix between younger sibling variables and older sibling variables as well as the means and standard deviations for the measures used in the regression analyses.

For all regression analyses, two variables were entered in the first level: (1) The centred value of the younger siblings' perception of sibling warmth, and (2) the centred value of the older siblings' measure of either emotion complexity, exploratory narrative processing, coherent positive resolution, ego level, or life satisfaction. In the second level, the moderator variable was entered, which was calculated by multiplying the centred value of the younger siblings' perception of sibling warmth with the centred value of the older siblings' characteristics (i.e., either emotion complexity, coping complexity, exploratory narrative processing, coherent positive resolution, ego level, or life satisfaction; Tabachnick & Fidell, 2007). The outcome variable was the younger siblings' measure of emotion complexity, exploratory narrative processing, coherent positive resolution, ego level, or life satisfaction, determined by the variable entered for the older siblings. For example, to determine if older siblings' ego level related to the younger siblings' ego level and to determine if younger siblings' perception of sibling warmth moderated this relation, the centred value of the younger siblings' perception of sibling

Table 14

*Means, Standard Deviations, and Pearson Correlations between Younger (YS) and Older Sibling (OS) Variables*

Variable	YS_ENP	YS_CPR	YS_EmoSR	YS_EmoNar	YS_Ego	YS_LifeSatis	<i>M</i>	<i>SD</i>
YS_Warmth	-.12	.06	.02	.19	.41**	.38**	3.33	1.00
OS_ENP	.29*	-.19	.08	.00	.05	.01	-.07	1.91
OS_CPR	.07	.06	.20	-.23	.12	-.06	.22	1.93
OS_EmoSR	-.17	-.09	.38**	-.26	.26	-.18	11.35	4.34
OS_EmoNar	.02	-.03	.19	.05	-.06	-.12	18.26	18.32
OS_Ego	.09	.14	.24	-.17	.28*	.21	4.94	.99
OS_LifeSatis	-.02	.19	.20	.25	.08	.37**	4.59	1.41
<i>M</i>	.31	.44	12.52	2.55	5.09	4.54	-	-
<i>SD</i>	1.91	1.92	4.83	67.64	1.09	1.39	-	-

Note. Predictor variables are indicated in the left column (i.e., younger sibling's perceptions of warmth and older sibling variables) and criterion variables are indicated in the top row (i.e., younger sibling variables). YS = younger sibling; OS = older sibling; Warmth = perception of sibling warmth; ENP = exploratory narrative processing; CPR = coherent positive resolution; EmoSR = Self-reported emotion complexity; EmoNar = emotion complexity coded from the narrative; Ego = ego level; LifeSatis = life satisfaction.

\*  $p < .05$ . \*\*  $p < .01$ .

warmth and the centred value of the older siblings' ego level were entered in the first level, and the moderator variable was entered in the second level (i.e., centred value sibling warmth X centred value of the older siblings' ego level). The younger siblings' ego level was then entered as the outcome variable. The regressions are depicted in Table 15.

***Predicting younger sibling's exploratory narrative processing.*** This regression model was not significant,  $F(3, 50) = 1.95, p = .13$ , accounting for 10.5% of the variance in the younger siblings' degree of exploratory narrative processing. Although the first step was not significant,  $R^2 = .10, F(2, 51) = 2.66, p = .08$ , examination of the regression coefficients revealed that the older siblings' degree of exploratory narrative processing significantly related to the younger siblings' degree of exploratory narrative processing,  $t(51) = 2.14, p = .04$ , but sibling warmth did not predict the younger siblings' degree of exploratory narrative processing,  $t(51) = -.68, p = .50$ . Sibling warmth as a moderator did not add predictive value to the regression model,  $\Delta R^2 = .01, F(1,50) = .56, t(50) = .75, p = .46$ .

***Predicting younger sibling's degree of coherent positive resolution.*** Examination of zero order correlations in Table 14 indicated that siblings did not relate on measures of coherent positive resolution,  $r(44) = .06, p = .68$ .

***Predicting younger sibling's emotion complexity.*** Based on the pattern of intercorrelations presented in Table 6 on page 82, it appears that self-reported and coded measures of emotion complexity relate to different study variables. That is, self-reported emotion complexity positively correlated with sibling warmth, whereas the coded measures of emotion complexity did not correlate with other constructs. Also, younger and older siblings' levels of self-reported emotion complexity were positively related,

Table 15

*Hierarchical Multiple Regression Analyses Predicting Younger Sibling Variables*

Variable	B	SE B	$\beta$	R <sup>2</sup>	$\Delta R^2$
Criterion: Younger Sibling's Degree of Exploratory Narrative Processing (YS_ENP)					
Step 1				.10	
Sibling Warmth (YS_Warmth)	-.18	.26	-.09		
Older Sibling's ENP (OS_ENP)	.29*	.14	.29*		
Step 2				.11	.01
Sibling Warmth (YS_Warmth)	-.15	.26	-.08		
Older Sibling's ENP (OS_ENP)	.27	.14	.27		
Moderator: YS_Warmth X OS_ENP	.12	.16	.10		
Criterion: Younger Sibling Self-Reported Emotion Complexity (YS_Emo)					
Step 1				.18*	
Sibling Warmth (YS_Warmth)	.78	.58	.18		
Older Sibling Self-Reported Emotion Complexity (OS_Emo)	.33	.13	.36*		
Step 2				.19	.01
Sibling Warmth (YS_Warmth)	.81	.59	.19		
Older Sibling Self-Reported Emotion Complexity (OS_Emo)	.37	.14	.40*		
Moderator: YS_Warmth X OS_Emo	-.08	.14	-.09		
Criterion: Younger Sibling Ego Level (YS_Ego)					
Step 1				.24**	
Sibling Warmth (YS_Warmth)	.44**	.13	.40**		
Older Sibling Ego Level (OS_Ego)	.31*	.14	.28*		
Step 2				.22**	.02
YS_Sibling Warmth (YS_Warmth)	.45**	.13	.41**		
Older Sibling Ego Level (OS_Ego)	.29*	.14	.26*		
Moderator: YS_Warmth X OS_Ego	.14	.12	.16		
Criterion: Younger Sibling Degree of Life Satisfaction (YS_LifeSatis)					
Step 1				.21**	
Sibling Warmth (YS_Warmth)	.40	.19	.28*		
Older Sibling Life Satisfaction (OS_LifeSatis)	.26	.13	.27*		
Step 2				.21**	.09*
Sibling Warmth (YS_Warmth)	.48	.18	.34**		
Older Sibling Life Satisfaction (OS_LifeSatis)	.30	.13	.30**		
Moderator: YS_Warmth X OS_LifeSatis	.29	.11	.31**		

\*  $p < .05$ . \*\*  $p < .01$ .

but younger and older siblings' levels of emotion complexity coded from the narrative did not relate. Based on these correlations, older and younger siblings do not relate on emotion complexity coded from the narrative. Further investigation of the self-reported emotion complexity was conducted using regression analysis.

This regression model was significant,  $F(3, 44) = 3.36$ ,  $p = .03$ , accounting for 18.6% of the variance in the younger siblings' self-reported emotion complexity. The first step was significant,  $F(2, 45) = 4.92$ ,  $p = .01$ . The older siblings' self-reported emotion complexity significantly predicted the younger siblings' level of self-reported emotion complexity,  $t(45) = 2.62$ ,  $p = .01$ , but the younger siblings' perception of sibling warmth did not,  $t(45) = 1.35$ ,  $p = .19$ . The second level did not significantly add to the predictive power of the regression model,  $\Delta R^2 = .01$ ,  $F(1,44) = .37$ ,  $p = .55$  and warmth was not a significant moderator of the relation between older and younger siblings' emotion complexity,  $t(44) = -.61$ ,  $p = .55$ .

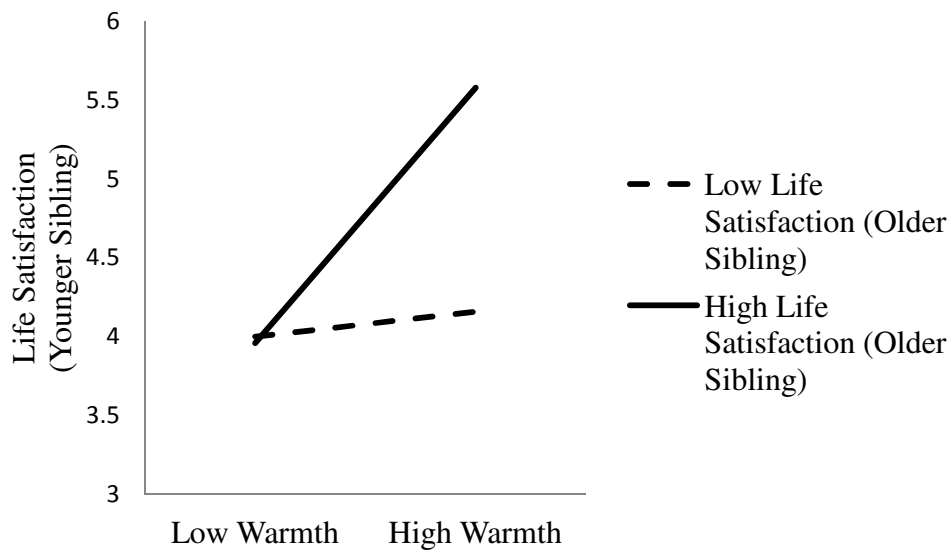
***Predicting younger sibling's ego level.*** This regression model was significant,  $F(3, 48) = 5.78$ ,  $p = .002$ , accounting for 26.5% of the variance in the younger siblings' ego levels. In the first level, the younger siblings' perception of sibling warmth,  $t(48) = 3.25$ ,  $p = .002$  and the older siblings' ego level,  $t(48) = 2.26$ ,  $p = .03$  significantly predicted the younger siblings' ego levels,  $R^2 = .24$ ,  $F(2, 49) = 7.78$ ,  $p = .001$ . The second level did not significantly add to the predictive power of the regression model,  $\Delta R^2 = .02$ ,  $F(1,48) = 1.58$ ,  $p = .21$ , and warmth was not a significant moderator of the relation between older and younger siblings' ego levels,  $t(47) = 1.26$ ,  $p = .21$ . The younger siblings' perception of sibling warmth,  $t(47) = 3.34$ ,  $p = .002$ , and the older siblings' ego level,  $t(47) = 2.11$ ,  $p = .04$ , continued to be associated with the younger siblings' ego levels.

***Predicting younger sibling's life satisfaction.*** This regression model was significant,  $F(3, 50) = 6.96, p = .001$ , accounting for 29.4% of the variance in the younger siblings' satisfaction with life. Sibling warmth,  $t(51) = 2.13, p = .04$ , and the older siblings' level of life satisfaction,  $t(51) = 2.02, p = .049$ , significantly predicted the younger siblings' level of life satisfaction in the first level,  $R^2 = .21, F(2, 51) = 6.58, p = .003$ . Sibling warmth, as a moderator, significantly added to the predictive value of the regression model,  $\Delta R^2 = .09, F(1,50) = 6.33, t(50) = 2.52, p = .02$ . Specifically, the older siblings' levels of life satisfaction significantly related to the younger siblings' levels of life satisfaction. However, as depicted in Figure 9, if the younger sibling perceived lower levels of sibling warmth, they experienced lower levels of life satisfaction, even if the older sibling experienced high levels of life satisfaction.

