

The Past, the Present, and the Future: A Conceptual Model of Time Perspective in Adolescence

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"Perhaps no area is more in need of exploration since all human conduct...is conditioned by the time perspectives of the individual" (Frank 1939, p. 294). Almost 75 years later, this statement is still relevant. This paper seeks to promote research on time perspective in adolescence by presenting a new multidimensional conceptual model. Scholars have provided compelling evidence showing that how individuals feel about the past, the present, and the future predicts important developmental outcomes, such as academic achievement (Mello and Worrell 2006; Zimbardo and Boyd 1999), risky behavior (Zimbardo et al. 1997), substance use (Keough 1999), and physical activity (Henson et al. 2006). To complement this research, this paper proposes (a) additional dimensions of time perspective that may illuminate its relationships with human behavior, (b) a focus on adolescence as a developmental period that is particularly salient for the expression of time perspective, and (c) potential implications for incorporating time perspective into interventions.

Time Perspective

Time perspective is conceptualized as a cognitive and motivational construct that is individually varying (see Fig. 1 for a conceptual model), and this conceptualization is based on four premises. First, time perspective is cognitive because it originates in the thoughts of individuals and it is motivational because thoughts about time

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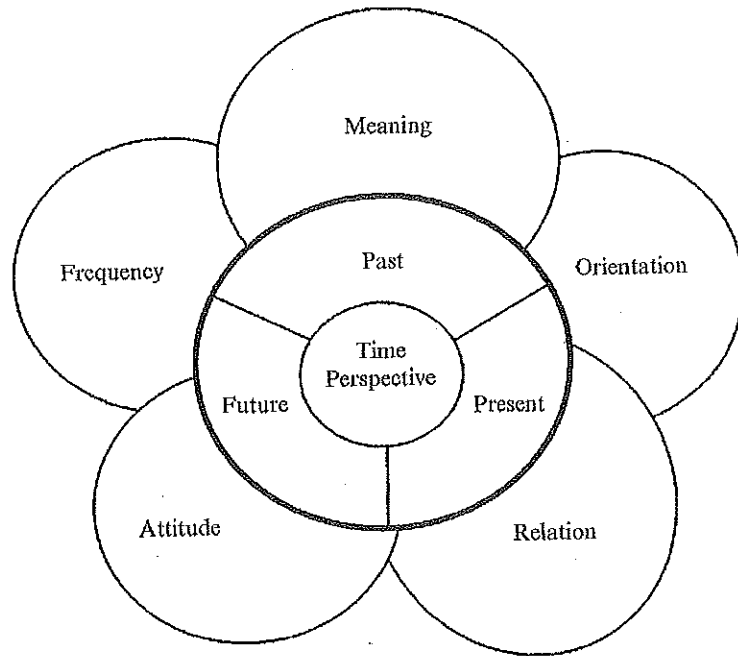


Fig. 1 A conceptual model of time perspective dimensions

lead individuals to make particular decisions and engage in specific behaviors. Second, time perspective encompasses three temporal periods—namely the past, the present, and the future—and each period contributes uniquely to an individual's time perspective. Moreover, individual functioning may vary in relationship with each time period. For example, academic outcomes may be more closely tied to individuals' perspective toward the future than the past, whereas risk taking may be more closely tied to an orientation to the present. Further, to understand completely an individual's time perspective, all three time periods must be considered. Thus, an individual's perspective toward the present will not necessarily convey their perspective toward the past or the future.

Third, time perspective differs among individuals as a result of learning and experiences in various contexts, such as family, school, and community. For example, Mello and Swanson (2007) showed how adolescents' expectations for the future varied by neighborhood socioeconomic status. Lastly, time perspective is multidimensional and may be conceptualized in terms of (a) attitude, (b) orientation, (c) relation, (d) frequency, and (e) meaning, with each dimension yielding a distinct and meaningful part of the construct. In the subsequent sections, I define each dimension with research on adolescents, outline age-related changes of these dimensions in adolescence, and provide examples of interventions that have included time perspective.

Time Attitudes

Time attitudes are defined as positive and negative feelings toward the past, the present, and the future and are the most commonly studied element of time perspective. As early as 1953, Lewin stated, "The behavior of an individual does not depend entirely on his present situation. His mood is deeply affected by his hopes and wishes and by his views of his own past" (p. 75). Although named differently, time attitudes have been studied most frequently with the Zimbardo Time Perspective Inventory (ZTPI; Zimbardo and Boyd 1999). The ZTPI measures individual-variation in college-aged populations and is comprised of five subscales: Past Positive, Past Negative, Present Hedonism, Present Fatalism, and Future. ZPTI scores are related to a variety of constructs in adolescent and adult samples (Apostolidis et al. 2006; Henson et al. 2006; Keough et al. 1999; Mello and Worrell 2006; Rothspan and Read 1996; Shores and Scott 2007; Wills et al. 2001; Zimbardo and Boyd 1999).

