



Demographic group differences in adolescents' time attitudes



James R. Andretta^{a,*}, Frank C. Worrell^b, Zena R. Mello^c, Dante D. Dixon^d, Sharon H. Baik^d

^a Child Guidance Clinic, Superior Court of the District of Columbia, USA

^b Cognition and Development, University of California, Berkeley, USA

^c Department of Psychology, University of Colorado, Colorado Springs, USA

^d Department of Psychology, University of California, Berkeley, USA

A B S T R A C T

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In the present study, we examined demographic differences in time attitudes in a sample of 293 adolescents. Time attitudes were measured using the Adolescent Time Attitude Scale (Mello & Worrell, 2007; Worrell, Mello, & Buhl, 2011), which assesses positive and negative attitudes toward the past, the present, and the future. Generally, African Americans and Asian Americans reported higher scores for negative time attitudes and lower scores for positive time attitudes than European Americans and Latinos, with medium sizes. Adolescents in the low socioeconomic status group reported a less favorable evaluation of their past than middle and high SES peers, but there were no meaningful differences in time attitudes by gender. Findings indicate that middle SES adolescents, high school juniors and seniors, Latinos, and European Americans had higher representation in positive time attitude clusters (i.e., Positives and Balanced) than high SES adolescents, high school freshmen and sophomores, and African Americans.

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Time attitudes, one dimension of time perspective, refer to an individual's emotional and evaluative feelings toward the past, the present, and the future, and there is an extensive literature on the relationship between time attitudes and several other variables. For example, researchers have found that time attitudes are related to academic achievement (e.g., Adedabu, 2007, 2008; Zimbardo & Boyd, 1999), risk status (Seginer, 2008; Worrell, Latto, & Perlinksi, 1999), psychological wellbeing (Drake, Duncan, Sutherland, Abernethy, & Henry, 2008; Worrell & Mello, 2009; Zimbardo & Boyd, 1999), and risky behavior (Keough, Zimbardo, & Boyd, 1999; Laghi, Liga, Baumgartner, & Baiocco, 2012; Zimbardo, Keough, & Boyd, 1997) in samples of adolescents and young adults. Moreover, relationships with some psychological constructs are substantial. Thus, attitudes toward time seem to have potential for contributing to our understanding of individual functioning (Zimbardo & Boyd, 2008).

Some researchers have proposed that demographic variables both set the stage for and maintain individuals' time perspectives (Epel, Bandura, & Zimbardo, 1999; Guthrie, Butler, & Ward, 2009; Seginer, 2009), and researchers have examined the relationship between time-related constructs and (a) socioeconomic status (Guthrie et al., 2009; Lamm, Schmidt, & Trommsdorff, 1976), (b) age (Nurmi, 1991), (c) gender (e.g., Mello & Worrell, 2006; Zimbardo et al., 1997), and (d) racial/ethnic group (e.g., Mehta, Sundberg, Rohila, & Tyler, 1972; Poole & Cooney, 1987; Worrell, 2006). Yet, few researchers have considered both positive and negative attitudes toward all three time periods in these studies, in part due to the dearth of instruments that assess this range of attitudes. The goal of the present study was to examine demographic group differences

* Corresponding author. 510 4th St. NW, Suite #330, Washington, DC 20001, USA.

E-mail address: andrettaj@yahoo.com (J.R. Andretta).

in both positive and negative attitudes toward the past, the present, and the future. To provide a context for the study, we begin with a brief review of time attitudes and their measurement, and review the extant literature on demographic differences in time attitudes in adolescent populations using effect sizes to contextualize findings (American Psychological Association, 2010; Thompson, 1996, 1999; Vacha-Haase, 2001).

Assessing time attitudes

There are several Likert-type scales that assess attitudes toward time, although most of these were developed as operationalizations of future-oriented constructs such as hope (Snyder et al., 1996), optimism (Scheier & Carver, 1985), and perceived life chances (Jessor, Donovan, & Costa, 1990). In 1999, Zimbardo and Boyd published the Zimbardo Time Perspective Inventory (ZTPI), which has become the most frequently used instrument in the literature. Despite its name, the ZTPI only assesses attitudes toward time. The ZTPI has subscales assessing positive and negative attitudes toward the past, hedonistic and fatalistic attitudes toward the present, and positive, planful attitudes toward the future. The ZTPI does not have a subscale assessing negative attitudes toward the future, a shortcoming that has only been addressed in the Swedish version of the scale (Carelli, Wiberg, & Wiberg, 2011).

In spite of the common use of the ZTPI, we did not feel that it was appropriate to use in this study for several reasons. First, perhaps because the instrument was developed in college samples, the scores are not as reliable and structurally valid in adolescent samples (Worrell & Mello, 2007), although concerns with reliability and structural validity are also present in several studies of adults as well (Carelli et al., 2011; Crockett, Weinman, Hankins, & Marteau, 2009; D'Alessio, Guarino, De Pascalis, & Zimbardo, 2003; Milfont, Andrade, Belo, & Pessoa, 2008). Worrell et al. (2011) suggested that the structural validity concerns are due, in part, to the combination in ZTPI subscales of other constructs such as fatalism, hedonism, and planfulness with time attitudes.

Thus, Mello and Worrell (2007) developed the Adolescent Time Attitude Scale (ATAS) to provide an instrument for use with adolescents, which assesses both positive and negative attitudes toward the past, the present, and the future. The ATAS has been used with an adolescent sample in the US (Worrell et al., 2011) and two adolescent samples in Germany (Buhl & Linder, 2009; Worrell et al., 2011). In all three samples, ATAS scores were as or more reliable than ZTPI scores in adolescents and structural validity fit indices are generally stronger than the ZTPI fit indices in both adolescents and adults (Apostolidis & Fieulaine, 2004; Carelli et al., 2011; Worrell & Mello, 2009).