**Research Question #5: Does the gender of the participant and gender of the participants' older sibling relate to the processes involved in narrative identity development?**

The fifth research question examined gender differences in narrative identity development, specifically related to sibling gender constellations. To examine this research question data from the target participants were used ( $n = 238$ ). The target participants' gender and their identified siblings' gender were considered. Their identified sibling was the sibling closest in age who met the age criteria (i.e., within 5 years of their age and between the ages of 15 and 30). Whether the target participant was older or younger (i.e., sibling order) was also considered.

It was hypothesized that among the target participants, women, compared to men, would type longer narratives (i.e., narrative word count), engage in more exploratory narrative processing, have greater emotion complexity, and have higher ego levels.



*Figure 9.* Life satisfaction of younger sibling given the life satisfaction of the older sibling and perceived sibling warmth.

It was also hypothesized that target participants who identified an older female sibling compared to target participants who identified an older male sibling would have longer narratives (i.e., narrative word count), engage in more exploratory narrative processing, have greater emotion complexity, and have higher ego levels.

Four three-way ANOVAs were conducted to examine these gender differences. Target participants' gender (male or female), the gender of their identified sibling (male or female), and sibling order (younger or older) were entered as independent variables, and narrative word count, exploratory narrative processing, self-reported emotion complexity, and ego level were entered as the dependent variables for the four separate 2 (target participants' gender) X 2 (gender of target participants' sibling) X 2 (target participant identified as either the older or younger sibling) ANOVAs.

*Assumptions and preliminary analyses.* Target participants who could not be identified as either the older or younger sibling were excluded (7 same age or twins and 3 participants who did not provide enough data to identify them as either the older or younger sibling). This resulted in a sample size of 228. Outliers were examined and assumptions related to ANOVA were tested. One participant wrote a much longer narrative compared to other participants and was therefore removed from the analysis that considered narrative word count. This participant was included in other analyses. The number of cases in each cell of the three by three interactions was greater than 20, which provides sufficient power (Tabachnick & Fidell, 2007).

Based on visual examination of histograms, the data for the narrative word count and exploratory narrative processing were positively skewed. A square root transformation of the narrative word count resulted in a normal distribution and therefore this variable was used in analyses (i.e., SQRTwordcount). No transformations corrected



the positively skewed data for the exploratory narrative processing variable; however, ANOVA analyses are robust against this assumption and therefore analyses continued as planned.

**Main analyses for research question #5.** The first three-way ANOVA examined gender differences in narrative word count. The main effects were not significant for the target participants' gender,  $F(1, 217) = 2.33, p = .13$ ), the gender of the target participants' sibling,  $F(1, 217) = .18, p = .67$ , or sibling order,  $F(1, 217) = 1.89, p = .17$ . The 2-way interactions between the target participants' gender and the gender of the target participants' sibling,  $F(1, 217) = 1.28, p = .26$ , the target participants' gender and the sibling order,  $F(1, 217) = .025, p = .87$ , and the sibling order and the gender of the target participants' sibling,  $F(1, 217) = .21, p = .65$ , were non-significant; and the 3-way interaction between the target participants' gender, the gender of the target participants' sibling, and the sibling order was non-significant,  $F(1, 217) = .07, p = .79$ .

The second three-way ANOVA examined gender differences in exploratory narrative processing. Neither the main effect for the target participants' gender,  $F(1, 218) = .08, p = .77$ ), the main effect for the gender of the target participants' sibling,  $F(1, 218) = .18, p = .67$ , nor sibling order,  $F(1, 218) = 2.51, p = .11$ , were significant. The 2-way interactions between the target participants' gender and the gender of the target participants' sibling,  $F(1, 218) = .25, p = .62$ , the target participants' gender and the sibling order,  $F(1, 218) = .04, p = .84$ , and the sibling order and the gender of the target participants' sibling,  $F(1, 218) = .23, p = .63$ , were non-significant; and the 3-way interaction between the target participants' gender, the gender of the target participants' sibling, and the sibling order was non-significant,  $F(1, 218) = .03, p = .85$ .

The third three-way ANOVA examined gender differences in emotion complexity coded from the narrative. Neither the main effect for the target participants' gender,  $F(1, 212) = .21, p = .65$ , the main effect for the gender of the target participants' sibling,  $F(1, 212) = 1.14, p = .29$ , nor sibling order,  $F(1, 212) = .342, p = .56$ , were significant. The 2-way interactions between the target participants' gender and the gender of the target participants' sibling,  $F(1, 212) = .05, p = .82$ , the target participants' gender and the sibling order,  $F(1, 212) = .11, p = .74$ , and the sibling order and the gender of the target participants' sibling,  $F(1, 212) = .32, p = .57$ , were non-significant; and the 3-way interaction between the target participants' gender, the gender of the target participants' sibling, and the sibling order was non-significant,  $F(1, 212) = .04, p = .83$ .

The fourth three-way ANOVA examined gender differences in ego development. Neither the main effect for the target participant's gender,  $F(1, 210) = .49, p = .49$ , nor the main effect for sibling order,  $F(1, 210) = 3.71, p = .06$ , were significant, however, the main effect for the sibling's gender was significant,  $F(1, 210) = 4.73, p = .03, \eta^2 = .02$ , such that if target participants identified a sister as their sibling, they had higher ego levels ( $M = 5.17, SD = .93$ ) than if they identified a brother as the sibling closest in age meeting the age criteria ( $M = 4.89, SD = .91$ ). Also, the interaction between the target participants' gender and the identified siblings' gender was significant,  $F(1, 210) = 4.55, p = .03$ , however, the effect size was small,  $\eta^2 = .02$ . Ego levels of female target participants did not differ if they identified a male ( $M = 5.06, SD = .93$ ) or female ( $M = 5.06, SD = .90$ ) sibling, but the ego levels of male target participants were higher if they identified a female sibling ( $M = 5.27, SD = .97$ ) compared to a male sibling ( $M = 4.73, SD = .87$ ). This interaction is depicted in Figure 10. The interactions between sibling order and the target participant's gender,  $F(1, 210) = .25, p = .62$ , and the sibling gender,

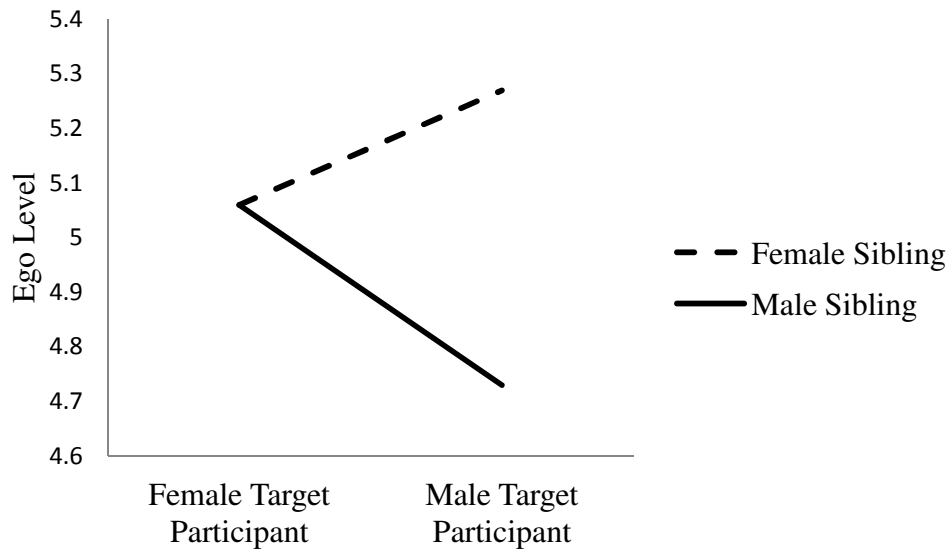


Figure 10. Ego level of target participants given participant gender and sibling gender: Two-way interaction.

$F(1, 210) = .29, p = .59$ , were non-significant. These results suggest that having a sister close in age, whether older or younger, is related to relatively higher ego development in males.

### **Final Model**

The final model supported by the data in this study is presented in Figure 11 and a summary of the results is presented in Table 16. First, the cause of sibling conflicts were identified and grouped into categories of sources of conflict based on Loevinger's ego development theory (Hy & Loevinger, 1996). Second, several individual and sibling factors relate to the pathway toward ego development. Engaging in more exploratory narrative processing related to greater ego development. This pathway is further informed by the older sibling. That is, older siblings' exploratory narrative processing and ego levels were positively related to that of their younger siblings' exploratory narrative processing and ego levels, and the quality of the sibling relationship (i.e., sibling warmth) also related to the younger siblings' ego levels. In addition, among male participants, those who identified a sister as their sibling closest in age meeting the age criteria had higher ego levels than those who identified a brother.

Second, the current study helps to clarify individual and sibling factors that relate to arriving at coherent and positive resolutions to sibling conflicts and overall life satisfaction. Having a warm sibling relationship and an interdependent self-construal was associated with arriving at more coherent and positive resolutions to sibling conflicts.

Contrary to expectations, coherent positive resolution did not lead to greater life satisfaction. Instead, sibling warmth, feelings of mastery, and having either a high level of independent or interdependent self-construal related to greater life satisfaction. In addition, the older siblings' levels of life satisfaction was associated with the younger

siblings' levels of life satisfaction, but if the younger sibling perceived lower levels of sibling warmth, they experienced lower levels of life satisfaction, even if the older sibling experienced high levels of life satisfaction.

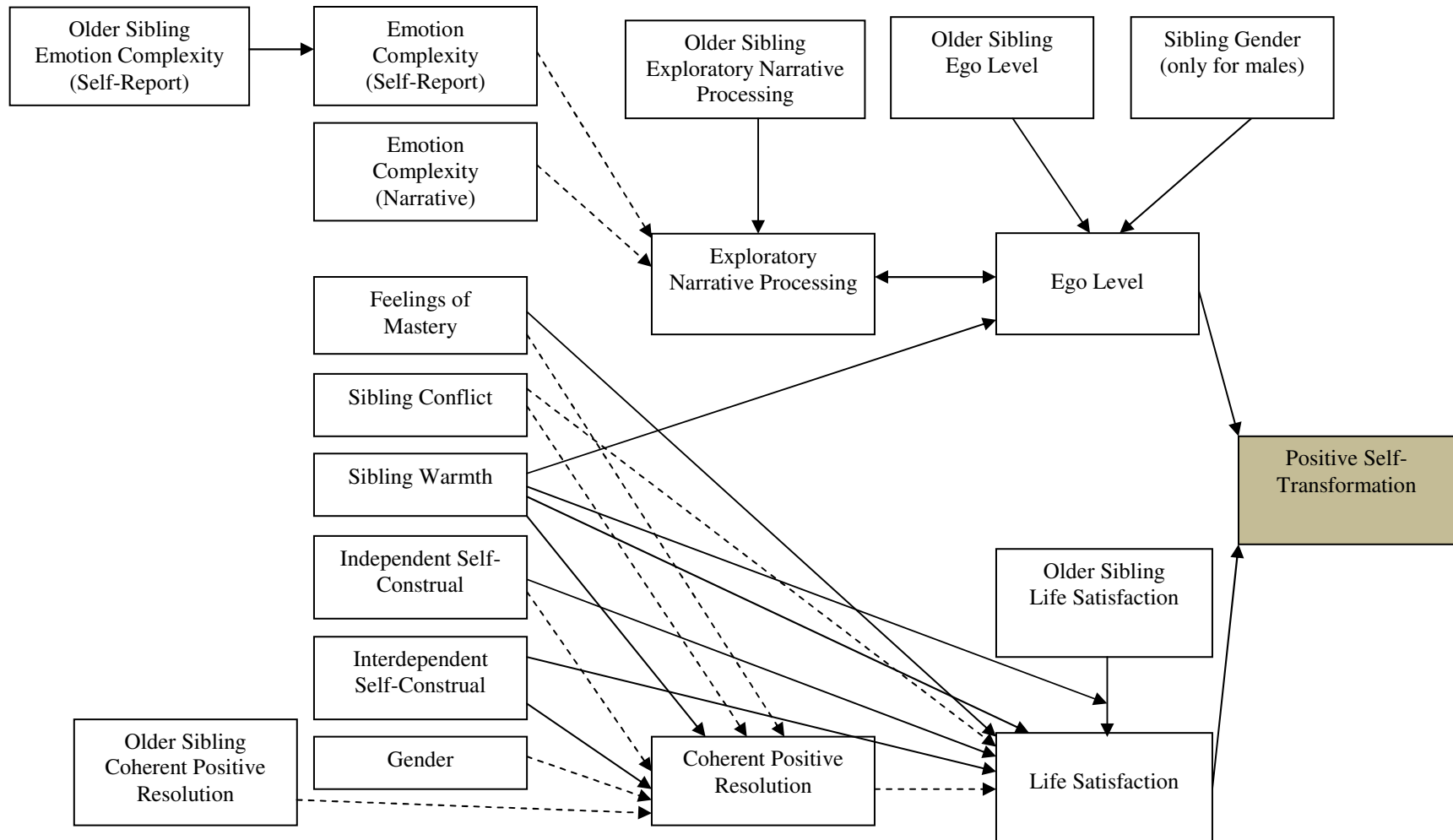


Figure 11. Final study model.

