



A CONSTRUCT MATURES: TIME PERSPECTIVE'S MULTIDIMENSIONAL, DEVELOPMENTAL, AND MODIFIABLE QUALITIES

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Human development approaches to time perspective that are life-span and include multiple developmental periods are largely lacking in the literature even though the topic has received wide attention from many scholars. Extant studies have focused on specific age groups or have compared younger and older adults. This introduction addresses these issues and provides an overview of the multidimensional, developmental, and modifiable qualities of time perspective. The four contributions focus on distinct age groups including adolescents, young adults, middle-aged adults, and older adults. The papers comprised several conceptualizations of time perspective, diverse participants, and age-specific outcomes. Collectively, this work sets the stage for the next era of age-related research on time perspective.

Time perspective has long been theorized to be a powerful mechanism for predicting human behaviors (Frank, 1939; Lewin, 1939). Numerous theoretical perspectives have been generated as a foundation to empirically examine the construct (Carstensen, 2006; Cottle, 1967; Mello & Worrell, 2015; Shipp, Edwards, & Lambert, 2009; Zimbardo & Boyd, 1999). Research has surged with studies yielding findings about the relationships between time perspective and many aspects of human functioning, including anxiety, aggression, risky-driving, substance use, and physical health (Apostolidis, Fieulaine, & Soule, 2006; Henson, Carey, Carey, & Maisto, 2006; Keough, 1999; Stolarski, Fielaine, & van Beek, 2015). However, relatively less attention has been given to how time perspective changes throughout the lifespan or how it may be used as a target of intervention. In an effort to move the field forward in these areas, a discussion of the multidimensional, developmental, and modifiable qualities of time perspective is provided.

TIME PERSPECTIVE IS MULTIDIMENSIONAL

Time perspective is a broad multidimensional concept that has been conceptualized in a variety of ways (Carstensen, 2006; Cottle, 1967; Mello & Worrell, 2015; Shipp et al., 2009; Zimbardo & Boyd, 1999). Generally, scholars have theorized that time perspective is cognitive and

motivational in nature and comprises multiple time periods, including the past, present, and future. Across these time periods, various dimensions have been proposed; dimensions that are particularly useful for understanding age-related differences in time perspective include orientation, feelings, and meaning.

Time perspective comprises an orientation toward the past, present, and future (Cottle, 1967; Mello, Finan, & Worrell, 2013; Shipp et al., 2009; Zimbardo & Boyd, 1999). This dimension—*time orientation*—extends work on future-oriented constructs including the consideration of future consequences, possible selves, delay of gratification, and future orientation (Greene, 1986; Markus & Nurius, 1986; Mischel, Ebbesen, & Raskoff Zeiss, 1972; Nurmi, 1991; Seginer, 2009; Steinberg et al., 2009; Strathman, Gleicher, Boninger, & Edwards, 1994). This research has shown that the more individuals are oriented toward the future the more they also have reported healthier developmental outcomes including higher academic achievement (Honora, 2002; Nurmi, 1991) and lower risk-taking (Mischel et al., 1972; Steinberg et al., 2009).

Research on time orientation has emphasized an individual's orientation toward *multiple* time periods. For example, a “balanced” perspective is characterized by an equal attention toward the past, present, and future (Cottle, 1967; Mello, Oladipo, Paoloni, & Worrell, 2018; Zimbardo & Boyd, 1999). In studies with adolescents that are diverse in racial/ethnic and economic backgrounds, research has shown that individuals who were oriented the present and the future simultaneously were also associated with higher self-esteem and academic achievement and lower risky-behavior than their counterparts (Mello et al., 2013). Collectively, these studies show that being oriented toward multiple periods is advantageous compared to solely the past, present, or future.

Time perspective also includes—*time feelings*—the positive and negative emotions one has about the past, present, and future (Worrell, Mello, & Buhl, 2013). Studies have shown relationships among time feelings and various outcomes in academic, psychological, and physical health domains (e.g., Andretta, Worrell, & Mello, 2014; Apostolidis, Fieulaine, & Soule, 2006; Henson et al., 2006; Mello et al., 2018; Shores & Scott, 2007). Findings from this research have shown (a) positive associations between favorable feelings and developmental outcomes and (b) inverse associations between unfavorable feelings and developmental outcomes (e.g., feeling more favorably about the past is positively associated with academic achievement and negatively associated with perceived stress; Worrell et al., 2013).