The most recent addition to measuring time attitudes is a new instrument developed to assess time attitudes in adolescents, given prior research indicating that the ZTPI may have limited utility with adolescents (Worrell and Mello 2007). Mello and Worrell (2010) created the Adolescent Time Inventory (ATI). The time attitude dimension of time perspective on the ATI is represented by the Adolescent Time Attitude Scale (ATAS; Mello and Worrell 2007), which assesses positive and negative attitudes toward the past, the present, and the future. The ATAS includes six subscales that comprise five items each: Past Positive, Past Negative, Present Positive, Present Negative, Future Positive, and Future Negative. In studies with American and German adolescents, the ATAS has yielded valid and reliable scores, which have theoretically consistent relationships with a variety of constructs, including academic self-concept, global self-esteem, hope, optimism, and perceived stress (Worrell and Mello 2009; Worrell et al. 2013). Clusters based on ATAS scores indicate that adolescents in several countries have meaningful time attitude profiles, which also predict differences on academic constructs (Alansari et al. 2012; Andretta et al. 2014; Buhl and Lindner 2009).

Studies using other instruments have indicated that time attitudes are associated with developmental outcomes in adolescents, such as delinquency, substance use, and academic achievement (Jew and Green 1998; Landau 1976; Lennings et al. 1998; Robbins and Bryan 2004). As is evident, time attitudes are related to many important developmental outcomes, and are certainly worthy of greater systematic research scrutiny. For example, unlike the ZPTI, ATAS scores are focused only on time without additional constructs, such as hedonism. The ATAS will allow us to examine questions, such as if present attitudes are related to risk taking and depression independently of constructs such as hedonism and fatalism, respectively.

Time Orientation

Time orientation refers to the emphasis one places on the past, the present, and/or the future. Lewin (1935, 1939, 1942) described how varying thoughts about time periods could predict human behavior, and time orientation research shows that

individuals vary in how they much they emphasize the past, the present, and the future (e.g., Cottle 1967b). Zimbardo and Boyd (1999, p. 1272) argued that a "balanced" orientation, with an equal emphasis on the past, the present, and the future, would be associated with the healthiest behaviors. Using a variety of instruments, research has shown that individuals are most interested in the future or the present and least interested in the past. For example, delinquent adolescent males preferred the future over the present or the past (Landau 1976). Studies with adults indicate that the present is the most important, followed by the future and the past (Cottle 1967b; Israeli 1932) or that the future is valued the most, followed by the present, and the past (Carreras et al. 2008; Jason et al. 1989). In a study with children and late adult participants, Gonzalez and Zimbardo (1985) reported that more than half selected a phrase including the present and the future, followed by a third who selected a phrase with the future, a smaller group who selected a phrase with the present, and a very small group who selected a phrase with only the past.

Studies using various measures have shown relationships between time orientation and developmental outcomes. Researchers have found that future orientation is positively associated with achievement in adolescent males (Haldeman 1992; Tehan 1957) and with academic behaviors in college students (Lasane and Jones 1999). In an experimental study, Brock and Giudice (1963) showed that participants who stole were three times more likely than non-stealers to select the word "yesterday" and no difference was observed with the word "tomorrow." Regarding psychological outcomes, optimism was positively related to an orientation toward the future in adolescents (Haldeman 1992) and was inversely related to the past in adults (Shipp et al. 2002).

Extant research is limited because most available instruments do not enable researchers to assess an orientation towards one, two, or three time periods. To address this limitation, the ATI's Time Orientation section (ATI-TO) was developed to assess adolescents' orientation towards the past, the present, and the future (Mello and Worrell 2010). The ATI-TO includes circles of varying sizes labeled the past, the present, and the future. Respondents choose from one of seven configurations (e.g., Past emphasis, Present and Future emphasis) to indicate which time period or periods are most important to them. It is possible that different relationships may emerge among individuals who are oriented towards a single time period, multiple time periods, or specific time periods. Results from a recent study using a previous version of the ATI-TO (Mello et al. 2013) showed that participants who were oriented towards *only* the present or *only* the future had lower self-esteem and academic achievement and reported engaging in more risky-behavior than those oriented towards two or three time periods.