Note. Solid arrows depict significant pathways and dashed arrows depict non-significant pathways. The pathways toward positive self-transformation were not tested.

Table 16

*Summary of Results*

	Research questions and hypotheses	Findings
#1	<b>What are the typical causes of sibling conflicts for late adolescents and emerging adults?</b>	<p><i>Causes of sibling conflict:</i> personal insults, privacy, annoying behaviour, personal choices, treatment of parent(s)/regarding the parent relationship, personal and shared possessions/spaces, quality of the sibling relationship, dislike of romantic partner, competition, taking sides in a family argument, advice (particularly around academic/career choices), obligations to one another, family or household obligations/responsibilities, negative/delinquent behaviour, and philosophical topics.</p> <p><i>Sources of conflict:</i> Impulsive, Self-Protective, Conformist, Self-Aware, Conscientious, Individualistic</p>
#2	<b>Do these data fit Pals' (2006) model of narrative identity development?</b>	
i.	<p>The model fits Pals' (2006) model:</p> <p>More exploratory narrative processing relates to higher ego level.</p>	<p>Significant model</p> <p>Significant pathway</p>
ii.	<p>Arriving at a coherent positive resolution to sibling conflict relates to higher life satisfaction.</p>	<p>Non-significant pathway</p>

(continued)

#3	What factors contribute to exploratory narrative processing and coherent positive resolutions?	
a	The data fit the pathway towards ego development presented in Figure 4: Greater emotion complexity relates to greater exploratory narrative processing which in turn relates to higher ego level.	Significant model: Emotion complexity did not relate to exploratory narrative processing, but exploratory narrative processing related to ego level. The reversed pathway was also significant, such that ego level related to exploratory narrative processing.
b	The data demonstrate a better fit for the mediated pathway model towards ego development compared to the direct pathway model toward ego development.	Not tested given previous results.
c	The data fit the pathway towards life satisfaction presented in Figure 4: Identity, as measured by high levels of sibling warmth and feelings of mastery and low levels of sibling conflict, relates to greater coherent positive resolutions, which in turn relates to greater life satisfaction.	Model not tested because coherent positive resolution did not relate to life satisfaction. Instead, coherent positive resolution and life satisfaction were used as separate outcome variables. This model was significant: <ul style="list-style-type: none"> <li>• Sibling warmth and a high interdependent self-construal significantly related to coherent positive resolution. Sibling warmth, feelings of mastery, and a high independent or interdependent self-construal significantly related to life satisfaction.</li> <li>• Sibling conflict did not relate to coherent positive resolution or life satisfaction.</li> </ul>
d	The data demonstrate a better fit for the mediated pathway model towards life satisfaction compared to the direct pathway model towards life satisfaction.	Not tested because coherent positive resolution did not relate to life satisfaction.

(continued)



	Research questions and hypotheses	Findings
e	The data fit the pathway towards life satisfaction presented in Figure 4: Women and individuals with highly positive interdependent self-construals narrate greater coherent positive resolutions, which in turn relates to greater life satisfaction.	Model not tested because coherent positive resolution did not relate to life satisfaction. See findings for Hypothesis 3c.  Gender was not included in tested model because it did not relate to either coherent positive resolution or life satisfaction.
<b>#4</b>	<b>Do older and younger siblings process identity integrations similarly?</b>	
a/b	Older sibling characteristics relate to younger sibling characteristics. Sibling warmth moderates the relation between younger and older sibling characteristics. Characteristics tested include level or degree of:	
i.	exploratory narrative processing	Non-significant, but older sibling exploratory narrative processing related to younger sibling exploratory narrative processing.
ii.	coherent positive resolution	Non-significant
iii.	emotion complexity	Significant, older siblings' self-reported emotion complexity related to younger siblings' emotion complexity. This was not moderated by sibling warmth.
iv.	ego level	Significant, sibling warmth and older siblings' ego levels related to younger siblings' ego levels. This was not moderated by sibling warmth.
v.	life satisfaction	Significant, sibling warmth and older siblings' life satisfaction related to younger siblings' life satisfaction. This was moderated by sibling warmth.

(continued)

	Research questions and hypotheses	Findings
<b>#5</b>	<b>Does the gender of the participant and gender of the participants' older sibling relate to the processes involved in narrative identity development?</b>	
a	Women, compared to men, would:	
i.	type longer narratives	Non-significant
ii.	engage in more exploratory narrative processing	Non-significant
iii.	have greater emotion complexity	Non-significant
iv.	have higher ego levels	Non-significant
b	Younger siblings of older sisters differ from younger siblings of older brothers in that they:	
i.	type longer narratives	Non-significant
ii.	engage in more exploratory narrative processing	Non-significant
iii.	have greater emotion complexity	Non-significant
iv.	have higher ego levels	Partially supported. Men had higher ego levels if their identified sibling in the study was a sister. It was not necessary, however, for this sister to be older.

## CHAPTER IV

### Discussion

The primary purpose of the present study was to examine how sibling conflicts are processed and integrated into one's life story or narrative identity. Qualitative and quantitative approaches to analyses were used to determine *what* types of conflicts are integrated into emerging adults' narrative identities and, using Pals' (2006) narrative identity model, to determine *how* emerging adults integrate their sibling conflicts into their narrative identities. Pals' (2006) model identifies two pathways towards narrative identity development. The first is the pathway linking the individual's willingness to explore and narrate a difficult life event to ego development. The second pathway links a narrator's ability to arrive at a coherent and positive resolution to a sibling conflict to greater life satisfaction.

First, to better understand the types of conflicts around which identity can be formed, a qualitative analysis on the causes of sibling conflict was performed. Results indicated that the causes of sibling conflicts were related to specific traits and tasks typically attributed to emerging adults (Arnett, 2004), suggesting that emerging adults are, in part, addressing their developmental crises through conflicts with their siblings. These causes of conflict were consistent with the classifications in Loevinger's theory (Hy & Loevinger, 1996).

Second, the current research study sought to determine if the data from the sibling conflict narratives fit Pals' (2006) model. Data from the current study examining sibling conflicts partially supported this model. That is, siblings who elaborated about their own and their sibling's thoughts, feelings, and behaviours in a sibling conflict as well as provided details about the conflict's meaning to the self had greater ego

development. However, siblings who arrived at coherent and positive resolutions to sibling conflicts did not have greater life satisfaction.

A third purpose was to expand Pals' (2006) model. Emotion complexity was examined in relation to the first pathway and was not found to relate to exploratory narrative processing or to ego level. The latent construct of identity (measured from sibling warmth, sibling conflict, and feelings of mastery) and the latent construct of relational self construal (measured from a high level of interdependent self-construal and a female gender) were thought to relate to the second pathway. Because a coherent positive resolution to sibling conflicts did not relate to life satisfaction, an exploration of the various identity and self-construal measures was conducted in relation to coherent positive resolution and life satisfaction. Results indicated that sibling warmth and a high level of interdependent self-construal related to coherent positive resolution, while sibling warmth, feelings of mastery, and a high level of independent and/or interdependent self-construal related to life satisfaction.

A fourth purpose was to examine the potential link between older sibling characteristics and younger sibling characteristics to determine if older siblings possibly modelled cognitions, behaviours, and emotions to their younger siblings. Results indicated that older siblings' level of exploratory narrative processing, self-reported emotion complexity, and ego development related to their younger siblings' level of exploratory narrative processing, self-reported emotion complexity, and ego development. Also, the older siblings' level of life satisfaction was found to be positively related to the younger siblings' level of life satisfaction. However, if the younger sibling perceived lower levels of sibling warmth, they experienced lower levels of life satisfaction, even if the older sibling experienced high levels of life satisfaction. Also, the

younger sibling's perception of sibling warmth and the older sibling's ego level positively related to the younger sibling's ego level. The older siblings' level of coherent positive resolution to their sibling conflict did not relate to their younger siblings' level of coherent positive resolution. In addition, the gender of the older sibling was found to be related to the younger sibling's ego level, but not to their narrative word count, level of exploratory narrative processing, or degree of self-reported emotion complexity. Specifically, male target participants who identified a sister who was closest in age and within the age criteria were shown to have higher ego levels than if they were to identify a brother.

The final model highlights that emerging adult siblings use opportunities of conflict to explore their narrative identities. These conflicts are integrated into one's life story by exploring and narrating its meaning. Siblings also related on various characteristics that seem to impact narrative identity development, suggesting that siblings possibly model this process to one another. This should be interpreted, however, within the context of the current study's cross-sectional design.

In the following, a review of the results for each research question will be presented integrated with the current literature on narrative identity development. Discussion will include a focus on the importance of siblings in lifespan development. This discussion will conclude with descriptions of the study's strengths and limitations, clinical applications of this study's findings, and proposals for future research.

### **Causes of Sibling Conflict**

The current study first sought to determine the causes of sibling conflicts among emerging adults. Several categories were identified as the causes of sibling conflicts and these were grouped into various sources of conflict derived from Loevinger's theory (Hy

& Loevinger, 1996). Specifically, it was possible to categorise sources of conflict into the following groupings that reflect ego development levels: impulsive, self-protective, conformist, self-aware, conscientious, and individualistic. These results show that siblings are negotiating their identities, in part, through sibling conflict. First, explanations for the various causes of sibling conflict are presented; then, an expansion on the relation between the sources of conflict and identity development is presented.