Time perspective also comprises—*time meaning*. This dimension refers to the ways in which individuals define the past, present, and future (Mello & Worrell, 2015). Research has shown that individuals vary tremendously in how they conceptualize the time periods. For example, a focus-group study of ethnically diverse and academically talented adolescents examined how individuals defined the past, present, and future. Results indicated that participants differed in how they defined the time periods. For example, when asked about the present participants responded: “When I refer to the present, it’s today and like, like up to a day ago” or “If you look at it very closely there is no present because it’s either something that’s happened beforehand or something that is going to happen” (Mello et al., 2009, p. 545). This pattern of heterogeneity in how adolescents conceive of time periods was also shown in another focus group study that included adolescents from a general education schools in Northern Ireland (McKay, Cole, Sumnall, & Goudie, 2012).

Overall, time perspective has been conceptualized in a variety of ways and across these models, key dimensions have been identified, including time orientation, feelings, and meaning.

The dimensions are distinguished from one another, such that orientation, feelings, and meaning are treated separately. For instance, an adolescent who thinks *often* about the future is not presumed to feel *positively* about the future. This specificity offers a framework to examine unique aspects of time periods and dimensions. By investigating the distinct elements of the broader construct, the field will have a more precise understanding of the association between time perspective and age and the degree to which particular elements of time perspective are more amenable to modification than others.

TIME PERSPECTIVE IS DEVELOPMENTAL

Lewin (1939) was one of the first to describe how time perspective could be used to differentiate individuals across the life-span. He argued that with age individuals would have the capacity to think about time in a more complex way. For example, children could think about the present, whereas adolescents could think about the relationship between the present and the future. Theories and corresponding empirical research on age-related variation in time perspective have been focused on specific age periods. Relevant to this Special Issue are frameworks pertaining to adolescents (Mello & Worrell, 2015), adults (Zimbardo & Boyd, 1999), and older adults (Carstensen, 2006).

In adolescence, theories on identity formation (Erikson, 1968) and cognitive development (Piaget, 1955, 1975) have been useful for considering how individuals in this age period would have a time perspective different from other periods in the life-span. Erikson (1968) argued that the hallmark of adolescence was the formation of an identity that integrated childhood experiences (past), adolescents' current ideas about themselves (present), and the anticipation of adult roles (future). Piaget's (1955) discussion of formal operations also indicated that time perspectives will change through adolescence. Characteristics of formal operations include the ability to use "if-then" logic, to consider hypothetical outcomes, and to think abstractly. Thus, formal operations provide adolescents with the capacity to project themselves into the future and to consider its relationship to the past and the present. Combined, these theories suggest that adolescents will have a more multifaceted time perspective than children.

Empirically, research provides some evidence that adolescence may be differentiated from other periods in the life-course by time perspective. For example, individuals who focused on the present and the future (i.e., time orientation) were also actively engaged in the identity exploration and commitment, in a study of Japanese college students (Shirai, Nakamura, & Katsuma, 2012). Further, in a review of neuroscience research examining structural changes in the brain, Steinberg (2008) reported that future orientation increased from early to mid-adolescence. In a subsequent study of racially and ethnically diverse American individuals aged 10 to 30, Steinberg et al. (2009) found that adolescents aged 16 and older were more oriented towards the future compared to their younger counterparts. Regarding time feelings, Morgan, Wells, Andretta, and McKay (2016) showed that 50% of adolescents in a school-based study in the United Kingdom changed their feelings about time in one academic year.

In adulthood, research has frequently employed Zimbardo's theory of time perspective (Zimbardo & Boyd, 1999). In this model that originated with American participants, time perspective is theorized to comprise past positive, past negative, present hedonism, present fatalism, and future components. Countless studies have demonstrated associations with

psychological and behavioral outcomes (for a review see Stolarski et al., 2015). Although this model is not developmental, it does suggest that time perspective is used to organize life's experiences into past, present, and future dimensions. In this way, with maturation and the accumulation of experiences in life, individuals will express different time perspectives. In other words, with age, individuals' time perspectives will change.

