

DISSERTATION

FUTURE ORIENTATION AND SELF-PERCEPTION MINIMIZE RISK
ENGAGEMENT AND PROMOTE POSITIVE YOUTH DEVELOPMENT

Submitted by

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ABSTRACT

FUTURE ORIENTATION AND SELF-PERCEPTION MINIMIZE RISK ENGAGEMENT AND PROMOTE POSITIVE YOUTH DEVELOPMENT

Adolescence is a developmental period marked by physical, cognitive, and social changes that influence both negative behaviors and positive youth development (PYD). Theorists and empirical work have noted that these marked changes propel youth to explore and construct a personal identity. This exploration and commitment of an identity helps to build youths' self-perceptions as well as refine and orient one's future. However, for some youth, the adolescent period is considered a time of heightened engagement in health-compromising behaviors. Both risk reduction and strength-based literature identify self-perceptions (self-esteem and self-efficacy) and positive thoughts about the future, which can incorporate a sense of purpose, as factors related to an adolescents' engagement in risk as well as adolescents' positive development. However, few studies have highlighted how these factors serve as mediators between these associations. Therefore there were two studies assessed in this dissertation. Study 1 assessed two competing mediational models to determine whether future orientation mediated the relations between self-esteem and adolescent risk or whether self-esteem mediated the relation between future orientation and adolescent risk. I utilized data from an intervention designed to delay sexual debut. Results suggested future orientation to fully mediate the association between self-esteem and adolescent risk. However, self-esteem did not serve as a significant mediator between future orientation and adolescent risk. One limitation could be the assessment of general self-esteem instead of a more domain-specific form of self-esteem.

In Study 2, future orientation was assessed as a probable mediator between self-efficacy and PYD. Utilizing a sample of adolescents who served as part of the comparison group for a family and youth leadership program, results found future orientation to partially mediate the relation between self-efficacy and PYD. Several explanations were given for this partial mediation, with a strong emphasis on the conceptual complexity of PYD and dynamic interplay among variables that define PYD as being possible predictors and producers of PYD.

Both studies highlight the importance of understanding the quintessential roles that both future orientation and self-perception play in the reduction of adolescent risk and development of a positive youth. In particular, future studies need to continue focusing on the examination of the potential developmental cascade of future orientation as serving as a potential mediator between self-perceptions and adolescent behavior.

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CHAPTER 1

LITERATURE REVIEW

Adolescence has been described as a unique life transition that fosters both inter- and intra-individual development through the exploration of one's identity, goals, values, and belief systems (Erikson, 1959, 1968; Marcia, 1980). At this stage, individuals think critically about their future selves, especially in life course domains such as vocation, education, marriage, and family, while they simultaneously develop beliefs about who they are and would like to become (Nurmi, 1991, 2004). The literature also describes adolescence as a period of heightened engagement in negative and problem behaviors (Jessor, 1991; Robbins & Bryan, 2004). Such behaviors include but are not limited to substance abuse, delinquency, risky sex, and impulsivity. This predilection to engage in risk could be attributed to limited ability to control impulses, delay gratification, and consider future consequences for one's current actions. In short, the adolescent period is characterized by constructing a personal identity, refining and orienting one's future and, for some youth, engaging in health-compromising behaviors (Markus & Nurius, 1986).

The self-concept and possible selves theoretical frameworks describe future orientation as an individual's planning, exploration, and commitment to self-ascribed images of the future (Seginer, 2003, 2008). It can be further described as positive and optimistic, or as negative and pessimistic (Gullone & Moore, 2000; Trommsdorff & Lamm, 1980). Throughout the years, researchers have used different terms to refer to adolescents' orientation to the future (e.g., future hopes, future time perspective, future time orientation, and possible selves) and have also operationalized the concept in multiple ways. Even though this is common for any developing concept, the multitude of names and operational definitions, in conjunction with the limited

number of published studies on this concept, poses a challenge when comparing results across studies, as well as selecting a valid measure with which to assess one's future orientation (see Gjesme, 1983).

Despite this shortcoming, the empirical evidence found would suggest future orientation to be informative in the development of various aspects of the self, such as identity development and self-perceptions (Nurmi, 1991, 2004). Additionally, positive future orientation is associated with lower levels of negative or risky behaviors (Chen & Vazsonyi, 2011; Robbins & Bryan, 2004) and higher levels of characteristics associated with positive youth development (PYD; Schmid, Phelps, & Lerner, 2011; Sun & Lau, 2006; Sun & Shek, 2012). As a result, when developmental and prevention scientists have a more in-depth understanding of future orientation, they may be better positioned to assess its effects on risk engagement and self-definition.

Relatedly, self-perceptual concepts (i.e., self-esteem and self-efficacy) are critical aspects of adolescent development (Harter, 1990; Marsh, 1986; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). In other words, self-perceptions are constituted of characteristics that define an individual's self-concepts, promote a selection of behaviors, and aid in identity development. Research indicates that high levels of self-perceptions are inversely related to engagement in health-compromising behaviors (Kerpelman & Mosher, 2004; McGee & Williams, 2000; McGee, Williams, & Nada-Raja, 2001), and are also associated with domains of PYD (i.e., competence, confidence, community, caring, and connectedness; Gestsdottir & Lerner, 2007; Schmid et al., 2011). However, there are some contradictions across studies that indicate that narcissistic and deviant behaviors are related to high self-esteem (Zeigler-Hill, 2006). These

contradictory findings highlight the continued necessity to understand the influence of self-perception on adolescent development.

Self-perceptions may also be reciprocally related to future orientation, as construction of one's personal future becomes integrated into the process of self-perceptual development. In other words, as aspects of teens' self-concept develop, ideas about one's future selves are mutually constructed. Also, highly positive self-perceptions may redirect negative or pessimistic thoughts in order to maintain positive future trajectories. However, there has been a general lack of longitudinal studies investigating (a) the effects of future orientation and self-perceptions on adolescent development, and (b) the interrelations between future orientation and self-perception in predicting risk engagement and PYD among adolescents. The proposed set of studies builds upon previous work on adolescent development by addressing these two limitations. To this end, the studies included examinations of future orientation and self-perception in relation to later risk engagement (Study 1) and PYD (Study 2). The main research question is: How does the relation between future orientation and self-perception contribute to adolescent development?

Specifically:

1. How do future orientation and self-perceptions (such as self-esteem) contribute to risk engagement? Are they independent predictors, or mediators of risk engagement?
2. How do future orientation and self-perceptions (self-efficacy), contribute to aspects of PYD?

In Chapter I, I reviewed conceptual frameworks related to both future orientation and self-perceptions, namely identity development, self-concept, and possible selves. I then reviewed studies addressing future orientation, and then self-perceptions and their contributions to risk reduction and PYD. The first study is described in Chapter 2 where I assessed mediating effects

among self-perceptions and future orientation in relation to later risk engagement among adolescents. Chapter 3 focuses on the second study that assessed the mediational effects among self-perceptions, future orientation, and later PYD among adolescents.

Conceptual Frameworks

Identity Development

Erikson (1968) proposed identity development as a key developmental process as individuals transition from childhood to adolescence. Using Erikson's work as a platform, Marcia (1980) argued for the utility of an identity status model by adolescents that assists with the development of an identity. Marcia stated that adolescents must engage in a two-dimensional process (i.e., identity exploration and identity commitment) that facilitates the development of a stable identity. Identity exploration is indicative of the extent to which individuals actively search for and place values on prospective and alternative identities prior to choosing a specific belief and or value system to pursue. Identity commitment is the extent to which individuals select and adopt a particular identity and then implement that identity through activities and characteristics (Crocetti, Rubini, Luyckx, & Meeus, 2008; Marcia, 1980; Meeus, 2011).

There are four distinct identity statuses depending on the extent to which adolescents explore and commit to a specific identity (Marcia, 1980). *Achievement* is classified by a status where individual actively explore various identities and then commit in an identity domain. *Moratorium* is characterized by individuals' active exploration of alternative and prospective identities without committing to any particular identity. *Foreclosure* refers to individuals' commitment to an identity without any active exploration of alternative identities. *Diffusion* is characterized as individuals' lack of exploration and commitment to any particular identity (Crocetti et al., 2008; Marcia, 1980).

Extensive scholarship affirms identity development as a critical factor that facilitates self-evaluation and positive psychological well-being (Crocetti et al., 2008; Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste 2005) and social relationships (Zimmer-Gembeck & Petherick, 2006). Having a clear sense of self also has shown to be inversely related to internalizing behavioral issues such as depression and anxiety (Schwartz, 2007) as well as externalizing behavioral problems such as physical aggression (Schwartz, 2007). Conversely, individuals who lack clarity or are confused about their identity tend to exhibit higher levels of externalizing and internalizing behavioral issues such as sexual risk taking and substance use (Schwartz, Mason, Pantin, & Szapocznik, 2008).

Marcia's (1980) work has since then inspired over four decades of research focused on identifying different patterns of identity development among individuals (for reviews, see Kroger, Martinussen, & Marcia, 2010; Meeus, 2011). While neo-Eriksonian researchers and theorists have since expanded on Marcia's paradigm and developed complementary identity models (Crocetti et al., 2008; Luyckx et al., 2005; Schwartz, 2007), the most important point of contention within recent literature is attempting to understand the timing of identity development.

Earlier research focused primarily on identity development among adolescents (Kroger et al., 2010). However, with a recent surge of longitudinal studies, findings highlight that while there is progressive searching for identities during the adolescent period, there is a continuity of identity development that is extended into emerging adulthood (Meeus, 2011). Despite this continuity of identity during the emerging adulthood period, identity remains an important developmental process during the adolescent developmental period (Meeus, 2011).

Self-Concept

Traditional models of self-concept emphasized the formation of self-image as an agglomeration of static traits that is formulated primarily on past experiences (Wylie, 1979). Early studies focused primarily on understanding self-image and were imbued with assessing self-esteem as being equivalent to self-concept (Block, 1981; Harter, 2006). Ontological and functional perspectives parallel traditional models in that self-concept is viewed as an objective self-structure (i.e., whether the individual possesses self-concept or not).

In contrast, contemporary models view self-concept as a multidimensional, plastic, and dynamic construct that is responsible for organizing and processing self-referent information. Aspects of the contemporary models can be related to the phenomenological perspective of self-concept, which is the extent to which self-concept is the mental representation of an individual within several cognitive self-schemas (Adamson, Ferrer-Wreder, & Kerpelman, 2007; Cross & Markus, 1994; Markus & Kunda, 1986).

A self-schema is an organization of past behaviors that assist individuals with understanding and organizing information about social experiences (Cross & Markus, 1994). These self-schemas are differentiated across several domains of individual functioning (e.g., academia, social, personal), and are prominent factors in understanding identity construction as well as goal formation, role development, and growth in abilities (Shavelson, Hubner, & Stanton, 1976). Thus, individuals are more likely to attend to information that accords with an already established set of self-schemas, as well as have higher recollections of self-schematic information than nonschematic information (Stein, Roeser, & Markus, 1998). Furthermore, research has revealed the importance of self-concept in regulating behaviors. Markus and Nurius

(1986) argued that the regulation of one's behaviors becomes nested in schemata that represent potential or possible thoughts of the self.

Possible Selves

Possible selves are cognitive self-representations of an individual's goals of who he or she ideally would like to become (ideal self), and are anxious or fearful of becoming (feared self; Markus & Nurius, 1986). Possible selves are derived from past self-representations as well as projections of self-representations (i.e., vivid images and symbols) of the future (Oyserman, Bybee, & Terry, 2006; Oyserman & Markus, 1990; Oyserman, Terry, & Bybee, 2002). Even though possible selves can be distinguished from current or present selves (actual self), they are intricately connected. This is so because although historical contexts shape future selves, immediate sociocultural experiences are also embedded into the development of future representations of the self. Further, past experiences offer evaluative importance in interpreting present or actual selves (Markus & Nurius, 1986). Thus, an adolescent who would ideally like to become an Olympic swimmer is likely to interpret second place in a swim meet much more negatively than someone whose ideal self does not entail being an Olympian. Crucially, possible selves have been shown to contribute to self-concept and, to a greater extent, identity development (Dunkel, 2000; Oyserman et al., 2002, 2006).

Theoretically and empirically, possible selves and exploration of future ideal possibilities have been strongly related to schemata construction in that individuals' formation of ideal possible selves lie within the domains of several self-schemas. Domain-specific conjugations of the self represent awareness of one's potential, and aid in the formation of possible selves within that domain. For instance, within the academic domain, an individual who not only enjoys conducting chemistry experiments but also excels in chemistry courses may start forming a self-

schema that embodies confidence in chemistry. For that individual, an ideal possible self may form that surrounds being a chemist or professor of chemistry. Thus, development of possible selves extends to the processes of identity development (Gjesme, 1983; Oyserman et al., 2002, 2006).

During adolescence, there is more intense exploration and development of identities (Marcia, 1980). What is not yet clear is the complementary nature of possible selves and identity development. On the one hand, the process involved with exploring identities lends itself to the formation of several ideal and feared possible selves. On the other hand, exploration of identities may be reflective of possible selves that already have been generated (Dunkel, 2000). Further, ideal and feared possible selves serve to foster motivational or agency-related thoughts, and long-term achievement within individuals (Dunkel, 2000). The possible self in a given domain can serve to modify or motivate behaviors that assist with identity development, especially when adolescents' appraisals of their capabilities (self-efficacy) are matched with potentiality of the attainment of the ideal self and balanced with the avoidance of the feared self within that domain (Markus & Nurius, 1986; Oyserman & Markus, 1990). Therefore, the concept of possible selves elucidates how future plans can guide, motivate, and inform behaviors.

Future Orientation

Future orientation is a developmental process that emphasizes thoughts, plans, and prospective goals in the proximal or distal future (Nurmi, 1991; Trommsdorff & Lamm, 1980). This domain undergoes much development during adolescence, where concerns about normative life-course outcomes such as educational and occupational achievements, migration from the home, getting married, and having a family are most prominent (Nurmi, 2004; Seginer, 2003). These life-course domains imbue identity development as well as individual motivation as they facilitate hope and contribute to optimism (Catalano, Berglund, Ryan, Lonczak, & Hawkins,

2004; Seginar, 2003). Therefore, future orientation plays both a cognitive and affective role in motivation (Nurmi, 2004).

Future orientation has been conceptualized in different ways as future hopes, time orientation or future time perspective (FTP), and possible selves (Gjesme, 1983; Husman & Lens, 1999; Kerpelman & Mosher, 2004; Leondari, 2007; Markus & Nurius, 1986; Zimbardo & Boyd, 1999). In particular, the concept of possible selves has been closely linked to the other concepts of future orientation (Markus & Nurius, 1986; Oyserman et al., 2002, 2006).

Distinctions between these two concepts result from the assessment of possible selves as more of a self-schematic construct than future orientation (Leondari, 2007). However, contemporary research tends to classify individuals' expectations about future-related actions as future orientation (Leondari, 2007; Seginer, 2008). Given that these other concepts are subsumed within a broader spectrum of hopes and fears for the future, the term future orientation will be used in this set of studies.

Several studies indicate that adolescents often pre-live events and orient their future within specific social, cultural, and historical contexts. The expectations presented to them within these contexts are learned at a fairly early age and influence the frequency of positive future thoughts, desirability of goals, probability of achievement of goals, and temporal shifts in not achieving goals (Nurmi, 1991; Trommsdorff, Lamm, & Schmidt, 1979). In other words, if a teen believes that goals are unattainable within certain contextual constraints, then there is a decreased potentiality for that individual to have positive future thought processes related to that goal. Most importantly, beliefs about having a compelling and positive future have been linked to facilitating adolescents' sense of purpose (Damon, Menon, & Bronk, 2003; Simmons, Dewitte, & Lens, 2000).

