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EMPIRICAL RESEARCH

"I can't Take Hold of Some Kind of a Life": The Role of Social Connectedness and Confidence in Engaging "Lost" Adolescents with Their Lives

Nicole M. Ja[1] · **Paul E. Jose**[1]

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Abstract Erik Erikson's theoretical writings on identity have provided a rich foundation upon which decades of research on identity development have been built. However, literature is lacking regarding adolescents who are aware that they lack knowledge about the self (i.e., values, likes, and dislikes) to the extent that they are stuck and directionless, and therefore unable to engage in the process of identity formation, what we refer to as a state of "lostness." Furthermore, while it has been established that supportive relationships facilitate identity development, less is known about whether various domains of social connectedness may diminish "lostness" over time, and if so, what may be the specific processes or conditions within each connectedness domain that supports this aspect of identity development. To address this gap in the literature, this study drew upon self-report data collected from New Zealand adolescents who provided data for two out of three annual time points of measurement ($N = 1996$; 52% female; 52% European New Zealanders, 30% Māori, and 18% Pacific Islanders and Asian New Zealanders) to examine the longitudinal relationships among three domains of social connectedness (i.e., family, school, and peers), "lostness," and a potential mediator, confidence. The results showed that all three domains of social connectedness predicted diminished "lostness" over time, and confidence mediated these relationships. An examination of the opposite direction of influence showed that "lostness" predicted a decrease in confidence and the three domains of social connectedness, as well. Gender, age, and ethnic group were shown to be moderators of different parts of the model. This study addresses the paucity of research examining "lost" adolescents, while providing insight into the underlying processes through which three key social contexts—family, school, and peers—exert their influence, and are influenced by, identity processes through confidence.

Keywords Adolescents · Connectedness · Confidence · Identity · Family · School

Introduction

In his seminal work, Erik Erikson (1968) quotes Biff from Arthur Miller's *Death of a Salesman* who, in describing his struggle to form a mature identity, says, "I just can't take hold, Mom, I can't take hold of some kind of a life" (Miller 1949, p. 37). Erikson (1968) draws on this example to demonstrate someone who is unsuccessfully navigating the period of identity crisis, what he describes as "a necessary turning point, a crucial moment, when development must move one way or another, marshalling resources of growth, recovery, and further differentiation" (p. 16). Seeing as countless numbers of papers have, over the past 50 years, cited Erikson's theoretical contributions as the impetus to discussions on adolescents' development of a coherent sense of identity, we could consider Erikson the grandfather of the field of identity construction and his theoretical writings in *Identity: Youth & Crisis* as the original source of the study of identity development.

Erikson (1968) observed that while most young people successfully resolve the identity "crisis", he also identified

✉ Nicole M. Ja
nmj8@cornell.edu

[1] School of Psychology, Victoria University of Wellington, Easterfield Building, Kelburn Campus, Wellington, New Zealand

and described those individuals who experience "the estrangement of this stage" who are in, what he referred to as *severe identity confusion* consisting of "a painfully heightened sense of isolation; a disintegration of the sense of inner continuity and sameness; a sense of over-all ashamedness; an inability to derive a sense of accomplishment from any kind of activity" (pp. 168–169). Furthermore, according to Erikson, an identity confused individual is in a state where "role confusion joins a hopelessness of long standing, delinquent and 'borderline' psychotic episodes", when a young person "is bewildered by the incapacity to assume a role… [and] runs away in one form or another… withdrawing into bizarre and inaccessible moods" (pp. 131–132).

The present examination returns to the original source, namely to Erikson's (1968) descriptions, to focus the investigative lens on "lost" adolescents who are caught in a state that falls somewhere between those who achieve an "optimal sense of identity… a sense of psychosocial well-being… a feeling of being at home in one's body, a sense of 'knowing where one is going,' and an inner assuredness of anticipated recognition from those who count" (p. 165) vs. those adolescents experiencing an extreme maladaptive state of identity confusion described as a clinical disorder marked by "borderline psychotic episodes" and "bizarre and inaccessible moods" (p. 131). Other identity researchers have noted that Erikson (1950) thought about identity in terms of synthesis and confusion (Schwartz et al. 2015). Thus, we define "lostness" as an internal state in which one feels stuck and directionless; the adolescent is aware that he or she lacks self-knowledge about his or her values, likes, and dislikes, and is unclear about the direction of his or her life in relation to the greater society. Since a clear foundation for the self is lacking, the teenager is likely to base decisions on other people's preferences, and this state prevents him or her from actively engaging in the process of identity formation.

Several insights can be gleaned from Erikson's observations about identity development to guide the present investigation of the contextual factors and mechanisms that serve to move "lost" adolescents toward a more mature sense of self. A sense of basic trust with others, according to Erikson (1968), is the "first component of mental vitality" (p. 95). A strong sense of social connectedness which is based on the need to belong, to feel connected, and to experience a sense of relatedness (Barber and Schluterman 2008), whether it is fostered in school, the family, or with peers, may provide the "basic trust" that fosters an individual's confidence in him/herself in relation to the world that allows the individual to take chances, explore options, and eventually make a commitment. Accordingly, it is through these trusting relationships that a young person learns to "trust in oneself and in others", as well as "proving oneself to be trustworthy" (Erikson 1968, pp. 128–129). Thus, trusting relationships as fostered through positive and supportive connections with others also serves to develop trust in oneself and a sense of self-confidence. And while positive social interactions "speak most clearly to the adolescent who is so eager to be affirmed by peers, to be confirmed by teachers, and to be inspired by worth-while ways of life" (p. 130), propelling a young person forward into action through bolstering confidence in oneself and in the world, unsupportive social relationships may cause an individual to fear engaging in activities or actions in which "he would feel exposed to ridicule or self-doubt" or become "shameful in his own eyes or in those of his peers" (p. 129). Therefore, a lack of self-confidence, likely instigated by unsupportive relationships, will probably limit or halt altogether the process of identity development (i.e., remaining in the state of "lostness").

Erikson's (1968) theory of identity has become a key integrating and guiding construct for a large and growing body of research on identity formation, as well as the cognitive, personal, and social correlates, predictors, and outcomes of identity expression (Marcia 1980; Meeus 2011; Waterman 1984). "Lost" individual's lack of exploration is reminiscent of an individual who is in, what identity status researchers have termed *identity diffusion* (i.e., the individual has not yet made a commitment regarding a developmental task and may or may not have explored alternatives in that domain) or *identity foreclosure* (i.e., the individual has made a commitment without much exploration) (Meeus et al. 1999, 2010). However, those who are "lost" cannot even take the first step in identifying options to explore since doing so would require turning knowledge about the self into the act of exploration. Furthermore, the concept of "lostness" focuses on the internal state of not knowing oneself, including not knowing one's likes, dislikes, or values, so is stuck, directionless, and often turns to others to inform his/her decision making. "Lostness", therefore, describes an individual who is aware that they lack self-knowledge, not the extent to which an individual engages in exploration or commitment. Our concept of "lostness" does seem related to Luyckx et al.'s concept (2008), *ruminative exploration*, or state of "perpetual moratorium" which is defined as "a possible consequence of the confusion associated with seemingly limitless possibilities without having meaningful criteria for choosing among them or sufficient social supports to aid in the process. Ruminative exploration is dysfunctional, entailing being stuck in moratorium. The emotional tone of ruminative exploration is one of 'procrastination,' 'brooding,' and 'worry'" (Waterman 2015, p. 314). However, dissimilar to ruminative exploration, "lostness" does not measure the level of distress at not knowing oneself nor does it measure the level of ruminative behavior that may occur as a result of not knowing oneself;

what "lostness" does measure is the actual degree to which one doesn't know oneself.

Erikson's concepts have also "been studied indirectly through models developed to clarify and operationalize his ideas for empirical research" (Schwartz et al. 2015, p. 40). The evaluation of the psychometric properties of the Erikson Psychosocial State Inventory (Rosenthal et al. 1981; Schwartz et al. 2009b) resulted in separate subscales for *identity synthesis* (i.e., "reworking of childhood identifications into a larger and self-determined set of ideals, values, and goals") and *identity confusion* (i.e., "a lack of true engagement with others, lack of sexual intimacy, acting out, and the inability to engage in purposeful vocational activity") (Gandhi et al. 2016, p. 173). Though also making use of the Erikson Psychosocial State Inventory (Rosenthal et al. 1981; Schwartz et al. 2009b), studies on ethnic identity refer to identity synthesis as *identity coherence* or "the generalized feelings of synthesis, clarity, authenticity, and satisfaction with the self" (Syed and Juang 2014, p. 177; Syed et al. 2013). While identity synthesis has been associated with high levels of well-being and low levels of internalizing and externalizing behaviors, as well as health risks (Schwartz et al. 2015), identity confusion has been linked to clinical and personality disorders (Kaynak et al. 2009), as well as non-suicidal self-injury (Gandhi et al. 2016). One study identified latent profiles for individuals who are between the extreme ends of the identity spectrum (i.e., identity synthesis and identity confusion), such as the Diffused profile whose members are characterized by moderate synthesis and high confusion or the Moderate profile whose members are characterized by moderate synthesis and confusion; while these profiles are reminiscent of "lost" individuals, "lostness" does not capture the "reworking of childhood identifications" of identity synthesis, nor does it capture the "lack of sexual intimacy" and "acting out" of identity confusion (Schwartz et al. 2015).