In older adulthood, Carstensen's (2006) socioemotional selectivity theory has been used to show differences in the time perspective between younger and older adults. According to this view, with increasing age, we begin to see our time left in life as progressively limited and this in turn leads us to prioritize present-focused goals related to emotional and social meaning and satisfaction. Research has consistently supported this perspective. For example, a foundational study in this area with German participants showed that older adults perceived their future as more limited than younger adults (Lang & Carstensen, 2002).

Relatively little research has examined time perspective from adolescence to older adulthood. However, extant studies do indicate age differences. Regarding time orientation, one study examined participants in Portugal who ranged in ages from 16 to 63, and indicated that thinking about the past was most evident among adolescents, focusing on the future was greatest for young adults, and middle-age adults were focused on the present and had a diminished view on the future (Ortuño, Janeiro, & Paixão, 2011). A similar pattern was observed in a study of American adolescents, young adults, middle-aged adults, and older adults (Mello, Barber, Vasilenko, Chandler, & Howell, 2019). Results indicated that older age-groups focused more on the present and less on the future, and that a higher percentage of younger and older adults reported a balanced orientation toward time than adolescent and middle-aged participants. In another study of 15 to 55 year-old participants in China, younger individuals were more present oriented, whereas older participants were more future oriented (Siu, Lam, Le, & Przepiorka, 2014). Similarly, younger participants were more likely to focus on the present than their older counterparts, in study of individuals aged 8–90 years old who were from America, Europe, and Puerto Rica (Gonzalez & Zimbardo, 1985). Regarding time feelings, a meta-analysis of studies with individuals aged 13 to 75 indicated that negative attitudes toward the past were inversely associated with age (Laureiro-Martinez, Trujillo, & Unda, 2017).

Overall, there has been both theoretical and empirical efforts to investigate how time perspective is associated with age. This research has indicated some differences in time perspective as individuals mature. Studies have been conducted with participants in specific age periods or with the comparison of younger and older adults. However, the degree to which time perspective is age-related has been hampered by age-specific conceptualizations and a lack of research that examines individuals across the life-span. Moving forward, it will be important to conduct studies that includes multiple age groups and to consider the dimensions that are most likely to reveal age-related associations.

TIME PERSPECTIVE IS MODIFIABLE

Scholars have argued that time perspective is a modifiable mechanism (Mello & Worrell, 2015; Zimbardo & Boyd, 1999). Some researchers have described how time perspective can contribute to the prevention and/or intervention of health problems (Rakowski, 1985). However,

empirical research is greatly lacking. One study indicated that time perspective was changed through intervention. Specifically, when American adolescent and young adult participants in Ohio were taught how to emphasize the past, present, and future, their time perspective changed, and they showed an increase in career planning compared to a randomized control group (Marko & Savickas, 1998).

Interventions based on future orientation provide additional evidence that time perspective may be modified, given that the constructs are conceptually tied to time perspective. For example, programs have increased the future orientation of participants that, in turn, have also resulted in better academic achievement among African American adolescents in high schools (Oyserman, Terry, & Bybee, 2002) and more physical activity among Canadian university students (Hall & Fong, 2003). Preliminary empirical evidence for the modifiable nature of time perspective supports the theoretical propositions and highlights the potential utility of time perspective for future prevention and intervention programs for individuals across the lifespan.

THE SPECIAL ISSUE: TIME PERSPECTIVE FROM ADOLESCENCE THROUGH ADULTHOOD

In this Special Issue, we examine time perspective in four papers that span adolescence to older adulthood. The collection illustrates the multidimensional and developmental qualities of time perspective. First, Worrell and Andretta investigate time attitudes among adolescents from two independent samples of racially and ethnically diverse American high school students. Time attitudes are defined as positive and negative feelings about the past, present, and future, and draw from a conceptualization proposed by Mello and Worrell (2015). The study includes a wide-range of outcomes, such as psychological, educational, and discriminatory topics. The authors employ bivariate and cluster analyses. Results provide strong support for the value of time attitude profiles in differentiating adolescents who are psychologically healthy, value education, and anticipate fewer discriminatory experiences relative to their counterparts.