Much of the research on time attitudes used bivariate correlations or multiple regression to examine the correlates of this construct, and Zimbardo and Boyd (1999) determined individual time orientations on the basis of the highest subscale score. However, advances in statistical software and the multidimensional time attitude instruments like the ZTPI and ATAS allow researchers to examine the effect of individuals' time attitude profiles. In fact, several recent studies (e.g., Andretta, 2011; Boniwell, Osin, Linley, & Ivanchenko, 2010; Buhl & Linder, 2009; Qin et al., 2012) using cluster analyses and latent class analyses have yielded results that could not be obtained from simple correlations. For instance, Andretta (2011) found no meaningful correlations between time attitudes and GPA, but also found significant and substantial differences in GPA between time attitude clusters in adolescents. Analyses based on profiles allow researchers to examine the effects of time profile exemplars or personality types, if you will, questions that can be answered by person-centered and not variable-centered analyses (York & John, 1992). Indeed, Zimbardo and Boyd (1999) contended that a balanced time attitude profile is ideal psychologically, a contention that can now be tested empirically. We now briefly review extant research on time attitudes and demographic variables.

Time attitudes and demographic variables

Age

Piaget (1955, 1975) proposed that the ability to develop abstract, mental representations of time came with the onset of formal operations in adolescence. Erikson (1968) also included time perspective in his developmental theory, suggesting that identity achievement in adolescence depended, in part, on the adolescents' ability to integrate their past, present, and future. These theoretical formulations suggest that adolescence is the first major period in which we can test the complexity of adolescents' time attitudes. Early studies on development and time perspective typically focused on changes in the content of thoughts about the future between childhood and adulthood (Nurmi, 1992, 1993; Nurmi, Poole, & Kalakoski, 1994). For instance, Nurmi (1992) showed that young adults were oriented toward their own future education, whereas middle-aged adults were more oriented toward their children's goals.

We only found four studies in the extant literature in which the relationship between age and time attitudes was examined and three used the ZTPI. In a sample of young adults, Zimbardo and Boyd (1999) reported a modest relationship between age and the five ZTPI subscale scores ($r \leq .23$). Mello and Worrell (2006) used the ZTPI with a sample of adolescents ranging in age from 11 to 18 and also reported a low relationship between age and ZTPI subscale scores ($-.09 \leq b \leq .09$). Finally, in a study using time attitude profiles based on ZTPI scores, Boniwell et al. (2010) clustered ZTPI subscale scores in samples of 133 British and 289 Russian undergraduates, and found no differences in age across the four identified profiles—Hedonistic Present, Future, Balanced, and Negative—in either sample. Worrell and Mello (2009), using the ATAS, reported that age was not correlated to either positive or negative attitudes toward the past, present, or future in a sample of adolescents ($-.01 \leq r \leq .22$). Given the data, it appears that age is not correlated with time attitudes.

Socioeconomic status

Several researchers have theorized that socioeconomic status is associated with time perspective. For instance, [Epel et al. \(1999\)](#) argued that the immediate stresses associated with low-SES status focuses one's attention in the present. Similarly, [Zimbardo and Boyd \(1999\)](#) contended that low-SES individuals are oriented toward the present, whereas high-SES individuals are oriented to the future. In an early study on this topic, [Lamm et al. \(1976\)](#) found that middle-class adolescents reported more hopes and fears about future public life than lower-class peers, and concluded that the differences between individuals in low- and high-SES groups were associated with differences in their orientations to the future.

However, in a 1999 study using the ZTPI, [Keough et al.](#) reported that family income was not correlated with young adults' attitudes toward the future ($r = .06$) or the present ($r = .06$). More recently, in another study using the ZTPI, [Guthrie et al. \(2009\)](#) reported a negative correlation between SES (i.e., education level and occupation) and Present Fatalistic scores ($r = -.34$) with a medium effect size. Relationships between SES and the Future ($r = .27$) and Present-Hedonistic ($r = -.11$) scores were smaller. In sum, there is insufficient evidence available to draw strong conclusions about the degree to which SES is related to this construct.

Gender

Researchers have been examining gender differences in time attitudes since the 1970s, and, in general, support for gender differences has been inconsistent. In keeping with the interest in the future, several researchers have examined differences in males' and females' attitudes toward this time period.

Attitudes toward the future

[Lamm et al. \(1976\)](#) examined attitudes toward the future in relationship to family, occupation, and private life in 100 adolescents and reported that males and females had similar scores for optimism and pessimism across all three domains. [Scheier and Carver \(1985\)](#) also found that males and females reported similar levels of optimism in a sample of 624 young adults. Several other studies yielded no gender differences on measures of optimism ([Plomin et al., 1992](#)) and hope ([Snyder et al., 1996, 2002](#)).

[Seginer \(1988\)](#) used the Future Orientation Questionnaire to compare male and female adolescents' hopes and fears in several domains. Respondents were Arab (67 males and 49 females) and Jewish (61 males and 51 females) high school students. Jewish males reported more hopes and fears regarding military service and occupation than Jewish females, who reported more hopes and fears regarding family life than males. Arab males reported substantially more fears about the future of Arab culture than Arab females, and Arab females reported more hopes and fears about their educational and personal futures than Arab males.

[Worrell \(2006\)](#) reported significant but modest differences in academic perceived life chances between male and female adolescents attending secondary schools in Trinidad. Finally, [Mello \(2008\)](#) conducted a longitudinal study (ages 14–26) of educational and occupational expectations using the NELS database. She found that males and females did not differ within the developmental trajectory of educational expectations ending at college, but males were less likely to expect that they would attain a professional occupation than females. Moreover, occupational expectations predicted occupational attainment for males but not females.

Attitudes toward multiple time periods

Other researchers have focused on multiple time periods. In one of the earliest of these studies, [Lens \(1975\)](#) compared young adult males ($n = 135$) and females ($n = 125$) using the Time Attitude Scale. Lens classified participants into three groups—positive, negative, and neutral—on the basis of their scores, and reported that females had more positive attitudes toward the three time periods than males; however, no effect sizes were reported.