Regardless of which area of research on adolescents' development of the self-system one considers, a consensus exists that young people require environmental support in order to achieve an integrated identity (e.g., Harter and Eisenberg 2006; Lerner et al. 2005). Social connectedness has recently seen an upsurge of attention, and findings have documented the many benefits of connectedness to development (see Barber and Schluterman 2008, for a review). However, a gap in the literature exists in that we know little about whether and how various domains of social connectedness might function as an ameliorative factor against the development of "lost" adolescents. Furthermore, in order to focus upon the problematic state itself, we approached this issue by using "lostness" as our preferred dependent variable with an emphasis on illuminating whether and how contextual factors predict a decrease in "lostness", not an increase in identity achievement or identity synthesis.

In addition, if the relationship between domains of social connectedness and "lostness" can be identified, the next logical question to ask is "how does social connectedness reduce 'lostness'?" As previously discussed, Erikson (1968) argues that supportive relationships (e.g., social connectedness) are key to developing trust in others and developing trust in oneself (i.e., confidence) that provides an individual with the willingness to propel oneself forward to actively engage in forming an identity (i.e., diminishing "lostness"). Thus, we investigated this potential mechanism by testing whether domains of social connectedness promotes a sense of confidence (Lerner et al. 2000; Roth and Brooks-Gunn 2003), which in turn would be expected to predict a diminishment of "lostness." To answer these questions, we drew upon a multi-wave longitudinal dataset composed of self-reports from adolescents to examine the link between "lostness" and social connectedness domains, to test confidence as a potential mediator of these relationships, to explore the possibility of other temporal relationships among these variables, and to examine whether age, gender, and ethnic group moderate the basic findings.

The Potential Influence of Social Connectedness on "Lostness" in Multiple Developmental Contexts

Contemporary theoretical writings on identity reveal a consensus that the formation of a healthy identity very much depends upon the availability of and interactions with multiple and diverse salubrious contexts in which youth grow up (Lerner et al. 2005). Erikson (1968) himself highlighted the important role of youth's surrounding context when he states, "it is of great relevance to the young individuals' identity formation that he be responded to and be given function and status as a person whose gradual growth and transformation make sense to those who begin to make sense to him" (p. 156). Furthermore, identity achievement, according to Erikson (1968), "depends to a significant extent on the quality of the opportunities and rewards available to him" by his peers and by "society at large" (pp. 163–165).

The types of support known to foster youth's formation of a coherent and stable identity are congruent with what has been referred to as *social connectedness* (Jose and Crespo 2012). Though studies vary significantly in their conceptualizations of this concept, social connectedness has both a relational (i.e., a personal sense of attachment or closeness to each entity), as well as a behavioral component (e.g., autonomy-supportive parenting; psychologically controlling teaching) (Barber and Schluterman 2008), and has been described as "a pervasive drive to form and maintain at least a minimum quantity of lasting, positive and significant interpersonal relationships" (Baumeistser and Leary 1995, p. 497). One challenge in the study of

connectedness is being able to identify "the precise process or condition that connectedness is thought to measure" (Barber and Schluterman 2008, p. 210). To address this concern, Barber et al. (2005) identified three key dimensions of parenting that are considered "broader conditions of promotive or protective conditions that socializing agents or institutions can provide children and adolescents" (Barber and Schluterman 2008, p. 213). First, *connection* is "a tie between the child and significant other persons (groups or institutions) that provides a sense of belonging, an absence of aloneness, a perceived bond" and depending upon the context, connection is produced by varying levels, degrees, or combinations of "consistent, positive, predictable, loving, supportive, devoted, and/or affectionate interaction." Second, *regulation* is "a condition or state that reflects the establishment of appropriate structure around the child's behavior… [implying] a management role for the socializer (s) – e.g., adjust, adapt, organize, supervise, etc." Third, *respect for individuality* is defined as "acknowledging and respecting a child's independent self by avoiding behaviors that intrude, exploit, or manipulate it" (Barber et al. 2005, p. 119). Adopting these broader constructs representing "conditions of socialization" facilitates the assessment of "the same conditions in multiple contexts [which] allows for the investigation of interesting questions, as examples: about the adequacy of discrete social contexts in facilitating key socialization conditions… [and] about the salience of key experiences in different contexts for distinct aspects of child development" (Barber and Schluterman 2008, p. 214).

Thus, we assess connectedness in multiple contexts—family, school, and peers—to examine each social context's "facilitating key socialization conditions… [and] salience of key experiences", and their impact on "lostness." For the purpose of this study and to be consistent with previous research (Jose et al. 2012), we drew upon previously conceptualized definitions (and their corresponding scales) for three domains of connectedness; by relating these definitions to Barber et al.'s (2005) processes or conditions (i.e., *connection*, *regulation*, and *respect for individuality*) through which connectedness is thought to impact youth, we propose how connectedness, as experienced in each domain, is thought to diminish "lostness" by increasing confidence. Thus, we define family connectedness as family cohesion, family identity, and family mutual activities; this construct is related to Barber et al.'s (2005) *connection* in providing a sense of belonging, a sense of not being alone, a perceived bond, and positive interactions that are positive, supportive, devoted, consistent, and predictable. We define school connectedness as positive and trusting relationships with teachers, and a sense of being included in the school community; these contextual factors are related to all three of Barber et al.'s (2005) processes and conditions—*connection, regulation*, and *respect for individuality*. Finally, we defined peer connectedness as positive and trusting relationships with peers at school, happiness with the number of close friends one has, and emotional support from friends which are related to Barber et al.'s (2005) *connection* and *respect for individuality*.

Given the important role the environment has in fostering a mature identity, Bronfenbrenner's (1979) ecological systems theory is a useful framework for considering the social connectedness factors that shape identity processes through dynamic person-context interactions that simultaneously occur within and across multiple life domains (e.g., family, school, and peers) over time. Despite the importance of considering the many factors that contribute to youth's identity development at a given time, the simultaneous study of multiple domains of social connectedness over time is rare. Most studies focus on the presence and quality of social connectedness in one domain at a time, and mainly focus on the relationships between youth and parents, or between youth and important non-parental adults (Bowers et al. 2012). Among the few studies that do simultaneously consider multiple domains of social connectedness (e.g., Libbey et al. 2002; McGraw et al. 2008), few have used longitudinal data, and none of the studies have analyzed social connectedness in relation to identity development.

A review of the literature revealed a limited number of studies that explicitly relate domains of social connectedness with concepts related to our definition of "lostness." A few studies, however, have examined single domains of social connectedness in relation to factors related to identity processes (e.g., self-esteem, internalizing behavior), and these indications of associative effects are suggestive that family, school, and peer connectedness should be related to diminished "lostness." From the identity status literature, people in identity diffusion or identity foreclosure report more harsh or punitive parenting (Meeus 2011). A study featuring late adolescents and their parents found that connectedness, defined as emotional affection, was a predictor of a more mature identity status (Campbell et al. 1984). Psychologically controlling parenting has been linked to a less mature identity style, while autonomy-supportive parenting has been associated with more positive identity outcomes (e.g., Luyckx et al. 2007; Smits et al. 2010; Soenens and Vansteenkiste 2010).

Several studies suggest that school connectedness should be related to diminished "lostness." For example, student involvement in decision-making was found to enhance a sense of autonomy (Whitlock 2006), while psychologically controlling teaching was negatively related to self-regulation strategies, which, in turn, were positively related to school achievement (Soenens et al. 2011). A qualitative study with vulnerable youth demonstrated the importance of connectedness to non-parental adults such as

those at school or in the community in fostering a positive identity (Noble-Carr et al. 2014).

A handful of studies have examined identity development in direct relationship to peer connectedness. Meeus and Dekovic (1995) found that support from an intimate friend (i.e., best friend or partner) had the strongest influence on the development of a relational identity, much more so than the influence of parents, while peer support from classmates regarding school problems had the strongest influence on developing a school identity. Evidence demonstrating the link between parental attachments with school identity and peer attachments with relational identity have also been identified (Meeus et al. 2014). Thus, there is some evidence linking aspects of our concept of "lostness" to domains of social connectedness, and these associations suggest that social connectedness should predict a diminishment of "lostness" over time.