Sense of Purpose

It is apparent from more recent studies that there is a strong link between future orientation and establishing a sense of purpose. Thinking positively about the future enables individuals to engage in activities that are integral to achieving those goals (Blattner, Liang, Lund, & Spencer, 2013). Similarly, purpose is concentrated on future-oriented goal attainment, behavioral management, and meaning making (Brandstadler, 1999; Damon et al., 2003; Hill, Burrow, & Summer, 2013; McInerney, 2004). Specifically, sense of purpose is bidimensional involving (a) an aim that is an intent to strive toward a long-term goal, and (b) internal motivation towards meaningful aims that go beyond the self (Damon et al., 2003; Hill et al., 2013). In other words, having a sense of purpose entails stability in individuals' intentions to strive for and accomplish meaningful goals that are valuable contributions to the self and others (Damon et al., 2003).

Similar to positive thoughts about the future, having a clear sense of purpose acts as a buffer against some of the turbulence faced by adolescents. As adolescents are developing a sense of self and establishing identity, there is an increased likelihood of engaging in health-compromising behaviors. However, there is an inverse relation between sense of purpose and problem behaviors such as substance use (e.g., Mineham, Newcomb, & Galaif, 2000) and depression (e.g., DuRant, Cadenhead, Pendergrast, Slavens, & Linder, 1994). In fact, researchers have drawn a parallel between having an established sense of identity and sense of purpose, which further buffers the potential to engage in risky behaviors (Hill et al., 2013).

As a result, adolescents' sense of purpose may serve to motivate them to engage in proximal activities that lead to the achievement of desired future outcomes (Damon et al., 2003; Husman & Lens, 1999; McInerney, 2004; Stoddard, Zimmerma, & Bauermeister, 2011). The

perceived utility value of a task – the importance of a current task as a means to attain a future and potentially unrelated goal – intensifies the link between future orientation and sense of purpose. This is so because those who perceive their current tasks to be important in achievement of future goals would be more motivated to complete such tasks, even if it contrasts with one’s interest value; i.e., the extent to which one obtains immediate satisfaction from engaging in a certain task (Leondari, 2007). Thus, Study II focuses on young adolescents’ sense of purpose as related to positive youth development.

A number of researchers have documented strong inverse relations between future orientation and engagement in negative behaviors among adolescents. In particular, a low level of future orientation has been shown to be a strong predictor of adolescents’ engagement in health-compromising behaviors such as risky sex, acute alcohol and drug use, and delinquency (Bolland, 2003; Robbins & Bryan, 2004). In contrast, adolescents who possess positive thoughts towards their future tend to not only engage in less risky behaviors but also tend to exhibit fundamental positive youth developmental characteristics (Schmid et al., 2011; Sun & Lau, 2006; Sun & Shek, 2012). Further discourse on the linkages between future orientation and risky behaviors versus PYD is in Chapters 2 and 3, respectively.

Self-Perceptions

There has been a long-standing debate among many theorists and researchers about the definition of self-perceptions. Even though several studies use self-concept and self-perception interchangeably (see Valentine, DuBois, & Cooper, 2004), several studies have defined self-perception less as a mental representation of self-referent information and more as self-attributes related to feelings and beliefs about capabilities (Bem, 1972; Valentine et al., 2004; Wigfield, Eccles, Mac Iver, Reuman & Midgley, 1991). Therefore, I will use self-perceptions to refer to thoughts, feelings, and behaviors that contribute to an individual’s beliefs about their worthiness

(self-esteem) and capabilities (self-efficacy; Harter, 1999, 2006; Nader-Grosbois, 2014). It is necessary not only to differentiate between self-esteem and self-efficacy but also to highlight how each contributes to adolescent development.

Both self-esteem and self-efficacy are cognitive and affective processes regarding perceived competence (Hughes, Galbraith, & White, 2011; Rosenberg, 1965; Rosenberg et al., 1995). Self-esteem is primarily focused on affectively laden perceptions whereas self-efficacy is more intricately linked to cognitive perceptions (Hughes et al., 2011). For instance, elements of self-esteem involve beliefs about one's worth as well as social identification, which is a reflection of both intra- and interpersonal appraisal (Rosenberg et al., 1995). On the other hand, self-efficacy refers specifically to the cognitive thought processes and judgments people place on their capabilities or abilities to perform or complete tasks (Harter, 1999; Hughes et al., 2011; Pajares & Schunk, 2002).

Another way to differentiate between these two concepts is to understand how each concept is measured. Pajares and Schunk (2002) noted that "can" questions are at the crux of perceptual competency questions assessing self-efficacy. For instance, questions such as, "Can I become an Olympian?" and "Can I achieve my goals?" assess self-efficacy. Assessments of self-esteem more often involve affective "being" questions such as, "Am I a good person?" or "Do I have good friends?" (also see Hughes et al., 2011).

Even though theoretically speaking self-efficacy addresses specifically judgments about context-specific abilities (Bandura, 2006), self-esteem more typically involves general judgments about the self (Hughes et al., 2011). However, this is not always the case. Within the past decades, there has been an extension to the conceptual definition of self-esteem that incorporates a dual-model format (Harter, 2006; Wichstrom, 1995). The first model is the traditional concept

of self-esteem being linked to general perceptions of the self (Harter, 1999). However, domain-specific self-esteem ascribes satisfaction with the self in specific contexts (Gentile, Grabe, Dolan-Pascoe, Wells, & Maitino, 2009). Similar to self-efficacy, domain-specific self-esteem is context dependent (Gentile et al., 2009).

Although distinctions between self-efficacy and self-esteem have been elucidated in previous studies (Harter, 1993, 2005; Hughes et al., 2011; Wigfield et al., 1991), there is some overlap between these two constructs (Gentile et al., 2009). This is so because these two concepts address how one reflects on one's own abilities with regard to particular settings or contexts. Additionally, there is reciprocity regarding the context and the both concepts. Both concepts involve perceptual cues of performance or abilities within specific contexts (Gentile et al., 2009).

Different facets of self-perceptions also are associated with adolescent risk taking. Previous reviews of the relation between self-efficacy and adolescent risk engagement highlight an inverse relation (Kerpelman & Mosher, 2004; Kinard & Webster, 2010; McGee et al., 2001; Rosenthal, Moore, & Flynn, 1991). Similarly, a mostly inverse relation was shown between self-esteem and adolescent risk taking (Carvajal, Clair, Nash, & Evans, 1998; Erol, 2011). Some studies have shown, however, that individuals with inflated self-esteem may be more willing to engage in risky behaviors (Ostrowsky, 2010; Tzeng & Yi, 2013; Zeigler-Hill, 2006). Past studies have also confirmed the positive relations between self-perception and the fundamental components of positive youth development, constituting the Confidence and Competence aspects of the 5 C's (Catalano et al., 2004; Gestsdottir & Lerner, 2007; Larson, 2000; Park, 2004; Schmid et al., 2011).

Future Orientation and Self-Perceptions

Research has provided evidence of a positive relation between future orientation and self-perceptual constructs (Nurmi, 2004; Stein et al., 1998). The attitudes and beliefs that individuals hold about their abilities and capabilities relate to the development of their future thoughts (Jackman & MacPhee, in press; Nurmi, 1991; Schmid et al., 2011). Despite this relationship, research on intrapersonal concepts such as future orientation and self-perceptions on adolescent development has not always been clearly delineated. Research has shown inconsistencies in previous findings for these relationships. Additionally, there is little evidence on the extent to which future orientation influences both positive and negative adolescent development beyond self-perception influences (Oyserman et al., 2006; Schmid et al., 2011). There is also limited research illuminating the mediating effects of both future orientation and self-perception on adolescent development (Chen & Vazsonyi, 2011).

The two studies I conducted fill another gap in the literature related to the diversity of samples that have been studied. Although research on adolescent risk taking often is based on samples of minority youth (MacPhee, Kreutzer, & Fritz, 1994), the majority of studies of future orientation and self-perceptions in relation to either adolescent risk taking or positive youth development used samples that were mostly Euro-American (Schmid et al., 2011). As such, there is still a need for studies to incorporate a diverse sample.

Finally, the majority of studies conducted on future orientation have been cross-sectional. Cross-sectional design studies, while useful at exploring the possible underpinnings of both future orientation and self-perceptions with regard to adolescent development, do not permit inferences to be made about prediction or potential causality. Further, as future orientation is founded on the premise of thoughts of the future, assessing behavioral changes at one time point

would insufficiently explain how these thoughts affect behavior. Therefore, both of the current studies use longitudinal data.

CHAPTER II

STUDY 1

Adolescents' increased vulnerability to engage in risky behaviors has been the focus of much research (Steinberg, 2004; Steinberg et al., 2009). Even though studies highlight adolescents' awareness of the harmful nature of many activities such as delinquency, engaging in unsafe sexual practices, and being impulsive, the prevalence rates of these activities remain high (Bolland, 2003; Chen & Vazsonyi, 2011; Robbins & Bryan, 2004). The problem behaviors of adolescents not only pose a threat to the individual but also have cascading effects on that individual's proximal and distal ecosystems, namely family and community (Vazsonyi et al., 2008).

Researchers, interventionists, and policy makers alike are interested in reducing adolescent risk taking by promoting protective factors (Biglan, Brennan, Foster, & Holder, 2004). Two such factors include future orientation and self-perceptions (i.e., self-esteem), which are the foci of this study. Theoretical and empirical evidence suggest that future orientation is inversely related to a multitude of risky behaviors (Nurmi & Pulliainen, 1991). Similarly, self-perceptual constructs also are inversely related to risk engagement (Erol, 2011). Further, perceptions of competence and self-confidence are related to thoughts about the future (Stein et al., 1998). However, evidence is limited with regard to whether future orientation and self-perceptions are mediators of adolescent risk engagement primarily because there are so few longitudinal studies conducted that involve these two constructs. In this study, two mediational pathways will be compared: Future orientation as a mediator of the association between self-perceptions and

adolescent risky behavior, and self-perceptions as a mediator of the relation between future orientation and adolescent risky behavior.

Theoretical Framework

Both theoretical arguments and empirical studies aimed at understanding why adolescents are typically more likely to engage in risky behaviors have been based on various behavioral models. As a heuristic model, problem behavior theory (PBT) is a psychosocial developmental model that asserts that the likelihood of engaging in risky behaviors or behaviors that violate regulatory norms is based on adolescents' initiation of developmental transitions that evoke negative reactions from the environment in conjunction with their propensity to engage in such behaviors (Jessor, 1991; Jessor et al., 2003; Vazsonyi et al., 2008).

PBT posits that the degree of adolescents' propensity or "proneness" to engage in problem behaviors stems from three systems: the perceived environment (e.g., high peer approval, low parental support), personality (e.g., self-concept, values, attitude, orientation towards society), and behavior (e.g., alcohol use, early-sexual behavior; Jessor, 2008). Individuals who exhibit low levels of self-concept and/or possess positive attitude towards using alcohol would be more likely to engage in such behaviors. Thus, PBT would assert that youth who have an optimistic outlook about their future and or have high self-concepts are less likely to engage in problem behaviors. Other theorists (Nurmi, 1991) and empirical studies (e.g., Chen & Vazsonyi, 2011; Robbins & Bryan, 2004) concur that adolescents who are high in future orientation are at lower risk for delinquency, drug use, or school problems. Similarly, problem behaviors are mostly inversely related to self-perception (e.g., Salazar et al., 2005).

Future Orientation and Adolescents' Risky Behavior

Although researchers have different conceptual definitions of future orientation, it is commonly defined as individuals' mental representation of how the self is projected into the

future (Jackman & MacPhee, in press; Seginer, 2008). This mental representation is based on people's motives, expectations, and actions related to the future (Gjesme, 1979; Nurmi, 1991). This concept is also related to other constructs of future orientation such as future time orientation or temporal perspective (i.e., the importance attached to the past, present, and future; Gjesme, 1979), temporal extension (i.e., the time horizon an individual projects into life in the future; Lessing, 1972), and possible selves (i.e., elements of the self-concept that represent individuals' anxieties and fears, goals and motives; Markus & Nurius, 1986; Oyserman et al., 2002) among others.

Regardless of the variety of labels for this complex system, the constituent processes of future orientation often involve understanding the level of control over future endeavors; how optimistic or pessimistic are future thoughts; and thinking about interests and goals for the future (motivation), mapping out ways to execute these interests and goals (planning), and assessing a realistic time frame for executing these interests and goals (evaluating; Nurmi, 1991; Trommsdorff & Lamm, 1980). Nurmi (1991) has argued that adolescents, as part of their identity development, are especially likely to orient to life trajectories and engage in specific actions that are informed by their future orientation.

Extant research links future orientation to adolescents' behavioral outcomes (for a review, see Seginer, 2008). There is a presumption that engagement in risk is highest when future consequences are not taken into consideration or are discounted to satisfy immediate needs and desires (Gottfredson & Hirschi, 1990). Conversely, previous studies have shown strong, inverse relations between positive future orientation and engagement in risky behaviors (e.g., Chen & Vazsonyi, 2011; Harris, Duncan, & Boisjoly, 2002). For example, youth who have a bleak view of their future are more likely to engage in risky sexual behaviors such as

unprotected sex and multiple sex partners (Bolland, 2003). On the other hand, adjudicated adolescents with a more positive future orientation have been found to be less impulsive and to engage in fewer risky behaviors (Robbins & Bryan, 2004). These studies highlight a negative relation between thinking positively about the future and engaging in subsequently risky behaviors, suggesting that a positive view of the future may function as a protective factor in adolescence.

Although research generally finds an inverse relation between future orientation and risky behaviors, there are several important limitations with the extant literature. First, there is some evidence that future orientation fails to distinguish those who engage in more risky behaviors from those who do not (Trommsdorff & Lamm, 1980). An early study that assessed future orientation among self-described delinquents versus nondelinquents showed no difference between the groups in their opinions about the future (Losel, 1975). A second limitation is that few longitudinal studies have been conducted on the relation between future orientation and risky behaviors (for exceptions, see Chen & Vazsonyi, 2011; Trommsdorff et al., 1979). Considering that future orientation deals with thoughts about the future, it would be informative to conduct longitudinal studies to assess how well risk taking is predicted by long-term goals and sense of self. Finally, most research in this area has focused on a single domain of problem behavior; the current study included multiple risk-taking attitudes and behaviors as outcomes.

Future orientation also is related to affective components of individuals' perceptions of themselves (Nurmi, 1991; Pulkkinen & Rönkä, 1994). For instance, low self-perceptions in conjunction with low perception of control about the future have been shown to increase pessimistic views of ability and identity, which in turn can increase the likelihood of risk

engagement (Harter, 1999; Wills, 1994). Thus, one would expect future orientation and self-esteem to covary in relation to adolescents' risk taking.

Self-Esteem and Risky Behaviors

Self-esteem is an important heuristic concept for the study of personality and behavior. It is an assessment of one's worth that is a component of self-schema (Harter, 1999; Marsh, 1986, 1990; Rosenberg et al., 1995), and can be described in two ways: global and domain-specific (situational; McGee & Williams, 2000; Rosenberg et al., 1995). Global self-esteem deals with one's assessment of self-worth in its totality whereas domain-specific self-esteem applies more to the assessment of self-worth in a certain context (Harter, 1999). A person who displays high self-esteem tends to exude more confidence and also values him or herself much more than someone with low self-esteem (Rosenberg et al., 1995). However, diverse theories have stated that early adolescents' self-esteem tends to be fragile given that it is more susceptible to social comparison processes during this developmental stage (Dunkel, 2000; Harter & Whitesell, 2003).

In later adolescence, self-esteem tends to gradually increase and becomes more positive as freedom, personal authority, and role-taking ability increase and more opportunities to behave in socially appropriate ways are available (Harter & Whitesell, 2003). However, this is not always the case: Some studies have questioned the assumption that high self-esteem inversely correlates with engagement in risks (Baumeister, Heatherton, & Tice, 1993; Baumeister, Smart, & Boden, 1996). That is, although studies have shown high self-esteem to be related to low levels of risk engagement (e.g., Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; McGee & Williams, 2000), other authors assert that threatened egotism results in inflated views of the self, which can then lead to risky behaviors (Crocker & Park, 2002). This argument is based on the assumption that people sometimes engage in risky behaviors to increase or maintain

self-esteem, or to reduce the threat of having low self-esteem (see Baumeister et al., 1993; Crocker & Park, 2002). Although the current study did not assess threat to adolescents' egos, if there is a positive relation between self-esteem and risky behavioral engagement, one might assume that there is a possibility of threatened egotism.

