# Measuring time perspective in adolescents: Can you get the right answer by asking the wrong questions?

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## ARTICLE INFO

## ABSTRACT

Time perspective continues to evolve as a psychological construct. The extant literature suggests that higher future orientation and lower present orientation are associated with better developmental outcomes. However, the extant literature also suggests that issues remain with the measurement of the construct. Recently, a 25-item version of the Zimbardo Time Perspective Inventory (ZTPI-25) was suggested for use based on high internal consistency estimates and good discriminant validity of scores in a sample of Italian adolescents. However, the genesis of this scale is uncertain. The present study examined the factorial validity, reliability, and concurrent validity of ZTPI-25 scores in Slovenian, American, and British adolescents. Results revealed satisfactory concurrent validity based on correlations with measures used in the development of the full ZTPI. However, internal consistency and factorial validity of scores were unsatisfactory. The present study questions the use of the ZTPI-25 with adolescents in the context of conceptual and measurement issues more broadly.

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## 1. Introduction

Time perspective is an individual difference variable which describes the influence that considerations of past, present and future have on a range of human behaviors. Although its study has a relatively long research history, the introduction of the Zimbardo Time Perspective Inventory (ZPTI, Zimbardo & Boyd, 1999) signaled renewed interest in the construct. The ZTPI is comprised of five factors: (a) Past Negative (PN) reflects pessimism toward the past, (b) Past Positive (PP) reflects sentimental and happy feelings about the past, (c) Present Hedonistic (PH) reflects a desire for pleasure with and enjoyment of present experiences, (d) Present Fatalistic (PF) is characterized by the belief that uncontrollable forces determine fate, and Future (F) assesses thinking about and planning for the achievement of long-term goals. Despite a growing body of literature on time perspective, some of the instruments used to measure it, including the ZTPI, have both conceptual and psychometric problems (e.g., Shipp, Edwards, & Schurer-Lambert, 2009).

An example of these problems is found in a 25-item Italian, short version of the ZTPI (ZTPI-25; Laghi, Baiocco, Liga, Guarino, & Baumgartner, 2013). Referencing two other papers (i.e., Laghi, Baiocco, D'Alessio, & Gurrieri, 2009; Laghi, D'Alessio, Pallini, & Baiocco, 2009), Laghi et al. (2013) reported that scores on the 25-item version had good psychometric properties in adolescent samples. Both of the 2009 papers by Laghi and colleagues cited a third paper (D'Alessio, Guarino, De Pascalis, & Zimbardo, 2003) in support of the ZTPI-25. However, this third paper indicates that the scale used by D'Alessio et al. (2003) consists of only 22 items assessing the PF, PH and F constructs (not PN and PP), six of which are not ZTPI items. Indeed, there are only five ZTPI items in common between the D'Alessio et al. (2003) version of the ZPTI and the ZTPI-25. Additionally, Laghi et al. (2013) reported high Cronbach's alpha values for ZPTI-25 scores (PN = 0.83; PP = 0.82; PH = 0.84; PF = 0.85; F = 0.81), and referenced similar internal consistency estimates in the two 2009 manuscripts (Laghi, Baiocco, et al., 2009; Laghi, D'Alessio, et al., 2009). However, both 2009 papers simply restate the reliability estimates reported by D'Alessio et al. (2003) scores on the 22-item scale.

Although the origin of the ZTPI-25 remains unclear, the reliability estimates offer promise (Laghi et al., 2013), as do other results suggesting that, in line with results elsewhere (e.g., Zimbardo &

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Boyd, 1999; Zimbardo, Keough, & Boyd, 1997), higher scores on F and PP are associated with better functioning, with the reverse true for the other three subscales (PN, PF & PH; Laghi et al., 2013). Given the potential utility of this 25-item version, we used existing data from three countries to test the factorial structure, concurrent validity, and internal consistency of ZTPI-25 scores.

In the scale development study introducing the ZTPI, Zimbardo and Boyd (1999) established concurrent validity through significant and meaningful (i.e., $r > |.30|$) correlations between ZPTI scores and a variety of constructs in theoretically consistent directions. PN scores were negatively associated with self-esteem and positively associated with aggression; PH scores were positively associated with novelty seeking and sensation seeking; F scores were positively associated with conscientiousness and consideration of future consequences and negatively associated with sensation seeking; and PF scores were positively associated with aggression and negatively associated with consideration of future consequences. PP scores were positively associated with self-esteem and negatively associated aggression. In the present study, we examined concurrent validity using measures of aggression, self-esteem, self-efficacy, general conformity, attachment to parents, and consideration of future consequences.

## 2. Method

### 2.1. Participants

Participants in the United Kingdom sample were 913 school children (aged 12–16; 49.8% male) from Northern Ireland. A total of 943 questionnaires were completed with 913 included in analyses. Thirty were excluded as a result of having been partially completed or spoiled (all answer options endorsed).