Time Relation

Time relation reflects the degree to which individuals perceive that the past, the present, and the future are related to one another. This concept is premised on an understanding of potential causal relations between what has occurred (the past)

and what is occurring (the present), between the present, and what might occur (the future), and among the past, present and future. Indeed, some scholars have argued that perceiving a connection among time periods is beneficial for health (Cottle 1967b; Lennings et al. 1998). Thus, adolescents who conceive of time periods as related may better understand that today's actions will have an influence on tomorrow's outcomes, and such thinking may lead to healthier decisions. Zimbardo and Boyd (2008) have referred to a Holistic Present, which is a focus on the present time period, where the present contains both the past and the future. They liken this notion to mindfulness practices and suggest this conceptualization leads to healthier individuals. Time relation may be a way to operationalize the construct.

Researchers have employed various instruments to examine time relation. In a study of late adolescents, Cottle (1967a) asked participants to draw circles indicating the relationship among the past, the present, and the future. Results indicated that the most common configuration included a set of circles overlapping in a linear pattern (i.e., past overlapping present, and present overlapping future), followed by unrelated circles. In other studies using participant drawn circles, the overlapping time period pattern was positively associated with valuing achievement (Cottle 1969) and intelligence (Getsinger 1975) and inversely associated with anxiety (Cottle 1969; Getsinger 1975). In another study of the interrelationship among time periods, college students who perceived a connection between current and future goal-related behaviors also reported higher academic achievement (Shell and Husman 2001). Lastly, qualitative research has illustrated that some adolescents think the time periods are interconnected: "Well, I think it's kind of like steps, the past can influence the future, but you have to think about the past in the present to influence the future" (Mello et al. 2009a, p. 547).

As with time orientation, our knowledge of time relation has been restricted due to the absence of a standardized measure. To address this gap, the ATI (Mello and Worrell 2010) has a Time Relation section, the ATI-TR, comprised of configurations of circles labeled the past, the present, and the future. Configurations vary in overlap among time periods to indicate the degrees to which individuals perceive that time periods are related to one another, and include four options: unconnected time periods, past alone/present and future connected, linearly connected, and interconnected (i.e., a Venn diagram). Using an earlier three-option version of the ATI-TR, Mello et al. (2013) reported that 50 % perceived time as interconnected, 35 % perceived the time periods as linearly related and 10 % reported no relationship. In the second part of the study, with the four-option ATI-TR, 38 % of adolescents perceived the time periods as interconnected, 33 % chose present/future connected, 20 % selected the linear relationship, and 10 % chose no connection. Adolescents who selected the interconnected and linearly connected options had higher grade point averages, higher scores on goal setting and self-esteem, and lower risky behaviors, such as stealing or running away from home than those who selected unrelated circle configurations. It will be important for these findings to be replicated and extended to other areas including clinical depression, delinquency, and physical activity, for example.

Time Frequency

Time frequency refers to the rate with which individuals report thinking about the past, the present, and the future. This concept is similar to scope and extension. Lewin (1939, 1942) described scope when he contended that from childhood to adolescence, individuals increase their perspective from days and weeks to months and years. Extension is a similar construct and refers to the distance one thinks into the future (Nuttin 1985). Time frequency (ATI-TF) has been measured with items that assess how often individuals think about the past, the present, and the future, such as daily, weekly, monthly, and never (Mello and Worrell 2010). In a recent study of adolescents, Mello et al. (2009b) found that two-thirds of the sample thought about the present and the future on a daily basis, whereas only about half thought about the past on a daily basis. Results also indicated that participants who thought about the past on a daily or weekly basis had higher academic achievement than their counterparts who reported thinking about the past on a monthly basis or never. In another study, findings showed that most adolescents thought about the past on a weekly basis (Finan 2012); however, no comparison with the other two time periods was available in this study. Future research should examine time frequency with psychological and behavioral outcomes, as it is possible that such relationships may vary by time periods.

Time Meaning

Time meaning (ATI-TM) refers to how individuals *define* the past, the present, and the future (Mello and Worrell 2010). In a focus-group study of academically talented adolescents, participants reported tremendous variation in how they conceptualized time periods (Mello et al. 2009a). For example, participants defined the past as "when I was younger, my family's past, or what already happened in history." Results also revealed that participants' definitions included analogies, affect, or relationships among the time periods. In another focus-group study of adolescents (McKay et al. 2012), participants used different time periods to define time, such as short-term, medium-term, and long-term. Participants in this sample also mentioned domains, such as school, work, and family in their reports on the meaning of the time periods. Similar to Mello et al. (2009a), results indicated that participants used personal, familial, and large-scale definitions for the past and that genders did not vary in time meanings.