**Identified causes of conflict.** With the exception of the participants who did not identify a single conflict with their sibling in their narrative, causes of sibling conflicts were varied and related to: personal insults, privacy, annoying behaviour, personal choices, treatment of parent(s)/regarding the parent relationship, personal and shared possessions/spaces, quality of the sibling relationship, dislike of romantic partner, competition, taking sides in a family argument, advice (particularly around academic/career choices), obligations to one another, family or household obligations/responsibilities, negative/delinquent behaviour, and philosophical topics. Consistent with previous literature that identifies life transitions of emerging adults (Mouw, 2005), the current study shows that emerging adult conflicts relate to specific life transitions of this developmental level. For example, many of the conflicts were related to siblings making decisions about leaving the family home, education and career choices, romantic relationships, and taking on adult responsibilities. Often, sibling conflicts included in the current study were the result of one sibling directly or indirectly passing judgement on another sibling. For example, phrases included: “I believe that one shouldn't be so careless”, “He thought it was a bad idea for me to move and said that I was making a bad choice”, and “I worried that my older brother [...] would embarrass me by getting my Father to pay for absolutely everything.” These results suggest that conflicts among

emerging adult siblings often arise because of differing views or different levels of identity development and possibly a different level of comfort with these life transitions. Consistent with these results, Conger and Little (2010) argue that although siblings often transition to new roles simultaneously given their closeness in age, they also tend to pass through specific transitional events at different times. If emerging adult siblings choose to commit partners or marry at different ages, Conger and Little (2010) would argue that they may be *out of sync* with one another. Given this lack of synchronization of developmental tasks, discrepancies in siblings' perspectives may arise and criticisms about siblings' choices may then ensue. Further qualitative investigation around specific gender and cultural contributors to being *out of sync* with one's sibling is warranted.

Emerging adulthood is a developmental period in which changes in relationships, responsibilities, and priorities often occur and sibling conflicts that result from being *out of sync* with one another likely bring the developmental features of emerging adulthood to the forefront. Arnett (2004) identifies five central features of emerging adulthood: feeling in-between two developmental phases, increased possibilities, identity exploration, self-focus, and instability. The conflicts identified in the current study seem rooted in these features.

The current study shows that emerging adult siblings often argue about possessions, household chores, and privacy, which are typical arguments of adolescents, while also arguing about personal choices, taking on adult responsibilities, and extra-familial relationships, which may be more typical of older adolescents and emerging adults. This is consistent with the notion that emerging adults are often in-between two well-defined developmental phases. They continue to live at home, rely on family members for support, and share in responsibilities with their siblings (Arnett, 2004;

2007); therefore conflicts typical of earlier developmental stages may continue to be prominent reasons for siblings to argue (Campione-Barr & Smetana, 2010). In the current sample, 56% of the target participants lived with their siblings. This likely exacerbates this feeling of being in-between developmental phases. On the one hand, they continue to live within the family unit and have responsibilities to the family unit, but also seek new opportunities and relationships that are separate from the family unit. Therefore, continuing to live in the family home will likely bring about arguments with siblings that are typical of earlier developmental phases and they may operate at a lower developmental level in conflict situations than they are actually capable of as reflected in their ego development score on Loevinger's sentence completion test (Holt, 1980; Hy & Loevinger, 1996). Also, emerging adults who seek new opportunities and romantic relationships while continuing to live in the family home may be at risk of increased conflict given that their siblings stand witness to their choices.

Once emerging adults leave the family home, or even while continuing to live at home, they have opportunities to make different choices and be exposed to different social environments so as to explore their identities. For example, based on the conflicts obtained in the current study, emerging adults are faced with choices around leaving the home, romantic relationships, academics and careers, and social engagements. This increase in possibilities and identity exploration may be conducted in a self-focussed fashion that may increase conflict among siblings.

These identity exploration experiences by emerging adults may be linked to unstable family environments and unstable sibling relationships. For example, sibling conflicts that fit into themes such as decision making, the quality of the sibling relationship, family conflicts and obligations, and the theme regarding romantic partners



often had underlying threads suggesting that one sibling was dissatisfied with the developmental changes of the other sibling, which may be related to instability in the relationship. At times, sibling relationships may be close and possibly resemble their relationships when younger, whereas at other times, they may be more distant and possibly resemble adult sibling relationships. This instability may be particularly difficult for siblings to navigate and as a result, they may become frustrated with one another. Being *out of sync* with one another may also contribute to this. For example, some participants wrote about their frustrations with their sibling for not socializing with them or for shirking their commitment on plans that were made. These examples highlight the instability in the sibling relationship as one sibling may be trying to hold on to the centrality of the family unit while the other sibling may be moving toward adult roles. Decreases in sibling support (White, 2001) may also foster an environment that burdens this transition to adulthood. These conflicts, however, provide opportunities to manage family instability and to develop a greater understanding of one's own needs and values, thus arriving at a more stable identity.

A number of narrators were thought to avoid the topic by not writing a narrative or by writing a narrative about something only tangentially related to a sibling conflict (e.g., a conflict with another family member). There are several possible explanations for these responses. First, it is possible that the prospect of discussing a sibling conflict is too threatening to the self. If the sibling relationship is a core component of one's identity, then the discussion of conflict in this aspect of the self may cause too much dissonance to manage. Cramer (2012) indicated in her study on psychological maturity and defence mechanisms that adults (approximate age of 38) engaged in more denial compared to adolescents (aged 15 to 18). She suggests that the use of denial was adaptive for the

subjects in her study given the social and economic hardship they were directly or indirectly affected by (e.g., World War II, Korean War, unleashing of the atomic bomb, and the Great Depression). Although not as devastating, it may be necessary to deny sibling conflict in order to maintain warmth and overall life satisfaction. Second, it is also possible that these siblings do not engage in meaningful conflict. This may be expected if the siblings do not have a close relationship (e.g., Kramer, 2004). Also, given that sibling conflict is known to decrease as people enter emerging adulthood (Scharf et al., 2005), it is possible that a selection of siblings do not engage in conflict regardless of the closeness of their relationship. A final explanation for these avoidance responses, which is in line with the sources of conflict that are presented next, is that these participants were impulsive and did not read the instructions carefully or wished to have their immediate needs met by completing the study as quickly as possible.

**Sources of conflict.** The causes of conflict highlight that emerging adult siblings are negotiating developmental tasks through conflict with their sibling. To better understand how these causes of conflict reflect ego development, they were grouped into 6 categories, similar to the work by Labouvie-Vief and colleagues (1987): impulsive, self-protective, conformist, self-aware, conscientious, and individualistic. The purpose of categorising the conflicts in this fashion was to highlight meaningful events at various developmental levels.

Although Labouvie-Vief and colleagues (1987) had found that their categories of sources of stress, which are very similar to the sources of conflict categories in the current study, related to participants' age and ego levels, the current results are not consistent with this finding. This study differs from their work in several ways. First, in the current study, participants were prompted to write about an interpersonal stressor with a sibling

whereas in Labouvie-Vief and colleagues' study participants were free to write about any stressor that impacted them. This difference may lead to the identification of sources of conflict that more readily relate to ego development when provided with more flexibility in the task. Also, the specific scenario of an interpersonal stressor allows participants to discuss a conflict that arises because either they were upset or because their sibling was upset. By categorising the conflicts into sources of conflict, we may then be accessing stories that are more relevant to the siblings' age or developmental level rather than the participants' age or developmental level.

Second, the goal of narrating life events is to integrate them into one's sense of self and the process of exploring and narrating events is hypothesized to lead to greater ego development (e.g., Pals, 2006). The method of categorisation used in this study does not consider these processes. Therefore, by simply examining the source of conflict, I am limiting the analysis to only one aspect of a stressor that will have consequences on one's narrative identity. As a result, based on this methodology it is unclear if participants are in the crux of negotiating their sibling conflicts or if these are past conflicts that have been well integrated into the narrative selves. For example, among participants who discussed their frustrations with the advice their sibling was giving them regarding school, some specified that they were presently struggling with this whereas others reported that this was a past conflict and that they now value the input from their sibling. This latter scenario would likely lead to a more integrated sense of self and a more advanced ego level.

One method of analysis to examine the processes involved in the integration of stressful events into the narrative self is through qualitative analysis of narratives. A

second approach, which was used in the current study, is via narrative coding of specific processes, namely exploratory narrative processing and coherent positive resolution.

### **Narrative Identity Processing of Sibling Conflict**

Examining the causes of sibling conflict highlights *what* has most impact on the identities of emerging adults. In the following, I will describe *how* these conflicts are integrated into one's narrative identity. The current research identified exploratory narrative processing as an important factor associated with ego level, which is consistent with the narrative identity literature (e.g., Bauer & McAdams, 2004a, 2004b; King & Raspin, 2004; Labouvie-Vief, 2003; Labouvie-Vief et al., 2007; Pals, 2006). Although the hypothesized model presented indicated that exploratory narrative processing would lead to ego development, the reverse may also be possible. In fact, the current study found this pathway to be significant. Previous research has indicated that adolescents' ego levels contributed to family negotiation patterns (von der Lippe & Møller, 2000). This suggests that the ego levels of emerging adult siblings would impact their ability to explore and narrate their sibling conflicts. Given the cross-sectional design of the current study, it remains unclear to what extent exploratory narrative processing contributes to ego development and to what extent ego development contributes to siblings' abilities to explore and narrate sibling conflicts. Longitudinal work is therefore warranted.

Arriving at a coherent and positive resolution to a sibling conflict was not related to life satisfaction in the current study. Previous literature suggests that turning a negative event into a positive outcome leads to greater well-being (Bauer & McAdams, 2004a, 2004b) and in Pals' (2006) proposed model, coherent positive resolution indirectly related to life satisfaction. The current results suggest that, for some emerging adults, arriving at a coherent and positive resolution to sibling conflict may not be an important process in

their narrative identity development. As discussed previously, Cramer (2012) suggested that denial is an adaptive coping strategy in some instances. Therefore, denial or avoidance of the sibling conflict resolution strategy may in fact be adaptive under some circumstances.

These current results may also suggest, however, that the measurement of coherence and positivity as operationalized by Pals (2006) is qualitatively different from Bauer and McAdams' more global examination of redemptive sequencing (i.e., deriving positive outcomes from negative events). For example, using Pals' coding, the ending of the narrative may be more strongly emphasized rather than the sequencing of the narrative. Also, because the current study did not prompt participants to write about the final outcome, many may have completed their narrative in the throes of negativity even though they and their sibling were no longer upset about the conflict. Therefore, the current measurement of coherent positive resolution may be limited in the extent to which it measures current outcomes.

The present study also examined factors that are associated with these pathways. Further clarification of the expanded pathways is provided below.

**Pathway 1: Toward ego development.** It was first hypothesized that exploratory narrative processing would mediate the relations between emotion complexity and ego development. This hypothesis was not supported. Although the total number of distinct emotion words identified in the narrative related to exploratory narrative processing and ego level, once narrative word count was controlled for in the measurement of emotion complexity, it no longer related to these variables. Therefore, emotion discussions appear to be an important component of exploratory narrative processing and ego development,

but emotion complexity, as measured in this study, was not related to exploratory narrative processing in the current model.

According to Labouvie-Vief and colleagues (Labouvie-Vief , 2003, 2005; Labouvie-Vief et al., 1987; Labouvie-Vief et al., 1989; Labouvie-Vief et al., 2007; Labouvie-Vief & Diehl, 2000) the ability to identify and understand emotions experienced by the self and by others is an important component in ego development. The current study supports this by showing that the total number of emotions identified in the narrative was positively related to exploratory narrative processing and ego level. The non-significant relation between emotion complexity and exploratory narrative processing, however, is in contrast to the role of affective complexity in Labouvie-Vief's (2005) work. In Labouvie-Vief's (2005) dynamic integration theory, she shows that affective complexity continues to develop through adulthood and declines in later life (Labouvie-Vief, 2005). The different results may be a consequence of differing methods of measurement or a function of differences in participants' developmental level given that the focus in the current study was only on emerging adults.

First, it is possible that the scoring of exploratory narrative processing accounts for the variance in emotion complexity, resulting in a non-significant path from emotion complexity to exploratory narrative processing. That is, exploratory narrative processing may consider factors used to measure emotion complexity (i.e., emotion language and word count), and therefore the measurement of emotion complexity does not add predictive value to the pathway. In future studies it may be important to distinguish between the various aspects of exploratory narrative processing. For example, it may be useful to provide separate scores for emotions, cognitions, and behaviours, rather than considering all three within the same coding scheme.