Confidence: A Potential Mechanism Linking "Lostness" and Domains of Social Connectedness

We anticipated finding that all domains of social connectedness would reduce "lostness" over time. We thought that if this relationship could be verified in our present dataset, then it would also be useful to probe the mechanism of these proposed relationships. In the field of positive youth development, confidence has been shown to be one of five key outcomes of development, and has been conceptualized as consisting of the following elements: self-esteem, self-concept, identity, self-efficacy, and belief in the future (Lerner et al. 2000; Roth and Brooks-Gunn 2003). Erikson (1968) emphasized the importance of positive social interactions to help build trust in the world as a safe place for engaging in identity construction activities, which, in turn, builds trust in oneself as a person who can also be trusted by others. Thus, he postulated positive social interactions and confidence as key foundations for an individual's quest for identity achievement. While no studies to date have conducted an analysis that tests confidence as a mechanism of development linking domains of social connectedness and "lostness", results from several existing studies on confidence shed light on these proposed relationships. Confidence has been positively linked to a coherent identity, with youth exhibiting an information-oriented identity style (i.e., self-reflective) reporting the highest scores on all Five Cs of positive youth development (including confidence), and youth with a diffuse-avoidant style (i.e., failure to engage in identity exploration or commitments) reporting the lowest scores (Crocetti et al. 2014). In a study by Luyckx et al. (2013), identity processes were linked to self-esteem, one aspect of confidence according to Lerner et al. (2000). In addition, Harter and colleagues (Harter 1999, 2006; Harter et al. 1997) have shown that adolescents engaging in false-self behavior also tend to report low self-esteem, providing evidence for a negative association between confidence and "lostness."

A few studies provide evidence indicating associations between confidence and domains of social connectedness. Family connectedness has been shown to boost self-esteem (Boutelle et al. 2009), and highly involved parenting and an authoritative parenting style predicted higher levels of positive youth development outcomes, including confidence, as well as a greater likelihood of connectedness to an important non-parental adult (Bowers et al. 2014). Results from a multi-wave longitudinal study showed that while well-being (including confidence), normatively declined over time among Māori (indigenous New Zealand) youth, high levels of family connectedness mitigated this decline (Stuart and Jose 2014). In terms of confidence and school connectedness, self-esteem, coping efficacy, and perceived competence partially mediated the relationship between school connectedness and depressive symptoms for African American youth, and fully mediated this relationship for European American youth (Ernestus et al. 2014). Another study showed that the relationship between school connectedness and low mood was moderated by self-esteem and attachment style to peers (Millings et al. 2012). And last, for peer connectedness and confidence, self-esteem and ethnic identity was shown to partially mediate the link between social support (i.e., perceived family support, perceived peer support) and depression among African American youth (Gaylord-Harden et al. 2007). Peer acceptance was also shown to exert a protective effect on global self-esteem, as well as a protective and stabilizing effect on the relationship between global self-esteem and closeness to parents (Birkeland et al. 2014). Despite the significance of these studies that have examined the link between confidence and identity, as well as between confidence and social connectedness, no research has been conducted to test confidence as a potential mediator in the link between "lostness" and domains of social connectedness over time.

The Need for Assessing Bi-Directionality

Erikson (1968) himself wrote about the importance of examining bi-directionality when he stated, "A family can bring up a baby only by being brought up by him" (p. 96). While youth require supports and opportunities that will help them thrive, they, in turn, also act upon the environment as agents of their own development and as active contributors to the very contexts in which they grow up (Lerner et al. 2005). Findings from several lines of research suggest that the relationship between identity (or in the present case, "lostness") and social connectedness may be bi-directional. For example, while one study

(Crocetti et al. 2009) showed adolescents' internalizing behavior contributed to one's identity status, another study (Luyckx et al. 2008) showed identity status contributed to adjustment. Bi-directional relations have also been found between basic psychological needs (including relatedness) and dimensions of identity (Luyckx et al. 2009), and between family functioning and identity confusion over time during middle adolescence (Schwartz et al. 2009a).

The Need for Examining "Lostness" Over Time, and Age, Gender, and Ethnic Group as Moderators

Findings from previous research give us reason to believe that age, gender, and ethnic group might moderate the relationship between domains of connectedness and "lostness." Highlighting the importance of examining "lostness" over time and accounting for differences by age/cohort, Meeus' (2011) review of longitudinal research adopting Marcia's (1966) identity status model found, in fact, that the majority of adolescents showed identity maturation (i.e., increased commitment and exploration and decreases in the reconsideration of alternative commitments), though maturation took different forms and trajectories. Importantly, the number of identity achievers was significantly higher in late adolescence compared to early adolescence (Meeus et al. 2012). Evidence regarding the effect of gender on identity processes is mixed. Some studies with high school students have found a strong effect by gender with more females preferring the information-identity style (i.e., actively seeking out, processing, and using identity-relevant information to make informed decisions) and more males preferring the diffuse-avoidant style (Smits et al. 2010; Bosch and Card 2012; Crocetti et al. 2014). However, other studies have found little to no differences by gender (Crocetti et al. 2013). While results of a meta-analysis by Bosch and Card (2012) revealed no significant gender differences for the information-identity style, results also showed that girls scored slightly higher than males for the normative style, and that boys scored higher than girls for the diffuse-avoidant style. Though gender has also been proposed to moderate the relationship between identity styles and other correlates (Boyd et al. 2003), Crocetti et al. (2014) found that gender did not moderate the link between identity style and positive youth development outcomes, including confidence. Highlighting the importance of investigating these relations over time, Meeus et al. (2012) found that girls tended to be precocious in their identity status trajectory compared to boys; it has been suggested that girls may begin exploring sooner than males (in middle adolescence), while boys may catch up to where girls are by late adolescence and emerging adulthood (Klimstra et al. 2010).

Though much attention has been dedicated to the study of adolescents' ethnic identity among youth from around the world (Phinney 1992; Umaña-Taylor et al. 2002), very little empirical research exists regarding the identity development of New Zealand adolescents, and no research exists regarding the effect of domains of social connectedness on "lostness" among Māori (the indigenous people of *Aotearoa* (New Zealand)) youth compared to those adolescents who identify as European New Zealanders. Identifying the factors that support healthy development among Māori youth is particularly important as 26% of children under the age of 15 in New Zealand identified with the Māori ethnic group in 2015, a percentage that has been projected to continue to increase (Statistics New Zealand 2015). Considering Māori youth experience more detrimental outcomes compared to non-Māori youth, including higher suicide rates, externalizing behaviors, smoking, teenage pregnancy, and hospitalization (Adolescent Health Research Group 2004; Te Puni Kokiri 2006), it is of the utmost importance to understand the contextual factors that support healthy identity development among this group of adolescents.

In terms of the effect of gender and age on social connectedness, McGraw et al. (2008) found that while girls reported significantly higher peer connectedness, both sexes reported moderate levels of connectedness to their school and strong connectedness to their families. Karcher and Sass (2010) found that girls reported higher connectedness in several developmental contexts, compared to boys, including at school, with peers, and with teachers. Pinquart and Silbereisen (2002) found decreases in connectedness to mothers among younger adolescents and increases in connectedness to mothers among older adolescents; furthermore, higher connectedness was observed for mother-daughter dyads compared to mother-son dyads. Libbey et al. (2002) found that family connectedness was shown to have the strongest negative association with emotional distress for younger and older adolescent girls, peer connectedness was non-significant for younger girls, and school connectedness had the strongest inverse association with emotional distress for both younger and older adolescent boys. Results from a study that identified three profiles of connectedness to family, school, and neighborhood found no significant differences in profile membership by gender, but did find profile membership was significantly associated with race/ethnicity among African American, Chinese American, White, and Latino youth (Witherspoon et al. 2009). Karcher and Sass (2010) also found ethnic differences in connectedness, such as Caucasian youth reporting higher connectedness to their friends, but lower connectedness to their siblings, compared to African American and Latino youth; African American youth also reported the lowest connectedness to teachers.

The Current Study

The present study addressed several gaps in the literature by investigating the relationship between the understudied concepts of "lostness" and social connectedness at the domain level (i.e., family, school, and peers) over time in a large sample of New Zealand adolescents. We generated four hypotheses based on previous theory and research findings that would address these gaps. First, based on Erikson's (1968) assertion that supportive interpersonal relationships in various developmental contexts propel identity formation, as well as evidence from empirical research showing that supportive parenting, connectedness to non-parental adults at school, and support from peers is linked to more positive identity outcomes (Meeus and Dekovic 1995; Smits et al. 2010; Noble-Carr et al. 2014), we predicted that all social connectedness domains—family, school, and peers—would predict a diminishment of "lostness" over time. Second, we predicted that family, school, and peer connectedness would predict an increase in confidence over time based on Erikson (1968) having postulated that positive social interactions and confidence were necessary components of an individual's identity formation, in addition to evidence showing positive associations between family and school connectedness, as well as peer acceptance with self-esteem (Boutelle et al. 2009; Birkeland et al. 2014; Ernestus et al. 2014). Third, we expected that confidence would predict a decrease in "lostness" over time based on a finding linking confidence to a coherent identity (Crocetti et al. 2014). Fourth, based on the aforementioned postulations and research evidence, to test our mediation model, we hypothesized that confidence would mediate the link between all domains of social connectedness and "lostness" over time.