In the last decade, several researchers have examined gender differences in time attitudes using versions of the ZTPI. [Keough et al. \(1999\)](#) compared male and female adolescents and young adults across multiple samples ($102 \leq N \leq 582$) and a diverse set of contexts on the Future and Present Hedonistic subscales. Keough et al. reported significantly higher scores for females on the Future subscale (mean $d = .23$) and significantly higher scores for males on the Present Hedonistic subscale (mean $d = .50$). In another study, [Zimbardo and Boyd \(1999; N = 606\)](#) reported that females had significantly higher scores on Future ($d = -.35$) and Past Positive attitudes ($d = -.16$) than males. However, no gender differences were found for Past Negative, Present Hedonistic, and Present Fatalistic scores. In a third study, [Mello and Worrell \(2006\)](#) examined gender differences in a sample of 722 academically talented adolescents. Although males and females differed significantly on Future Negative attitudes, the difference accounted for less than 2% variance. Finally, [Boniwell et al. \(2010\)](#) reported no gender differences in group membership across time attitude profiles in British and Russian undergraduates. In sum, most of the extant research indicates that there are few gender differences in time attitudes, and the differences that have been found are inconsistent or have small effect sizes.

Race/ethnicity

There are only a few studies of time attitudes that look at race or ethnicity. [Mehta et al. \(1972\)](#) compared future time perspective between East Indian ($n = 92$) and American ($n = 73$) adolescents. Participants listed seven events they expected to

occur in the future. In scoring, events were categorized as pleasant or unpleasant. Mehta et al. found that East Indian and American adolescents reported similar expectations for the frequency of pleasant and unpleasant events. Poole and Cooney (1987) compared Australian ($n = 440$) and Singaporean ($n = 162$) adolescents' attitudes toward the future using the Life Possibilities Questionnaire (Tyler, 1978) and found that Singaporean adolescents reported higher levels of optimism toward both their personal futures and societal futures than Australian adolescents.

More recently, Worrell (2006) compared adolescents of African ($n = 377$) and East Indian ($n = 579$) descent attending secondary schools in Trinidad on academic perceived life chances. He reported a statistically significant difference between the two groups with little practical significance ($d = .26$). Mello (2009), using the NELS database, found that African Americans had higher educational and occupational expectations than all other racial/ethnic groups, and that these differences persisted from adolescence to adulthood, despite the lower actual achievement of the African American students. Qin et al. (2012) studied differences in American ($N = 219$) and Chinese ($N = 227$) university undergraduates across three time attitude profiles—Balanced, Fatalistic, and Future Oriented—based on ZPTI scores. They found that Chinese undergraduates were the most likely to be characterized by a Future Oriented (33.9%) time attitude profile, and American young adults were the most likely to be characterized by a Balanced (34.7%) time attitude profile. Nonetheless, it is difficult to draw conclusions on racial/ethnic group differences from this literature, as four of the five studies used participants from different national contexts, and Mello (2009) looked at expectations rather than attitudes.

The present study

Previous research suggests that SES and gender differences in time attitudes are inconsistent (Keough et al., 1999; Lamm et al., 1976; Lens, 1975; Mello & Worrell, 2006; Worrell, 2006; Zimbardo & Boyd, 1999), and the studies on racial/ethnic group differences are limited both in number and in scope. Moreover, most time attitude research has focused on differences between developmental periods, or on the future, even when adolescents are the target of study. However, Buhl and Linder (2009) found that adolescents with three different profiles—labeled Optimists, Balanced, and Ambivalent—all reported positive developmental outcomes. These contradictory claims highlight the need for more time attitude research in adolescent samples.

In the current study, we asked if there are grade level, SES, gender, or racial/ethnic differences in American adolescents' attitudes toward the past, the present, and the future. We used grade level rather than age to assess the developmental relationship because, there were more than 50 participants in the four high school grades and less than 50 in several of the six age groups represented. We did not expect to find a difference by grade level for individual time attitudes or time attitude profiles, given the lack of a relationship between these variables and age (Boniwel et al., 2010; Mello & Worrell, 2006; Worrell & Mello, 2009; Zimbardo & Boyd, 1999).

Based on the extant literature (Plomin et al., 1992; Scheier & Carver, 1985; Snyder et al., 1996, 2002), we hypothesized that there would be no significant or substantial gender differences in time attitudes or among time attitude profiles. The studies on SES examined income, education, and occupation and yielded generally low correlations (Guthrie, 2009; Zimbardo & Boyd, 1999), so we hypothesized that there would be no relationship between ATAS scores and SES in this study. However, we were not sure if there would be SES differences among time attitude profiles, as this had not yet been examined. Specifically with regard to SES, although there have been no substantial bivariate correlations between the constructs, it is conceivable that lower SES groups might have more negative time attitude profiles than their more affluent peers.

With regard to racial/ethnic group differences, the extant literature on time attitudes provides little guidance. However, the educational disparities literature continues to highlight the poorer outcomes and more negative experiences of African Americans and Latinos (e.g., Aud, Fox, & KewalRamani, 2010; Lopez, Lopez, Suarez-Morales, & Castro, 2005; Worrell, 2003, 2005) and the schools that serve them (e.g., Council of the Great City Schools, 2003; Swanson, 2008). Moreover, African Americans, Asian Americans, and Latinos report more educational and societal barriers and discrimination than European Americans (Goto, Gee, & Takeuchi, 2002; Greene, Way, & Pahl, 2006; McWhirter, 1997; McWhirter, Hawley, Torres, Salgado, & Valdez, 2007). Thus, we hypothesized that these three groups would report significantly lower positive attitudes and higher negative attitudes toward the three time periods than their European American counterparts with effect sizes in the medium to large range. Given the literature on high levels of cultural mistrust in school-aged African Americans (e.g., Miles & Hudley, 2005), we expected the poorest outcomes from this group.