The second paper by Konowalczyk and colleagues focuses on American young adults who were recruited from a public university. Time perspective is conceptualized with various dimensions including thoughts and feelings about the past, present, and future drawing from Mello and Worrell (2015). Analytic strategies include variable- and person-centered approaches. Findings show that optimism and sensation seeking are associated with multiple dimensions of time perspective both pairwise and collectively. Specifically, thinking more about the present and the future and less about the past; being oriented toward both the present and future simultaneously rather than one time period alone; and, feeling more favorably and less unfavorably about the time periods are associated with higher optimism and lower sensation seeking. The paper highlights the nuanced relationships among time perspective dimensions, optimism, and sensation seeking.

The third paper by Leonard, Zhang, and Howell focuses on middle-aged adults and patterns of consumerism in relation to time perspective. Participants are from on-line platforms, including Mechanical Turk and web pages hosted by the authors, as well as college student samples. Time perspective is operationalized using Zimbardo's conceptualization (Zimbardo & Boyd, 1999). Results indicate that future orientation is positively associated with responsible

financial values and behaviors, whereas past negative, present hedonistic, and present fatalism time perspectives are associated with more disadvantageous financial values and behaviors. The authors also highlight the potential for interventions to modify time perspectives, and, in turn affect consumer values and behaviors.

Finally, the fourth paper by Barber and Strickland-Hughes investigates time perspective among a sample of older adults. Participants are primarily European-American and well-educated. This work drew from Carstensen's Socioemotional Selectivity Theory (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999) and included the Future Time Perspective (FTP) Scale (Carstensen & Lang, 1996). Findings provide evidence to support a growing body of studies showing that the FTP scale includes three interrelated but distinct elements, namely Opportunity, Extension, and Constraint. Results further demonstrated that Opportunity and Extension were associated with memory control beliefs.

FUTURE DIRECTIONS FOR RESEARCH ON TIME PERSPECTIVE

This special issue demonstrates the multidimensional and developmental qualities of time perspective. Several areas are suggested for moving the field forward with this topic that address issues of causality, modifiability, and cultural variation. Research designs that are longitudinal are critically needed to investigate the directionality of relationships between time perspective and developmental outcomes. Although time perspective has been theorized as a causal mechanism underlying human behaviors, extant research has been almost exclusively cross-sectional (with a few exceptions; e.g., Morgan et al., 2016).

An important direction of additional research focuses on the generation of intervention programs that use time perspective explicitly as a means of promoting health. Such efforts are encouraged, based on the evidence from this Special Issue, to consider multidimensional conceptualizations of time perspective. Specific dimensions that are targeted might differ based on the age period under investigation and the outcome of interest that is targeted. Investigating the specific ways in which time perspective may be changed which, in turn, leads to the modification of human behaviors is an important direction of research.

A final area for examination includes both theoretical and empirical research on the degree to which time perspective is universal or culturally-specific. As indicated in this Special Issue, many conceptualizations of time perspective have been developed from scholars in America (e.g., Carstensen, 2006; Cottle, 1967; Mello & Worrell, 2015; Zimbardo & Boyd, 1999). Although these models have then been applied to studies with samples from Europe (e.g., Apostolidis et al., 2006) and Africa (i.e., Nigeria; Mello et al., 2018), moving forward, it will be important to consider alternate conceptualizations of time perspective. Some evidence already exists that time perspective is unique for Native Americans (Lake, 1991) and that cultures differ in how they conceive of time (Nunez & Sweetser, 2006) or future orientation (Seginer, 2009). In conclusion, time perspective has vast potential to offer new ways of understanding how individuals differ across the life-span and for providing a modifiable mechanism that may be targeted through interventions. The next horizon for this research will be illuminating.

ACKNOWLEDGEMENTS

The author would like to acknowledge Nancy Darling and Laura J. Finan for their insightful comments on this paper. The project described was supported in part by Award Number P50 DA039838 from the National Institute on Drug Abuse. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institute on Drug Abuse or the National Institutes of Health.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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