We propose that all domains of social connectedness will diminish "lostness" by increasing confidence. However, given the different ways our definitions and corresponding measures of family, school, and peer connectedness relate to Barber et al.'s (2005) socializing conditions (i.e., *connection, regulation*, and *respect for individuality*), we have reason to believe that the process through which each social connectedness domain impacts confidence and "lostness" will differ. We propose that family connectedness will demonstrate a positive effect as family cohesion, family identity, and mutual family activities increases *connection* (i.e., devoted, consistent, and supportive interactions, and the absence of loneliness). We also propose that school connectedness will have a positive effect as being treated with respect and being trusted by teachers promotes *respect for individuality*, being provided with opportunities to engage in independent decision making by teachers promotes *regulation*, and positive, devoted interactions that provide a sense of belonging and the absence of loneliness heightens *connection*. Peer connectedness, we propose, will have a positive effect as one's satisfaction with the number of perceived friends taps into *connection*, specifically one's sense of belonging, absence of aloneness, and perceived bond, while emotional support from peers including being "accepted for who I am" relates to *connection* (i.e., supportive, devoted, loving, and predictable friendships), and *respect for individuality*.

In addition, based on Erikson (1968) highlighting the importance of the bi-directionality between the child and important people who surround him/her, as well as findings showing bi-directional links between identity status and internalizing behavior (Luyckx et al. 2008), and between relatedness and family functioning with identity outcomes (Luyckx et al. 2009; Schwartz et al. 2009a), we also set out to answer the following research question: Would domains of social connectedness and "lostness" exhibit a bi-directional relationship in that "lostness" would negatively impinge on the development of confidence and social connectedness over time? In addition, we posed a second research question exploring whether gender, age, and ethnic group moderated the basic findings as previous research has shown significant associations between these variables with domains of social connectedness, confidence, and "lostness" (e.g., Pinquart and Silbereisen 2002; McGraw et al. 2008; Witherspoon et al. 2009; Meeus et al. 2012; Crocetti et al. 2014).

Method

Participants

At the first of three annual time points of measurement (2006, 2007, and 2008), 2174 students between the ages of 10 and 15 years ($M = 12.21$ years old; $SD = 1.75$) were recruited from 78 schools across New Zealand's North Island. Attrition resulted in fewer participants over the next 2 years. We based the present analyses on the individuals who provided data at two out of the three time points ($N = 1996$, an attrition rate of 8%). Non-participation was mainly due to participants shifting school, being absent on the day of testing, or failing to give consent. An attrition analysis showed that individuals lower in social connectedness and confidence and higher in "lostness" failed to participate at subsequent points-in-time.

Participants were recruited into three age cohorts according to the research design: at T1 Cohort 1 included individuals 10–11 years of age, Cohort 2 included 12–13 year-olds, and Cohort 3 included 14–15 year-olds. Gender was about evenly split within these cohorts. The sample approximated a nationally representative sample of New Zealand adolescents in several ways. First, approximately

half of the sample was female (52%), a gender ratio that is close to the average for this age group. Second, students were recruited from the full range of schools differing in their socio-economic decile score (ranging from 1 to 10, with 10 being the highest and 1 being the lowest income). The average decile score was 5.2, close to the national average of 5.0; thus, we included children from families ranging from very poor to wealthy, with the average approximating middle class.

On the other hand, we purposefully oversampled Māori participants due to a design requirement to achieve adequate numbers of this indigenous cultural group. As a result we obtained 52% European New Zealanders (the majority cultural group in New Zealand), 30% Māori, and 18% Other (principally Pacific Islanders and Asian New Zealanders). National averages are 74/15/11% respectively (Statistics New Zealand 2015). Also, we obtained fewer participants from rural and urban areas and more from suburban areas (61/33/6% urban/suburban/rural) compared to national census data (71/15/14% urban/suburban/rural). So, although socio-economic status and gender were nationally representative, ethnic group identification and geographical location were not.

Procedure

Youth assent and informed parental consent, when appropriate, was obtained from all participants included in the study prior to data collection at all three time points. Ethical approval was obtained from the University Ethics Committee prior to data collection at Time 1. Participants completed self-reported assessments in the 1st year at their school using one of thirty laptop computers. The complete survey contained approximately 350 questions (some variation in number occurred due to skipping and branching questions), which took about an hour to complete for some of the younger students at Time 1. In following years, some schools opted for on-line completion of the survey in computer labs, and since participants were older, completion time decreased dramatically. A teacher and research assistant were always present during the administrations to provide clarification on the meaning of questions and to help explain the procedure for the participants.

Measures

Family connectedness

This scale included 11 items that consisted of family cohesion (5 items), family identity (2 items), and family mutual activities (4 items). All items are listed in the Appendix of Jose et al. (2012). Items for family cohesion and family identity were drawn from the FACES II instrument (Olson et al. 1982). Family identity items, on the other hand, were created for this study by asking study participants how often various statements applied to them and their family (e.g., "It means a lot to be a member of my family," "For my family, spending time together is very important," and "Do you and your family have meals together?"). Responses were provided on a 5-point Likert scale (1 = *never/almost never* to 5 = *always/almost always*). Items making up each scale were summed and averaged to provide a single score. The Cronbach's alpha coefficients across the three waves of data were .90, .91, and .92.

School connectedness

This scale was comprised of 6 items that were adapted from the School Connectedness Scale (Blum et al. 2002) and the Psychological Sense of School Membership scale (Goodenow 1993). Three items assessed student relationships with teachers (e.g., "I always get an opportunity to talk with my teacher(s)" and three items measured sense of school community (e.g., "I feel proud about my school"). Items were scored on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The scores for school connectedness were calculated by averaging the six items (greater connectedness was indicated by a higher score). The Cronbach's alpha coefficients across the three waves of data were .85, .85, and .88.

Peer connectedness

The peer connectedness scale was comprised of 7 items assessing peers at school, happiness with the number of close friends they have, and support from friends, all of which were generated for this study. Peer relationships at school were measured with two items asking how well youth got on with their classmates and other students in school (1 = *not at all well* to 5 = *really well*). Happiness with the number of close friends they have was measured with two items (1 = *very unhappy* to 5 = *very happy*). Peer support was assessed with three items (e.g., "I can trust my friends with personal problems"), also measured on a 5-point Likert scale. The Cronbach's alpha coefficients across the three waves of data were .69, .68, and .73.

"*Lostness*"

The scale measuring "lostness" was comprised of six items, three of which were adapted from the Psychosocial Maturity Index (Greenberger 1984), and three of which were adapted from the Ryff Well-Being Scale (Ryff and Keyes 1995). Three items measured the extent to which youth lack knowledge about the self (e.g., "I don't really know what my

interests are" and "I change the way I feel and act so often that I sometimes wonder who the 'real' me is"). The other three items measured an over-reliance on others in making decisions about the self, and included items such as "I often change the way I act or think so that I am more like those around me" and "It is easy for other people to talk me into doing things that I don't want to do." All six items were measured on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The Cronbach's alpha coefficients across the three waves of data were .78, .81, and .81.

Confidence

Our measure of confidence was comprised of 4 items that were taken from the Ryff Well-Being Scale (Ryff and Keyes 1995) and the Rosenberg Self-Esteem Scale (Rosenberg 1965). Participants were asked to report how much they agreed with statements such as "I feel confident and positive about myself" and "I feel that I have a number of good qualities" on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. The scores for confidence were calculated by averaging the four items at each of the three time points. The Cronbach's alpha coefficients across the three waves of data were .79, .83, and .86.

Demographic characteristics

The variables of gender, age, and ethnic group were based on self-reports. Gender was indicated as either male or female. Participants also listed their age in whole years. Ethnic group identification was selected by participants among the nine most common options posed in New Zealand: European New Zealander; Māori; Samoan; Cook Island Māori; Tongan; Niuean; Chinese New Zealander; Indian New Zealander; and Other. Most individuals selected European New Zealander (52%) or Māori (30%). A few (18%) selected one of the other categories. To simplify the use of this variable we made a dichotomous variable contrasting European New Zealanders with Māori adolescents (0 = *European New Zealander*; 1 = *Māori*).