Method

Participants

Participants consisted of 293 adolescents (60% male, $n = 155$) ranging in age from 14 to 19. Participants were recruited from one rural (42%) school, two urban (19%) schools, and an academic program that served both suburban and urban students (38%). They were enrolled in Grades 9–12 in two different states in the US, and self identified with several racial/ethnic groups, including African American ($n = 30$, 10.2%), Asian American ($n = 74$, 25.3%), European American ($n = 122$, 41.6%), Latino ($n = 31$, 10.6%), Multi-ethnic ($n = 28$, 9.6%), Native American ($n = 3$, 1%), and Other ($n = 5$, 1.7%), and with several different SES levels. About 28% of the sample indicated that they were working class or lower, about a third indicated that they were middle class, another third indicated that they were upper middle class, and about 5% indicated that they were wealthy.

Internal validity checks indicated that 95% of the Asian Americans came from the academic program and 94% of the African Americans came from the urban schools. The European Americans came from primarily the rural school (87%) and the academic program (10%). Asian Americans had significantly higher GPAs and SES than the other groups. The GPA of the European American students did not differ from African Americans and Latinos due to the lower GPAs reported by the rural students. Thus, although not a representative sample, participants came from different racial/ethnic groups, geographic locations, and SES groups. Given our interest in racial/ethnic group differences, only African American, Asian American, European American, and Latino participants were retained for analyses. Each of these groups had at least 30 participants.

Measures and procedure

The ATAS (Mello & Worrell, 2007), which is available on the web, was used for this study. The ATAS has six 5-item subscales: Past Positive (e.g., “I have happy thoughts about my past”), Past Negative (e.g., “I wish that I did not have the past that I had”), Present Positive (e.g., “Overall, I feel happy about what I am doing right now”), Present Negative (e.g., “I am not satisfied with my life right now”), Future Positive (e.g., “I am very optimistic about my future”), and Future Negative (e.g., “Thinking about my future makes me sad”). The structural validity of ATAS scores has been supported by confirmatory factor analyses (Buhl & Linder, 2009; Worrell et al., 2011), and convergent validity was established with measures of optimism, hope, perceived life chances, self-esteem, and perceived stress (Worrell & Mello, 2009). Reliability estimates for the scores in this sample ranged from .79 to .85 (see Table 1).

As noted individuals self-reported demographic variables including race/ethnicity, gender, and grade level. SES was measured with a single item, which asked “How would you describe your family’s socioeconomic status?” Participants responded by selecting an option from a 7-point Likert scale that ranged from 1 (*poor*) to 7 (*wealthy*); Option 4 was labeled *middle-class*. Participants completed questionnaires in their classrooms or at home and were paid \$10 for participation. The study was approved by the Institutional Review Board at the second author’s institution.

Results

Preliminary analyses

Means and standard deviations of ATAS and SES scores are presented in Table 2, as are their intercorrelations. As can be seen, means on positive attitudes are generally slightly higher than means on negative attitudes, and the time attitude scores are not substantially skewed (–.45 to .66) nor kurtotic (–.46 to .45). Intercorrelations among subscales are consistent with the theoretical framework. Predictive Analytics Software (PASW) was used to conduct Ward’s hierarchical cluster analysis of ATAS scores, and five time attitude profiles were found: (a) Balanced ($n = 87$, 29.7%), (b) Pessimists ($n = 48$, 16.4%), (c) Positives ($n = 85$, 29%), (d) Negatives ($n = 43$, 14.7%), and (e) Optimists ($n = 30$, 10.2%). This cluster solution was validated by K-Means iterative partitioning results, and homogeneity coefficients were adequate using Bergman, Magnusson, and El-Khoury’s equation (2003): $EV = 100 \times (Et - Ec)/Et$.

Fig. 1 contains the five profiles based on the mean z-scores by subscale. As can be seen, Balanced adolescents were characterized by more positive than negative attitudes toward the past and average positive and negative attitudes toward the future. Positives had very high positive and very low negative attitudes toward the three time periods and Negatives had an inverse profile. The cluster labeled Pessimists had average attitudes toward the present, but their negative attitudes toward the future and the past were substantially higher than their positive attitudes toward these periods. Finally, Optimists had higher negative attitudes to the past and present than future attitudes, but much higher positive than negative attitudes toward the future.

Grade and gender differences in time attitudes

As hypothesized, differences in time attitude profiles by grade level (Table 2) were not substantial, $\chi^2(12) = 30.47$, $p = .02$, $V = .19$. However, 11th and 12th graders had higher percentages with the three positive profiles (78% and 77%, respectively).

Table 1

Descriptive statistics for ATAS subscales and socioeconomic status.

	1	2	3	4	5	6	<i>M</i>	<i>SD</i>	α
1. PSP	–						3.40	.76	.80
2. PSN	–.67*	–					2.48	.84	.80
3. PRP	.41*	–.42*	–				3.42	.71	.79
4. PRN	–.34*	.49*	–.67*	–			2.74	.79	.79
5. FTP	.25*	–.25*	.39*	–.31*	–		3.85	.79	.85
6. FTN	–.28*	.48*	–.35*	.34*	–.57*	–	2.06	.80	.80
7. SES	.18*	–.11	.01	.01	–.09	–.10	4.24	1.28	–

Note. ATAS = Adolescent Time Attitude Scale; PSP = Past Positive; PSN = Past Negative; PRP = Present Positive; PRN = Present Negative; FTP = Future Positive; FTN = Future Negative; SES = Socioeconomic Status.

* $p < .006$.

Table 2
Demographic representation in time attitude clusters.