Participants in the United States study were 815 academically talented adolescents aged 11–18 (46.6% male) attending a summer program at a research university in a Western state. Students were accepted into the summer program using several criteria, including school achievement, teacher recommendations, and an academic product. Participants were predominantly in the 7–11th grades.

Participants in Slovenian sample were a general population sample of 154 adolescents aged 15–19 ($M = 16.97$; 70.1% female) who completed an online questionnaire sent to them via email or social media (e.g., Facebook). Participants from all three studies were used to examine structural validity and internal consistency, and participants from the UK and Slovenia were used for concurrent validity analyses. Greater details about the samples can be obtained from other papers using these samples (not included blind review).

### 2.2. Measures

The ZTPI-25 (Laghi et al., 2013) is a shortened version of the ZTPI. It consists of the five subscales, PN, PP, PH, PF and F (each consisting of 5 items). Participants respond to questions using a 5-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). Internal consistency estimates for subscale scores based on Cronbach's $\alpha$ were all high as reported above. The scale was adapted to the Slovenian language using the back-translation technique (Geisinger, 2003).

The Consideration of Future Consequences Scale (CFCS; Strathman, Gleicher, Boninger, & Edwards, 1994) is a 12-item scale made up of five positively worded items and seven negatively worded items. As in other studies (e.g., Joireman, Balliet, Sprott, Spangenberg, & Schultz, 2008), in this study, the positively worded items were summed to yield a CFC-F (future) score, indicating active consideration of future consequences. The negatively

worded items were not reverse-scored and were summed to yield a CFC-I (immediate) score, so that CFC-I scores reflect active consideration of immediate consequences, or a present orientation. Strathman et al. reported internal consistency estimates for CFSC scores in college student samples ranging from 0.80 to 0.86, a 2-week test–retest reliability coefficient of .76, and a 5-week test–retest reliability coefficient of .72 ($\alpha$ current study = .78 for CFC-F and .81 for CFC-I). This scale was used with the Slovenian sample and the same procedure as described above was used for the translation of the scale.

The following five instruments were used with the British sample. The Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001) contains 21 items assessing three domains of self-efficacy: (a) academic self-efficacy ($\alpha$ current study = .88), (b) emotional self-efficacy ($\alpha$ current study = .79), and (c) social self-efficacy ($\alpha$ current study = .71). Each subscale consists of seven items, and respondents rate their competence in each self-efficacy domain on a 5-point Likert scale (1 = *not at all*; 5 = *very well*). SEQ-C subscale scores have been found to be structurally valid and internally consistent ($\alpha > .80$; Muris, 2001).

The Aggression Questionnaire (AQ; Buss & Perry, 1992) consists of 29 items, which assess four constructs: (a) verbal aggression (5 items; $\alpha = .72$; $\alpha$ current study = .68) (b) physical aggression (9 items; $\alpha = .85$; $\alpha$ current study = .89) (c) anger (7 items; $\alpha = .83$; $\alpha$ current study = .85), and (d) hostility (8 items; $\alpha = .77$; $\alpha$ current study = .74). Correlations between the AQ subscales and other personality traits have yielded the strongest relationships with impulsiveness, assertiveness, and competitiveness, with anger correlating most closely with impulsiveness (Buss & Perry, 1992). Test–retest coefficients were also found to be acceptable ($.72 \leqslant r \leqslant .80$; Buss & Perry, 1992). Scores on the subscales were combined to create a composite aggression score.

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989) is a self-report measure of global self-esteem consisting of 10 statements (5 reversed-scored) related to overall feelings of self-worth or self-acceptance. Scores on the RSES have yielded strong reliability and validity coefficients across a large number of different sample groups with $\alpha$ coefficients ranging from 0.72 to 0.83 (Gray-Little, Williams, & Hancock, 1997; $\alpha$ current study = .82).

The Parents subscale of the Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone & Robinson, 2005) was developed to assess adolescents' perceptions of the positive and negative affective/cognitive dimension of relationships with their parents, particularly how well these figures serve as sources of psychological security. The parental subscale consists of 28 items that make up three subscales: parental trust (10 items, $\alpha = .77$), parental communication (10 items, $\alpha = .77$), and parental alienation (8 items, $\alpha = .77$). An overall attachment score is obtained by summing the trust and communication scores, and subtracting the alienation score ($\alpha$ current study = .78).

The Conformity subscale of the Peer Pressure, Popularity, and Conformity Scale (Santor, Messervey, & Kusumakar, 2000) is a combination of three subscales with 7 items assessing general conformity (e.g., "Even when I disagree with my parents' wishes, I usually do what I am told"). Estimates of internal consistency have been reported as adequate with $\alpha$ coefficients ranging from 0.69 to 0.91 ($\alpha$ current study = .77).

Given limitations due to the time allotted by participating schools in the British sample, it was not feasible to gather data using all scales in all schools. All participants completed the ZTPI, whereas other scales were completed by sub-samples of the cohort: self-esteem ($n = 735$; 81%), self-efficacy ($n = 602$; 66%), conformity ($n = 269$; 29%), aggression ($n = 333$; 36%), and parental attachment ($n = 133$; 15%).