Extant research provides a conflicting picture that calls into question the magnitude of influence self-esteem has on adolescents' engagement in risky behavior (Donnellan et al., 2005; McGee & Williams, 2000; Wills, 1994; Wills, Sandy, & Yaeger, 2001). Even when self-esteem is correlated with adolescents' risky behavior, the effect sizes are small (e.g., Salazar et al., 2005). One possible reason for the weak or contradictory findings is that most studies are cross-sectional (Donnellan et al., 2005; McGee & Williams, 2000; Rosenberg, Schooler, & Schoenbach, 1989), making it difficult to parse the direction of effects between self-esteem and adolescent problem behaviors.

The few longitudinal studies that have been conducted support the conclusion that self-esteem predicts risky behavior. For example, Donnellan et al. (2005) conducted three cross-sectional and longitudinal studies that assessed the relation between global self-esteem and externalizing behaviors among adolescents. Overall, low self-esteem was strongly related to externalizing behaviors. In another longitudinal study of 8th graders that assessed self-attitudes, including self-esteem and perceived control, Wills (1994) found an inverse relation between positive self-attitudes and substance use. Similar results were also obtained by McGee and Williams (2000), who evaluated the associations among global and domain-specific self-esteem and a multitude of health-compromising behaviors including early sexual activity, substance use, and suicidal ideation. The results showed an inverse relation between global self-esteem and health-compromising behaviors. Academic self-esteem, on the other hand, did not significantly

relate to any of the health-compromising behaviors. Thus, longitudinal studies, in contrast to those that are cross-sectional, more often find an inverse relation between adolescents' self-esteem and risk taking.

Self-Esteem and Future Orientation as Mediating Variables

Despite the fact that theoretical perspectives suggest that self-esteem is related to future orientation (Nurmi, 1991; Steinberg, 2004; Steinberg et al., 2009), there is a paucity of empirical research that focuses specifically on this association. For instance, according to self-enhancement theory, individuals seek to maximize their self-esteem by viewing themselves in favorable ways, increasing or maintaining their feelings of self-worth, increasing activities that improve their competence, and remaining consistently positive about themselves (Epstein, 1973). An inference from this theory is that self-enhancement is promoted when individuals think positively about their future.

Even though there is a dearth of studies assessing the direct link between future orientation and self-esteem, a study by McFarlin and Blascovich (1981) found that emerging adults with high self-esteem remained consistent in having high and hopeful expectations towards the future even when presented with an unexpected outcome. Conversely, those with low self-esteem desired optimistic future outcomes but discounted them as improbable. In a later study, Epel, Bandura, and Zimbardo (1999) documented a strong link between future perspectives and self-efficacy. Such studies suggest that future orientation and self-esteem are correlated, although it is not yet clear whether positive self-esteem contributes to future orientation. Also, it is possible that future orientation directly accounts for the relation between self-esteem and adolescents' engagement in risky behaviors.

Intervention studies for adolescents, especially programs targeted at prevention of risky sex or promotion of health or behavioral adjustment, have incorporated self-perceptual concepts such as self-esteem (DuBois et al., 2002; Jemmott, Jemmott, Spears, Hewitt, & Cruz-Collins, 1992; Salazar et al., 2005). The presumption for this focus on self-esteem is that it is causally related to, or mediates, healthy adolescent behaviors. Outcomes of the few related intervention studies tend to support this presumption. For instance, Dubois et al. (2002) found that changes in self-esteem mediated the effects of social support on both emotional and behavioral adjustment of early adolescents. In a later study, Salazar et al. (2005) assessed African American female adolescents' self-esteem and sexual risk taking. No association was found between self-esteem and STD or pregnancy, but significant relations were observed between the mediators (domain-specific self-efficacy) and self-esteem: Those who were higher in self-esteem were more likely to be high in self-efficacy.

Although self-esteem was not considered a mediating variable, Salazar et al. (2005) suggested that self-esteem be included as a mediator in future studies of adolescent health behavior, given that it was strongly related to other self-perceptions (i.e., situational self-efficacy) that were correlated with risk taking. Jackman and MacPhee (in press) assessed two time points of a longitudinal study on early adolescents and found that although self-esteem did not serve as a mediator between future orientation and adolescent risk, future orientation fully mediated the relation between self-esteem and risk. As there are few studies focused on the mediating effects of self-esteem on future orientation and risky behavioral engagement, one can extrapolate from the above study that future orientation could mediate the association between self-esteem and risky behaviors. However, as the study only involved two time points, self-

esteem may also serve as a mediator between future orientation and adolescent risk when other time points are assessed.

The assessment of early adolescence on the risky behaviors chosen (i.e., impulsivity, risky sexual behavior, and peer delinquency) was due in part to the knowledge that poor self-regulatory skills (impulsivity), peer influence, and negative behavioral outcomes are stronger during early adolescence than older adolescence or emerging adults (Steinberg et al., 2009). Additionally, recent studies have shown changes in risky sexual behaviors among early adolescents, where rates in early sexual debut and activity have increased among adolescents, with some youths reporting their first intercourse around 15 years old (Smith, 1997). There are marked developmental changes that occur as a child transitions into adolescence (between ages 11 and 15; Steinberg, 2004), producing physical, cognitive, and emotional changes. These changes create possible interference in the youths' ability to make responsible sexual decisions, resulting in sexual risk engagement (Belgrave, Van Oss Man, & Chambers, 2000). Despite the increase in sexual activity during early adolescence, studies have consistently shown risky sexual attitudes to be most pronounced among middle to late adolescence (Levine, 2001). Therefore, we also assessed sexual attitudes as it has been shown to be predictive of sexual activity (Belgrave et al., 2000).

The Current Study

Prior research has shown that both self-esteem and future orientation relate to risky behavioral engagement. Further, both constructs have been shown to be important in predicting risk engagement. However, there is a general lack of empirical knowledge of these associations among adolescents. Therefore, in order to more precisely determine the nature of the relation ~~between~~ among self-esteem, future orientation, and risk engagement, two mediational models were tested. Based on findings from previous research (Chen & Vazsonyi, 2011; Jackman &

MacPhee, in press) in conjunction with problem behavior theory, I hypothesized that (1) higher levels of future orientation mediate the inverse relation between self-esteem and later engagement in risk. In other words, self-esteem would be rendered a nonsignificant predictor of risk engagement once future orientation is accounted for. However, as this study utilizes a longitudinal design, I also tested a mediational model in which (2) high levels of self-esteem mediate the inverse relation between future orientation and adolescents' risk engagement. This objective of the present study was focused on two potential developmental cascades: whether future orientation mediated the association between self-esteem and adolescents' risky behaviors, or whether self-esteem accounted for the relation between future orientation and adolescents' risky behaviors.

Method

Participants

Participants included youth ages 12 to 14 ($M = 13.25$, $SD = 1.01$) who were recruited, along with at least one family member, into an intervention designed to delay sexual debut. Families were recruited from seven sites: two ethnically diverse cities and two rural counties in Colorado; Miami (FL); rural Maryland; and the Eastern Shore of Virginia. Recruitment was by means of flyers sent home from middle schools; presentations at family nights and youth organizations; referrals from teachers, community service providers, and churches; and word of mouth. Families were randomized into the intervention and control groups after the baseline survey was administered. This study focuses on the pooled sample given that no intervention effects were detected on any of the outcome measures.

Demographic data collected at baseline showed that in the initial sample, 43.5% self-identified as nonHispanic White, 23.7% as Hispanic, 27.2% as Black, and 5.6% other ethnic groups. Approximately 26.7% of families lived below the poverty line. The parents' average age

was 39.91 years and typically they were high school educated ($M = 12.91$ years). In terms of family structure, 35.8% were single or divorced and 48.4% were married or remarried, with the remainder cohabiting or separated.

Three content validity questions were included at the conclusion of the surveys, each of which was rated from 1 (*All*) to 4 (*Hardly any*): “I understood the questions in this survey,” “I answered the questions carefully,” and “I answered the questions honestly.” Thirteen youth were omitted from the sample because their average on the three validity questions exceeded 3.00 (*Some*), which resulted in a combined sample of $N = 819$ youth in this study (54% female).

Measures

Future orientation. The 8-item Goals and Aspirations scale from the Healthy Kids Resilience Assessment (HKRA; Constantine, Benard, & Diaz, 1999) was used to assess teens’ future orientation. This scale included items pertaining to how optimistic or pessimistic teens viewed their future as well as their views on the likelihood that they will become parents before age 19, graduate from high school and college, get married, and have a good job. A sample item included “I have goals and plans for the future,” which was rated from 1 (*not at all true*) to 4 (*very much true*). Internal reliability for the original scale was sound, $\alpha = .84$ (Constantine et al., 1999), but in the current sample, the reliability was marginal, $\alpha = .64$. Data from a large, multi-ethnic sample of youth in elementary and middle school found a 3-item version of the scale to be correlated with risk taking (inversely) as well as school achievement (Hanson & Kim, 2007) indicating convergent validity. However, this study of the HKRA also found the internal consistency of the Goals and Aspirations scale to be marginal.

Self-esteem. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item measure of general self-worth and self-acceptance. Sample items included “I feel that I have a number of good qualities” and “I certainly feel useless at times,” which are rated from 1

(*strongly disagree*) to 6 (*strongly agree*). Multiple studies of adolescents, including those in middle school (Choi, Meininger, & Roberts, 2006; Hagborg, 1993), found the RSES to have high internal consistency, $\alpha = .88-.92$ ($\alpha = .76$ in the current sample), and test-retest reliability, $r = .82-.88$ (see Fischer & Corcoran, 1994). The RSES's convergent validity has been established in terms of correlations with depression, anxiety, and peer group reputation as well as other self-esteem measures such as the Harter Self-Perception Profile (Hagborg, 1993) and general self-regard (Fischer & Corcoran, 1994). Some studies find that minority adolescents report lower RSES scores than do nonHispanic White teens (Choi et al., 2006).

Perceptions of risk was measured using a subset of the 22-item Adolescent Risk Questionnaire (ARQ; Gullone, Moore, Moss, & Boyd, 2000). This scale was used to assess the decision-making component to engage in risk taking such as thrill seeking (driving 20 mph over the speed limit), rebellious behaviors (e.g., underage drinking), and reckless behaviors (e.g., having unprotected sex). These items were rated from 0 (*not at all risky*) to 4 (*extremely risky*) in response to questions such as "How risky is it to ... smoke marijuana once or twice a month?" Thus, the higher the score, the less likely the youth would be to engage in the risky behavior. The ARQ was developed and validated with large, representative samples of 11-18 year olds. The alpha reliability ($\alpha = .88$ in this sample) are adequate. The ARQ was validated with confirmatory factor analysis and inverse correlations between perceived risk and actual risk-taking behaviors indicate convergent validity.

Impulsivity/sensation seeking was measured using an 11-item scale (Cahalan & Room, 1974) that included items such as, "I often act on the spur of the moment without stopping to think," and "I get a real kick out of doing things that are a little dangerous," which are rated from 1 (*not at all*) to 4 (*quite a lot*). The scale has a high internal consistency of $\alpha = .86$ (Schafer,

Blanchard, & Fals-Stewart, 1994; $\alpha = .84$ in the current sample) and is highly correlated with risky behavior such as substance use, which is indicative of convergent validity (Trocki, Drabble, & Midanik, 2009).

Sexual attitudes were measured using items from the Sexual Risk Behavior Beliefs and Self-efficacy Scales (SRBBS; Robinson, Shaver, & Wrightsman, 1991). Sample items include, “People should not have sex before marriage” and “It’s okay for two people to have sex before marriage if they are in love” (reverse scored), with items rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Thus, teens with high scores are less likely to endorse risky sexual behavior. Construct validity of the SRBBS was documented with a large, multi-ethnic sample of teens through confirmatory factor analysis, comparisons showing that virgins and younger teens (age 14) have more conservative social norms and attitudes toward sexual intercourse than nonvirgin and older teens, and correlations with sexual self-efficacy signals convergent validity (Basen-Engquist et al., 1999). Internal consistency was high in the current sample, $\alpha = .86$.

Risky sexual behavior. Four items from the Scale of Sexual Risk-Taking (Metzler, Noell, & Biglan, 1992) were used to assess whether teen participants had ever had intercourse or had in the last 6 months, and if they engaged in the following risky sexual behaviors: multiple partners, casual partners, or failure to use condoms or contraceptives. Items on this scale, which are weighted by risk level, are interrelated consistently across samples ($\alpha = .75-.90$), and scale scores are correlated with measures of peer deviance as well as other problem behaviors, indicating convergent validity (Capaldi & Patterson, 1989). This scale has been used with ethnically diverse samples of teens as young as age 13 (Luster & Small, 1994; Metzler et al., 1992). A log transformation was performed because the scale score was highly positively skewed; for example, 13.2% of the teens reported being sexually active.

Peer delinquency. Participants completed a measure of the frequency with which their friends engaged in deviant behaviors (Capaldi & Patterson, 1989). A sample item includes, “During the last year how many of your friends have ruined or damaged something on purpose that wasn’t theirs?” On this 12-item scale ($\alpha = .86$), respondents rated the extent to which the teen’s peer group engaged in activities such as drinking, using drugs, skipping class, delinquency, and sex. The mean score of 2 in this sample indicates that 25% of their friends engage in such activities. In a longitudinal study of youth from ages 8 to 16, high scale scores were related to measures of delinquent and conduct behaviors as well as family conflict and parents’ antisocial behavior (Fergusson & Horwood, 1999). An abbreviated version of this scale has been used in a longitudinal study of ethnically diverse middle schoolers and found to have acceptable reliability as well as factorial and concurrent validity (Dishion, Kim, Stormshak, & O’Neill, 2014).

Social desirability. The 13-item short form of the Marlowe-Crowne Social Desirability Scale (MCSDS), developed by Reynolds (1982), was included because some adolescents’ responses to questions about sensitive topics such as sex and peer deviance may be affected by biased self-presentation. This short form has adequate reliability ($\alpha > .76$) and construct validity (Robinson et al., 1991). The MCSDS is correlated with various personality traits indicative of high psychological adjustment, such as emotional intelligence, conscientiousness, and self-esteem (see Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006), which suggests that the MCSDS may be inversely related to measures of risk taking in the current study.

Procedure

Surveys were administered by trained data collectors who were not involved with providing intervention services. All surveys were given orally to ensure that participants understood the questions. In order to maintain confidentiality and to reduce social desirability,

privacy screens were provided and participants placed their completed surveys in sealable envelopes before turning them in. Participation was voluntary, and University Institutional Review Board procedures were followed related to informed consent and confidentiality.

Preliminary Analyses

Data were utilized from three time points: baseline (Time 1) and follow ups at 12-months (Time 2) and 18-months (Time 3) later. The various measures of risk engagement were scaled so that higher values indicated greater engagement in risk. Prior to testing the hypotheses, preliminary analyses were performed on the various risky behaviors at all time points in order to test for multicollinearity. There were significant intercorrelations in the risk variables between Time 1 and Time 2 (see Jackman & MacPhee, in press). Therefore an exploratory factor analysis was conducted on the risk indicators for all time points to see if they loaded on a single factor. As they did, a latent variable called Risk Orientation was created. Further, the Cronbach's alpha of Risk Orientation was .70, which indicates that the measures related to risk orientation are adequately reliable. Additionally, potential intervention effects on self-esteem, future orientation, and risk orientation were examined using repeated measures ANOVA. As no intervention effects were detected, a pooled sample was used for all analyses.

Logistic regression analyses were computed to test for selective attrition between the time points. In order to test whether attrition was systematic, participants who were missing the outcome variables at Time 3 were compared, on both demographic and Time 1 and 2 measures, to participants who remained in the study. One difference, gender, was significant, $p < .001$. Chi-square analysis suggested males to be missing across time points than female adolescents. Therefore, gender was treated as a covariate.