Second, emerging adulthood may be a time when thinking about the emotional experiences of the self and of the sibling in complex ways is not an important contributor to identity development, possibly because, as Arnett (2004) argues, this is a self-focussed developmental period. Emerging adulthood is a time in which education demands are high, there is a strong focus on future careers, and people take steps toward greater independence from family by moving out of the family home or entering significant romantic relationships, and therefore, they may not be focussed on the complexities of their emotional experiences with their siblings. This skill may develop as they get older (Labouvie-Vief, 2005).

In the current study, self-reported emotion complexity did not relate to either exploratory narrative processing nor did it relate to ego level; however, the total number of distinct emotions identified in the narrative was related to both exploratory narrative processing and ego level. These different results may be due to different assessment procedures involved. In the current study, the task of writing a narrative about an event did not specifically include questions asking the participants to identify their own and their sibling's emotional experiences. In this situation, participants may have been less likely to identify a surplus of emotions. Only the most prominent emotions may have been likely to surface for the majority of siblings, unless they were highly emotionally aware. In contrast, when asking participants to identify their emotional experience from a list, they were prompted to think about their own and their siblings' emotional experiences, and therefore they may have been more likely to identify more emotions, particularly those that they only experienced slightly during the conflict. They may also have been more likely to engage in additional perspective taking. This ability to take their sibling's emotional perspective may have been more difficult during the narrative task

and only those particularly adept at this skill would be likely to identify their siblings' emotional experiences. Therefore, the narrative coding of emotion complexity may be more accurate in differentiating between people's abilities in emotional awareness and identification. Furthermore, given that the literature has strongly supported the link between affective complexity and ego development (e.g., Loevinger, 1976; Labouvie-Vief, 2003; 2005), these results suggest that emotion variables as measured from the narrative are a more accurate reflection of people's actual abilities in emotion awareness and identification. This highlights the importance of projective measures and qualitative data in the determination of people's awareness of the self and of others.

Overall, the current study shows that the process toward ego development includes exploring and narrating sibling conflicts in complex ways (i.e., exploratory narrative processing). Although this includes discussions around emotions, emotion complexity, as measured for the current study (i.e., self-reported and coded from the narrative) did not relate to exploratory narrative processing.

**Pathway 2: Toward life satisfaction.** An exploration of the relations between the various identity and self-construal factors and the outcome variables (i.e., coherent positive resolution and life satisfaction) was conducted. Results indicated that individuals with warm sibling relationships or who view their relationships as central to their identity (i.e., a high level of interdependent self-construal) were more likely to arrive at a coherent and positive resolution to their sibling conflict. Also, individuals with greater feelings of sibling warmth and mastery, and either a high level of independent or interdependent self-construal, had greater life satisfaction. These results must be understood within the context of the differences in sibling warmth and feelings of mastery for males and



females and for individuals with high levels of independent and interdependent self-construals.

Preliminary analyses revealed gender differences in sibling warmth and feelings of mastery as well as differences in feelings of warmth and mastery across individuals who reported high levels of interdependent self-construals and high levels of independent self-construal. Specifically, results suggest that the way in which mastery was measured in the current study did not adequately capture the important aspects of mastery for individuals with relational self-construals. Women and individuals with high levels of interdependent self-construal typically espouse a relational self-construal (Cross et al., 2011). That is, they develop their sense of self by fostering important relationships. Men and individuals with high levels of independent self-construal, in contrast, typically have a self-centred approach to identity development (Covington & Surrey, 1997; Cross et al., 2011). The current results suggest that feelings of mastery negatively relate to a relational self-construal. That is, men, as compared to women, experienced a greater sense of mastery, and higher levels of independent self-construals related to greater feelings of mastery, whereas higher levels of interdependent self-construals related to lower levels of perceived mastery.

The higher levels of mastery reported by emerging adult males is in contrast to previous research that indicated that the gender difference in mastery levels seen in young adolescents disappears in later adolescence (Conger et al., 2009). It has been suggested that men are afforded greater liberties to explore their identities at an earlier age and therefore are given more opportunities to develop their feelings of mastery at an earlier age as compared to women (Brown & Huang, 1995). In addition, the feeling of mastery is often conceptualised as the ability to have control over important aspects of one's life

(Pearlin et al., 1981). For men and individuals with high levels of independent self-construal, this often includes independent achievement oriented accomplishments (e.g., employment prospects, ability to complete a task), whereas for women and individuals with high levels of interdependent self-construal, mastery may more accurately reflect an ability to positively manage complex personal and professional relationships (Cross et al., 2011; Jordan et al., 1991; Markus & Kitayama, 1991). As a result of these differences, it may be more difficult for women and individuals with a more interdependent self-construal to gain mastery over the important aspects of their lives given that another individual is involved. Other individuals are not static factors to be conquered; rather, they respond to personal approaches and provide a more complex layer to mastery. Also, mastery implies an internal stable attribute; however, individuals with relational self-construals may conceptualize mastery as a more flexible external attribute (Cross et al., 2011, Jordan et al., 1991; Markus & Kitayama, 1991). Therefore, a measure of mastery standardized for individuals with a self-centred approach to identity development may have a significantly higher mean compared to individuals with a relational approach to identity development.

In the current study, women, as compared to men, reported greater warmth in their sibling relationship. These results corroborate previous research findings (e.g., Buhrmester, 1992; Scharf et al., 2005; Updegraff et al., 2005). In addition, sibling warmth in the current study positively correlated with several elements of narrative identity development, including narrative word count, exploratory narrative processing, coherent positive resolution, ego level, and life satisfaction. These results suggest that the measurement of sibling warmth may be confounded by gender and the fact that women reported greater sibling warmth may have implications for their well-being. Therefore,

having a sister, which may result in more warmth in the sibling relationship, may facilitate developmental processes included in narrative identity development (i.e., ego development and life satisfaction). Previous literature has highlighted the importance of sibling warmth on well-being (Sherman et al., 2006), which is in line with feminist scholars who argue that maintaining positive relationships is a central component in identity development. Before expanding on the importance of warmth in identity development, an elaboration on the final path toward life satisfaction is presented.

The final pathways toward coherent positive resolution and life satisfaction should be considered within the context of these differences in warmth and mastery among males and females and among individuals with various self-construals. The results are presented in two parts. First, factors related to coherent positive resolution will be explained; then, factors related to life satisfaction will be discussed.

***Pathway to coherent positive resolution.*** It was surmised in the conceptualisation of the current study that positive sibling relationship qualities (i.e., greater warmth and less conflict) and feelings of mastery would be indicative of more advanced identity development. However, the results of the current study show that sibling conflict, but not sibling warmth, correlated with feelings of mastery, suggesting that the three variables are not a good indicator of identity as a single latent construct. Therefore, the current study examined the direct relations between sibling relationship qualities and feelings of mastery with outcome variables (i.e., coherent positive resolution and life satisfaction).

The positive relation between sibling warmth and coherent and positive resolutions found in the current study is consistent with expectations and previous research (Dumas et al., 2009; Recchia & Howe, 2009a; Rinaldi & Howe, 1998). Recchia and Howe (2009a) and Rinaldi and Howe (1998) showed that sibling relationship quality

was related to conflict strategies and outcomes. Having greater warmth in the sibling relationship is likely to provide opportunities for identity exploration within that relationship. For example, based on attachment theory, having a secure base with parents enables children to explore their environments (Ainsworth & Bowlby, 1991). This relationship then facilitates personality development. Therefore, having a warm relationship with one's sibling may similarly be related to personality development. If siblings experience warmth within their relationship, they may feel secure in exploring conflicts with each other in an elaborate manner and may be willing to undertake the challenging task of resolving conflicts positively. In addition, Dumas and colleagues (2009) examined within a longitudinal design, the relation between the experience of positive parenting and coherent positive resolution to a low point narrative (i.e., "a specific experience or event in which [the participant] felt extremely negative emotions", p. 1536) among adolescents and emerging adults aged 17 and 26. They found that individuals who experienced more positive parenting narrated resolutions to their low point stories in more coherent and positive ways compared to adolescents who experienced less positive parenting. Taken together, it appears that warm family relationships, which can include sibling relationships, equip emerging adults with the skills necessary to arrive at resolutions that are positive and coherent to emotionally charged and negative life events.

Individuals with a more interdependent self-construal may also be better equipped to arrive at coherent positive resolutions given the positive relation between these variables in the present study. Individuals with a more interdependent self-construal are likely to construct their sense of self based on their ability to manage relationships,

including sibling relationships. Therefore, arriving at a resolution to sibling conflict may be an important factor to their narrative identity development.

These results further suggest that individuals with relational self-construals are more likely to derive meaning from achieving a coherent and positive resolution to their sibling conflicts and therefore, for them, this may be an important narrative identity process. Specifically, both a high level of interdependent self-construal and sibling warmth may be indicators of a relational self-construal and these constructs were related to coherent positive resolution. Individuals with greater warmth in their relationship are likely to place greater meaning in their relationship and therefore are more likely to construct their identity around their sibling relationship. Further investigation is necessary to determine individual differences in identity construction and the role of a coherent and positive resolution.

Individuals with relational self-construals may be more accurate in identifying emotional experiences, which may impact their ability to arrive at coherent and positive resolutions to sibling conflict. Some literature highlights differences across ethnic groups in empathic accuracy, that is, the ability to accurately identify the emotional experience of others. Specifically, in a series of studies, Ma-Kellams and Blascovich (2012) indicated that first and second generation Americans of East Asian descent more accurately identified the emotional experience of close others (e.g., friends and family) compared to European Americans. People from Eastern cultural backgrounds typically espouse a more interdependent self-construal and people of European descent typically espouse a more independent self-construal (Markus & Kitayama, 1991). Therefore this research suggests that individuals with a high level of interdependent self-construal may be more accurate at identifying the emotional experience of close others compared to individuals with a

high level of independent self-construal. Lam and colleagues (2012) also report that empathy increases during the transition to adolescence among girls, but not among boys. Empathic accuracy may therefore contribute to the process of arriving at a more coherent and positive resolution to sibling conflicts among individuals with relational self-construals. Future research could determine if empathic accuracy relates to conflict resolutions, and if so, whether it relates to conflict resolution particularly among individuals with relational self-construal. In addition, examining this within a longitudinal design could help clarify how empathic accuracy develops with age across genders and ethnic groups and how this impacts narrative identity development within the context of sibling conflicts.

It may also be that siblings with relational self-construals are more skilled at narrating their conflict resolution process positively and coherently. It is possible that cognitive scripts for conflict resolution and positive outcomes are salient to individuals with more interdependent self-construals because hierarchies between siblings are sustained and family harmony and achieving group goals remains important for some ethnic groups who typically espouse higher levels of interdependent self-construal (e.g., Fang et al., 2003; Markus & Kitayama, 1991; Paterson & Hakim-Larson, 2012; Updegraff et al., 2005). We may also expect these salient cognitive scripts to be present for other individuals who place great emphasis on the importance of the sibling relationship and therefore experience greater sibling warmth. This salience would prompt these individuals to include the resolution process in their narratives. In addition, it is possible that siblings with relational self-construals are threatened by the task of writing about a sibling conflict narrative and therefore emphasize the resolution process. This would ensure that their identity, which is constructed around the maintenance of

harmonious relationships (Cross et al., 2010; Jordan et al., 1991; Markus & Kitayama 1991), is not compromised. Regardless, it appears that for individuals with warm sibling relationships and/or a high level of interdependent self-construal, arriving at coherent and positive resolutions to sibling conflict is an important component of their narrative identity development.