Demographic	Balanced	Positives	Negatives	Pessimists	Optimists	V
Grade						.19
9th grade	16 (30%)	12 (23%)	9 (17%)	12 (23%)	4 (8%)	
10th grade	35 (35%)	20 (20%)	18 (18%)	20 (20%)	6 (6%)	
11th grade	21 (29%)	21 (29%)	7 (10%)	9 (12%)	15 (20%)	
12th grade	15 (22%)	32 (47%)	9 (13%)	7 (10%)	5 (7%)	
Gender						.12
Male	47 (30%)	45 (29%)	24 (16%)	26 (17%)	13 (8%)	
Female	26 (26%)	33 (33%)	18 (18%)	10 (10%)	14 (14%)	
SES						.09
High SES	33 (29%)	33 (29%)	21 (18%)	16 (14%)	11 (10%)	
Mid SES	25 (30%)	30 (36%)	11 (13%)	10 (12%)	8 (10%)	
Low SES	15 (26%)	15 (26%)	9 (16%)	10 (18%)	8 (14%)	
Race/ethnicity						.14
AsAm	22 (30%)	16 (22%)	15 (20%)	13 (18%)	8 (11%)	
AfAm	9 (30%)	4 (13%)	6 (20%)	6 (20%)	5 (17%)	
Latino	10 (32%)	12 (39%)	6 (19%)	2 (7%)	1 (3%)	
EuAm	32 (26%)	46 (38%)	15 (12%)	16 (13%)	13 (11%)	

Note. AsAm = Asian American, AfAm = African American, EuAm = European American.

than the 9th and 10th graders (both with 61%). Also as hypothesized, results of six independent *t*-tests indicated that males and females did not differ significantly, $p > .008$, or meaningfully, $.04 \leq d \leq .21$, on attitudes toward the past, the present, and the future. Males and females also did not differ in their representation across time attitude profiles, $\chi^2(4) = 4.71$, $p = .32$, $V = .12$ (see Table 2).

Socioeconomic differences in time attitudes

Pearson correlation coefficients indicated no statistically significant or meaningful relationships between time attitudes and SES ($.01 \leq r \leq .18$; see Table 2). However, given the exploratory nature of this study, the sample was split into three SES subgroups: low SES (i.e., $SES \leq 4$, $n = 57$), middle SES (i.e., $SES = 4$, $n = 84$), and high SES (i.e., $SES \geq 4$, $n = 114$). Six oneway ANOVAs ($p > .008$) indicated that time attitudes did not vary among SES groups. As we were interested in practical as well as statistical significance, differences between SES subgroups were also examined using Cohen's *d*. Low SES adolescents ($M = 3.10$, $SD = .84$) reported substantially lower scores for Past Positive attitudes than their middle SES ($M = 3.55$, $SD = .74$, $d = .58$) and high SES ($M = 3.45$, $SD = .68$, $d = .47$) peers. Low SES adolescents ($M = 2.75$, $SD = .89$) also reported much higher scores for Past Negative attitudes than peers in the middle SES ($M = 2.31$, $SD = .85$, $d = .51$) and high SES ($M = 2.45$, $SD = .79$, $d = .36$) groups. Other comparisons of time attitudes between SES groups yielded smaller effect sizes ($.04 \leq d \leq .22$). Despite these differences, SES group representation was not disproportionate across time attitude profiles, $\chi^2(8) = 3.76$, $p = .88$, $V = .09$, and the majority of low-SES adolescents were either in the Positives or Balanced clusters.

Racial/ethnic differences in time attitudes

Six oneway ANOVAs were calculated to see if time attitudes differed significantly among racial/ethnic groups. Significant differences ($p < .008$) were found for all six subscales and post-hoc *t*-tests ($p < .001$) were calculated comparing individual groups. Meaningful differences ($d > .40$), although not always significantly different, emerged for five of the six subscales and these results are reported in Table 3. African American adolescents reported higher Past Negative attitudes than Latinos. With regard to the present, African Americans reported lower Present Positive attitudes than the other three groups, and higher Present Negative attitudes than European Americans. Asian American and Latino adolescents also reported higher Present Negative attitudes than European American adolescents. With regard to attitudes toward the future, African Americans had higher Future Negative scores than the other three groups as hypothesized, and Asian Americans had lower Future Positive scores than the other three groups.

Minimal differences were found in racial/ethnic representation across time attitude profiles, $\chi^2(12) = 15.71$, $p = .21$, $V = .14$, but the percentages revealed several trends. A majority of European Americans (75%) and Latinos (74%) were either Balanced, Positives, or Optimists whereas only 60% of African Americans and 62% of Asian Americans were in these groups. Asian Americans and African Americans had the highest representation in the Negatives and Pessimists groups, with 40% and 38%, respectively. Interestingly, very few Latinos were either Pessimists or Optimists.

Discussion

Research interest in time attitudes has been growing over the last four decades and interest in demographic variables have been around for over a century. Time attitudes are of particular interest in adolescent populations as a future orientation is