Analyses were also conducted to determine whether findings might be moderated by ethnicity. First, Cronbach's alphas were computed separately for the three major ethnic groups in

the sample – nonHispanic White, Hispanic, and Black. The reliability coefficients did not differ across groups by more than $\pm.05$ from the alphas for the group as a whole (Peña, 2007). Second, repeated measures MANOVAs were performed to test for any moderating effects of gender and ethnicity; Box's M test was performed to assess violations of the assumption of homogeneity of variance. With ethnicity as the moderator, neither the two-way or three-way interaction involving time (pretest and two posttests) or measure was significant, $F < 2.17$, and Box's M test also was nonsignificant, $F = 1.60$, $p = .051$. With gender as the moderator, neither the two-way nor three-way interaction involving time nor measure was significant, $F < 1.15$, and Box's M test also was nonsignificant, $F = 1.498$, $p = .221$. Therefore, ethnicity was not included as a covariate. Even though gender was included as a covariate to correct for selective attrition, these results indicated gender to not contribute significantly to the relation between the predictor and outcome.

Data Analyses

Structural equation modeling (SEM) in *Mplus* 7.1 (Muthen & Muthen, 1998-2010) was used for all data analyses. Data were first screened for outliers, multivariate normality of the endogenous variables, and missing values. Outliers were examined using leverage statistics for each individual. No outliers – an individual with a leverage score four times greater than the mean leverage – were observed. Kurtosis and skewness of the scaled variables were within the normal range. As there were missing values, the full-information maximum likelihood (FIML) estimator to correct for any missingness was used. For SEM models, the FIML estimator is optimal as it yields consistent and efficient parameter estimates and fit indices by allowing all available information to be used for the estimation without deleting cases (Enders & Bandalos, 2001). Other missing data techniques, namely listwise and pairwise deletion of cases, tend to yield biased parameter estimates and fit indices (Enders & Bandalos, 2001).

Missingness at Times 2 (12-month) and 3 (18-months) composed of 27.2% and 44.4% of sexual activity, 22.8% and 42.9% of peer delinquency, 22.8% and 42.9% of perceptions of risk, and 22.4% and 42.2% of sexual attitudes respectfully. Further there was 42.8% and 42.4% missing from self-esteem and future orientation at Time 3 respectively. The assumption was that the data was missing at random (MAR) and not missing completely at random. As MAR implies that the probability of missingness might depend on data values that are observed but not on values that are actually missing, I generated model estimates by means of the *Mplus* FIML estimation. To further reduce any possible biases and improve the precision of the parameter estimates, I also included auxiliary variables – variables that are not part of the structural model but could be correlated to some of the variables in the model (Asparouhov & Muthen, 2008) – in the estimation of parameters and fit indices.

Model testing. To test the hypotheses, two variance-covariance models were constructed using the longitudinal framework. The first model assessed future orientation (Time 2) as the mediating variable between self-esteem (Time 1) and risk orientation (Time 3), with social desirability (Time 1) as a covariate (see Figure 1). The mediating hypothesis would be supported if, compared to the direct effects model, the mediational model has (a) higher explained variances, (b) a significant relationship between future orientation and self-esteem, (c) significant effects of future orientation on Risk Orientation, and (d) nonsignificant (or reduced) effects of self-esteem on Risk Orientation. The second model tested self-esteem (Time 2) as the mediating variable between future orientation (Time 1) and risk orientation (Time 3), taking social desirability (Time 1) into account (see Fig. 2). Using such modeling techniques allowed for the examination of estimation fits over time through the examination of relationships among changes

in the variables across time (e.g., direct effects of a change in self-esteem on the residual change in risk orientation in model one).

Model fit. Goodness-of-fit of the measurement and overall structural models was measured based on multiple indices. The overall omnibus fit of the model – the absolute fit of the model to the data – was tested using the chi-square test (χ^2). A nonsignificant χ^2 ($p > .05$) is preferred and indicates an ideal model fit (Joreskog & Sorbom, 1996; Kline, 2011). However, it must be noted that chi-square tests are sensitive to large sample sizes (> 200 ; Kline, 2011). Additionally, two widely used fit indices were used, the standardized root mean square residual (SRMR) and the root mean square error of approximation (RMSEA). SRMR refers to the average standardized residual value derived between the variance-covariance matrix for the hypothesized model and the variance-covariance matrix of the sample data (Bollen, 1989), and RMSEA refers to the estimation of the amount of error of approximation (the lack of fit between the hypothesized model and the population covariance matrix) per model degree of freedom, accounting for sample size (Hu & Bentler, 1999). Both SRMR and RMSEA are commonly reported as good fit indices when its estimates are less than .05 (Hu & Bentler, 1999). The final two fit indices used were the comparison fit index (CFI) and Tucker Lewis Index (TLI). These indexes test the proportionate improvement of fit, by comparing the hypothesized model with the independence model (Hu & Bentler, 1999). The values of both CFI and TLI should be .95 or greater to indicate a good fitting model, although a cut-off score of .90 is sometimes used and considered acceptable fit (Bentler, 1992).

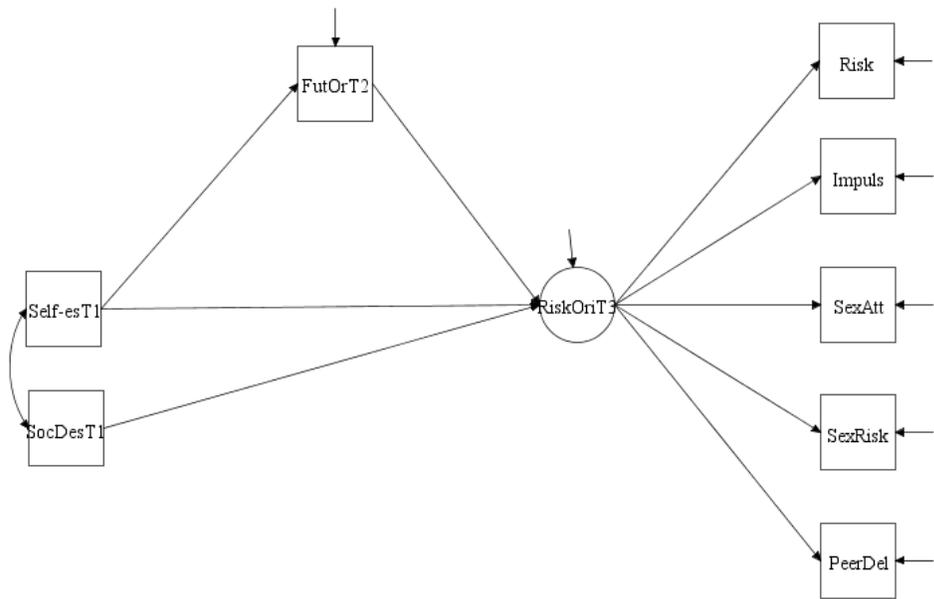


Figure 1. Model of the relation among self-esteem, future orientation, and risk orientation, controlling for social desirability. Future orientation is the mediator.

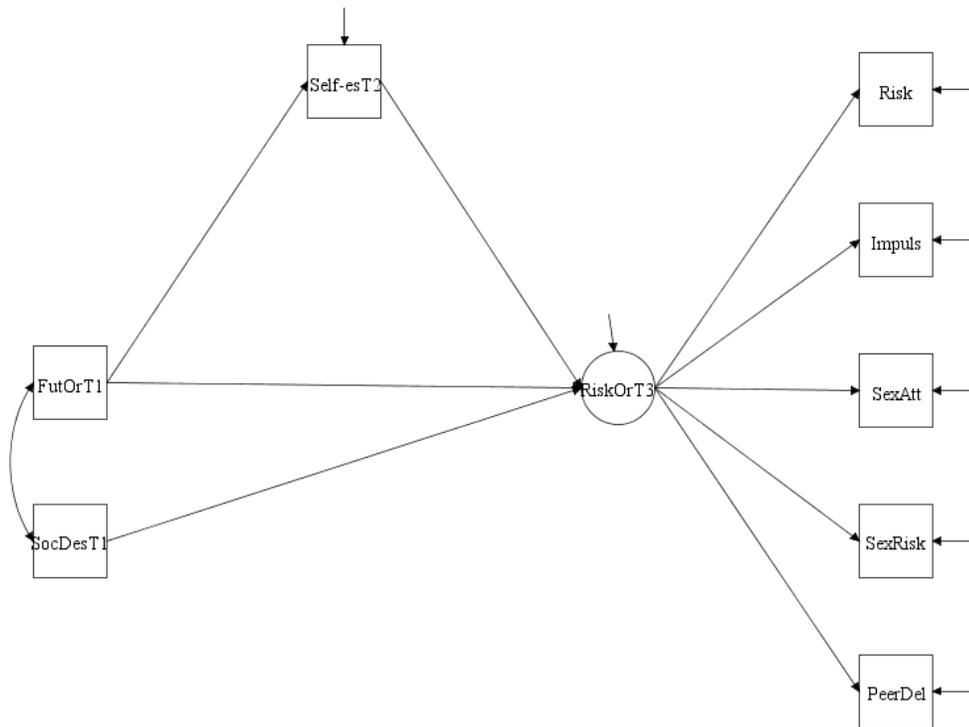


Figure 2. Model of the relation among future orientation, self-esteem, and risk orientation, controlling for social desirability. Self-esteem is the mediator.

Results

Descriptive Statistics

Table 1 shows the mean scores and standard deviations for the participants at baseline, 12 months, and 18 months later. All variables with the exception of the two attitudinal variables, perception of risk and sexual attitudes, as well as impulsivity, significantly increased from baseline to the 18-month follow-up, $p < .01$. As expected, youth reported high levels of impulsivity and sexual attitudes and low rates of risky sexual behaviors. Rates of peer delinquency were lower than has been typically found in previous research on adolescents.

Table 1

Mean (SD) Future Orientation, Self-Esteem, and Risk Orientation Indicators, by Time

Variables	Baseline	12-month Follow-up	18-month Follow-up
Future Orientation	5.14 (.77)	5.17 (.74)	5.18 (.85)
Self-esteem	4.48 (1.00)	4.58 (.96)	4.62 (1.00)
Perception of Risk	3.23 (.81)	3.23 (.83)	3.18 (.77)
Peer Delinquency	1.04 (.85)	1.93 (.84)	2.04 (.87)
Sexual Attitudes	4.41 (1.11)	4.48 (1.12)	4.33 (1.16)
Risky Sexual Behavior	1.94 (1.74)	2.48 (2.25)	2.64 (1.74)
Impulsivity	3.88 (1.09)	3.77 (1.06)	3.73 (1.07)

Correlations among Self-Esteem, Future Orientation, and Risk Orientation

Correlations were computed among the covariate (at baseline), self-esteem (predictor), future orientation (mediator), and risk orientation (outcome) at all three time points (see Table 2). Social desirability was positively, significantly correlated with both self-esteem and future

orientation at all three time points as well as inversely and significantly related to risk orientation. Self-esteem and future orientation were significantly correlated at all three time points. Inverse relations were observed at all three time points between self-esteem and risk orientation, as well as between future orientation and risk orientation (see Table 2). All significant associations between variables were small to medium effect sizes (Cohen, 1988). It should also be noted that self-esteem, future orientation, and risk orientation were relatively stable across all time points for (see Table 2).

Table 2

Correlations among Predictors of Adolescent Risky Behaviors

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Social desirability (T1)	-									
2. Self-esteem (T1)	.24**	-								
3. Self-esteem (T2)	.18*	.53**	-							
4. Self-esteem (T3)	.12**	.46**	.62**	-						
5. Future Orientation (T1)	.13**	.40**	.26**	.20**	-					
6. Future Orientation (T2)	.08*	.22**	.43**	.28**	.53**	-				
7. Future Orientation (T3)	.06	.17**	.27**	.49**	.30**	.48**	-			
8. Risk Orientation (T1)	-.37**	-.18**	-.15**	-.11*	-.27**	-.24**	-.24**	-		
9. Risk Orientation (T2)	-.30**	-.08*	-.24**	-.14**	-.21**	-.34**	-.29**	.62**	-	
10. Risk Orientation (T3)	-.26**	-.08*	-.16**	-.24**	-.17**	-.26**	-.36**	.53**	.62**	-

Note. * $p < .05$. ** $p < .01$.

Measurement and Structural Models

Confirmatory factor analysis (CFA) was performed to test the measurement models of observed variables and the latent variable of risk orientation (see Figures 1 and 2). For both models, CFA yielded an acceptable model of risk orientation with the exception of the chi square. For the first mediational model tested, CFA results were: $\chi^2(9, N = 645) = 36.49, p < .001$, SRMR = .037, RMSEA = .056, CFI = .923, and TLI = .871; and for the second mediational model tested, $\chi^2(13, N = 642) = 34.54, p = .001$, SRMR = .032, RMSEA = .050, CFI = .948, and TLI = .921.

Mediational model 1. The structural model with future orientation as the mediating variable yielded good fit for the data with the exception of the chi-square test, $\chi^2(23, N = 819) = 48.35, p < .001$, SRMR = .035, RMSEA = .041, CFI = .935, and TLI = .907. The standardized path coefficients (β) in the model were as follows: from self-esteem (baseline) to risk orientation (Time 3), accounting for gender 1 = females and social desirability at baseline ($\beta = .039, p = .455$); from future orientation (Time 2) to risk orientation at Time 3 ($\beta = -.309, p < .001$); and from self-esteem at baseline to future orientation at Time 2 ($\beta = .215, p < .001$; see Table 3). According to Baron and Kenny (1986), this ends the process for testing mediation as there is no significant relation between predictor and outcome. However, recent research has argued that that one can still perform mediational testing even if the predictor is not significantly related to the outcome (see Zhao, Lynch, & Chen, 2010). The main contention between Baron and Kenny and what is suggested by Zhao and colleagues (2010) is that Zhao et al. argue that it is not so important that there is a significant association between the predictor and outcome variables nor between mediator and outcomes so long as there is a significant indirect effect. In order to determine mediation, one has to perform Preacher and Hayes' (2008) bootstrapping. Bootstrapping has been consistently shown to be a robust methodology for assessing indirect

effects (see Preacher & Hayes, 2008; Zhao et al., 2010). In addressing the first hypothesis, the indirect effect using bootstrapped standard errors was significant, ($\beta = -.067, p < .001$), thus supporting the first hypothesis and stating that future orientation mediated the relation between self-esteem and risk orientation. According to Zhao et al. (2010), this is considered an indirect-effects-only mediation because the indirect effect exists but there is no direct effects between predictor and outcome variable. This terminology is similar to the term used by Baron and Kenny (1986) to describe full mediation.

Table 3

Testing for Mediation of Self-Esteem and Risk Orientation by Future Orientation

	Unstandardized Beta (B)	S. E.	Standardized Beta (β)
Model 1			
Self-Esteem's effect on Risk Orientation	.020	.02	.039
Social Desirability on Risk Orientation	-.168**	.03	-.332
Gender	-.04	.04	-.07
Model 2			
Future Orientation's effect on Risk Orientation	-.157**	.03	-.307
Model 3			
Self-esteem's effect on Future Orientation	.213**	.04	.215
Model 4			
Indirect effect of Future Orientation on Self-Esteem and Risk Orientation	-.033**	.01	-.067

Note. ** $p < .001$.

Mediation model 2. The structural model with self-esteem as the mediating variable yielded acceptable fit for the data with the exception of the chi-square test, $\chi^2(23, N = 819) = 49.09, p < .001$, SRMR = .037, RMSEA = .042, CFI = .929, and TLI = .901. The standardized path coefficients (β) in the model were as follows: from future orientation (baseline) to risk orientation (Time 3) accounting for social desirability and gender, ($\beta = -.126, p = .02$), from self-

esteem (Time 2) to risk orientation at Time 3 ($\beta = -.086, p = .163$), and from future orientation at baseline to self-esteem at Time 2 ($\beta = .244, p < .001$; see Table 4). Using the bootstrapped standard errors, the indirect effects was nonsignificant ($\beta = -.021, p = .178$), thus not supporting hypothesis two that self-esteem mediates the relation between future orientation and risk orientation.