***Pathway to life satisfaction.*** Contrary to expectations, resolving conflicts positively and coherently was not found to be related to life satisfaction in the current study. Emerging adults may have developed an adaptive means of managing sibling relationships that does not include the resolution of conflicts. Siblings are typically in life-long uncontrollable relationships (Katz et al., 1992; Volling et al., 1997) and emerging adults are typically self-focussed (Arnett, 2004; 2007). This unique relationship and difficult developmental circumstances challenge siblings to manage conflict in ways that can promote sibling warmth. Moving past a sibling conflict without discussions around positive resolutions, at least for individuals with more independent self-construals, may be one such strategy. For example, one sibling wrote: "... we still do not see eye to eye on it and do not bring it up because we will just fight again". It may also be that some emerging adults are not skilled at resolving conflicts because they are self-focussed (Arnett, 2004; 2007) and fail to consider their sibling's perspective.

Rather than arriving at a resolution to sibling conflict to achieve greater life satisfaction, the current study results demonstrated that individuals with greater sibling warmth and feelings of mastery, and with either a high level of independent or interdependent self-construal, had more life satisfaction. These results are supported by previous research that has shown that having relatively more advanced identity development is associated with well-being (Campbell et al., 2003; Diehl & Hay, 2007;

Diehl et al., 2006; Donahue et al., 1993; Swann, 2000). For example, Diehl and colleagues (2006) showed that self-description stability, a measure of identity stability, from Time 1 to Time 2 related to self-esteem and positive affect in their adult sample. Males and females, however, may differ in the processes involved in achieving greater identity stability and in turn greater life satisfaction. Specifically, factors that were thought to measure identity (i.e., sibling warmth and feelings of mastery) differed between males and females. In the current sample, females typically had greater warmth in their relationships compared to males, and males typically perceived greater mastery in their lives compared to females. This is consistent with relational approaches to identity development (e.g., Jordan et al., 1991).

Based on the current interpretations, it seems that maintaining harmony within the sibling relationship and maximizing sibling warmth fosters greater life satisfaction and to do so, it is not necessary to resolve each conflict. This is similar to Labouvie-Vief's (2003; Labouvie-Vief et al., 2007) work on affective optimization and complexity in aging populations and Rice and Pasupathi's (2010) examination of emotionality. Labouvie-Vief and colleagues (2007) showed that older adults compared to younger adults demonstrated a trend toward affective optimization and Rice and Pasupathi (2010) showed that older adults had less emotionality in their narratives compared to younger adults. Taken together, these results show that at certain times or in certain relationships, it is more adaptive to maintain warm relationships than to think critically or to arrive at positive resolutions to conflict. Therefore, even though sibling conflicts provide opportunities to re-negotiate one's identity, it is not necessary for siblings to agree on a resolution to their conflict to accomplish this goal. Further investigation is required to



clarify the implications of interdependence and relationship warmth on resolution processes and narrative identity development.

### **Sibling Modelling of Narrative Identity Processes**

A subsample of participants had siblings who also participated and these sibling pairs were matched to determine if they related on processes involved in narrative identity development, which would suggest that older siblings may model these processes for their younger siblings. Results showed that older siblings may influence both narrative identity pathways (Pals, 2006). For example, older and younger siblings positively related on levels of exploratory narrative processing, self-reported emotion complexity, and ego development but they did not relate on measures of coherent positive resolution. Also, younger siblings' perception of sibling warmth moderated the relation between older and younger siblings' levels of life satisfaction, and related to the younger siblings' ego levels, suggesting that sibling warmth is a central component to positive development. These results, however, should be considered within the study's cross-sectional design. Other family members, particularly parents, and genetics also likely influence similarities across siblings and it is important to consider bi-directional sibling influences.

The current results indicate that siblings have similarly developed ego levels and highlight the importance of sibling warmth on ego development among emerging adults. These results are consistent with the literature that indicates that sibling warmth is associated with more social learning (i.e., modelling; McHale, Bissell, & Kim, 2009) and more positive adjustment (e.g., Sherman et al., 2006). Together, these results suggest that older siblings can foster an environment and a relationship with their younger sibling during emerging adulthood that has the potential to facilitate positive self-transformation in later life. This is an area requiring further investigation. These results may also reflect

ego growth within the context of positive and supportive family environments and not only positive and warm sibling relationships.

Results further indicated that older siblings' degree of exploratory narrative processing, a process associated with ego development, significantly related to the younger siblings' degree of exploratory narrative processing. Also, siblings related on self-reported emotion complexity. Previous work has indicated that older siblings model identity formation to younger siblings (Wong et al., 2010) and the current study has identified specific processes through which this modelling may occur. That is, these results suggest that one way older siblings may model ego development is by engaging in perspective-taking and meaning-making through the process of exploring and narrating sibling conflicts. Another way is by reflecting on their own and their siblings' emotional experiences. It is also possible, given the cross-sectional and correlational design of the current study, that parents are the ones who model these behaviours for both siblings, thus resulting in similar patterns across siblings. Furthermore, one's ability to write about a conflict, consider the various perspectives involved in a conflict, identify the emotional experience of the various participants in the conflict, and learn from a negative relational event, may have genetic roots (Sattler, 2001). As the majority of the siblings in the current study reported having the same biological parents, their genetic make-ups would be similar, predisposing them to have similar abilities in problem solving, perspective taking, and meaning-making. Regardless, the similarity in exploratory narrative processing and self-reported emotion complexity across siblings indicates that siblings narrate conflict in similar ways and similarly reflect on their and their siblings' emotional experiences.

As shown in the current study, the relation between older siblings' level of life satisfaction and younger siblings' level of life satisfaction was moderated by the younger siblings' perception of sibling warmth. This highlights, again, the importance of sibling warmth on adaptive development. Siblings who experience greater warmth are more likely to achieve greater life satisfaction and in turn, may experience positive self-transformation in later life. Conger, Bryant, and Brennom (2004) also agree that supportive sibling relationships are beneficial during emerging adulthood, a time of many transitions.

Measures of coherent positive resolution in older and younger siblings were not related. Older siblings may not be in a position to act as models for these behaviours for several reasons. First, coherent positive resolution was not related to life satisfaction, suggesting that for some, this may not be an important process in narrative identity development. Given that sibling relationships are typically life-long and quarrels don't usually lead to the dissolution of the relationship, arriving at a positive resolution to every conflict may not be necessary to maintain the relationship. If it is not an important process, then it is unnecessary to model this behaviour. Second, the self-focus and instability experienced in emerging adulthood may not provide an environment in which coherent positive resolutions are readily achieved. This would make modelling this process very difficult. These results may differ among adult or elderly siblings because the nature of the relationship is likely to transform over time (Van Volkam, 2006). During emerging adulthood, instead of focussing on achieving a coherent and positive resolution, older siblings can foster a warm relationship with their siblings so as to promote greater ego development and life satisfaction in their younger siblings.

Overall, these results indicate that siblings relate on processes involved in narrative identity development and suggest that older siblings may model these processes. In particular, fostering a positive and warm relationship with younger siblings appears to facilitate narrative identity development and possibly establishes an environment for positive self-transformation in later life.

**Gender differences in sibling modelling.** To further examine possible sibling influences on ego development, narrative length, degree of exploratory narrative processing, and level of emotion complexity, target participants with an identified sister were compared to target participants with an identified brother.

The gender of the sibling was found to be related to target participant's ego development. Specifically, male target participants who identified a sister who was closest in age and within the age criteria were shown to have higher ego levels than if they were to identify a brother, indicating the possible benefit of sisters on male ego development. The effect size of this significant relation was, however, small. This is in contrast to some other research that highlights the benefits of same-sex sibling dyads on identity development (Wong et al., 2010). Wong and colleagues (2010) argue that same-sex sibling dyads typically have higher relationship qualities compared to mixed-sex sibling dyads. This line of thought, however, fails to explain the benefits of sisters on male ego development. It may be that given the centrality of relationships in female identity development (Cross et al., 2011, Jordan et al., 1991; Markus & Kitayama, 1991), sisters may be more inclined to think about the complexities of relationships, which is a component of ego development (Loevinger, 1976), and in turn model this behaviour to their brothers. Ego development, defined as the increasingly complex ways of thinking about the self in relation to others (Loevinger, 1976), may be facilitated in relationships

that focus on maintaining harmonious relationships. Also, sisters may provide greater warmth in the relationship, which would facilitate ego development. This is consistent with previous analyses: Women had higher levels of sibling warmth compared to men, and younger siblings' perceptions of sibling warmth and older siblings' ego level was associated with the younger siblings' ego development.

There are several other possible explanations for the current findings: First, experiencing the world with someone who may possess different perspectives on life events, given their gender, may provide emerging adults with opportunities for increasingly complex understandings of social and emotions events. Second, if the sibling who is closest in age is of the opposite gender, they may be more inclined to seek social relationships from individuals outside of the family. These peer relationships may then also provide for more complex learning experiences of social interactions given that peers typically have different backgrounds and opinions. Third, parents who are socializing their daughters may vicariously impact their sons' ego development.

Gender did not appear to significantly relate to the length of narratives, the degree of exploratory narrative processing, or the level of emotion complexity. Previous literature has argued that women typically write longer narratives and discuss emotions to a greater extent than males (Rice & Pasupathi, 2010; Thompson et al., 1996). Given the extent of life changes that occur during emerging adulthood, both genders may be challenged to think about their experiences in more complex and affective ways in comparison to earlier or later stages in life. Also, given that participants were primarily recruited from undergraduate psychology courses, the males in the current study may not be representative of all males.

## General Discussion

The current study shows that emerging adult siblings use opportunities of conflict to negotiate developmental tasks. This study identifies sibling issues that are associated with identity development and partially explains the process through which these issues are integrated into the self. Specifically, this negotiation occurs through a process of reflection and personal narration of the conflict. It is also possible that these processes are modelled among siblings, though further research is needed to clarify this possibility. These conflicts do not require a resolution to achieve greater satisfaction in life; instead, it appears that, regardless of their conflict outcomes, siblings with an overall positive and warm relationship, greater feelings of mastery, and either a high level of independent or interdependent self-construal, achieve greater life satisfaction. In addition, warm sibling relationships provide a foundation upon which siblings' ego develops. This study suggests that the sibling relationships among emerging adults may be an important contributor to positive self-transformation in later life.

Based on qualitative analysis, the current study identified conflicts that related to features of emerging adulthood (Arnett, 2004). That is, the conflicts seem to result from opportunities for identity exploration, which generates instability within the sibling relationship and places the emerging adults between adolescence and adulthood. These changes occur at a time in which emerging adults are self-focussed, which may exacerbate conflicts. The conflict causes were also categorised into 6 sources of conflict, similar to the procedures used in the work of Labouvie-Vief and colleagues (1987), to better understand how these causes of conflict reflect ego development: impulsive, self-protective, conformist, self-aware, conscientious, and individualistic. The directed content analysis in the current study therefore highlights important developmental tasks of

emerging adulthood and demonstrates that siblings use opportunities of conflict to explore their narrative identity development and arrive at a more stable sense of self.

The final model of this study elaborated on two pathways towards positive self-transformation according to Pals (2006) or the *good life* according to Bauer and colleagues (2005), which includes pathways towards ego development and life satisfaction. Results from the first pathway toward ego development highlight the role of exploring and narrating sibling conflicts. In addition, older siblings appear to play an important role in facilitating the process of exploring and narrating conflicts. Results are consistent with the notion that they may model this process to their younger siblings. Ego development is also facilitated in warm sibling relationships and, specifically among men, ego development is facilitated if they have a sister close in age. Therefore, integrating sibling conflict into one's narrative identity is likely facilitated by internal characteristics (i.e., ability to explore and narrate sibling conflict) as well as by environmental characteristics (i.e., relationship with sibling).