Time meaning may also reveal important cross-cultural variation by illuminating how cultures vary in their understanding of time. For example, Nunez and Sweetser (2006) conducted research with the Aymaran community, which resides in areas of Bolivia, Chile, and Peru. In this community, the temporal arrangement of the past, the present, and the future differs from other peoples. Specifically, in this group, time is ordered with the future first, followed by the present and then the past. Alternately,

what constitutes time may vary across cultures. In some Native American tribes, time is considered to be cyclical and is intrinsically tied to the earth, with seasons used to mark changes from one period to the next (Lake 1991). Seginer (2009) has also presented a conceptual model of future orientation, a topic similar to time perspective that incorporates culture. She highlights how educational and occupational opportunities vary both between and within cultures, and contends that the perceptions of such opportunities shape adolescents orientation toward the future.

Summary

As highlighted in the preceding discussion, there are multiple dimensions of time perspective, and the ATI (Mello and Worrell 2010) assesses five of these: attitudes, orientation, relation, frequency, and meaning. Time meaning has the potential to be useful in illustrating cross-national variation in how individuals define time (Lake 1991; Nunez and Sweetser 2006), and extant findings have revealed substantial individual variation in adolescent samples (McKay et al. 2012; Mello et al. 2009a). In keeping with other research, a study using the ATI (Mello et al. 2009b) indicated that adolescents think more often about the present and the future than the past and that the past time frequency. Time attitudes have received the most attention, given the frequent use of the ZPTI (Zimbardo and Boyd 1999), although data suggest that in adolescents, the ATAS (Alansari et al. 2013; Buhl and Lindner 2009; Worrell and Mello 2007; Worrell et al. 2013) yields more reliable and valid scores. Generally, extant research indicates that time attitudes are related to outcomes in the academic, psychological, and physical health domains (e.g., Apostolidis et al. 2006; Henson et al. 2006; Shores and Scott 2007). Although time attitudes are generally interpreted as indicative of time orientation (e.g., Zimbardo and Boyd 1999, 2008), time orientation and time relation have received limited consideration since Cottle (1967b) published a projective measure to assess these constructs. By providing another way to assess these time orientation and time relation, the ATI may be useful in clarifying their relationships with time attitudes, time frequency, and important developmental outcomes.

Time Perspective Research and Development in Adolescence

Adolescence is an important period of the lifespan to investigate time perspective, given developmental changes that occur at this age. Adolescents mature in cognitive capacities (Piaget 1955, 1975) and engage in the process of identity formation (Erikson 1968), which enable them to think about time in a new way when compared to childhood. Scholars describing time perspective have posited that age-related changes may occur across the life-span including the transition from childhood to adolescence (Frank 1939; Lewin 1935, 1946).

Research on cognitive abilities indicates that adolescents are capable of abstract thinking and considering the hypothetical (Piaget 1955, 1975), advances that enable the consideration of time perspective. Piaget (1955) postulated that the capacity for individuals to understand time was an indicator of intellectual development. To demonstrate the emergence of time concepts, Piaget developed studies to show how children come to understand movement, sequence, and velocity (Flavell 1963). Abstract thinking is necessary to consider the past, the present, and the future at the same time, as it permits individuals to place themselves hypothetically in varying time periods of their life. Piaget (1955) described time as a logical concept containing order and duration and argued that the understanding of time would follow the same sequence as general cognitive development. In adolescence, individuals are able to think about the order or sequence of the past, the present, and the future, as well as the duration of events in the stream of time.

The seminal work by Erikson (1968) on identity formation also provides support for the relevance of time perspective during adolescence. Erikson described identity formation as the primary developmental task of adolescence with an identity achieved through the integration of one's past, present, and future selves. Erikson's description of identity formation alludes to the presence of time perspective. He wrote about the importance of integrating the time periods when forming a personal identity: "Identity contains a complementarity of past and future... it links the actuality of a living past with that of a promising future" (Erikson 1968, p. 310). Erikson also discussed how individuals may have the inability to integrate their past, present, and future. As he stated, "every adolescent... knows at least fleeting moments of being thus at odds with time itself" (Erikson 1968, p. 181). Erikson proposed that adolescents could recognize the complexity of time and would express a preference for an orientation toward the future.