Table 4

Testing for Mediation of Future Orientation and Risk Orientation by Self-Esteem

	Unstandardized		Standardized
	Beta (B)	S. E.	Beta (β)
Model 1			
Future Orientation effect on Risk Orientation	-.090*	.04	-.126
Social Desirability on Risk Orientation	-.200**	.04	-.330
Gender	-.042	.03	-.070
Model 2			
Self-esteem's effect on Risk Orientation	-.048	.03	-.086
Model 3			
Future Orientation's effect on Self-esteem	.313**	.06	.244
Model 4			
Indirect effect of Self-esteem on Future Orientation and Risk Orientation	-.015	.01	-.021

Note. ** $p < .001$.

As traditionalists view self-esteem as a static and stable trait (Wylie, 1979; Harter, 2006), a post hoc analysis was also conducted to assess whether self-esteem could moderate the relation between future orientation and risk orientation. However, the model did not produce a good fit for any of the fit indices, $\chi^2 (55, N = 1002) = 1134.39, p < .001$, SRMR = .142, RMSEA = .140, CFI = .268, and TLI = .162. Additionally, the moderating effects was nonsignificant, $\beta = -.009, p = .860$.

Discussion

Both theoretical (Leondari, 2007; Markus & Nurius, 1989; Zimbardo & Boyd, 1999) and empirical attention (Robbin & Bryan, 2004; Trommsdorff & Lamm, 1980) have been given to understanding the relation between future orientation and risk engagement among adolescents. However, there has been limited longitudinal investigation into the association between future orientation and other constructs such as self-esteem in predicting risk engagement among adolescents (Jackman & MacPhee, in press). Accordingly, the present study explored how adolescents' self-esteem on the one hand and future orientation on the other interrelate in predicting risk engagement among adolescents. The results supported one of the hypotheses in that future orientation mediated the relation between self-esteem and later risk orientation. However, self-esteem was not a significant mediating variable between future orientation and later risk orientation.

The current study operationally defined risk engagement (risk orientation) through the assessment of multiple indices of adolescents' attitudes toward and engagement in various risks, including sexual attitude, sexual risky behaviors, and perceived peer involvement in delinquent activity. The means indicate that impulsivity was most often reported, which is consistent with high levels of impulsivity that are prevalent among adolescents (Steinberg et al., 2009). Youth-reported sexual attitudes and activity also were comparable with published studies examining sexual activity of early adolescents (Belgrave et al., 2000). Interestingly, the means reported for the participants' peer deviant/delinquent behaviors are relatively low compared to other studies that suggested adolescents tend to perceive their peers' behaviors as deviant (see Leve & Chamberlain, 2005). The low ratings could be indicative of the participants' low engagement with delinquent peers, which tends to be inversely related to individual engagement in delinquent behavior (Haynie, 2002). Alternatively, the low ratings could reflect a perception that the peers'

delinquent behaviors are normative, which is positively associated with one's engagement of delinquent behavior. Given that the current study did not measure participants' own delinquent behavior or assessed actual friendship networks compared to peers' perceived delinquency, it is difficult to ascertain the true meaning behind the low scores of the peers' delinquent behaviors. Regardless, the various measures of adolescents' attitude and risk were significantly interrelated and thus were formed into a single latent variable of risk orientation.

The bivariate correlations reveal that both self-esteem and future orientation were significantly and inversely related to risk orientation among adolescents, with future orientation having a larger effect size. These findings are congruent with previous studies (Chen & Vazsonyi, 2011; Robbins & Bryan, 2004; Wills et al., 2001; Yang et al., 2013) that found adolescents who have low or negative thoughts towards their future and/or have low levels of self-esteem tend to engage in more risky behaviors. The findings also corroborated theoretical claims that self-esteem is positively associated with future orientation (McGee et al., 2001; Nurmi, 1991; Steinberg, 2004; Steinberg et al., 2009) given that these two variables were significantly correlated.

Given that social influences are important influences on youth's engagement in prosocial and problem behaviors (Donnellan et al., 2005; Dunkel, 2000; Harter & Whitesell, 2003), social desirability was assessed. As expected, social desirability was significantly related to both predictor and outcome variables and was thus included as a covariate in the mediational analyses. Inclusion of social desirability as a covariate helps with the interpretation of the findings and, in this specific case, with elucidating the unique influences of future orientation and self-esteem on risk orientation.

Mediation

The central finding of this study provided strong support for a mediational model linking self-esteem and future orientation in predicting adolescent risk engagement. Grounded in Nurmi's (1991) theoretical framework, the current study sought to understand whether (a) future orientation is more proximally related to risk engagement such that it is expected to mediate the effects of self-esteem, or (b) self-esteem can account for the association between future orientation and later risk engagement. The path coefficients did support the conclusion that self-esteem predicts later future orientation. This finding suggests that self-esteem and future orientation are both manifestations of identity development, and the cross-time associations reflect the fact that youth who are higher in identity development at one time point are still high in it at a later time. Although this finding provides evidence for stability over time, additional research is needed to disentangle the dynamic interplay of these two identity constructs over time.

Also consistent with previous findings, earlier future orientation predicted later risk engagement (Chen & Vazsonyi, 2011; Robbins & Bryan, 2004). This finding suggests that individuals who perceive their futures more positively have a decreased propensity to engage in risky behaviors over time. This observation also highlights future orientation as a possible protective factor, indicating that the higher levels of future orientation may decrease the engagement in and orientation towards risk.

Interestingly, there was no significant direct effect between self-esteem and risk orientation with future orientation and social desirability in the model. These findings suggest that social desirability is accounting for a significant proportion of variance between self-esteem and risk orientation. If such is the case, then one should wonder whether social desirability is simply capturing nuisance variability between self-esteem and risk orientation or is it actually a

significant predictor of risk. Mesmer-Magnus et al. (2006) noted that social desirability is highly reflective of psychological adjustment, emotional stability, and unconscious self-deception enhancement such that it can be difficult to distinguish between personality traits reflecting adjustment from respondent bias. As such, the Marlowe-Crowe Social Desirability Scale used in this study may in fact be capturing responses of well-adjusted youth rather than being treated as error variance. However, further assessments of the influence of social desirability on negative outcomes are still needed, as most studies control rather than utilize the full potential of this variable to be a viable predictor of risk.

One explanation for the lack of significance between self-esteem and risk orientation could be the measure of self-esteem. Even though the concept of self-esteem could be linked to either general perceptions of the self (Harter, 1999) or specific facets of the self within given contexts (Gentile et al., 2009), the extant literature has highlighted the utility of domain-specific self-esteem as a more robust predictor of risk engagement (McGee & Williams, 2000). In addition, adolescents' sense of identity focuses on processes that involve acceptance from peers. Thus, the centrality of self-esteem in influencing risk engagement may be driven by social desirability.

Although Baron and Kenny (1980) argued that failure to observe statistical significance between predictor and outcome is sufficient reason to halt the testing of mediation, Zhao et al. (2010) have claimed that as long as there is significant indirect effect, mediation has occurred. In the current study the mediational finding suggested future orientation to mediate the relationship between self-esteem and risk orientation. In other words, the findings indicate that the presence of positive thoughts towards the future at an earlier time greatly predicts later engagement in risk above and beyond the contribution of self-esteem. The significant mediation finding is congruent with previous literature that asserts having a more positive perspective on

the future contributes to the ability to control emotions, regulate behaviors, and delay gratification in order to achieve a goal (Robbins & Bryan, 2004; Schmid et al., 2011; Trammsdorff et al., 1979). Both contemporaneously and predictively, future orientation may inhibit or prevent attitudes and behaviors that involve risk taking and other health-compromising actions.

In contrast, the second hypothesis was not supported in that self-esteem did not explain unique variance in later adolescent risk orientation beyond future orientation. There are multiple potential explanations for this finding. First, although self-esteem and risk orientation were correlated, social desirability accounted for the majority of the variance in this relationship. As the data were collected from a prevention program to prevent sexual risk taking, the sensitivity of the topic may evoke a need to appear well-adjusted, if not well-behaved, to the researchers. This may be more prevalent among a group of individuals, namely early adolescents, whose self-esteem is fragile and self-schemata and self-representations involve thoughts and opinions of others (Harter & Whitesell, 2003; Hoyle & Sherrill, 2006; Marcia, 1981; Stein et al., 1998). Therefore, to the extent that the participants felt the need to present themselves in a more favorable light, the contribution of self-esteem to risk orientation was reduced to nonsignificance.

A second explanation for the failed mediation of self-esteem could be the engagement in risky behaviors among adolescents as a means of self-esteem enhancement, without regard for consequences of the future. Even though having a strong sense of self is typically perceived as positive and has been shown to be related to positive developmental outcomes (Schmid et al., 2011; Steinberg, 2004), recent research has also shown that high levels of self-esteem are related to an increased level of deviant or negative behaviors if it is a component of a narcissistic

personality (Zeigler-Hill, 2005). Proponents of this argument suggest two types of high self-esteem; fragile, which refers to self-worth that is vulnerable to others' opinions and in need of constant validation, and secure, which refers to self-worth that is independent, strong, and resistant to threat (Zeigler-Hill, 2005). Therefore, for individuals with a fragile high self-esteem, the likelihood to engage in risky behaviors is heightened. In such circumstance, future orientation would fail to account for variance between these variables.

Limitations and Future Directions

Before considering the implications of this study, it is important to acknowledge several limitations related to its design. First, the measure used to assess future orientation had marginal reliability. This 8-item subscale was selected from a broader 56-item measure of resilience (Constantine et al., 1999). Several theorists have argued that future orientation is a multifaceted construct that includes motivation, emotion, and cognition (Nurmi, 1991; Seginer, 2008). Empirical research also is consistent with such theoretical claims, suggesting that the different domains of future orientation are useful in predicting negative behaviors (see Chen & Vaszonyi, 2011). Further, a recent dissertation showed motivation to be a significant marker of orienting to one's future (Broomfield, 2007). However, with so few items, it was difficult to capture each facet of future orientation. Therefore, a more complete understanding of the mechanisms involved in future orientation's contribution to risk orientation would have been possible if all facets of future orientation were assessed.

Further, Zhao et al. (2010) argued in favor of the use of multi-item scales as the single mediating variable. This is done to increase discriminant validity as well as show, with the use of confirmatory factor analysis, that the mediating variable is sufficient and not just an alternative measure of the dependent measure, which is a common error in studies (Zhao et al., 2011). To put in another way, this is to ensure that the construct is distinct from the outcome

measure. Although the content of the measure used to assess future orientation was distinct from risk orientation, a more valid measure would tap into additional facets of future orientation. Thus, future research should include more manifest scales that can contribute to a latent variable of future orientation.

Second, as mentioned earlier, the self-esteem measure used was an assessment of global rather than domain-specific self-esteem. As other studies have shown, domain-specific measures of self-esteem sometimes better assess the relation between self-esteem and specific risk behaviors (see McGee & Williams, 2000). Given that risk orientation was in part framed in terms of sexual attitudes and behaviors, it would be beneficial to utilize a self-esteem measure that addresses that specific domain. It must be noted, however, that the nonsignificant direct effect between self-esteem and risk orientation does not imply that self-esteem is irrelevant to adolescent development. Despite the nonsignificant findings, other aspects of the self-system may be implicated in the relation between future orientation and risk behaviors, particularly self-efficacy (Wills, 1994) or the effects of threatened egotism (Baumeister et al., 1993, 1996; Crocker & Park, 2004). Therefore, if other variables such as domain-specific self-esteem as well as other forms of self-perceptual concepts such as self-efficacy were added to the mediating equation, it may produce different results in terms of how much variance self-esteem explains in the association.

Finally, this study's analysis did not include a simultaneous assessment of both mediational models. As this study assessed the salience of two competing models, it would have been a more parsimonious model to combine both models into one. Therefore, future studies should consider combining models or testing multiple models in one mediational model assessment.

Implications for Prevention

Despite these limitations, the results of this study highlight the potential beneficial effects of future orientation in lowering youths' propensity to engage in risky or health-compromising behavior. Specifically, the results illuminate the need for more intervention and prevention studies to include future orientation and self-esteem as means of increasing positive health. This is especially important when developing a program grounded in the positive youth developmental (PYD) framework (Lerner et al., 2005). PYD is comprised of five core developmental components: confidence, competence, character, caring, and connection. As the "competence" domain subsumes self-esteem, and future orientation is both strongly associated with and predictive of self-esteem, it would be of great benefit to include both concepts in such health-promotion programs.

Conclusion

Due to the complex nature of adolescent risky behaviors, especially those surrounding risky sex, it is very important to understand underlying mechanisms and processes from which they develop. The model that was supported proposes that despite the lack of predictability of early presence of self-esteem on risk orientation, the association is mediated by future orientation. This mediation provides a platform to conduct further assessment of the unique contributions that future orientation has with other concepts regarding adolescent risk orientation. By examining some of the putative mechanisms involved in adolescent risk taking, insights have been gained into how possible selves may contribute to avoidance of behaviors that may imperil adolescents' futures.

CHAPTER III

STUDY 2

Traditionally, the main focus in the field of adolescent health was oriented toward psychopathology or deviance, with a strong focus on the assessment of risky behaviors. Both programs and policies held objectives surrounding preventing risk behaviors such as substance use, delinquency, and unsafe sexual behaviors (Bolland, 2003; DuRant et al., 1994; McGee & Williams, 2000). Using problem behavior theory (Jessor et al., 2003), theorists and researchers alike identified key factors that are precursors to adolescents' engagement in risky behaviors. This perspective emphasizes risk engagement as a static and determined adolescent process (Guerra & Bradshaw, 2008; Lerner & Castellino, 2002). In this deficit-focused model, risk engagement among adolescents is not only destined, but predetermined as a core adolescent developmental process.

However, within the past decade or so there has been a shift of focus to positive psychology, which places more emphasis on strength-based models of adolescent development (Guerra & Bradshaw, 2008). Strength-based approaches to adolescent development assert that adolescence is a period of self-exploration and discovery. In this regard, adolescent development is viewed as a time when individuals think critically about their future selves, develop unique talents and abilities, and strengthen skills and characteristics that aid in their positive development (Guerra & Bradshaw, 2008; Nurmi, 1991). Numerous adolescent development models that have considered such approaches have all been subsumed under the positive youth development (PYD) framework (e.g., Guerra & Bradshaw, 2008; Lerner, 2002; Phelps, Forman, & Bowers, 2009). Thus, the perception of healthy adolescent development is not viewed

necessarily as the reduction or absence of risky behavioral engagement but rather as the promotion or presence of positive characteristics that then enable the adolescent to make healthy choices and lead a healthy lifestyle (Lerner, 2002; Phelps et al., 2009).

Positive Youth Development (PYD)

Broadly, PYD is a framework constituted of cognitive and behavioral attributes that are most needed for adolescents to construct positive pathways toward adulthood (Catalano et al., 2004; Guerra & Bradshaw, 2008; Schmid et al., 2011). The development and utility of these attributes and behaviors are not restricted to particular groups of at-risk youth but rather are universally incorporated. In other words, the premise of PYD is that all youth possess the capacity to develop positively (Lerner & Benson, 2003; Lerner et al., 2005). The assessment of PYD has been guided by several developmental models (e.g., Benson, 2003; Larson, 2000; Lerner & Benson, 2003).

Several PYD models identify adolescent empowerment and engagement in one's social ecology as key outcomes of adolescent development (Larson, 2000). One goal of these models is to promote initiative among youth so that they are active agents in their environments (Guerra & Bradshaw, 2008; Larson, 2000) and thrive in the face of adversity (Lerner et al., 2005; 2011). One of the primary and widely used PYD models is the developmental assets model (Benson, 2003). This model's foundation is 40 internal (e.g., integrity and self-esteem) and external (e.g., caring neighborhood and positive family communication) attributes that are reflective of positive values, beliefs, and qualities (Benson, 2003; Lerner et al., 2003; Scales & Leffert, 2004). Although the developmental assets model has received much attention, scholarship in applied developmental science has utilized a more focused PYD model referred to as the Five C's (Lerner et al., 2005; Schmid et al., 2011; Schwartz, Pantin, Coatsworth, & Szapocznik, 2007).