Plan of Analysis

First, an examination of zero order correlations was made to determine whether the direction of associations occurred as expected. Second, a repeated measures MANOVA was performed to see if gender, age, and ethnic group differences existed within the dataset. Third, longitudinal measurement invariance was tested in order to verify that the measures performed well over time. Fourth, a cross-lag path model was constructed and estimated in order to test the posed hypotheses and research questions. Fifth, we specifically examined the mediation hypothesis that the expected negative associations between domains of social connectedness and subsequent "lostness" would be mediated by confidence. Mediation scholars (Jose 2013, 2016; MacKinnon 2008) have emphasized that longitudinal mediation is an appropriate statistical tool for empirically examining how X predicts Y over time. Sixth, we considered the first research question that "lostness" might predict lower confidence and social connectedness domain scores over time. Seventh and last, we investigated the second research question that age, gender, and ethnic group might moderate important parameters in the predicted model.

Results

Descriptive Statistics

Table 1 reports the raw correlations among the key study variables in addition to means and standard deviations. As expected, participants reported averages above the mid-point (3 on the 5-point scale) for domains of connectedness and confidence, and below the mid-point on "lostness." Correlations showed that all variables were significantly related to each other in predictable ways at both concurrent as well as longitudinal time points: domains of connectedness and confidence were positively related to each other, and all of these variables were negatively associated with "lostness." Skewness and kurtosis estimates for all variables fell within the acceptable range so no data transformations were needed.

Gender, Age, and Ethnic Group Differences

A repeated measures MANOVA was computed to determine whether the main variables in question significantly varied by gender, age, and ethnic group, and we found significant MANOVA main effects for: gender, Wilk's $\Lambda = .94$, $F(3, 1730) = 36.62$, $p < .001$, $\eta^2 = .10$; age, Wilk's $\Lambda = .90$, $F(6, 3462) = 32.21$, $p < .001$, $\eta^2 = .07$; and ethnic group, Wilk's $\Lambda = .96$, $F(2, 780) = 5.87$, $p < .001$, $\eta^2 = .04$. Examination of univariate results revealed significant differences for all gender comparisons except for family connectedness, which was marginally significant (see Table 2). Females reported higher school and peer connectedness and "lostness", whereas males reported higher confidence. All five variables decreased with age. Two significant differences were noted between the European New Zealand and Māori ethnic groups: Māori reported higher peer connectedness and higher "lostness" than European New Zealand youth.

Table 1 Correlations among and descriptive statistics of key study variables

	Lost1	Lost2	Lost3	Fam Conn1	Fam Conn2	Fam Conn3	Schl Conn1	Schl Conn2	Schl Conn3	Peer Conn1	Peer Conn2	Peer Conn3	Confid1	Confid2	Confid3
Lost1		.52***	.45***	−.00	−.03	.01	.00	−.02	−.01	−.07**	−.06**	−.08***	−.12***	−.11***	−.05*
Lost2			.58***	−.07**	−.13***	−.10***	−.06**	−.07**	−.08***	−.08***	−.12***	−.11***	−.16***	−.21***	−.16***
Lost3				−.07**	−.14***	−.15***	−.10***	−.13***	−.18***	−.10***	−.12***	−.17***	−.18***	−.21***	−.25***
Fam Conn1					.65***	.61***	.46***	.38***	.34***	.30***	.24***	.24***	.41***	.35***	.34***
Fam Conn2						.73***	.39***	.53***	.42***	.20***	.32***	.26***	.34***	.48***	.43***
Fam Conn3							.38***	.43***	.52***	.19***	.21***	29***	.27***	.39***	.50***
Schl Conn1								.56***	.47***	.40***	.27***	.25***	.44***	.35***	.33***
Schl Conn2									.64***	.25***	.39***	.27***	.35***	.50***	.42***
Schl Conn3										.21***	.24***	.34***	.29***	.40***	.55***
Peer Conn1											.55***	.52***	.33***	.24***	.19***
Peer Conn2												.56***	.22***	.37***	.37***
Peer Conn3													.20***	.26***	.32***
Confid1														.54***	.41***
Confid2															.60***
Mean	2.54	2.42	2.30	3.90	3.75	3.68	3.77	3.69	3.70	4.11	4.08	4.08	4.17	4.10	4.10
SD	0.80	0.77	0.71	0.73	0.78	0.77	0.71	0.70	0.70	0.54	0.55	0.54	0.62	0.66	0.65

Note: N=1996

Fam Conn family connectedness, *Schl Conn* school connectedness, *Peer Conn* peer connectedness, *Confid* confidence, *Lost* "lostness"

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

Longitudinal Measurement Invariance

Following the practice of Luyckx et al. (2013), we rejected the null hypothesis of time invariance when we found that two of the following three criteria were met: $\Delta\chi^2$ significant at $p < .05$; $\Delta CFI > .01$; and $\Delta RMSEA > .015$ (Cheung and Rensvold 2002; Vandenberg and Lance 2000). Confirmatory factor analyses were run for each variable among all time points (e.g., "lostness" between T1 and T2, "lostness" between T1 and T3, "lostness" between T2 and T3, and so forth). Of these 15 comparisons, we were able to identify time invariance for "lostness", confidence, and family connectedness for all time comparisons. Of the remaining 2 variables, only peer connectedness between T2 and T3 and school connectedness between T1 and T3 did not achieve invariance, so 2 out of 15 comparisons showed slight changes over time in factor loadings.

Longitudinal Cross-Lag Path Model: Domains of Social Connectedness Predict Confidence and Subsequently Predict "Lostness" Over Time

Hypothesis 1 Domains of social connectedness predict a decrease in "lostness" over time. A five variable cross-lag longitudinal path model was tested in Mplus over the three annual time points of measurement. The variables were the three domains of social connectedness (family, school, and peers), confidence, and "lostness", and gender and cohort were covaried out from all estimates of these relationships. Missing data constituted about 10% of the total dataset, and they were treated with the use of FIML in Mplus (Geiser 2013). The model fit indices of the estimated model were excellent: chi-square/df = 2.18, RMSEA = .027, CFI = .994, sRMR = .018. We compared a model in which path estimates were constrained to be equal between T1/T2 and T2/T3 with a model where these estimates were unconstrained, and a non-significant change in model fit was noted ($p > .10$), so we chose to present the former model.

We first sought to determine whether all three domains of social connectedness predicted a residualized reduction in "lostness" from one time point to another. Figure 1 reports the estimated standardized regression coefficients relevant to the first three hypotheses. Consistent with the prediction, we found cross-lag estimates in the expected direction: family connectedness ($\beta = -.04$, $p < .05$); school connectedness ($\beta = -.04$, $p < .001$); and peer connectedness ($\beta = -.03$, $p = .07$), but the last domain evidenced a marginal relationship in the predicted direction. Thus, evidence was obtained to support the hypothesis that all three domains would exert a diminishing influence on "lostness" over time.

Hypothesis 2 Domains of social connectedness predict an increase in confidence over time. The second step was to

Table 2 Means and standard deviations for mean group comparisons for gender, age cohort, and ethnic group

	Males	Females	Cohort 1	Cohort 2	Cohort 3	ENZ	Māori
Family connectedness	3.79~(0.89)	3.74 (0.85)	3.96_{a} (1.02)	3.77_{b} (1.11)	3.55_{c} (1.11)	3.77 (1.21)	3.70 (2.06)
School connectedness	3.61** (0.89)	3.69 (0.85)	3.87_{a} (0.98)	3.62_{b} (1.07)	3.47_{c} (1.11)	3.71 (1.03)	3.72 (1.74)
Peer connectedness	4.05*** (0.62)	4.22 (0.62)	4.16_{a} (0.71)	4.14_{ab} (0.80)	4.10_{b} (0.80)	4.09* (0.80)	4.19 (1.39)
Confidence	4.17*** (0.76)	4.06 (0.71)	4.24_{a} (0.85)	4.13_{b} (0.94)	3.97_{c} (0.94)	4.11 (0.94)	4.16 (1.57)
"Lostness"	2.38** (0.89)	2.45 (0.85)	2.53_{a} (0.98)	2.41_{b} (1.11)	2.30_{c} (1.11)	2.24* (1.07)	2.38 (1.79)

Note: Significant univariate effects were obtained across age cohorts for all variables; different subscripts denote significant post-hoc comparisons at $p < .05$

Cohort 1 10–11 yrs at T1, *Cohort 2* 12–13 yrs at T1, *Cohort 3* 14–15 yrs at T1, *ENZ* European New Zealander