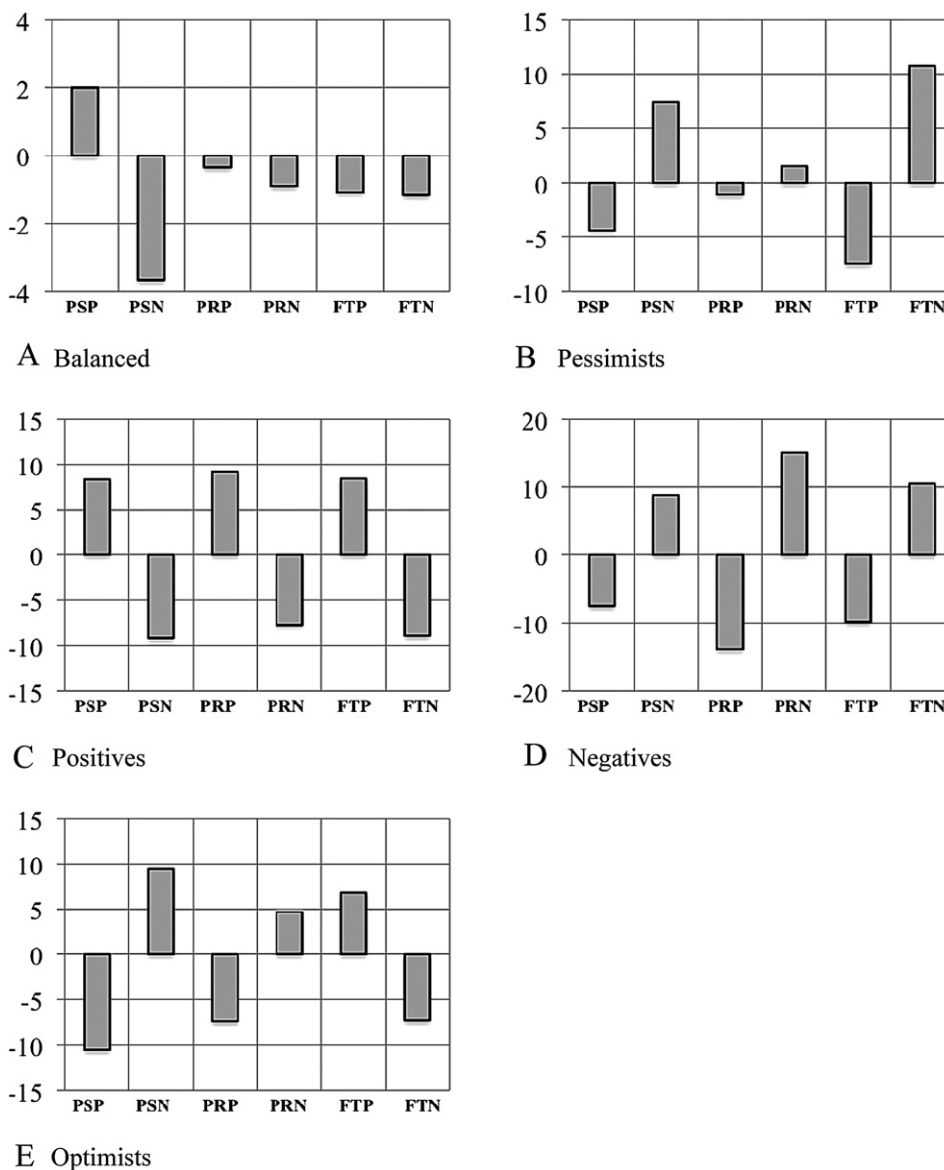


Fig. 1. Zero indicates average attitudes relative to the sample (SD = 10). Thus a score of 5 is half a standard deviation above the mean and a score of -10 is a full standard deviation below the mean. PSP = Past Positive, PSN = Past Negative, PRP = Present Positive, PRN = Present Negative, FTP = Future Positive, FTN = Future Negative.

Table 3
Racial ethnic group differences on time attitudes.

Variable	African American		Asian American		European American		Latino		F(3, 250)	η^2 partial
	M	SD	M	SD	M	SD	M	SD		
Past Positive	3.25	.61	3.35	.66	3.45	.83	3.50	.78	1.98	.02
Past Negative	2.74	.76	2.50	.79	2.45	.91	2.28	.70	2.28	.03
Present Positive	3.07	.69	3.33	.71	3.58	.70	3.39	.62	5.26*	.06
Present Negative	3.01	.71	2.97	.78	2.51	.76	2.83	.81	7.71*	.09
Future Positive	3.89	.76	3.55	.87	3.99	.71	3.95	.74	4.54*	.05
Future Negative	2.45	.92	2.09	.74	1.94	.79	2.00	.69	3.14	.04

Note. Socioeconomic status was used as a covariate, and mean scores were adjusted.

* $p < .008$.

typically associated with positive academic outcomes (Beal & Crockett, 2010; Mello, 2008; Wilkins, 2010) and present orientation is associated with poorer academic and developmental outcomes and greater risk taking (Keough et al., 1999; Kruger, Reischl, & Zimmerman, 2008; Wilkins, 2010). There have been few studies in which the past has been examined and no research suggesting that this is a particular focus of adolescents. In this study, we examined demographic group differences in positive and negative attitudes toward the past, present, and future in a sample of adolescents.

There were no gender or grade level differences, although the data suggest that high school juniors and seniors might have more positive profiles than freshmen and sophomores. Low SES adolescents reported both lower Past Positive and higher Past Negative scores than middle and high SES peers, and middle SES adolescents were more represented in clusters that previous research has shown to be related to positive outcomes (e.g., Buhl & Linder, 2009). Twelve of 36 racial/ethnic group comparisons had moderate effect sizes, and 8 of the 12 involved African American adolescents, who in general reported higher negative attitudes and lower positive attitudes than their peers. Asian American adolescents also reported lower positive attitudes toward the future than two other racial/ethnic groups.

Time attitude clusters

Five clusters were found in this study, three that can be characterized as positive (Positives, Balanced, Optimists) and two that can be characterized as negative (Pessimists, Negatives). It is worth noting that 68% of the sample was included in the positive clusters. These findings replicate Buhl and Linder's (2009) work but with an American sample; these researchers found six clusters based on ATAS scores in a sample of German adolescents, five that were similar to the ones in this study and an additional cluster labeled Ambivalents. They also support Zimbardo and Boyd's (1999) contention that individuals have interpretable time attitude profiles. Although Zimbardo and Boyd put forward a balanced profile as ideal, our results suggest that there are at least two other profiles that may have comparable developmental outcomes. Buhl and Lindner reported stronger positive outcomes for both Positives and Balanced, and poorer outcomes for Pessimists and Negatives, and we suspect that Positives may have better outcomes than the Balanced on some outcomes, given their globally positive time attitudes, a hypothesis that needs to be tested.

It will also be useful to examine the relationship between time attitude clusters and the possible selves construct (Cross & Markus, 1994; Oyserman & Markus, 1990). These researchers discuss expected versus feared possible selves, with positive outcomes occurring when expected selves are not overwhelmed by feared possible selves. The optimal balance is related to competence and the wrong balance is related to delinquency. An important question to ask will be if certain time attitude profiles are more related to the ascendancy of expected selves and others of feared selves.

Grade level differences in time attitudes

In this study, 11th and 12th graders were more likely to be classified as Positives or Balanced, and less likely as Negatives or Pessimists than 9th and 10th graders. Many researchers have argued that the transition to high school is complicated by difficult academic and social adjustments (Eccles, Lord, & Midgley, 1991; Roderick & Camburn, 1999; Weiss & Bearman, 2007), and perhaps, in part, negative time attitude profiles are a manifestation of transitional turmoil in the lower high school grades. Additionally, the largely positive time attitude profiles in the upperclassmen are commensurate with data both on the development of friendships after students become more comfortable in high school (e.g., Kinney, 1993) and the exceedingly high expectations that are reported by high school seniors (e.g., Reynolds, Stewart, MacDonald, & Sischo, 2006). Further study using time attitude profiles is needed to examine transition and adjustment in high school.