Both the cognitive and behavioral attributes that developmental researchers suggest as central to youths' positive development are captured by the Five C's: *confidence* (the extent to which one values his or her self-worth as well as hope for the future); *competence* (the extent to which one exercises his or her knowledge skills or the capacity to make rational and or intelligent judgments); *connections* (the extent to which one's membership and belonging to one's community, as well as utility and connection with proximal (family) and distal (community) resources); *character* (constitutes responsibility, spirituality, and autonomy); and *caring* (the extent to which one exercises compassion for others; Eccles & Gootman, 2002; Lerner et al., 2005; Pittman, Irby Tolman, Yohalem, & Ferver, 2011; Roth & Brooks-Gunn, 2003; Zarrett & Lerner, 2008). Lerner et al. (2005) also stated that the Five C's enable adolescents to thrive, which is the extent to which individuals fulfill their potential and contribute positively to their own communities. This model has received wide attention among various disciplines as a promotive, strength-based approach that can assist with adolescents' positive transitions into adulthood (Catalano et al., 2002; Lerner et al., 2005; Pittman et al., 2011)

Theoretical Framework

Action theory is one set of concepts that apply to the PYD framework. Action theory is premised on individuals' intentional and active shaping of their environment and subsequent development (Brandstadter, 1999; 2006). These goal-directed behaviors are rooted in a system of interconnected levels: the social meaning of the action (i.e., social construction) as well as the cognitive and emotional phenomena of the action (e.g., attitudes, values, motivations, and orientation of goals towards specific tasks; Brandstadter, 2006; Valach, Young, & Lyman, 2002). This theory does not present a cause/effect dynamic but rather posits that intra-individual developmental systems consist of cognitive, emotional, and behavioral processes and

individuals' actions inherently contribute towards their developmental process. Therefore, when individuals' engage in certain actions that they hold meaningful, this engagement will contribute to their development.

For example, action theorists may propose that youth who participate in civic engagement actions embody social meaningfulness in terms of helping the community and as well are more connected to and motivated to improve that community (Brandstadter, 2006; Lerner, Alberts, & Bobek, 2007). As action theory asserts that actions are intricately intertwined with individual developmental processes, such actions performed should simultaneously contribute to youths' PYD (Lerner et al., 2007).

Although action theory is significant to understanding the development of PYD, the foundation of the PYD framework lies within the developmental systems theories of human development (Lerner, 1998; Lerner & Castellino, 2002; Lerner et al., 2005, 2011a). These developmental systems theories reject individualistic characteristics as fixed, genetic conceptions, and rather stress the inherent plasticity of human development. This plasticity emphasizes the potentiality for systemic change throughout development (Lerner et al., 2005). In other words, developmental systems theories contend that human development is fostered through bidirectional relationships between individuals and their social ecology (i.e., family, community, culture) as well as historical change (Lerner, 1998, 2002; Lerner et al., 2011b). The premise is that these interactions between individuals and their contextual systems maintain and propel positive and healthy development within the individual that then perpetuates reciprocity, or the extent to which the individual contributes positively to their contexts (Lerner, 1998, Lerner & Castellino, 2002; Lerner, Dowling, & Anderson, 2003; Lerner et al., 2005).

The plasticity that is a focus of developmental systems theories validates the optimistic view of adolescents' potential for positive change and growth. Additionally, relative inherent plasticity suggests that all individuals possess the capacity for bidirectional person-context interactions that will develop individuals' sense of self (foster identity), moral development, sense of purpose, future thoughts, and civic engagement (Lerner, 2002). Interestingly, as there is emphasis on the dynamic interaction between person and context within human development (Pittman et al., 2011), similar arguments can be made for the development of PYD. This is so because the PYD framework can be considered as the formation of facets that both produce and are products of behaviors constituting of positive development. For instance, changes in one's self-esteem may result in changes in one's care for others or community engagement, thus affecting their PYD. Yet, the development of self-esteem is a key component of PYD. Therefore, this poses an interesting conceptual challenge in disentangling factors that both define as well as predict PYD (Pittman et al., 2011).

Based on these theoretical principles, positive adolescent development entails capitalizing on individual and contextual strengths. These strengths tend to promote the potential for positive changes within the individual and social environment (Lerner & Castellino, 2002; Lerner et al., 2005, 2007). One such strength is future orientation where selection of positive goals and the delay of gratification relate to healthy development (Lerner et al, 2003; Schmid et al., 2011). Similarly, self-perceptual outcomes such as self-efficacy assist with the development of PYD by driving behaviors towards achievement.

Future Orientation and PYD

Research finds that fostering positive thoughts about the future is important for mitigating risky behaviors (Bolland, 2003; Kerpelman & Mosher, 2004; Seginer, 2008). Although risk mitigation it is important, equally as important is that future orientation could be adaptive and

conceived as an asset for increasing an individual's PYD (Guerra & Bradshaw, 2008; Lerner et al., 2005; Schmid et al., 2011; Zarrett & Lerner, 2008). Therefore, the cognitive and behavioral process of future orientation – the extent to which individuals perceive, plan, and execute their hopes, desires, goals, and expectations – is related to more positive self-perceptions (Epel et al., 1999; Nurmi, 1991; Steinberg, 2004; Steinberg et al., 2009). Adolescents who have more confidence about their abilities to achieve certain tasks are better able to think more positively about their future in achieving long-term goals and vice versa (Nurmi, 1991; Schmid et al., 2011).

One consideration in promoting youths' positive development is how much future orientation is germane to having a sense of purpose (Burrow, O'Dell, & Hill, 2010). Sense of purpose can be conceptualized as stable, far-reaching goals that are propelled by personal meaning as well as making valuable global contributions (Damon et al., 2003). Although various conceptualizations of future orientation do not always hone in on accomplishing specific tasks but rather focus on how thoughts about the future ultimately shape perceptions and actions toward goals (Nurmi, 1991; Seginer, 2008), having a sense of purpose means having a well-defined direction towards accomplishing a goal (Damon et al., 2003). Burrow et al. (2010) further distinguished sense of purpose from future orientation by highlighting the complementary nature of individuals' sense of purpose and goal orientation. Individuals' positive thoughts about their future assist with translating their long-term goals and plans into present, proactive, meaningful, and purposeful activities (Blattner et al., 2013; Hill et al., 2013; Damon et al., 2003). In other words, having a sense of purpose can be viewed as a means of organizing adolescents' future into coherent and clear, meaningful tasks (Kosby & Mariano, 2011).

As with future orientation, sense of purpose has been similarly linked to aspects of PYD. Snyder et al.'s (1996) concept of hope asserts that individuals' abilities to "envision cognitive pathways and initiate efficacious action" influence their goal achievement (Burrow et al., 2010, p. 1267). Further, given that sense of purpose extends beyond self-beneficial accomplishments, having a sense of purpose can be related to moral action in relation to societal gains (Kosby & Mariano, 2011). For instance, individuals who are motivated to help out with their community are more likely to exercise meaningful behaviors as a means of improving the community. Through engagement in such behaviors, individuals are also strengthening their confidence, connection, and care towards society and themselves. In other words, individuals' sense of purpose promotes PYD characteristics.

Even though theory-driven research has aptly linked both future orientation and sense of purpose to positive youth development, only a handful of studies have empirically examined such links. Bronk et al. (2009) found that adolescents who commit to a sense of purpose tended to have higher levels of life satisfaction and hope. Burrow et al. (2010) confirmed such results by showing that youths' strong commitments to specific purpose were related to positive emotions and goal-directed thoughts. However, these studies did not assess explicit constructs of PYD in terms of the Five C's. Therefore, the present study contributes to this literature by assessing the relations between both future orientation and sense of purpose with PYD.

Further, these two constructs (future orientation and sense of purpose) have not yet been fully integrated into understanding how they mediate relations between other predictors of PYD, such as domain-specific self-efficacy, and PYD. Schmid et al. (2011), for example, found that future orientation fully mediated the relation between intentional self-regulation and PYD. To date, however, there has not been any research on sense of purpose serving as a mediating

variable with regard to PYD. Therefore, this study seeks to assess the latent variable of future orientation, which includes sense of purpose, as a potential mediator of the relation between self-efficacy and PYD.

Self-Efficacy and PYD

According to Bandura's (2006) social-cognitive theory, self-efficacy refers to one's level of perceived ability to successfully accomplish a context-specific goal by means of specific skills. Perceptions of self-efficacy involve personal actions and influence the choices of activities as well as the intensity and persistence of behaviors, especially when engaged in challenging or demanding tasks. One characteristic that distinguishes high from low efficacious individuals is the ability to act on perceptions that one is capable of accomplishing desired outcomes by means of goal-oriented behaviors (Wigfield & Eccles, 2000). Studies have also shown that perceptions of such self-awareness in solving a problem to accomplish a goal are related to facets of PYD.

Perceived self-efficacy is strongly associated with self-regulatory behaviors and agency (Bandura & Shunk, 1981; Guerra & Bradshaw, 2008). As individuals increase their ability to control their environments in order to achieve a goal or master a challenging task, they become more empowered to seek new challenges and demanding tasks, as well as express higher levels of confidence (Pajares, 1996). Additionally, across studies, positive correlations have been found between self-efficacy and personal achievement, effective strategies for decision making, social integration, and community engagement (Hughes et al., 2011; Kinard & Webster, 2010; Miller, Stewart, & Trost, 2002). As such, self-efficacy has shown to be a powerful motivational process in a variety of human functional domains (Bandura & Shunk, 1981). Although Catalano and colleagues (2004) have argued that PYD fosters self-efficacy as it is often represented in the competence category of the Five C's model (Lerner et al., 2005), few have focused their

attention specifically on the bidirectional relationship involving self-efficacy as a predictor of PYD, which this study will examine.

Further, even though some have argued that self-efficacy should be assessed in terms of a *global* sense of confidence and capability to cope and or manage difficult situation (Schwarzer & Jerusalem, 1995), Bandura (2006) asserted that self-efficacy is best understood from a domain-specific focus, honing in on its relation to performance in the service of *specific* goals, tasks, or stressful situations. As this study is focused on understanding youths' leadership skills and how they relate to PYD, I will utilize a self-efficacy scale that is specific to leadership skills. As such, leadership self-efficacy is defined as an individual's belief in his or her ability to successfully lead or accomplish leadership tasks within a group (Ng, Ang, & Chan, 2008).

Self-Efficacy and Future Orientation as Mediating Variables

Similar to self-efficacy, future orientation involves the performance of structured behaviors that will lend themselves to accomplishing a goal. As was mentioned in Study 1, Epel et al. (1999) highlighted a strong link between self-efficacy and future orientation, suggesting that individuals who possess strong perceptions about their abilities to accomplish a specific goal will be more motivated and have a heightened sense of awareness of future consequences of their behaviors. In turn, individuals who are more cognizant of both proximal and distal goals might consider their perceptions of their abilities to accomplish tasks to achieve these goals (Epel et al., 1999). Despite both theoretical and empirical studies that highlight a positive relation between future orientation and self-efficacy (Epel et al., 1999; Nurmi, 1990), few empirical studies have focused on how these predictors can serve to mediate positive outcomes such as PYD.

Schmid et al. (2011) is currently the only published study that found future orientation to fully mediate the relation between intentional self-regulation and PYD. Even though there is a dearth of studies focused on future orientation as a mediator of the relation between self-efficacy

and PYD, the above theoretical and empirical studies indicate that future orientation may be able to explain PYD above and beyond self-efficacy.

The Current Study

The purpose of the study was to determine the nature of the relations between future orientation and self-efficacy in predicting PYD among early adolescents. Specifically, the study examined the potential developmental cascade of future orientation, which includes an element of one's sense of purpose, as mediating the association between self-efficacy and PYD as defined in terms of the Five C's model (Lerner et al., 2005). Even though previous studies have highlighted the importance of having a positive orientation towards the future (see Schmid et al., 2011), given the dearth of studies focused on this topic I expected that future orientation would serve as a mediator but sought to explore the salience of its effect on the association between leadership self-efficacy and PYD.

Method

Participants

Participants included youth ages 11 to 16 ($M = 13.92$, $SD = .94$) who were recruited, along with at least one family member, to be a part of the comparison group for a family and youth leadership program. Families were recruited from one rural and one urban, international, and ethnically diverse site located within the Caribbean twin island of Trinidad and Tobago with an average population of 1.2 million people (population density of 261 people per sq. km). The rural site has a population of approximately 25,000 and the urban site is located within the capital of Trinidad and Tobago, with a population of approximately 40,000. Recruitment was by means of flyers sent home from high schools (high school begins in 6th grade), referrals from the principal and teachers, and word of mouth.

Demographic data collected at baseline showed that in the initial sample, 31% self-identified as African American/Black, 28% as “other” (East Indian), 26% as mixed, 10% Asian, and the remaining were Hispanic and White. The parents’ average age was 43.74 years. Education level were as follow: high school educated (29.4%); post-secondary technical training (23.5%); bachelor’s degree (17%); graduate degree (12.4%); and others which constitute of those with less than high school degree and some college (15.1%). The majority were fully employed (71%). In terms of family structure, 3% were single, 3% living together, 12.7% divorced, 74.5% were married, 6% remarried, with the remainder separated or widowed. Additionally, 53.9% families included two children and 24.2% had three children. Three content validity questions were included at the conclusion of the surveys, each of which was rated from 1 (*All*) to 4 (*Hardly any*): “I understood the questions in this survey,” “I answered the questions carefully,” and “I answered the questions honestly.” Youth whose average on the three validity questions exceeded 3.00 (*Some*) were excluded from the sample, which resulted in a combined sample of $N = 340$ youth in this study (57.9% female). As the sample size exceeded 300, there is statistical power in excess of .95 to test for a meditational model across three time points at a one-tailed significance level of $p = .05$.

Measures

Future orientation. Using a 5-item subscale from the 25-item Future Time Perspective Inventory (FTP; Heimberg, 1963), youth were asked about their attitudes about longer future time perspective. Participants were asked to respond on a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) to statements such as “I expect to become the kind of person I most want to be” and “I look forward to the future with hope and enthusiasm.” Higher scores indicate a more extended and hopeful perspective of the future. Predictive and construct validity have been reported on college students (Heimberg, 1963). There have also

been acceptable reliabilities reported ($\alpha > .80$) for middle and late adolescent samples (Mahon & Yarcheski, 1994). The reliability in this sample is modest: $\alpha = .66$.

Sense of purpose. The Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) is a 10-item assessment designed to measure the presence of and search for meaning. Presence of meaning refers to individuals' perception of meaning in their life, whereas search for meaning refers to the extent that individuals seek meaning in their lives (Steger et al., 2006). Sample items included, "My life has a clear sense of purpose," "I have a purpose in my life that reflects who I am," and "I am always working toward accomplishing my most important goals in life," which are rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Research has shown this scale to be highly reliable ($\alpha > .80$, $\alpha = .86$ for the current study), and stable across time, and it has high convergent and discriminant validity (Steger et al., 2006; Steger, Kashdan, Sullivan, & Lorentz, 2008).

Self-efficacy. The 6-item leadership efficacy scale is designed to assess whether individuals believe they possess the capacity required to be an effective leader (e.g., be assertive, organize a group/team, be action oriented) in order to achieve a goal (Chi, Jastrzab, & Melchior, 2006). Example items include, "Once I know what needs to be done, I am good at planning how to do it" and "I am pretty good at organizing a team of kids to do a project," which are rated on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The scale's reliability was marginal in previous studies ($\alpha = .64$; Chi et al., 2006) and $\alpha = .67$ in the current sample.