~$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

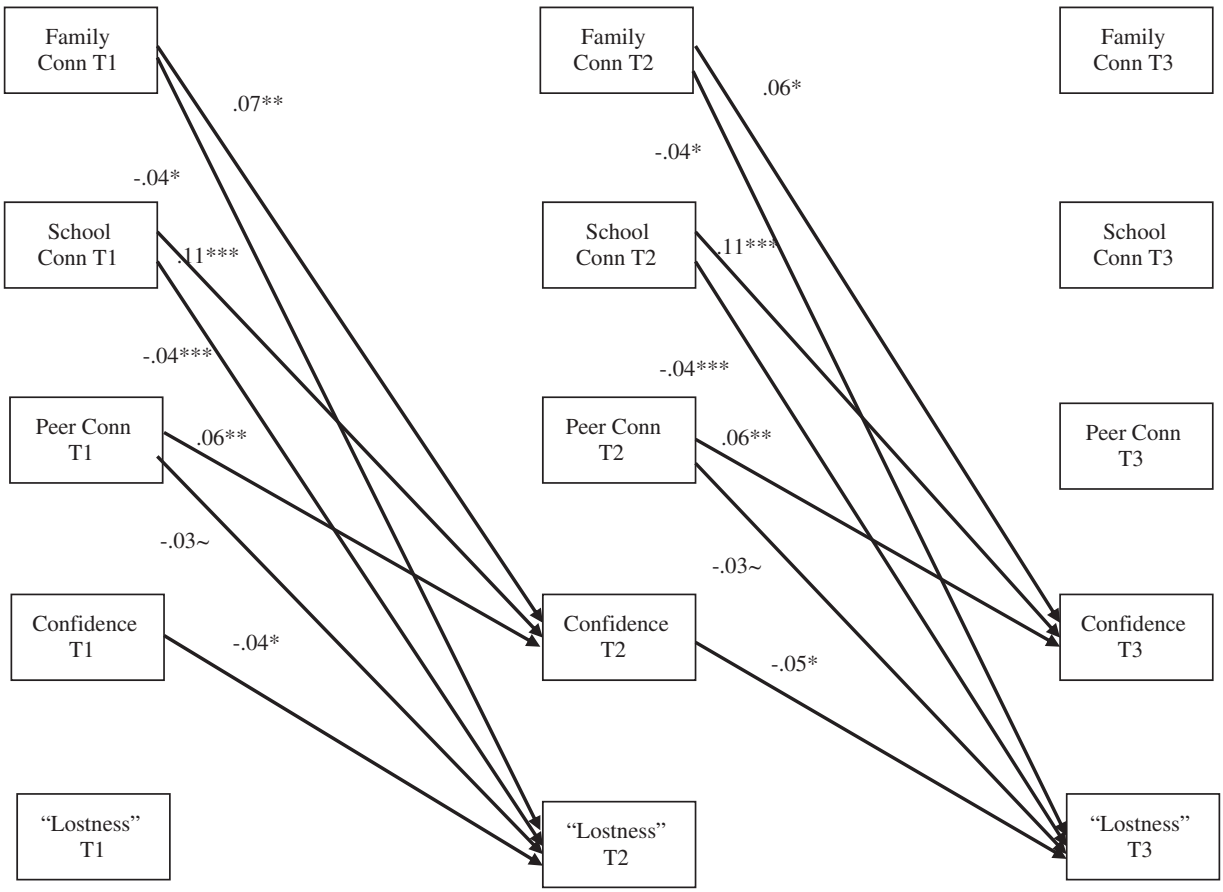

Fig. 1 Longitudinal cross-lag path model among family, school, and peer connectedness, confidence, and "lostness": Estimates relevant to Hypotheses 1–3. Standardized regression coefficients (beta weights) are superimposed upon estimated parameters, and these were not constrained to be equal over time. Covariances, stability coefficients, and non-significant path estimates were omitted to enhance readability. Cross-lag estimates not relevant to Hypotheses 1–3 were also not shown. Conn = connectedness. ~$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

determine whether all of the social connectedness domains predicted an increase in confidence 1 year later, and we found confirmation that all did (see Fig. 1): family connectedness ($\beta = .07$, $p < .01$); school connectedness ($\beta = .11$, $p < .001$); and peer connectedness ($\beta = .06$, $p < .05$). As expected, all three domains of connectedness predicted a residualized increase in confidence over time, and it is notable that all three contributed significant unique variance in predicting subsequent confidence in a model testing simultaneous prediction.

Hypothesis 3 Confidence predicts a decrease in "lostness" over time. Consistent with our prediction, confidence predicted a significant reduction in "lostness" 1 year later ($\beta = -.05$, $p < .05$). This result suggests that confident adolescents were likely to show a reduction in "lostness" 1 year later.

Hypothesis 4 Confidence mediates the influence of domains of social connectedness on "lostness" over time. Given that evidence was obtained for three significant *a paths* (i.e., family, school, and peer connectedness predicting confidence) and a significant *b path* (i.e., confidence predicting "lostness"), it was considered possible that three significant mediations would be found. Indirect effects analyses were stipulated in Mplus based on 2000 bootstrapped iterations, yielding a 95% bias corrected confidence interval. The analyses identified three significant mediations: family connectedness to confidence to "lostness", *indirect effect* = −.01, *SE* = .002, 95% CI = [−.008, −.001]; school connectedness to confidence to "lostness", *indirect effect* = −.01, *SE* = .003, 95% CI = [−.011, −.001]; and peer connectedness to confidence to "lostness", *indirect effect* = −.01, *SE* = .002, 95% CI = [−.009, −.001]. These pathways provide evidence to support the view that all three domains of connectedness built confidence, which, in turn, predicted diminished "lostness."

Research Question 1: Did "Lostness" Exert a Deleterious Influence on Confidence and Domains of Social Connectedness?

We also examined in an exploratory fashion the opposite direction of influence, from "lostness" to the other variables. The cross-lag path model suggested that "lostness" was a negative predictor of peer connectedness ($\beta = -.05$, $p = .009$), but was non-significantly related over time to school connectedness ($\beta = -.01$, $p = .68$) or to family connectedness ($\beta = -.01$, $p = .64$). At the same time, "lostness" predicted a decrement in confidence 1 year later ($\beta = -.05$, $p = .001$).

Given that "lostness" predicted a decrement in confidence over time, and, in turn confidence predicted increases in all three domains of connectedness 1 year later (all ps < .05), we considered whether confidence mediated the negative influence of "lostness" on domains of connectedness. We found evidence that it did for school connectedness, *indirect effect* = −.01, *SE* = .001, 95% CI = [−.007, −.002], as well as peer connectedness, *indirect effect* = −.01, SE = .001, 95% CI = [−.006, −.001]. However, for family connectedness, we obtained a marginally significant mediation, *indirect effect* = −.004, *SE* = .001, 95% CI = [−.004,.000].

Research Question 2: Did Gender, Age, or Ethnic Group Moderate the Basic Findings?

Gender

An equality constraint comparison between males and females generated a significant omnibus result: $\Delta\chi^2$ (58) = 63.30, $p = .011$. Three parameters yielded a significant difference between the two groups: (1) peer connectedness on "lostness" (females $\beta = -.05$; males $\beta = -.03$); (2) school connectedness on confidence (females $\beta = .05$; males $\beta = .01$); and confidence on peer connectedness (females $\beta = .02$; males $\beta = .05$), all ps < .05. Thus, females' peer connectedness more strongly negatively predicted "lostness" than in males, and school connectedness for females was a stronger predictor of confidence than in males. Confidence in males more strongly predicted peer connectedness than in females. No differences were noted for the mediation results.

Age

Similarly, an equality constraint comparison between younger and older adolescents (median-split by age) generated a significant omnibus result: $\Delta\chi^2$ (42) = 165.30, $p < .00001$. Six relevant parameters yielded a significant difference between the two groups: (1) school connectedness on "lostness" (older $\beta = -.00$; younger $\beta = -.06$); (2) family connectedness on "lostness" (older $\beta = -.03$; younger $\beta = -.01$); (3) family connectedness on confidence (older $\beta = .12$; younger $\beta = .04$); (4) "lostness" on family connectedness (older $\beta = .01$; younger $\beta = -.05$); (5) "lostness" on confidence (older $\beta = -.01$; younger $\beta = -.09$); and (6) confidence on family connectedness (older $\beta = .04$; younger $\beta = -.00$), all ps < .05. In addition, older adolescents evidenced stronger mediations for family, school, and peer connectedness to confidence to "lostness", whereas younger adolescents evidenced stronger mediations for "lostness" to confidence to school and peer connectedness.

Ethnic group

Third and last, an equality constraint comparison between European New Zealand and Māori adolescents generated a significant omnibus result: $\Delta\chi^2$ (90) = 117.23, $p < .05$. Of the parameters under investigation, only one yielded a significant difference between the two groups: (1) confidence on family connectedness (European New Zealand $\beta = .04$; Māori $\beta = .02$), $p < .05$. No differences were noted for the six mediations in question.