Gender differences in time attitudes

As hypothesized, few gender differences were found in attitudes toward the past, present, or future in the current study, and gender representation across time attitude profiles was similar for Balanced, Positives, and Negatives. Although females were somewhat disproportionately represented in the Pessimists cluster when compared to males, and males were slightly over-represented in the Optimists cluster, these differences were quite small. Keough et al. (1999) and Zimbardo and Boyd (1999) reported robust gender differences in Present Hedonistic attitudes, and the current findings do not contradict these findings. Hedonistic attitudes are related to risk-taking behaviors, an area in which there are well-established gender differences, but ATAS scores do not assess hedonism. The more important message of this study may be that negative attitudes toward the present are not necessarily hedonistic, and there are few gender differences on these more general negative attitudes. This interpretation is in keeping with many of the previous findings on gender (Lamm et al., 1976; Mello & Worrell, 2006; Plomin et al., 1992; Snyder et al., 1996, 2002; Worrell, 2006).

Socioeconomic differences in time attitudes

Theory and research on SES groups have emphasized differences in the present (Guthrie et al., 2009; Zimbardo & Boyd, 1999) and the future (Lamm et al., 1976). However, in the present study, SES group membership only predicted differences in attitudes toward the past. That is, low SES adolescents reported far less favorable evaluations of their pasts than middle and high SES peers, but did not differ in their evaluations of the present or future. Future research will need to determine if this

finding is anomalous. Other studies have shown that unfavorable attitudes toward the past are associated with both problematic behavior (e.g., aggression and impulse control, [Zimbardo & Boyd, 1999](#)) and poor states in psychological wellbeing (e.g., self-esteem and perceived stress, [Worrell & Mello, 2009](#)). Thus, the more negative views toward the past reported by low SES adolescents warrant further investigation.

It is also important to note that time attitude profile analyses yielded different results than univariate analyses. That is, majority of low SES adolescents had Positive or Balanced time attitude profiles. Therefore, assuming that low SES adolescents have generally negative time attitudes would be misleading. Indeed, the highest frequencies of negative time attitude profiles (i.e., Negatives and Pessimists) and the lowest frequencies of positive time attitude profiles were in high SES adolescents. These results challenge any deficit perspective on SES and suggest the need for larger scale studies with more representative samples and developmentally significant outcomes.

Additionally, the SES differences in this study were based on effect sizes rather than statistical significance. Although this may seem unusual, researchers who study statistics have been calling for using effect sizes and confidence intervals in addition to or instead of statistical significance for several decades ([Cumming, 2012](#); [Fan, 2001](#)). The findings in this study illustrate how these two data-interpretation conventions can lead to different results.

Racial/ethnic differences in time attitudes

We hypothesized that ethnic minority adolescents would report higher negative attitudes and lower positive attitudes than European American adolescents, and that African American adolescents might have the poorest outcomes, given that group's history in the US. Several of these hypotheses were supported for African American adolescents, but most of the hypotheses were not supported for other groups. We now discuss each of the four groups briefly.

African Americans

As hypothesized, African Americans reported lower Present Positive and higher Present Negative and Future Negative scores than European Americans. African Americans also reported higher Past Negative, lower Present Positive, and higher Future Negative scores than Latinos, and higher Future Negative than Asian Americans. Moreover, when compared to other groups, African Americans were both under-represented in the Positives and Balanced profiles and over-represented in the Negatives and Pessimists profiles. However, contradicting our prediction, African Americans reported higher Future Positive scores than Asian Americans.

There are two implications of the findings on African Americans that should be highlighted. As hypothesized, African Americans reported higher Future Negative scores than the other three groups, but did not differ from the other two *ethnic minority* groups on Present Negative scores. This result indicates that African Americans have higher expectations for a negative future than other ethnic minority groups, even in the face of no differences in the present. This finding could be related to immigrant optimism that is more applicable to Latinos and Asian Americans ([Fulgini, Rivera, & Leininger, 2007](#)), but may also be related to mistrust on the part of African Americans ([Miles & Hudley, 2005](#)).

Second, African Americans' higher Future Positive scores than Asian Americans, in contrast with the higher Future Negative scores indicates that it is useful to examine independent measures of positive and negative attitudes—consider, for example, the lack of racial/ethnic group differences on Past Positive scores and the different patterns for negative and positive time attitudes generally. Some scholars have argued that the stress associated with racism contributes substantially to African Americans' risk for mental and physical health concerns ([Williams, 1999](#)). Our data suggest that researchers should examine the relationship of time attitudes to stress and health problems in this community, although current evidence suggests that African American adolescents are remarkably resilient ([Worrell, 2009](#)), a finding that may be related to the balance of positive versus negative attitudes in this group. These are issues in need of further study.

Latinos

With regard to Latinos, we hypothesized that their time attitudes would be lower than European Americans on the positive attitudes and higher on the negative attitudes. In general, the findings for this group were supported. They reported better outcomes than African Americans on three time attitudes (Past Negative, Present Positive, Future Negative) and higher Present Negative attitudes than European Americans as hypothesized. They also reported higher Future Positive scores than Asian Americans, as did all of the groups. However, in general, Latinos' time attitudes were quite similar to their Asian and European American peers, as was their classifications in the time attitude profiles. These data suggest that despite rates of dropping out, unemployment, and poverty that are comparable to African Americans ([Aud et al., 2010](#)), Latinos have much more positive perceptions of their past, present, and future.