Positive Youth Development (PYD). There are a variety of PYD models (Benson, 2003; Guerra & Bradshaw, 2008, Larson, 2000). In the present study, I utilized measures that tap into the Five C's model of PYD (Lerner et al., 2005). In this model, PYD is defined as a latent construct that is based on confidence, competence, connection, caring, and character (Lerner et al., 2005). The measures used for each of the Five C's are as follows:

Confidence. Confidence was measured using four items from the Trait Hope Scale (Snyder et al., 1996). These four items pertain to agency, which refers to perceived abilities and actions that individuals consider is necessary to accomplish a goal (Snyder et al., 1996). A sample item includes, “I energetically pursue my goals,” which is rated from 1 (*strongly disagree*) to 6 (*strongly agree*). This scale has relatively high retest ($r = .85$) and internal ($\alpha = .88$) reliability, and high positive correlation with self-esteem ($r = .75$) reflecting convergent validity (Snyder et al., 1996, 2002). The current sample had adequate reliability, $\alpha = .72$.

Competence. This 15-item scale measures attitudes towards school, including teachers, homework, grades, and individual learning (Anderson, 1999). Sample items include, “I am learning a lot in school” and “I am doing well in school,” which are rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores indicate more competence and positivity towards school. Internal consistency is high ($\alpha = .89$; Sabatelli, Anderson, & LaMotte, 2005), with $\alpha = .87$ for the current sample.

Connection and Caring. Both connection and caring were measured using 10 items from the Civic Responsibility Survey (Furco, Muller, & Ammon, 1998). Five of the items pertain to connection to the community and five refer to the degree of sympathy and empathy individuals feel towards others. Sample items include, “I feel like I can make a difference in the community” (Community) and, “I like to help other people, even if it is hard work” (Caring). The items are rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Internal consistency for the overall survey was $\alpha = .84$ (Furco et al., 1998). The reliability for the current sample was adequate, $\alpha = .77$.

Character. Fourteen items ($\alpha = .81$) from the Assertion Inventory (Gambrill & Richey, 1975) were used to assess Character. A sample item is, “Stand up for yourself when you are not

being treated fairly,” rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores are indicative of more assertiveness and by extension having more character. Internal consistency was high, with test-retest of .81 (Gambrill & Richey, 1975). Internal consistency was adequate for the current sample, $\alpha = .77$.

Procedure

Surveys were administered by data collectors who were not involved with the project regarding providing intervention services at three time points: baseline (Time 1) and follow ups at 5 months (Time 2) and 8 months (Time 3) later. University Institutional Review Board procedures were followed related to informed consent and confidentiality.

Preliminary Analyses

Prior to testing the hypotheses, preliminary analyses were performed on the two measures of future orientation (future orientation and sense of purpose) as well as the various PYD measures at all three time points in order to test for multicollinearity. I conducted two exploratory factor analyses on the indicators of future orientation and for PYD to determine if they loaded on a single factor. The indicators for both constructs did load on a single factor each and so they were labeled Future orientation and PYD, the Cronbach’s alpha being .75 and .73 respectively. This indicates that the composite scales are both reliable.

Analyses were also conducted to determine whether findings might be moderated by ethnicity. First, Cronbach’s alphas were computed separately for the three major ethnic groups in the sample – Black, other (East Indian), and mixed. The reliability coefficients did not differ across groups by more than $\pm .05$ from the alphas for the group as a whole (Peña, 2007). Second, repeated measures MANOVAs were performed to test for any moderating effects of gender and ethnicity; Box’s M test was also performed to assess violations of the assumption of homogeneity of variance. With ethnicity as the moderator, neither the two-way or three-way

interaction involving time (pretest and two posttests) or measure was significant, $F < 1.08$. However, Box's M test was significant, $F(18) = 1.71, p = .03$. A one-way analysis of variance was conducted for further analysis of ethnicity on the variables. Results revealed nonsignificant ethnic differences in the outcome variables in the pretest and first posttest, $F < 1.22$. However, there were ethnic differences at the 8-month follow-up, $F(5, 370) = 2.20, p = .04$. Due to uneven cell sizes for the varying groups, LSD was chosen as the post-hoc test. Results of the post hoc revealed the mixed ethnic group to have significantly higher PYD mean levels at the 8-month follow up, ($M = 4.35, SD = .65$) than the Black group, ($M = 4.12, SD = .63$), $p = .04, \eta^2 = .03$. According to Cohen (1988), this is considered a small effect. With gender as the moderator, both the two-way and three-way interaction involving time and measure were significant, $F > 2.86, p < .01$. The Box's M test was marginally statistically significant, $F(6) = 2.08, p = .052$. An independent samples t test was performed and results showed female youth to have significantly higher PYD levels at the 8-month follow up, ($M = 4.24, SD = .65$) than male youth, ($M = 4.07, SD = .59$), $t(369) = -2.35, p = .02, d = .24$, which is a small effect according to Cohen (1988). Therefore, both ethnicity and gender were included as covariates in the mediational model.

Missingness at Times 2 (5 months) and 3 (8 months) comprised 41.1% and 39.7% of all variables, respectively. The assumption was that data were missing at random (MAR). Logistic regression analyses were computed to test for selective attrition between the time points. In order to test whether attrition was systematic, participants who were missing the outcome variable (PYD) at Time 3 were compared, on both demographic and Time 1 and 2 measures, to participants who remained in the study. All measures were not significant, $p > .113$. Therefore, a propensity score to correct for selective attrition was not included as a covariate.

Data Analyses

Model testing. To test the hypothesis related to mediation, a variance-covariance model was constructed, where future orientation (Time 2) was the mediating variable between self-efficacy (Time 1) and PYD (Time 3), with gender and ethnicity as covariates (see Fig. 3). The mediating hypothesis is supported if, compared to the direct effects model, the mediational model has (a) higher explained variances, (b) a significant relation between future orientation and self-efficacy, (c) significant effects of future orientation on PYD, and (d) nonsignificant (or reduced) effects of self-efficacy on PYD.

Model Fit. Fit indices were the same as in Study 1.

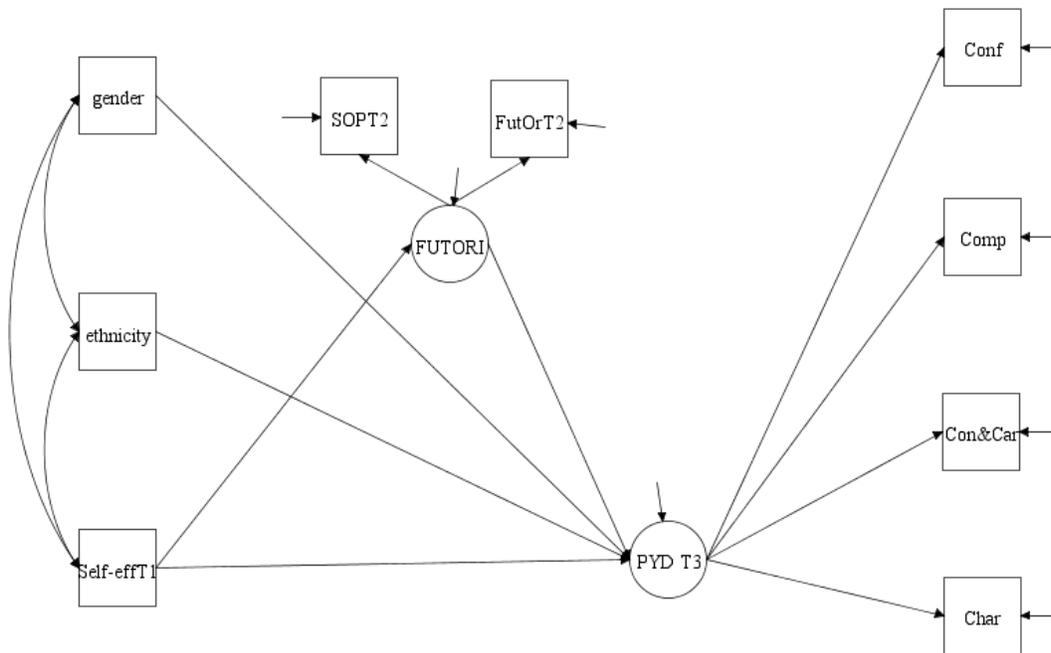


Figure 3. FO = Future Orientation (Time 2); SOP = Sense of purpose (Time 2); Model of the relationship among self-efficacy, future orientation, and PYD, controlling for gender and ethnicity. Future orientation is the mediator.

Results

Descriptive Statistics

Table 5 presents the means and standard deviations for indicators of future orientation (future orientation and sense of purpose), self-efficacy, as well as indicators of PYD (the Five C's) at all time-points. With the exception of self-efficacy and confidence, the means of all of the variables decreased significantly over time, $p < .01$.

Table 5

Mean (SD) Self-Efficacy, Future Orientation, and PYD Indicators, by Time

Variables	Baseline		5-month		8-month	
Future Orientation						
Future Orientation	4.36	(.95)	4.29	(1.04)	4.25	(1.02)
Sense of purpose	4.40	(.96)	4.37	(.99)	4.36	(.97)
Self-Efficacy						
Leadership self-efficacy	4.56	(.78)	4.52	(.80)	4.56	(1.10)
PYD						
Confidence	4.36	(.89)	4.44	(.93)	4.47	(.94)
Competence	4.40	(.84)	4.36	(.91)	4.23	(.91)
Connection and Caring	4.32	(.80)	4.32	(.80)	4.29	(.88)
Character	3.88	(.58)	3.84	(.65)	3.71	(.75)

Correlations among Self-Efficacy, Future Orientation and PYD

All correlations among the observed variables are presented in Table 6. The cross-time correlations indicate that there was modest, significant stability of the variables. At all three time points, both self-efficacy and future orientation were significantly related to PYD and to each other, with small to medium effect sizes with the exception that PYD's contemporaneous association with both leadership self-efficacy and future orientation were large effect sizes (Cohen, 1988). It should be noted that self-efficacy at baseline was also predictive of future

orientation 5 months later with about the same degree of magnitude as future orientation at baseline's prediction of self-efficacy 5 months later. In addition, self-efficacy at baseline was slightly less predictive of later PYD than was future orientation at baseline.

Table 6

Correlations among Predictors of Positive Youth Development

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Self-efficacy (T1)	-								
2. Self-efficacy (T2)	.40**	-							
3. Self-efficacy (T3)	.21**	.47**	-						
4. Future Orientation (T1)	.47**	.23**	.16*	-					
5. Future Orientation (T2)	.20**	.42**	.28**	.49*	-				
6. Future Orientation (T3)	.26**	.28**	.47**	.45**	.54**	-			
7. PYD (T1)	.64**	.32**	.23**	.71**	.40**	.42**	-		
8. PYD (T2)	.34**	.62**	.42**	.43**	.69**	.37**	.53**	-	
9. PYD (T3)	.32**	.43**	.59**	.43**	.43**	.69**	.56**	.58**	-

Note. * $p < .05$. ** $p < .01$.

Measurement and Structural Models

Confirmatory Factor Analysis (CFA) was performed to test the measurement model of observed variables and the latent variables of Future Orientation and PYD (see Figure 3). The CFA yielded a good model fit for PYD: $\chi^2(8, N = 247) = 13.68, p = .091, SRMR = .03, RMSEA = .054, CFI = .971, \text{ and } TLI = .950$; as well as Future Orientation: $\chi^2(18, N = 332) = 26.01, p = .095, SRMR = .035, RMSEA = .037, CFI = .981, \text{ and } TLI = .971$. The structural model yielded a good fit to the data, $\chi^2(8, N = 340) = 14.50, p = .069, SRMR = .037, RMSEA = .039, CFI = .977, \text{ and } TLI = .965$. The standardized path coefficients (β) in the model were as follows: from self-efficacy (baseline) to PYD (Time 3), covarying gender and ethnicity with Black youth as the reference group ($\beta = .278, p < .001$); from the composite score of Future Orientation (Time 2) to PYD at Time 3 ($\beta = .563, p < .001$); and self-efficacy at baseline to Future Orientation at Time 2 ($\beta = .245, p < .001$) (see Table 7). In addressing the hypothesis, the indirect effect using bootstrapped standard errors was significant, ($\beta = .138, p < .01$). Given that the relation between self-efficacy and PYD remained significant, the hypothesis that future orientation mediates the relation between self-efficacy and PYD was partially supported. Given that the indirect effect and direct effect both are significant and are in the same direction, this is considered a complementary mediation (see Zhao et al., 2010). This term is similar to the term used by Baron and Kenny (1986) to describe partial mediation. In other words, future orientation partially mediated the relationship between self-efficacy and PYD.

Table 7

Testing for Mediation of Self-Efficacy and PYD by Future Orientation

	Unstandardized Beta (B)	S. E.	Standardized Beta (β)
Model 1			
Self-Efficacy's effect on PYD	.278**	.07	.275
Gender on PYD	.040	.12	.022
East Indian on PYD	.069	.124	.041
Mixed on PYD	.214	.137	.129
Model 2			
Future Orientation's effect on PYD	.438**	.09	.552
Model 3			
Self-efficacy's effect on Future Orientation	.321**	.09	.244
Model 4			
Indirect effect of Future Orientation on Self-Efficacy and PYD	.140*	.05	.138

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

Discussion

This study examined future orientation as a possible mechanism explaining the relation between self-efficacy and PYD among adolescents. As future orientation is related to positive outcomes among adolescents, it is important to understand the role that it plays in the lives of youth. The study's findings suggest that although self-efficacy is a robust predictor of positive development, future orientation partially explained this process. In other words, the presence of positively orienting one's future partially accounted for aspects of the positive developmental process over the feelings of self-efficacy.

Constructs indicating adolescents' positive development were measured through the Five C's - confidence, competence, caring, community, and character (Lerner et al., 2005). Congruent with other studies (e.g., Eccles & Gootman, 2002; Lerner et al., 2005; Roth & Brooks-Gunn, 2003), future orientation, self-efficacy, and facets of PYD are important during the adolescent period. The high means on the measures of positive outlook on the future and having a sense of purpose are indicative of the importance and utility of these two variables among adolescents.. Specifically, future orientation and sense of purpose can be used to guide adolescents as they develop a sense of identity as well as navigate their developmental changes. In addition, one's sense of purpose concerns present behaviors that will promote the achievement of proximal and distal goals (Blattner et al., 2013; Bronk et al., 2009). Recent PYD scholarship has emphasized the importance of purpose among youth as well as have highlighted the strong positive links between purpose and self-esteem (Damon et al., 2003; Blattner et al., 2013). Further, both future orientation and having a sense of purpose are imbued with internal motivation, which contributes greatly to the intentional pursuit of meaningful short-term and long-term goals (Bronk et al., 2009). For these reasons, future orientation and sense of purpose were both used as indicators of a single latent construct. This was also done in an attempt to strengthen the understanding of the

role that having a positive orientation towards the future has on other constructs such as self-efficacy and positive development.

In general, the bivariate associations highlighted the potential role that adolescents' perceptions of their future and capability can play in fostering positive development. Consistent with both theoretical frameworks and empirical findings, having a positive outlook on one's future as well as positive perceptions of one's capabilities are necessary attributes to contribute to positive development (Lerner et al., 2011a, 2011b; Schmid et al., 2011). Results also indicated strong associations between self-efficacy and PYD as well as between self-efficacy and future orientation, which is also consistent with previous literature (Epel et al., 1999).

Estimation of the direct paths were also congruent with previous literature on self-efficacy and future orientation (Epel et al., 1999), as the results indicate that self-efficacy predicts later future orientation. In addition, both future orientation and self-efficacy were significant predictors of PYD. Consistent with both developmental systems theory (Lerner et al., 2005, 2011b; Seginer, 2008) and empirical findings (Schmid et al., 2011), individuals with strong perceptions of their capability as well as optimistic feelings about their future tend to engage in behaviors that will promote competent development.