Similarly, the second pathway emphasized the relationship in determining outcomes of conflicts and general life satisfaction. Siblings who experience greater warmth in their relationships and have a high level of interdependent self-construal arrived at more coherent and positive resolutions and achieved greater life satisfaction. This suggests that individuals with more interdependent self-construals and warm sibling relationships are more capable of developing narratives to their sibling conflicts that end positively and coherently, possibly because of the value they place on maintaining harmonious relationships and achieving group goals (e.g., Markus & Kitayama, 1991; Updegraff et al., 2005). This would suggest that for individuals with relational self-construals, arriving at a coherent and positive resolution to sibling conflicts is an

important process in narrative identity development. In addition, individuals with warm sibling relationships, relatively stronger feelings of mastery, and either a high level of independent or interdependent self-construal, have greater life satisfaction.

Overall, this research highlights the important contributions siblings have to identity development. Although major advances in identity development begins in adolescence according to Erikson (1963; 1968), identity development is actually a lifelong process involving the integration of life events such as interpersonal interactions, achievements and failures, and as depicted in the current study, conflicts with important others. Sibling conflicts are integrated into one's life story by developing and elaborating on internal narratives of the event. Specifically, those who develop more elaborated narratives are more likely to integrate these events into their identities in meaningful ways which in turn fosters ego development. However, this study shows that it is important to not only think critically about events, but maintain positive relations with siblings to maximize life satisfaction.

### **Strengths and Limitations of this Study**

These findings should be examined considering the study's limitations. First, the conclusions drawn in the current study must be interpreted within the context of the study's cross-sectional design. A longitudinal design would have facilitated interpretations of causal relationships in narrative identity integration. The current study design also uses a single scenario of sibling conflict and examines how this scenario relates to ego level. This snapshot of the sibling relationship, although informative, cannot be generalized to their entire relationship. To provide a more comprehensive picture of narrative identity processes, future research should include an examination of several sibling narratives, possibly in the form of diary entries.



Second, in the current study a purposeful selection process was used to obtain a balanced number of males and females as well as a diverse ethnic sample. These additional efforts resulted in the recruitment of participants from various ethnic groups and in a balanced representation of males and females in the sample. Nonetheless, the participants in the current study were primarily students at the university level, which is a select sample. Since the target siblings were recruited from an undergraduate sample, few participants represented emerging adults who entered the workforce without a university or college education. This limitation is consistent with the majority of social science investigations as this population is rarely included in research samples (Acquilino, 2005; Arnett, 2004; Conger & Little, 2010). However, the current study also recruited the target participants' siblings, which provided an opportunity for individuals who entered the workforce with a high school education to be included. But, given the socioeconomic status of families, the majority of these siblings were either still in high school or university.

Third, although the original goal of the current study was to examine an aspect of culture as it relates to identity development, this was not possible, in part because the literature often does not differentiate between cultural, ethnic, and immigrant groups, resulting in various experiences being grouped under a single conclusion (Schwartz et al., 2013). For example, the life experience of a Chinese youth living in China may be very different from a Chinese youth living in Canada. Cultural values and norms may be different across immigrant and non-immigrant ethnic groups and across first and second-generation immigrants (Zane & Mak, 2003). To address this and to measure one aspect of identity that may be influenced by culture, the current study used a construct to measure one facet of individual experiences in identity development: self-construal. However, the

measurement of self-construal also has its problems. Recent research examining self-construals has demonstrated that a more interdependent self-construal is an umbrella construct capturing collectivism and interdependence (Hardin et al., 2004; Cross et al., 2011). Although, the consideration of others is captured under both factors, the measurement of self-construal in the current study is confounded with the measurement of collectivism.

Fourth, the current study examined sibling relationship qualities and mastery level as a proxy to identity level. Future studies should include additional factors that more directly reflect identity to ensure a more complete assessment of this construct. For example, it may be important to include components of self-esteem as multidimensional indicators of underlying identity processing (e.g., O'Brien & Epstein, 1988).

Fifth, sibling pairs were more difficult to recruit, resulting in a small sample size. A larger sample of sibling pairs would have allowed for more complex analyses. Regardless, the current sample allowed for some interesting correlational and regression analyses to be conducted.

Sixth, the participants in the current study wrote short narratives on average and some participants limited their narrative to the cause of the conflict without providing details of the experience. Although these narratives are meaningful in that these participants were engaging in limited exploratory narrative processing, their brevity brought to question their motivation in completing the study since participants were compensated for their time with bonus marks in one of their courses. Nonetheless, the average length of narratives was 105 words and the variability across narratives was significant, which facilitated analyses.

Seventh, given the online nature of the data collection, several factors required additional attention. For example, control over duplicate entries and the misrepresentation of self or sibling was limited. However, several measures were used to limit these participants and obtain a valid and representative sample of sibling pairs. Also, response bias and social desirability remained of concern, as it does in most psychological research (e.g., Gosling et al., 2004; Holmes, 2009). However, many argue that the anonymity provided with the internet-based format increases genuineness, self-disclosure, and honesty (Gosling et al., 2004; Holmes, 2009). Also, given the sensitive nature of this topic, online collection methods may have increased disclosure since the Internet facilitates self-exploration (Turkle, 1995) and provides opportunities to explore difficult life events in an anonymous fashion. In addition, a projective measure of ego development was used to decrease socially desirable response biases. Measurement error due to transcription errors is also limited with the online format (Holmes, 2009). For example, in the current study, participants were able to type their narratives, which were sent directly to the researcher, eliminating the need to rely on individuals' ability to decipher diverse hand-writings and the need to rely on proper recordings with adequate volume.

The online nature of the study limited opportunities for participants to ask questions, which may explain the large number of participants who did not complete the items regarding family composition. Also, 6 participants did not enter their gender and were therefore directed to an ego measure that was included both male and female versions of the items. Although these items differed only slightly, this may have affected the validity of their ego scores. Face-to-face data collection might have allowed the

investigator to supply more of these participants with the appropriate version of the questionnaire.

### **Clinical Implications**

The current study suggests that working through the sibling relationship may be an important process in therapy when working with clients who present with poorly developed egos or general dissatisfaction with life. The causes of sibling conflict identified in the current study are examples of typical challenges faced by emerging adult siblings and exploring these conflicts could encourage adaptive development. Also, integrating the sibling into the therapeutic session when abuse is not present and fostering greater warmth between siblings may generate an environment that is more conducive to developing greater maturity and achieving greater life satisfaction.

Intervention programs with younger siblings have focussed, to a large extent, on conflict-ridden and aggressive relationships (Gnaulati, 2002), siblings relationships during times of family discord (e.g., divorce; Nichols, 1986), and on sibling relationships when one sibling has a disability (e.g., Autism Spectrum Disorder; Karst & Van Hecke 2012). Sibling intervention research does not address, to my knowledge, the therapeutic needs among emerging adult siblings. Among children and adolescents, sibling conflict has been described as leading to greater social and emotional development (Kramer, 2010). Gnaulati (2002) argues that sibling conflict, particularly sibling aggression, serves a need for emotional connection. This would therefore suggest that intervention programs should not aim to eliminate sibling conflict. In fact, in Kramer's (2004) review of intervention programs to ameliorate sibling conflict, conflict-resolution intervention programs typically reduced conflict between siblings, but the sibling relationship suffered as a result. In addition to reducing conflict, siblings also engaged in independent play

activities. The current study shows that fostering greater warmth among adolescent and emerging adult siblings may provide a positive environment for socio-emotional development. Specifically, siblings with warmer relationships achieved higher ego levels and greater life satisfaction. Drawing on Pals' (2006) model, these results suggest that encouraging siblings to have warm relationships may facilitate greater self-transformation in later life. In fact, Donley and Likins (2010) found that the quality of sibling relationships was passed down to subsequent generations. Parental sibling relationships impacted their relationships with their children. Fostering a positive and warm relationship among child and adolescent siblings may then aid in the transition to adulthood. Therefore, sibling intervention programs should include instruction and guidance around fostering warmth in sibling relationships in addition to reducing conflict.

Furthermore, successful prevention and intervention programs among African American youth have highlighted the importance of modelling positive adjustment to younger siblings (Brody, Kogan, Chen, & Murry, 2008). The current study results would support adaptive modelling from older siblings among other ethnic groups as well. This modelling can help younger siblings understand complex relationships, and might have a positive influence on ego development and life satisfaction by fostering a warm relationship.

The current study highlights some differences in self-construal that necessitate consideration when developing sibling intervention programs. First, individuals with a high level of interdependent self-construal and siblings with greater warmth in their relationships (i.e., a relational approach to identity development) arrived at more coherent and positive resolutions to sibling conflict in their narratives, indicating that this is an important process in their narrative identity development. As a result, within the

therapeutic context, siblings with relational self-construals who are experiencing some difficulties with their sibling may need more guidance resolving their conflicts positively than individuals with a more independent self-construal or among siblings with less warmth between them. This necessitates further investigation to clarify individual differences in narrative identity development. In addition, the sibling relationship quality is partly explained by maternal factors (e.g., general malaise, negativity, and positivity; Jenkins, Rasbash, Leckie, Gass, & Dunn, 2012), family interactions (parental behaviours; Furman, 1995; McHale & Crouter, 1996), and family structure (e.g., parents' marital status; Conger & Conger, 1996; Milevsky, Smoot, Leh, & Ruppe, 2005) and therefore, overarching family dynamics should not be ignored when working on promoting sibling warmth.

### **Future Research**

The current study has highlighted the role of siblings in emerging adult identity development. Further qualitative examination of narratives for a more refined analysis of the different and similar processes involved in verbalizing and remembering sibling conflicts between individuals who construct their identities in independent ways and those who construct their identities in relational ways may be warranted.

Within the model, it will be important to incorporate parent characteristics as well as sibling characteristics within a longitudinal design to further inform developmental processes. Also, given the narrative task involved in narrative identity development, future models may wish to control for verbal problem solving skills as these are likely to impact one's ability to narrate life events, including sibling conflicts. In addition, it may be important to measure and control for the closeness between siblings and/or emotional and instrumental support from siblings. These qualitative indicators of the sibling

relationship will likely impact the processes through which sibling conflict is integrated into one's narrative identity.

Also, further clarification as to whether the specific sibling conflict discussed is significant to one's life story may be important. This would inform the level of meaning sibling conflict has on a person's narrative identity development. Expanding on this, it would be interesting to examine this in relation to individuals at various stages of life. It may be possible that sibling conflicts become increasingly important to integrate into one's narrative identity as people age. The current study included some participants who were younger than 18 years of age. Much of the narrative identity literature has started their examinations of narrative identity development at the age of 18 (e.g., McAdams, et al., 2006). It is possible that the participants in the current study who were younger than the age of 18 draw less or different meaning from their sibling conflicts as compared to participants who were older than 18. Further exploration of these developmental considerations is warranted.

The current study demonstrated some interesting relations between coherent positive resolution and two variables: sibling warmth and a high level of interdependent self-construal. This highlights the possibility that arriving at a resolution to conflicts may be an important process for individuals with relational self-construals. Further examination of individual differences in the construction of conflict narratives is warranted. Also, it is unclear if individuals with greater sibling warmth and/or a high level of interdependent self-construal find this process necessary to the integration of sibling conflict narratives into their identity (i.e., it is a need) or if they are merely more capable of arriving at a coherent positive resolution. For example, it is possible that arriving at a positive resolution to a sibling conflict allows for individuals with relational

self-construals to maintain a strong sense of self and a warm sibling relationship. It is also possible that individuals with relational self-construals and warm sibling relationships are more capable of addressing the resolution process because of the quality of their sibling relationship. This distinction between need and ability could be further examined in future research.