Our findings with regard to time attitudes mirror responses from a poll of a representative sample of African American, Asian American, and Latino adults conducted by [New America Media \(2007\)](#). In that study, 85% of Latinos and 92% of African Americans reported that their group experienced a lot of discrimination in the US. However, Latinos and African Americans differed in (a) the belief that working hard would lead to success in the US (endorsed by 74% of Latinos and 44% of African Americans), (b) the belief that every American has an equal opportunity to succeed (endorsed by 59% of Latinos and 30% of African Americans), and (c) the belief that the criminal justice system favors the rich and powerful (45% of Latinos and 71% of African Americans *strongly believe* that the criminal justice system favors the rich and powerful). This difference in beliefs is a core tenet of cultural ecological theory ([Ogbu & Simons, 1998](#)), which posits that although immigrant minorities such as Latinos

experience racism and discrimination that is comparable to nonimmigrant minorities such as African Americans, their interpretation of and responses to these situations are different (Ogbu, 2002), mediated by the types of beliefs reported in the New America Media study. Thus, cultural ecological theory provides a compelling explanation for Latinos' more positive time attitudes relative to African Americans.

Asian Americans

Asian Americans had higher Present Negative scores than European Americans, as hypothesized, but also reported lower Future Positive scores than European Americans as well as Latinos and African Americans. Although Asian Americans are stereotyped as a model minority (Kitano & Djiosia, 2002) and some of the Asian American subgroups are doing quite well in school, a majority of Asian Americans (57%) report experiencing a lot of discrimination in the US (New America Media, 2007). The higher Present Negative scores may reflect greater discrimination experienced in the here and now relative to European Americans, whereas the lower Future Positive scores relative to all other groups supports previous reports of Asian American pessimism (Chang, 1996a, 1996b). Like Latinos, Asian Americans are frequently immigrant minorities (Aud et al., 2010; Ogbu, 2002) and also have more positive views of American society than African Americans (New America Media, 2007), which may explain their lower Future Negative scores relative to African Americans, despite the concurrent lower Future Positive scores. Again, these findings highlight the importance of examining both positive and negative time attitudes.

European Americans

European American adolescents are included in eight comparisons in Table 4, and in all of these, as hypothesized, they are reporting more favorable attitudes than their peers (i.e., lower negative attitudes and higher positive attitudes). Not surprisingly, European Americans had the lowest percentage of adolescents with either a Negative or Pessimist profile, and this group also had the second highest percentage of Positive or Balanced adolescents. These data suggest that with regard to attitudes toward time, European American adolescents perceive the world generally more positively than their ethnic minority peers, which is in keeping with their status as majority group members in American society with higher socio-economic status, greater social capital, and fewer experiences of discrimination.

Limitations

This study had several limitations. One of the more notable of these was the small cell size for the traditionally under-represented racial/ethnic subgroups (i.e., African Americans and Latinos). These small numbers suggest that we need to be cautious in interpreting the results and also limited our ability to look at interactions between race/ethnicity and other variables like gender and SES. The sample was also limited to two states and was not representative of the districts or schools from which they were drawn, although the sample was diverse. Additionally, all constructs, including outcomes, were self-reported. Validity checks notwithstanding, the use of self-report data for variables like SES can lead to unreliable conclusions, and it will be important for future studies to address these concerns and confirm these results. Thus, although the findings of the study are intriguing in many ways, they need to be interpreted cautiously.

Future directions

Nonetheless, the study provides some interesting bases for future research. Interpretable time attitude profiles in adolescents raise major questions about their educational and psychological correlates, their predictive utility, and their within-person stability both in the shorter and longer term. Do profiles hold across developmental periods, for example? Are pessimists and negatives more likely to engage in risky behaviors as those with present hedonistic profiles or in delinquent

Table 4
Post-hoc contrasts between racial/ethnic groups with medium and large effect sizes.

Variable	Contrast	M (SD)	M (SD)	t	df	d
Past Negative	AF v LA	2.74 (.76)	2.28 (.70)	2.12	58	.63
Present Positive	AF v LA	3.07 (.69)	3.39 (.62)	-1.81	58	-.49
	AF v EU	3.07 (.69)	2.51 (.76)	-3.63	44	-.73
Present Negative	AF v EU	3.01 (.71)	2.51 (.76)	1.70	51	.67
	AS v EU	2.97 (.78)	2.51 (.76)	4.01*	150	.60
	EU v LA	2.51 (.76)	2.83 (.81)	-2.01	44	-.42
Future Positive	AS v EU	3.55 (.87)	3.99 (.71)	-3.90*	130	-.57
	AS v AF	3.55 (.87)	3.89 (.76)	-2.00	61	-.40
	AS v LA	3.55 (.87)	3.95 (.74)	-2.40	66	-.47
Future Negative	AF v AS	2.45 (.92)	2.09 (.74)	2.12	45	.45
	AF v EU	2.45 (.92)	1.94 (.79)	3.03	41	.63
	AF v LA	2.45 (.92)	2.00 (.69)	2.22	54	.56

Note. AF = African American; AS = Asian American; EU = European American; LA = Latino. Only differences with effect sizes in the medium to large range are included.

* $p < .001$.

behaviors as those with feared selves? Similarly, are Pessimists and Negatives more likely to have poorer psychological outcomes (e.g., lower self-esteem, higher anxiety) than Positives, Optimists, and Balanced? How do profiles differ on educational outcomes? Are some more predictive of high school graduation and college-going?

Since Frank's (1939) work, researchers have theorized about the importance of time-related constructs and there is a burgeoning empirical literature on related developmental, psychological, and educational correlates of these variables (e.g., Adelabu, 2007; Buhl & Linder, 2009; Mello, 2008, 2009; Wyman, Cowen, Work, & Kerley, 1993; Zimbardo & Boyd, 2008). However, are time attitudes the key variable as Zimbardo and Boyd (1999) suggest by calling their attitudinal instrument a measure of time perspective, and how important are other dimensions of time perspective, such as meaning, frequency, relation, and orientation, variables that are only recently being assessed systematically (Mello, Bhadare, et al., 2009; Mello, Worrell, et al., 2009). The results of the current study, especially with regard to grade level, SES, and race/ethnicity, raise intriguing questions about the state of our knowledge of time attitudes and time perspective in relation to demographic and other outcomes. Future research with multidimensional instruments will allow researchers to determine whether these findings are generalizable and if there are important developmental implications for these constructs.

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