Both the bivariate and direct pathway analyses suggest that these variables may not simply be predictors of PYD, but rather indicate complex and dynamic interplay among these variables, whereby both self-efficacy and future orientation represent dimensions of as well as predictors of PYD. First, scholars concur that PYD encompasses competencies that involve both developing a strong sense of competence (self-efficacy) as well as developing and refining hopes and dreams for the future (Catalano et al., 2004; Pittman et al., 2011; Roth & Brooks-Gunn, 2003; Zarrett & Lerner, 2008). The developmental assets model specifies both strong external and

internal assets that include the need to develop self-efficacy as well as a sense of purpose and hope for the future (Benson, 2003; Scales et al., 2000). Given that both future orientation and self-efficacy are components of the youth developmental process, it helps to explain the significant relations among them and hints at possible dynamic interactions among PYD variables.

In light of the strong theoretical links between future orientation, self-efficacy, and positive development (Lerner et al., 2005; Schmid et al., 2011), the mediational finding suggests that future orientation mediates the association between self-efficacy and PYD, albeit only partially so. The findings were also true for early future orientation as predictive of later self-efficacy. The primary explanation for this lack of full mediation can be attributed to the assessment of self-efficacy. As mentioned earlier, one of the components of the Five C's model is competence, which is often operationalized by self-efficacy. There was not significant multicollinearity between this measure of self-efficacy and the one in the PYD variable. However, it is possible that adolescents' positive development in various domains help them maintain or enhance their ability to orchestrate and successfully execute other aspects of self-efficacy such as leadership self-efficacy. The contribution of leadership self-efficacy to PYD is, however, in part influenced by how much they believe they possess a positive future. In other words, to the extent that their leadership efficacy skills enhance their positive development, positive thoughts of their future accounts for this relationship.

Further, the predictive power of self-efficacy in relation to future orientation and PYD is likely due to a dynamic interplay among these constructs during adolescent development. Researchers are challenged in deciding on the benchmarks for assessing various dimensions of PYD. For instance, theorists argue for beliefs of the future to be a fundamental aspect of positive

youth development (Benson, 2003; Sun & Lau, 2006; Sun & Shek, 2012). The confidence component of the Five C's model also includes a sense of hope for the future. However, future hopes was shown to be a significant and full mediating variable between intentional self-regulation and PYD (Schmid et al., 2011). Further, while the Five C's model has received wide empirical attention, the developmental assets model has equally been assessed empirically (Scales & Leffert, 2004; Scales et al., 2000), although perhaps not as well grounded in theory as the Five C's. Components of the 40 developmental assets have also been assessed in subsequent studies as predicting the Five C's. For example, constructive use of one's time through engagement in youth programs is the 18th developmental asset (Benson, 2003) as well as is predictive of the Five C's (Lerner et al., 2005; Roth & Brooks-Gunn, 2003). These studies therefore help to support the assertion that factors that help to facilitate the positive youth developmental processes can also be significant in predicting dimensions of them.

Another explanation for the partial mediation could be due to the age of the participants. There has been theoretical recognition of the importance of developing and maintaining adaptive development during the first two decades of life (Lerner et al., 2011a). Therefore the processes involved in developing aspects of the self that assists with optimizing development starts prior to the adolescent period and extends beyond that period. As early adolescents were assessed in the current study, it limits our understanding of the contribution of developmental periods as possibly influencing the individual's ability to think about their future beyond their gaining confidence or developing abilities that will contribute to positive development. As so few studies have been published on the contribution of future orientation on PYD among children and older adolescents, there is still much to discover.

Along with the assessment of early adolescence, the timing of the assessment could be another possible explanation of the results. The limited time lag between assessments perhaps was too small to fully account for future orientation's mediation of the relation between self-efficacy and PYD. As future orientation did partially mediate the relationship between these two variables, it is possible that future orientation could have fully mediated the direct effects if either more observations were assessed or there were longer gaps between assessments. Overall, this study shows promise in future orientation not only being a significant predictor of the positive developmental process, but also interestingly highlights that future orientation may be a key factor in influencing self-perceptual constructs related to a PYD even when there are limitations with timing of the assessment. However, given the strong dynamic interplay between future orientation, self-efficacy, and PYD, it is still too early to determine whether future orientation is a viable mediator.

Limitations and Future Directions

The findings from the present study must be considered in the context of its limitations. First, as mentioned earlier, the timing of the assessment may have influenced the results. Even though this was a longitudinal study, the close timing of the assessments as well as three time point of measurement does not provide the full picture of the developmental processes involved in understanding the influence of future orientation and self-efficacy on PYD as the individual transitions from one developmental period to another. Future studies should therefore ensure that the time lags are sufficient to capture developmental changes in early adolescence. It must be noted that given this limitation, the study's findings support the conjecture of the importance of future orientation and self-efficacy as significant predictors of PYD and overall in understanding the positive developmental process.

Second, although the measures of the Five C's of PYD had high reliability, apart from the measure assessing confidence, the measures were not previously tested for their validity. Given the highly reliable and valid measurement of PYD within the 4-H Study data (Lerner et al., 2005; Phelps et al., 2009), it would be beneficial for future studies to use the 4-H study data to perform various correlations and assessments of validity. It is not only useful but necessary to compute and provide validity of measurements in order to secure the study's measurements and subsequent findings. In addition, using the 4-H Study data as a benchmark to compare and draw conclusions of the validity of the measures helps to build the foundation for future PYD research.

Finally, autocorrelations between latent mediator variables and autocorrelations between outcome variables were not performed. This limited my ability to fully test the assumption that the errors in the regression model are independent of the null hypothesis, to account for the time lag between variables, or to account for stability of the variables (Hannan & Terrell, 1968). Even though the bivariate correlation analyses did indicate sufficient stability of the variables across time, future studies should include autocorrelations in order to increase the predictability of the variables as well as test the regression assumption and fully assess stability of the variables.

Implications for Prevention

The results of this study not only provide a snapshot of the influence of future orientation on PYD, but also suggest the beneficial effects of youth programming that incorporates such a variable. Although Benson (1997) identified 40 development assets that are considered to promote positive development among youth, Lerner et al.'s (2005) PYD model has received extensive empirical support. However, the strong support of the utility of the PYD model does not necessarily make it easily transferrable to every program that promotes youth development, although preliminary work has begun (see Lerner et al., 2011a). This difficulty is assumed to

primarily stem from understanding best practices to successfully integrate PYD's five elements into the program's aims as well as understanding the extent to which individual plasticity changes the development of PYD.

As a means of addressing these challenges while simultaneously strengthening the programs' outcomes, practitioners and researchers alike should consider incorporating future orientation thought processes. For instance, youth programs could develop youth's positive thoughts of their future through focus groups, activities that allow them to write about their future, and the opportunity to work with mentors who can help them identify imagined futures and steps to take to achieve their goals. In this way, participants can critically think about their future within the confines of the program, shape their purpose to help foster their future thoughts, and build on the varying facets of the PYD Five C's.

In addition, there should also be a strong emphasis on the strength of self-efficacy on program outcomes. Given that this study highlighted self-efficacy to be a significant predictor of PYD and given that competence is a component of PYD, programs should also attend to building participants' sense of capability. This could be adaptive to the specifics of the program. For instance, in a youth sports program, coaching could emphasize the capability for the youths' to successfully participate, compete in, and achieve in that particular sport (Coakley, 2011; Petitpas, Cornelius, Van Tallte, & Jones, 2005). Specific to leadership efficacy, there has been a growing number of youth programs focused on building leadership skills and efficacy (Simonsen et al., 2010). In particular, Simonsen and colleagues identified high school activities (e.g., community service, 4-H, National Honor Society), that were related to leadership efficacy during college. - Lerner et al. (2005) addressed the importance of empowering youth through leadership as a means of thriving when faced with adversity as well as a means of fostering civic engagement.

Therefore, youth programs should either include self-efficacy as a primary focus or ancillary to other factors important to developing individual PYD.

There has been a prominent shift of focus within the adolescent development literature within past few decades from a risk-focused approach, primarily striving to understand facets that reduce risk engagement, to focusing on elements that promote positive development. Through the nexus of constructs found in this study, further assessments can be built on understanding the marked role that future orientation play in the positive development of youth.

CHAPTER IV

GENERAL DISCUSSION

The overarching aim of this dissertation was to examine future orientation and self-perception in relation to later risk engagement (Study 1) and positive youth development (PYD; Study 2). In Study 1, two competing models were tested to understand how the self-system of adolescents may be related to risky behaviors. Specifically, the first mediational model assessed whether future orientation would mediate the association between self-esteem and risk orientation, whereas the second mediational model tested whether self-esteem would mediate the relationship between future orientation and risk orientation. In Study 2, future orientation was tested as a mediator for the relationship between domain-specific self-efficacy and PYD. In both studies, future orientation held significant accountability for the pathways between the self-perceptual concepts and subsequent behaviors, indicating the marked contribution that future orientation has in elucidating self-perceptions on behaviors.

Adolescents' conceptualizations of their future, as either positive and optimistic or as negative and pessimistic, greatly influences their developmental trajectories. The development of their future thoughts has forbearance on their engagement in activities that will either boost or stagnate risk and/or positive development (Chen & Vazsonyi, 2011; Schmid et al., 2011). In particular, positive orientation to the future is suggested to be a promising protective factor against adolescent risk engagement (Chen & Vazsonyi, 2011; Wills et al., 2001).

In addition, future orientation, a derivative of possible selves, serves as a platform to inform self-perceptions and subsequent behaviors. Possible selves, which are cognitive representations of one's goals in terms of who he or she ideally would like to become (ideal self as opposed to their present or feared self; Markus & Nurius, 1986), are derived from past self-representations as well as projections of the self into the future (Oyserman & Markus, 1990;

Oyserman et al., 2006). Such thoughts are informative of how people conceptualize themselves in terms of worth and capabilities (self-esteem and self-efficacy respectively). Thus, individuals with negative perceptions of their future are more likely to have corresponding lower levels of self-perceptions and higher levels of risk engagement. Conversely, those who hold more positive views of their future tend to also have higher levels of self-perceptions and avoid risk and/or engage in prosocial behaviors.

Even though future orientation was shown to be a more robust predictor of risk and positive development than self-perceptions, it should not diminish the informative value of early self-perceptual beliefs on subsequent behaviors. As individuals transition into adolescence, their identities become the focal point of development (Kroger et al., 2010; Marcia, 1980). As identities are explored and sustained, so too are representations of the self. Thus, self-perceptual development is a critical component of the identity development process. As a result, individuals who develop a strong sense of self tend to avoid engagement in risky behaviors and this contributes towards the positive development of youth.

Further, self-perceptions have reciprocal formative value in the development of future orientation. Theoretical and empirical work asserts that self-perceptual concepts such as self-esteem and self-efficacy significantly contribute to adolescent's anticipation for and projection of goals towards the future (Kerpelman & Mosher, 2004; Jackman & MacPhee, in press). Adolescents who do not hold strong beliefs in their capabilities to personal achievement and/or who lack confidence, tend to gravitate towards forming negative views of their future (Chen & Vazsonyi, 2011; Kerpelman & Mosher, 2004). Such adolescents are also more vulnerable at engaging in behaviors to satisfy instant gratification without forethought of consequences (Robbins & Bryan, 2004). Therefore, having a sense of self-worth (self-esteem) and self-ability

(self-efficacy) are key concepts that not only help to define one's identity, but shape thoughts of the future that subsequently drive specific behaviors.

Strengths

In light of the limitations presented separately in both studies, both studies contribute to understanding the nature of future orientation on an adolescents' developmental trajectory. First, although extant literature supports the strong link between future orientation and behaviors (both positive and problematic), few have thoroughly examined this multidimensional construct longitudinally (see Chen & Vazsonyi, 2011; Schmid et al., 2011). Both studies presented in this dissertation suggest future orientation to be a strong predictor of both negative and positive behaviors and development over time. Second, the findings from these studies contribute to the limited knowledge of the effect of future orientation on behaviors and development given other constructs such as self-perceptions. As such, both studies highlighted future orientation to being a significant mediating variable between self-esteem and risk as well as between self-efficacy and PYD.

In addition, both studies attempt to address external validity by assessing ethnically diverse populations. Not only are diverse samples important to study in order to identify probable notable contextual factors associated with the outcomes of the study, but also to generalize the findings. Within contemporary theories of human development, the assessment of a diverse sample is "the best evidence of potential change that exists" (Lerner & Castellino, 2002, p. 126). Despite the lack of significance when gender and ethnicity was entered as covariates in Study 2, the utility of a more generalizable sample is relevant in understanding the influence of future orientation and self-perceptions on behaviors within particular contexts.

In Study 2, the future orientation variable included a measure of one's purpose. Purpose and future orientation, while distinct, lends credence to the value adolescents place on

formulating their future (Blattner et al., 2013; Brandstadler, 1999). The valence of formulating one's future as either positive or negative is in part, contingent upon one's motivation to fulfill one's aims that are both intrinsically and extrinsically meaningful (Damon et al., 2003; Hill et al., 2013). Despite the multitude of conceptual definitions of future orientation, there is a shared theme (explicitly or not) that a high or positive future orientation involves goal setting and purposeful planning in lieu of acting on impulse. Thus, it would be of great benefit to also assess one's sense of purpose as serving as a proxy to motivating individuals to engage in behaviors that assist with their future plans and goals, a gap which Study 2 begins to fill.

Finally, Study 2 is also one of the first studies to consider the dynamic interrelation among the facets that constitute PYD. The vast majority of studies on PYD have either been theoretical in nature (Larson, 2000; Lerner 1998; Lerner & Castellino, 2002; Schwartz et al., 2007) or have been focused on how application of PYD on youth programs (Phelps et al., 2009; Roth & Brooks-Gunn, 2003). Those focused on factors related to PYD (Park, 2004; Schmid et al., 2011) have been limited in scope in recognizing and addressing the conceptual complexity that PYD offers. The findings of Study 2 have implications for testing PYD. To that end, facets that contribute towards positive development are not just related, but can also be useful in predicting other dimensions of PYD.

Implications

The findings from both studies are foundational for further research on the effects of future orientation on both negative and positive developmental trajectories. While both studies utilized a longitudinal design, there is still much to uncover on the effects of future orientation. For instance, neither study assessed the longitudinal effects of future orientation as adolescents make transitions from childhood to early adolescence or from early to middle adolescence.

Understanding how thoughts about one's future transition throughout development would lend to the elucidation of the role that future orientation plays in the developmental process..

Further, future studies should utilize a more comprehensive assessment of future orientation. As most theorists would argue future orientation is multidimensional in nature (Nurmi, 1991; Seginer, 2008; Oyserman et al., 2002), it would be best to incorporate as many components as possible of future orientation. In this way, one can have a better gauge of not only the content (e.g., hopes, fears, aspirations, motivations) but also whether individuals' views of their future are optimistic or pessimistic. In Study 2, there was an attempt to assess future orientation in terms of both content and valence. However, future research could benefit from perhaps using scales that encapsulates even more of the content of future orientation.

To increase the rigor of the mediational tests, future studies should control for previous time points of the mediators and outcome variables. In this way, testing of stability within the variables are possible which increases the robustness of the analyses and increases potentiality of making better predictions of the mediating variable as accounting for variance between the predictors and outcomes. Similarly, studies with competing mediational models, as was the case in Study 1, should utilize a more parsimonious mediational testing by simultaneously testing both mediational models.

Implications regarding youth programs were also highlighted within the findings from both studies. Findings of future orientation suggest it is a strong predictor of both risk engagement and positive development. Both intervention and prevention youth programs would benefit if the youth are able to build and develop positive thoughts of their future. In addition, programs that integrate the development of purpose by encouraging the youth to discuss and reflect on concepts that drive them to avoid risk and/or increase engagement in planned and

positive behaviors that will help be projected into the future, may help youth foster a more systematic and optimistic future. In addition, programs that has a curriculum focused also on the promotion of self-perceptions will also add substantively to the programs' effects in promoting positive development.

Conclusion

The findings of this dissertation provide emphasize the importance of future orientation in informing facets that contribute towards adolescent risk engagement and positive youth development. The studies also highlighted the importance of self-perceptions as influencing youths' behaviors as well. Based on these results, future orientation is a variable that can be considered a viable protective factor against risk and promotive factor towards positive development. Thus, prevention and intervention programs can further benefit adolescents with the inclusion of these variables.

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