Discussion

While a considerable amount of attention has been paid to understanding two key components of identity development (exploration and commitment), less is known about "lost" individuals who are aware that they lack knowledge about the self, who often rely on others when making decisions about the self, and are stuck, directionless, and therefore, unable to engage in the process of identity formation. Even

less is known about whether various domains of social connectedness would diminish "lostness" in adolescents over time, and the processes or conditions that would support this aspect of identity development. To this end, we examined whether three domains of social connectedness—family, school, and peers—would predict reduced "lostness" over time. We also investigated whether confidence mediated these relationships, explored other temporal relationships among these factors, and tested whether key demographic variables moderated the basic findings.

Confirming our first and second hypotheses, all three domains of social connectedness predicted a decrease in "lostness" and an increase in confidence 1 year later. In addition, confidence was shown to predict a significant reduction in "lostness" 1 year later, thus, confirming our third hypothesis. By combining these constituent parts, results showed that confidence mediated the effect of all domains of social connectedness on "lostness" over time, providing evidence in favor of our fourth hypothesis. Our results also provided evidence that the aforementioned relationships are bi-directional, and that gender, cohort, and ethnic group moderated the basic findings. First, our exploration of the reverse temporal relationships among these variables showed that "lostness" negatively predicted peer connectedness, but it was not a significant predictor of school or family connectedness. "Lostness" was also found to predict decreases in confidence over time. Finally, results indicated confidence mediated the negative influence of "lostness" on school connectedness, as well as peer connectedness, but there was only a marginally significant mediation for family connectedness. These results suggest that "lostness" is not merely an end-state; it seems that it can exert a deleterious impact over time on both confidence and school, as well as peer connectedness, and to some extent, family connectedness. Additionally, it seems that confidence can begin or end a temporal chain of influences in addition to functioning as a mediator.

Answering our second research question, we found that gender, age cohort, and ethnic group did, in fact, moderate the basic findings. For girls, peer connectedness more strongly predicted diminished "lostness" and school connectedness more strongly predicted confidence; for boys, confidence more strongly predicted peer connectedness. No differences were found in terms of gender for the mediation results. Regarding age cohort, for younger adolescents, school connectedness more strongly predicted diminished "lostness", and "lostness" more strongly predicted decreases in family connectedness and confidence. For older adolescents, family connectedness more strongly predicted diminished "lostness" and increased confidence, while confidence more strongly predicted increased family connectedness. Also, a stronger mediation for family, school, and peer connectedness to confidence to "lostness" was evidenced by older adolescents, while a stronger mediation for "lostness" to confidence to school and peer connectedness was evidenced by younger adolescents. Finally, regarding the moderating effect of ethnic group, confidence more strongly predicted family connectedness for European New Zealand youth, compared to Māori youth. No ethnic group differences were found, however, for the six mediations in question.

Domains of Social Connectedness Diminish "Lostness" through Increased Confidence

As expected, our results showed that social connectedness in the family, school, and peer contexts functioned as a protective factor in that it predicted diminished "lostness" over time. In other words, youth who are well socially connected at one point in time evidenced a reduction in a lack of self-knowledge and being stuck and unable to engage in the process of identity formation one year later. This finding was expected for while "lostness", per se, is an understudied concept, and no studies to date have simultaneously examined the role of multiple domains of social connectedness in predicting "lostness" over time, previously generated theory and empirically-based evidence provided indications of associative effects that family, school, and peer connectedness would be related to diminished "lostness" (Erikson 1968; Campbell et al. 1984; Meeus 2011). Since previous research has linked family, school, and peer connectedness to confidence (or similar concepts like self-esteem, coping efficacy, and perceived competence) (Birkeland et al. 2014; Bowers et al. 2012; Ernestus et al. 2014), it was not surprising that our results showed that all connectedness domains positively predicted confidence. We also expected confidence to predict a decrease in "lostness" over time as findings have linked greater confidence to a more mature identity style (Crocetti et al. 2014), and, in fact, our findings verified that confidence did diminish "lostness." We also found that confidence was a significant mediator in the link between social connectedness and "lostness" over time. Prior evidence led us to believe this would be the case, as Erikson (1968) highlighted the key role of healthy supportive relationships in developing self-confidence and confidence in the world in order to propel forward one's engagement in identity exploration and commitment; in addition, links have been established between confidence and identity processes (Crocetti et al. 2014), and between confidence and social connectedness (Ernestus et al. 2014).

While our findings showed that family, school, and peer connectedness diminished "lostness" over time through increased confidence, this likely occurred through different processes and conditions. *Connection, regulation*, and *respect for individuality* are thought to explain how

connectedness impacts youth outcomes (Barber et al. 2005), and relating these dimensions to our definitions and measures of family, school, and peer connectedness provided some insight into how connectedness within each domain may have positively impacted "lost" adolescents. Thus, family connectedness, which in this study measures family cohesion, family identity, and spending time with family, assists youth in knowing who they are and helps them rely less on others when making decisions about the self; supportive relationships in the family, therefore, boost "lost" individual's sense of self-confidence and confidence in the world as a safe place to engage in the process of forming an identity. Specifically, we propose that family connectedness, in this case, promotes positive outcomes through *connection* by experiencing a sense of belonging, of not being alone, a perceived bond, and by engaging in healthy family interactions that are positive, supportive, devoted, consistent, and predictable. While we also suggest that school connectedness diminishes "lostness" by increasing youth's confidence through *connection*, we propose that this occurs through different conditions specific to this social context, including engaging in positive interactions, feeling a sense of devotion and pride towards school, and experiencing a sense of belonging and the absence of aloneness. Furthermore, our definition of school connectedness is related to *regulation* in that adults at school provided opportunities for making independent decisions, as well as *respect for individuality* in that youth felt they were treated with respect and trusted with responsibility. We suggest connectedness with peers diminished "lostness" by increasing youth's confidence through the provision of emotional support and trust, and the availability of close friends; both of these factors are related to *connection* in that interactions with peers were positive, supportive, devoted, and predictable, while providing a sense of belonging, the absence of aloneness, and a perceived bond. Additionally, friends' understanding and acceptance for who they are relates to *respect for individuality* and to *connection*. Thus, our findings add to the research on identity and on social connectedness by generating results based on the simultaneous examination of multiple connectedness domains, demonstrating that, while all connectedness domains diminished "lostness" through increased confidence, the specific processes and conditions that contributed to this positive change varied across developmental contexts. Furthermore, unlike previous research, since they are based on longitudinal data, our findings clarify how these relationships manifest over time.

Evidence of Bi-Directionality: "Lostness" Diminishes Social Connectedness by Decreasing Confidence

Our first set of exploratory analyses investigated the opposite direction of influence, namely whether "lostness" had a deleterious effect on subsequent confidence and domains of social connectedness. Results showed that, in fact, it did for school and peer connectedness, as well as family connectedness, but the later was a marginally significant mediation. To explicate this finding, lacking self-knowledge and relying on others to make decisions about oneself makes "lost" youth feel less confident, what Erikson (1968) would refer to as lacking trust in oneself, not feeling trustworthy to others, and not trusting in the world; this may make it more difficult for "lost" youth to experience connectedness with non-parental adults or classmates at school in a way that youth do not experience in the family. Taking this one step further, drawing again from ideas gleaned from Barber et al. (2005), our measure of family connectedness assessed aspects related only to the process or condition, *connection*, while school and peer connectedness also related to *respect for individuality* and *regulation*; thus, it may be the case that the specific processes or conditions related to *connection* provides additional protection of family connectedness from the deleterious effects of being "lost" and lacking confidence in oneself and the world. However, by and large, results confirm the bi-directionality between "lostness" and domains of social connectedness through confidence.

These results not only add to the body of literature demonstrating reciprocal relationships between concepts related to "lostness" and social connectedness domains, such as the relationship between parent-child connectedness and youth's emotional well-being (Boutelle et al. 2009), but they also reaffirm the idea that adolescents are agents of change as they actively influence and shape the very environments that impact them (Lerner et al. 2005). The result also confirms Bronfenbrenner's (1979) notion of human development unfolding in a process of dynamic person-context interactions within and across multiple domains of life. This observation of youth as self-socializing agents should be taken into account in the construction of interventions, to acknowledge that the directionality of influence does not flow immutably from the adult world to the world of youth. Relatedly, so-called "lost" youth may resent adult efforts to socialize them, and resolutely cling to "lostness" as a protest against these pressures. Encouraging youth to engage in contexts and activities that are likely to promote identity development must be done sensitively and with great respect for the developing autonomy of young people.