In 1935, Lewin argued that, in childhood, individuals are focused on the present, and in adolescence, individuals learn that life includes both a past and a future. Frank (1939) discussed how children will have a time perspective of limited range and that older individuals will show more extensive ranges in thinking about time. Lewin (1946) also noted how adolescence results in an increased focus on the future and in future-related planning. Extant studies on time perspective in adolescent samples have focused on time attitude, time orientation, and time relation.

Time Attitudes in Adolescence

In a study of high school students (M age = 16.5) and college students (M age = 19.4), Lennings et al. (1998) did not observe age differences in negative attitudes toward time. Mello and Worrell (2006) showed how Present Hedonism scores increased with age in a cross-sectional study of individuals aged 11–18, although the effect size for this result was small. In this study, age was positively related to Future Positive scores, although also with a small effect size, in a study of academically talented participants aged 12–19 (Worrell and Mello 2009).

Time Orientation in Adolescence

Research on time orientation and adolescents has generally focused on single time periods. Cross-sectional research focusing on the future indicates that adolescence is associated with an increase in thinking about this time period. In a study of adolescents aged 9–15, an emphasis on the future was shown to become greater with age (Lessing 1972). Researchers have examined extension, the distance one thinks into the future, and have concluded that adolescence is characterized by an increase in future thinking compared to childhood (Wessman and Gorman 1977). Greene (1986) examined the future thinking of individuals aged 15, 17, and 19 years old with a measure of future extension. Results indicated that older participants reported thinking farther into the future than their younger counterparts. However, Lennings et al. (1998; see also Leining 1994) did not find differences on past or future time extension between high schoolers with an average age of 16 and college students with an average age of 19. In a review of neuroscience research examining structural changes in the brain, Steinberg (2008) reported that future orientation increases from early to mid-adolescence. In a subsequent study of individuals aged 10–30, Steinberg et al. (2009) found that adolescents aged 16 and older were more oriented towards the future compared to their younger counterparts. In this study, future orientation was defined by a concern for the future, anticipation of consequences, and delay discounting. This latter study's results may explain the lack of differences in the Lennings study.

In contrast with the studies reported in the previous paragraph, some researchers have found that adolescence is characterized by an increased emphasis on the present. Klineberg (1967) showed that adolescents were oriented toward the present and then the future, compared to children who were predominantly oriented toward the future. Tismar (1987) reported similar results in a study of adolescents ($M = 14$ years old), late adolescents ($M = 18$ years old), and young adults ($M = 23$ years old). This author found that present orientation increased and future orientation decreased from mid- to late adolescence, and that young adults reported more emphasis on the past compared to adolescents. In a study of adolescents aged 12–17, Bowles (1999) reported that older adolescents emphasized the present, followed by the past, and the future, and younger adolescents emphasized the present and the future more than older adolescents. However, in contrast to these results, Cottle (1967b) showed that younger adolescents generally drew circle configurations indicating a present orientation compared to their older counterparts, with age groups comprised of individuals under and over age 15 and ranging from 12 to 18.

Additional cross-sectional research employing various instruments has also shown an increase in present orientation in adolescence. Webb and Mayers (1974) conducted a study with children and adolescents aged 9–10, 12–13, 15–16, and 18–19, and used a sentence-completion task to discern orientation toward the past, the present, and the future. Results indicated a larger emphasis on the present in adolescents aged 15–16 compared to other age groups. In a study of individuals ranging in age from 8 to over 90 years old, Gonzalez and Zimbardo (1985) found

that younger participants were more likely to focus on the present than their older counterparts, and in a study of elementary and secondary school students, Anderssen et al. (1992) reported that older participants had higher scores in fatalistic orientation, defined as a present focus and an inability to consider the future, compared to their younger counterparts.

Time Relation in Adolescence

Very little research has been conducted on time relation and adolescence. Lewin (1939) argued that the awareness of the influence of present behavior on the future emerges in this age period. Cottle and Klineberg (1974) also argued that the recognition of the relatedness of the past, present, and future time period would manifest in adolescence. Some support for this notion came from a prior study. Specifically, Cottle (1967a) administered a projective test involving drawn circle configurations to adolescents and reported that more 15–18 year olds indicated the time periods were interrelated than 12–15 year olds. In contrast, Lennings et al. (1998) found that high schoolers obtained significantly higher scores than university students on two measures of time relation. However, the effect sizes for both comparisons were small (i.e., $d < .26$), suggesting that the differences were not meaningful.