It may also be important to further explore how siblings maintain warmth when faced with conflict. For some, it is possible that to maintain sibling warmth they must arrive at a resolution to a sibling conflict, whereas for others, to maintain sibling warmth, it is important to avoid the conflict. Further examination of individual differences could help clarify how warmth is maintained.

## **Conclusion**

The current study addresses a number of gaps in the developmental literature. Although prevailing identity theories emphasize exploration and commitment in identity statuses (Marcia, 1980), these processes are rarely examined. Instead, identity statuses are examined in relation to a number of other factors. Also, the literature on sibling relationships has primarily focussed on sibling similarities within the context of family composition, sibling order, or psychosocial adjustment of the older sibling (e.g., Bouchev et al., 2010; McHale et al., 2001; McHale et al., 2012; Slomkowski et al., 2001). Process-oriented research is necessitated to clarify how siblings model and influence one another's identity (McHale et al., 2012). Sibling relationships, particularly sibling conflicts, among emerging adults have also been given limited attention and little is known about the integration of sibling relationships in emerging adults into one's overall identity (see Conger & Little, 2010 and Wong et al., 2010 for notable exceptions). The process model used in the current study, therefore, helps us understand how sibling



conflicts are integrated into one's narrative identity among emerging adults. Specifically, the current study shows that the exploration and narration of sibling conflicts is a process involved in narrative identity development among emerging adults. Also, achievement of a coherent and positive resolution to a conflict appears to be an important process for individuals who construct their identities primarily based on their relationships. Sibling warmth further fosters an environment in which the pathways toward positive self-transformation are facilitated. That is, having a warm relationship with one's sibling can encourage ego development and the achievement of greater life satisfaction.

The current results should be interpreted within the context of family systems. The sibling subsystem, although thought to have significant impact on development among young children and adolescents, continues to be an important contributor to identity development among emerging adults.

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## Appendix A

### Background Information Form

1. Compared to your sibling who is also participating in this study, are you older or younger?

- I am the older sibling
- I am the younger sibling
- We are twins

2. Are you currently a student?

Yes

What grade or university year are you currently in? \_\_\_\_\_

No

What is the highest level of education you have completed?

- Elementary School (Grades 1-6)
- Middle School (Grades 7-8)
- High School (Grades 9-12)
- Some university or college, or CEGEP
- University/College
- Graduate School

What is your occupation? \_\_\_\_\_

3. Your marital status:

- Single or in a relationship but not living together
- Married
- Living together
- Separated
- Divorced
- Other, specify \_\_\_\_\_

4. What is your self-identified ethnic background? \_\_\_\_\_

5. Which ethnic category best describes you:

- Caucasian
- Black/African descent
- Hispanic
- Asian/Pacific
- Native/Aboriginal
- Arab/Middle Eastern
- Other, Specify: \_\_\_\_\_

6. In what country were you born?

Canada

Another country. What country? \_\_\_\_\_

If born in another country, how old were you when you came to Canada?  
\_\_\_\_\_ years

7. What language do you speak the most with your sibling?

English

Other, Specify: \_\_\_\_\_

8. Please identify your family members. In the **first row**, provide information about yourself and in the **second row** provide information about your sibling who is also participating in this study. You are asked to indicate the initials for only you and this sibling. In all other rows, please identify the rest of your family.

		Relation to you (e.g., step-sister, mother, brother, adopted-brother, step-father, son)	Age	Gender	Do you currently live in the same home?	Total number of years you lived together.
Your initials:		YOU		<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	-----	-----
Sibling initials:				<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	<input type="radio"/> Yes <input type="radio"/> No	
	-----			<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	<input type="radio"/> Yes <input type="radio"/> No	
	-----			<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	<input type="radio"/> Yes <input type="radio"/> No	
	-----			<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	<input type="radio"/> Yes <input type="radio"/> No	
	-----			<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Other: Specify: _____	<input type="radio"/> Yes <input type="radio"/> No	

	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	-----			<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other: Specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	

10. Marital status of your parents:

- Married to each other (including common-law and same-sex unions)
- Living together
- Separated
- Divorced
- Widowed
- Other, specify \_\_\_\_\_

11. What are the genders, highest levels of education, and occupations of your parent(s)? Identify the parent(s) you spent most of your childhood with and who supported/parented you the most.

Parent 1:

Gender:       Male       Female       Other, Specify: \_\_\_\_\_

Occupation: \_\_\_\_\_

What is Parent 1's highest level of education completed?

- Elementary School (Grades 1-6)
- Middle School (Grades 7-8)
- High School (Grades 9-12)
- Some university or college, or CEGEP (Only for Quebec students)
- University/College
- Graduate School

Parent 2:

Gender:       Male       Female       Other, Specify: \_\_\_\_\_

Occupation: \_\_\_\_\_

What is Parent 2's highest level of education completed?

- Elementary School (Grades 1-6)
- Middle School (Grades 7-8)
- High School (Grades 9-12)
- Some university or college, or CEGEP (Only for Quebec students)
- University/College
- Graduate School

12. Growing up, what was your gross family income?

- 70,000 or more
- 60,000 to 59,999
- 40,000 to 39,999
- 30,000 to 29,999
- Below 30,000
- I do not know or I do not wish to answer

## Appendix B

### Letter of Information and Consent Form



## **LETTER OF INFORMATION AND CONSENT TO PARTICIPATE IN RESEARCH**

Title of Study: Narrative Identity Development: Integrating Sibling Conflict into the View of the Self

You are asked to participate in a research study conducted by Ashley Paterson, from the Psychology department at the University of Windsor. Results from this research project will contribute to her dissertation.

If you have any questions or concerns about the research, please feel to contact either Ashley Paterson at 519-253-3000 ext. 4705 or her research supervisor, Dr. Julie Hakim-Larson at 519-253-3000 ext. 2241.

### **PURPOSE OF THE STUDY**

This study is designed to examine sibling relationships and how they relate to our self-concepts.

### **PROCEDURES**

If you volunteer to participate in this study, we would ask you to do the following things:

- ask your sibling to participate in this study,
- provide contact information for your sibling,
- complete a background information questionnaire,
- complete a number of sentence stems,
- write a narrative about an interaction with your sibling,
- complete questionnaires relating to your sibling, your personality and your well-being,

This online survey will take you approximately 30-45 minutes. We ask you to complete these questionnaires in a private area. **Do not discuss this study with your sibling until you have both completed it.**

### **Who can participate:**

You are invited to participate if you:

1. Are between the ages of 15 and 30
2. Have a sibling between the ages of 15 and 30
3. Ask your sibling to participate
4. have lived with your sibling for most of your childhood

## POTENTIAL RISKS AND DISCOMFORTS

The questionnaires may remind you of some uncomfortable feelings about your relationship with your sibling. You may leave the study at any time by clicking on the 'Leave the Study' icon. If you choose to leave the study, you will be directed to a form that describes the purpose of this study and lists services available to youth and young adults.

## POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Completing this study may help you become more aware of yourself and your relationship with your sibling. It may allow you to reflect on your family life and how satisfied you are with it. The results from this study may help counsellors, therapists and other mental health workers understand sibling relationships as they relate to mental health and treatment.

## PAYMENT FOR PARTICIPATION

For completion of this study, you may receive credit for a course if you registered through the university's participant pool. Regardless of whether you registered through the participant pool or from another source, your name will be entered into a draw for the chance to win one of 20 \$5 gift certificates to Tim Horton's.

## CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. **Your responses will not be disclosed to your sibling.** Any identifying information will be kept separate from your answers to the questions in this survey. Your name will not appear on any reports of this study. If you choose to enter your contact information into the lottery draw or if you provide your email address to be contacted in future studies, this information will in no way be linked to your survey responses and will be kept in a password protected file. Once the lottery has been drawn the information in connection with the lottery will be destroyed. This information will not be disclosed to any external party.

## PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. The investigator may

withdraw you from this research if circumstances arise which warrant doing so. You may terminate your session at any time by clicking the “Leave the Study” icon.

#### FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Upon completion of the study, a summary of the results will be posted on the University of Windsor Website.

Web address: [www.uwindsor.ca/reb](http://www.uwindsor.ca/reb)

Date when results are available: September, 2012

#### SUBSEQUENT USE OF DATA

These data may be used in subsequent studies. These data may be used by the researcher for subsequent publications but will not deviate from the purpose described in this form. The information collected may be used to further examine the experiences of siblings.

#### RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: [ethics@uwindsor.ca](mailto:ethics@uwindsor.ca)

#### SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study ‘Narrative Identity Development: Integrating Sibling Conflict into the View of the Self’ as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have printed a copy of this form.

- I agree to participate
- I do not wish to participate
- I have already participated but wish to complete the survey again

#### SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

---

Signature of Investigator – Ashley Paterson, September 1, 2010



## Appendix C

### Contacting Sibling

**\*\*\* To participate in this study, you must ask a sibling to also participate, or be asked by your sibling to participate\*\*\***

Has a sibling asked you to participate in this study?

- yes      *Skip the following section.*  
 no

**Please answer the following questions to determine which sibling you should contact**

Are you between the ages of 15 and 30?       yes       no

Do you have a sibling between the ages of 15 and 30?       yes       no

*If they answered no to one of these questions, they may not complete the study*

How many siblings do you have?

1

Is this sibling within 5 years of your age?       yes       no

Is this sibling between the ages of 15 and 30?       yes       no

*If they answered no to one of these questions, they may not complete the study.*

*If they answered yes to both of these questions, they will be prompted to ask this sibling to participate in the study.*

more than one

How many siblings do you have who are within 5 years of your age?

0

*Sorry, you may not complete this study*

1

Is this sibling between the ages of 15 and 30?

yes

*Ask this sibling to participate*

no

*Sorry, you may not complete this study*

more than 1

Of these siblings, how many are between the ages of 15 and 30?

0

*Sorry, you may not complete this study*

1

*Ask this sibling to participate*

more than 1

*Ask the sibling closest in age to you to participate in this study.*

**Please copy and paste this message into an email to your sibling:**

---

Your sibling is emailing you because he/she has or will be participating in a sibling study. The purpose of this study is to examine sibling relationships and how they relate to our self-concepts. Your participation will allow the research to gain an understanding of sibling relationships among emerging adults and will help inform clinical practice.

If you agree to participate you will have the opportunity to **enter your name into a draw** for one of 20 \$5 gift certificates at Tim Horton's.

After reading the consent form and agreeing to study, you will be directed to the web-survey. Some questions will be forced-choice answers whereas others will give you the opportunity to write about your life.

You may access the survey at the following web address:

If you have any questions, please contact me, Ashley Paterson, at [patersoa@uwindsor.ca](mailto:patersoa@uwindsor.ca).

Thank you,

Ashley D. Paterson, M.A.  
Dept. of Psychology  
University of Windsor  
[patersoa@uwindsor.ca](mailto:patersoa@uwindsor.ca)

## VITA AUCTORIS

NAME: Ashley D. Paterson

PLACE OF BIRTH: Montreal, Qc

YEAR OF BIRTH: 1980

EDUCATION: Lower Canada College, Montreal, Qc, 1998  
Marianopolis College, D.E.C., Montreal, Qc, 2000  
McGill University, B.Sc., Montreal, Qc, 2003  
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