Gender, Age, and Ethnic Group Moderated the Basic Findings

Gender

The results that demonstrate the ways that gender moderated the basic findings shed light on the incongruent

evidence regarding the effect of gender on identity processes and on social connectedness. First, we found that peer connectedness more strongly negatively predicted "lostness" for girls, which suggests that when it comes to developing knowledge about the self and learning to depend less on the opinions of others in making decisions about the self, the emotional support, trust, acceptance, sense of belonging, and perceived bond with friends has a stronger positive effect for girls than for boys. This result may provide insight into the specific processes and conditions within the developmental context of peers that encourages girls' preference for the information-identity style in which they actively seek out, process, and use identity-relevant information to make decisions about the self (Smits et al. 2010; Bosch and Card 2012; Crocetti et al. 2014); as a matter of fact, McGraw et al. (2008) found that girls reported significantly higher peer connectedness than boys. Thus, taken together, these results suggest that positive connections with peers play a more significant role for girls when it comes to reducing the state of "lostness." It was surprising to not find any significant differences by gender for family connectedness, as previous research has shown higher levels of family connectedness among girls, especially older female adolescents (Libbey et al. 2002; Pinquart and Silbereisen 2002). Considering school connectedness more strongly predicted increased confidence for girls, the school context may also serve as an indirect resource for decreasing "lostness" in girls by boosting confidence. Several of our findings related to girls' connectedness with peers and school are consistent with findings from Karcher and Sass (2010) who found that girls reported higher connectedness to friends, siblings, school, peers, and teachers. On the other hand, while our overall results showed "lostness" diminished school and peer connectedness through decreased confidence, confidence more strongly predicted increased peer connectedness for boys, compared to girls. Thus, it seems that boys' confidence not only protects connectedness with peers from the deleterious effects of "lostness", but it actually promotes further connection with peers.

Age

Many significant moderations were found for age, testifying to the importance of examining identity development over time. While one of our main findings showed that "lostness" diminished school and peer connectedness through decreased confidence, our assessment of age as a moderator revealed that this mediation was stronger for younger, compared to older, adolescents. Specifically, "lostness" was a stronger negative predictor of family connectedness and confidence for younger youth. Thus, not knowing oneself and relying on others to make decisions about the self in the earlier stages of adolescence predicted diminished connectedness within the family and feeling less confidence in oneself and the world at a time when these factors are most crucial to forming a more mature identity. This negative cascade effect presents particularly challenging circumstances for younger adolescents. However, for these youth, school connectedness was a stronger negative predictor of "lostness", which highlights the key role of schools in disrupting a negative cyclical effect for younger "lost" adolescents.

Older adolescents, on the other hand, evidenced a stronger mediation for all domains of connectedness to increased confidence to diminished "lostness." This result may signify that "lost" older adolescents may be able to draw upon their connections with others as a resource for getting to know themselves better and for learning how to rely less on others in making decisions about the self. This finding is congruent with previous research in that better identity-related outcomes are found among older adolescents (Meeus 2011). Coming to rely less on others in making decisions about the self is congruent with youth's increased calls for autonomy as they move through periods of adolescence (Steinberg and Silverberg 1986). Furthermore, normative advances in cognition (Harter and Eisenberg 2006) mean that older adolescents may be able to more effectively draw upon and nurture connectedness in various developmental domains to get what they need from those interactions (Lerner et al. 2005). While we examined several connectedness domains, family connectedness emerged as a key factor among older adolescents in that this connectedness domain had a significant positive reciprocal relationship with confidence, and both of these variables diminished "lostness." This result confirms what is known about the key role of the family in developing a mature identity (Luyckx et al. 2007).

Ethnic group

Our results indicate that the level of confidence of European New Zealand adolescents was a stronger predictor of improved subsequent family connectedness than in Māori youth, but similarities between these two ethnic groups were far more numerous than differences. Given that previous studies found ethnic group differences in social connectedness in samples of adolescents from the United States (e.g., Karcher and Sass 2010; Witherspoon et al. 2009), and minority youth are known to experience different developmental experiences, processes, and outcomes when it comes to identity development (Phinney 1992), we were surprised that this variable did not have a stronger moderating effect in terms of highlighting differences between European New Zealand adolescents and Māori youth. Instead, the lack of significant differences suggests that there are more

similarities than differences between these groups. It may be the case that positive and healthy connections in the family, at school, and with peers help "lost" youth, regardless of their ethnic group at least for those growing up in New Zealand, to gain self-knowledge and become self-sufficient in their decision making by learning to trust in themselves and trust in others. Perhaps the single difference, as our results suggest, is that for European New Zealand adolescents, confidence strengthens family connectedness in a way that it does not for Māori youth; this may suggest that in order to boost family connectedness among European New Zealand adolescents, interventions may gear their efforts towards increasing confidence among these youth. For Māori youth whose family unit, the *whānau*, is defined as several generations of family members and family friends who have interrelated roles and responsibilities (Moeke-Pickering 1996), strengthening family connectedness may occur through different conditions or processes other than confidence.

Limitations and Implications of the Present Study

Several limitations of the current research can be identified. We did not measure identity synthesis, and although one can assume that a diminishment of "lostness" is indicative of the growth of a more mature, well-synthesized identity, this assumption should be tested. Accounting for both aspects of identity, in addition to identity confusion, may provide a more nuanced picture of the dynamic and changing nature of identity development through periods of adolescence. Although it was advantageous to use multi-wave longitudinal data to test our hypotheses, the time periods between each wave of data collection was 1 year apart. Thus, other relationships between these variables may have been revealed at shorter or longer periods of time. All of the data were provided through self-report surveys obtained from youth. Ideally, other sources of data would have been collected, such as parent, teacher, and peer ratings. While an attrition analysis showed greater loss of individuals with lower social connectedness and higher "lostness", the effect sizes of these differences were small; unfortunately, higher attrition among participants with more negative outcomes is found in most long-term longitudinal studies. While we did not collect data on Barber et al.'s (2005) *connection, regulation*, and *respect for individuality* to be able show, with greater certainty, that these are, in fact, the mechanisms through which domains of social connectedness diminished "lostness" through increased confidence, we hope that our discussion has provided preliminary insights regarding these variables that may serve as a jumping off point for future research.

Despite these limitations, our results have implications for positive youth development prevention and intervention programs. Our findings highlight the potential for two possible cascade effects: (1) one in which well-connected youth benefit from broad social support, become more confident, and subsequently show decreases in "lostness", or (2) one in which "lost" youth become less confident, and subsequently less socially connected. How might we steer more of our youth toward the first and away from the second? School and community programs possess great potential in terms of simultaneously promoting social support, confidence, and a positive identity among youth. Dawes and Larson (2011) found that program leaders help youth develop authentic personal connections to activities, to institutions, and to other people by encouraging them to identify their personal goals and values related to their activity participation. It may be advantageous in future interventions to assess identity outcomes among youth at the outset and then promote connectedness with adult leaders to assist "lost" youth with identifying their interests, engaging in an activity that aligns with that interest, and building confidence by achieving goals that are aligned with who they are. The many benefits of positive adult mentors and leaders have been documented in studies of 4-H programs (Bowers et al. 2012, 2014; Gestsdóttir and Lerner 2007). Because our findings showed that all variables significantly predicted all other variables over time, interventions that attempt to bolster any one of these developmental resources will likely foster other key personal and social resources at the same time or subsequently. Furthermore, these results suggest that promoting one of these factors will bolster the dynamic forces that sustain a positive developmental trajectory or cascade. An excellent example of this dynamic system are school-based community "living rooms" in Latino middle schools where Latino mothers volunteer their time as "othermothers"; these "living rooms" have been shown to foster family connectedness by helping mothers create meaning and social connectedness in their own lives while encouraging girls' feelings of connectedness to school (Lopez and Lechuga 2007).

Conclusions

Considering the formation of a mature identity is the foundation for so many important developmental achievements, it is important to identify the social contextual factors that have the greatest impact in helping "lost" youth who lack the self-knowledge to engage in the process of identity exploration to find their way. Our findings, as predicted, showed that family, school, and peer connectedness emerged as strong negative predictors of "lostness" over time as mediated through increased confidence. However, our findings additionally showed that domains of connectedness, confidence, and "lostness" were related to

each other in all possible ways over time, suggesting that, "lost" youth, if ignored, run the chance of descending into a negative trajectory marked by lack of confidence and poor social relationships. On the other hand, we also suggest that positive youth development interventions that build confidence and social connections, such as encouraging youth to join a 4-H club, are likely to result in a positive trajectory leading ultimately to a more mature and adaptive identity.

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Ethical Approval Ethical approval was obtained from the University Ethics Committee prior to the first wave of data collection.

Informed Consent Youth assent and informed parental consent, when appropriate, was obtained from all participants included in the study prior to data collection at all three time points.

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Nicole M. Ja is a Research Fellow in the School of Psychology at Victoria University of Wellington, New Zealand. She received her M. A. and Ph.D. in Developmental Psychology from Cornell University. Her research interests include adolescents' self-processes such as identity development and self-reflection, organized school and community activities, and social connectedness.

Paul E. Jose is a Professor at Victoria University of Wellington. He received his Ph.D. in Developmental Psychology from Yale University. His major research interests include adolescent well-being, cross-cultural examination of family dynamics, and the statistical topics of mediation and moderation.