Summary

Developmental theory provides some support for the notion that with the transition from childhood to adolescence (Erikson 1968; Piaget 1955), individuals' time perspectives will change. However, the specific ways in which age-related change may occur is difficult to discern, given the scarcity of research and inconsistency in results. Some studies indicate an increase in positive attitudes toward the present (Mello and Worrell 2006) and the future (Worrell and Mello 2009), although other studies have not replicated these results (Lennings 1994; Lennings et al. 1998). Findings on time orientation and time relation are also mixed, suggesting a great need for research in this area. Research on the relationship of age to time-frequency and time meaning has yet to be conducted.

Time Perspective Intervention Implications

Time perspective has implications for promoting positive developmental outcomes in various domains such as education (Phalet et al. 2004) and physical health (Rakowski 1985). Zimbardo and Boyd (1999) described how researchers might conceive of programs to alter time perspectives so that individuals with a present

orientation might learn how to think in a more future-oriented manner. Some scholars have described how time perspective can contribute to the prevention of and intervention with health problems (Rakowski 1985).

Extant intervention programs serve as examples of the potential for time perspective research to foster healthy adolescent development. Results from the *Going for the Goal* program (Danish 1997) suggest that teaching adolescents to identify positive future goals resulted in better school attendance compared to non-participants. Similarly, Oyserman et al. (2002) reported that an intervention program that taught adolescents to construct plans and goals for adulthood resulted in participants reporting more strategies to attain goals and better school attendance than non-participants. Hall and Fong (2003) designed an intervention to promote future-oriented thinking in decisions regarding physical fitness by encouraging college-aged participants to consider the consequences of present actions. Results from a 10-week follow-up indicated that participants in the time perspective condition reported increased levels of physical activity compared to the remaining groups, a finding that was replicated in a second study with college students.

Directions for Further Research

As this brief review has highlighted, despite the interest in the time perspective construct over the past 75 years, there is still a limited understanding of the complexity of the construct and the role that the various time perspective dimensions play in adolescent functioning. The majority of research studies have been on time attitudes, but even in that domain, strong conclusions are limited by problematic operationalizations and inconsistency of findings. In addition to examining time perspective dimensions in adolescence, there are several directions for additional research on time perspective, including studies that focus on differences by age and cultural group membership. Although we have argued that adolescence is a particularly salient period to examine time perspective, the topic may be meaningful in other periods of the life-span or in transitions into and out of adolescence. Examining the stability of scores by age over the time perspective dimensions and how these scores change across the life-span is a fruitful direction to pursue.

On a related topic, longitudinal research designs are greatly needed for facilitating a comprehensive understanding of age-related variation in the time perspective dimensions and across the three time periods. The majority of research has used cross-sectional designs that limit our ability to understand changes in time perspective dimensions across developmental periods. Longitudinal research designs will also help to disentangle age-related changes from changes related to social phenomena or levels of education.

Additional areas of study include cross-cultural and cross-national research. Time perspective may vary substantially across cultural communities. Indeed, the limited research on this topic suggests that how individuals think about time may be related to their cultural contexts (e.g., Alansari et al. 2013; Andretta et al. 2013;

Lake 1991; Nunez and Sweetser 2006; Seginer 2009). It will be important for further research to explore the ways in which time perspective differs across ethnicities and nations.

Lastly, in this paper, we described dimensions of time perspective that might be useful in predicting developmental outcomes in adolescents including attitudes, orientation, relation, frequency, and meaning. An important direction for future research is the examination of the interrelationships among these dimensions. For example, time orientation and time frequency should be positively related, given that they both assess focus on specific time periods. It is also possible that interactions among the dimensions may be meaningfully associated with outcomes, such that individuals who have *both* positive attitudes toward the future and think about that time period frequently are healthier than their counterparts who do not think as favorably or as often about the future.

Conclusion

This paper presented a conceptual model of time perspective that is multidimensional and developmental. It was argued that time perspective is an individually varying cognitive-motivational construct that has a particular salience in the period of adolescence. Using early and contemporary research on time perspective to provide a foundation, we have argued for a new and broader conceptualization of time perspective that includes three time periods and several dimensions. We also argued that these dimensions apply to each of the three time periods and may vary in relationship with specific areas of human functioning, such as academic or psychological outcomes. Extant studies were reviewed that showed age-related changes in some time perspective dimensions, although the findings are inconsistent. Some studies also suggest that time perspective can be the foundation for interventions intended to facilitate positive developmental outcomes. In closing, we contend that time perspective has the potential to contribute much to our understanding of adolescents specifically and of human behavior more generally.

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