Time perspective, approaches to learning, and academic achievement in secondary students

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ABSTRACT

Previous research suggests that both the presence of an extended future time perspective and the generic use of a deep approach to learning predict academic achievement and overall adjustment to school. The present study aimed to investigate how the different dimensions of time perspective (future, present, past, and negative future) influence secondary students' approaches to learning and academic achievement. Participants were 400 students attending the 11th grade (248 girls and 152 boys; *Mean* = 16.70, *SD* = 0.94) at six Portuguese public schools. Structural equation modeling analysis showed that future time orientation influenced academic achievement via deep and achieving approaches to learning, while past orientation and negative future influenced achievement via surface approaches to learning. Present orientation was not related to approaches to learning but had a small direct negative effect on academic achievement. Implications are discussed, along with limitations and suggestions for future research.

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The importance of considering time perspective (TP) for understanding behavior and motivation has been described by several theories (e.g., Lewin, 1951/1997; Nuttin & Lens, 1985; Super, 1990; Zimbardo & Boyd, 1999). Similarly, in the educational context, research has demonstrated the significant relations between dimensions of TP, namely the dimension of future time, and variables such as academic achievement, motivation, and school engagement (De Volder & Lens, 1982; Husman & Lens, 1999; King, 2016; Peetsma and Van der Veen, 2011).

An important variable for academic achievement and motivation is students' approaches to learning (SAL), which is a combination of the motivation to study and learning strategies students use to manage learning tasks (Entwistle, Tait, & McCune, 2000). Such approaches substantially influence academic achievement and the quality of learning and are influenced by students' personal characteristics and learning environments (Biggs, 1999; Cano, 2005; Entwistle, 1989; Richardson, 2005). However, little is known about the influence of the different time orientations (past, present, and future orientations) on the ways students approach learning tasks at school. The aim of the present study was to investigate how secondary students' different time orientations are associated with SAL and academic achievement.

1. Time perspective

TP may be defined as the subjective and sometimes non-conscious way individuals relate to time and how they organize and categorize personal and social experiences in temporal frames, namely the past, present, and future (Boyd & Zimbardo, 2005). As an old topic in psychology, TP research has evolved in two main directions: one focuses on the motivational dynamics associated with the way people think about time, while the other explores the individual differences on TP (Janeiro & Marques, 2010).

Research concerned with the motivational dynamics of TP integrates the study of TP with theories of human motivation and focuses mainly on the role of the future as a regulator element of human behavior (e.g., Lens, 1988; Simons, Vansteenkiste, Lens, & Lacante, 2004a). Future TP (FTP) is described as a multidimensional system (Husman & Lens, 1999; Husman & Shell, 2008) that incorporates both cognitive and affective components. The cognitive components of FTP relate to the structure of the events projected into the future, both in terms of time extension (i.e., how far in the future those events are projected) and in terms of the content (i.e., degree of realism of the objectives, density of events projected into the future, and clarity of those objectives). The affective component is described as a temporal attitude (Nuttin & Lens, 1985) and reflects the emotional valence of future events. The future may be seen in an optimistic way, with a sense of confidence in the achievement of the future objectives, or may, instead, be perceived as somewhat threatening (Ringle & Savickas, 1983).

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Most of the studies about TP performed in academic contexts focus on the motivational impact of the subjective future. Generally, research has shown a positive and significant relationship between FTP and academic achievement (Carvalho & Novo, 2015; De Volder & Lens, 1982; Lens & Tsuzuki, 2007; Peetsma and Van der Veen, 2011), motivation and self-regulated learning (de Bilde, Vansteenkiste, & Lens, 2011; Lens, Paixão, Herrera, & Grobler, 2012), and career adaptability (Janeiro, 2010; Marko & Savickas, 1998; Taber, 2013).

A second approach to the study of TP considers the three temporal periods (future, present, and past) and studies the individual differences in coping with everyday life events within a preferred time frame or dimension. This tendency to cope with events within a preferred time dimension has been described either as a trace of personality (Lens, 1988) or as a cognitive style (Zimbardo, Keough, & Boyd, 1997), and influences many areas of human thought and behavior (Ringle & Savickas, 1983; Zimbardo et al., 1997). The term "time orientation" is usually adopted to characterize this predisposition to be influenced by thoughts, emotions, and motivations of a distinct time frame, and is considered a more circumscribed element of the broader construct of TP (Lasane & O'Donnell, 2005).

A dominant time orientation is associated with diverse behavioral and psychological outcomes. For instance, individuals with a dominant future orientation focus predominantly on future goals and plans and tend to be self-disciplined and perseverant (Boyd & Zimbardo, 2005). In general, this orientation is associated with positive outcomes for personal development and social integration (Jones & Brown, 2005). By contrast, a negative perception of the future seems to be related to low levels of self-esteem and career adaptability (Janeiro & Marques, 2010) and with adverse psychological dimensions, such as anxiety or depressive symptoms (Carelli et al., 2015). Individuals orientated to the past tend to value traditions and resist social changes; a negative perception of the past is associated with anxiety and depression (Jones & Brown, 2005). People with a predominant present orientation like to enjoy the moment and have a tendency to be more impulsive and extroverted; this time orientation is associated with some risk behaviors, such as drug or alcohol consumption (Boyd & Zimbardo, 2005; Keough, Zimbardo, & Boyd, 1999).

Research on TP and time orientation increased substantially in recent years, in part due to the development of new instruments for its assessment. One of the most used instruments is the Zimbardo Time Perspective Inventory (ZTPI; Zimbardo & Boyd, 1999), which measures different behaviors and attitudes toward time across the three temporal dimensions and is organized in five subscales: past positive, past negative, present hedonistic, present fatalistic, and future. While extensively used with adult samples, the ZTPI has shown some psychometric inconsistencies and low levels of reliability when the studies involve younger samples (Worrell & Mello, 2007, 2009). Some alternatives for the assessment of TP with adolescent populations have been advanced in recent years, including the Adolescent Time Inventory - Time Attitude (ATI-TA, Worrell & Mello, 2009) and the Time Perspective Inventory (TPI, Janeiro, 2012). The TPI was developed specifically for the assessment of TP in school settings (Janeiro, 2012). Taking into consideration the structural independence of the three dimensions of time, the TPI is organized in four scales: FTP, present orientation, past orientation, and the negative or anxious vision of the future. Contrasting with the ZTPI that identifies only one factor related to the future, factorial analysis with the TPI suggested two factors, one associated with a positive or optimistic perception of the future and other with a negative or anxious vision of the future (Janeiro, 2012).

2. Students' approaches to learning (SAL)

SAL refers to the combination of motivation and learning strategies students use to address learning tasks. Previous research has identified two main types of approaches to learning: a deep approach and a surface approach (Entwistle et al., 2000). The deep approach refers to intrinsic motivation to learn (learning for pleasure) and the use of a deep learning strategy (comprehension). In contrast, the surface approach refers to instrumental motivation to learn (studying to avoid failure) and the use of a surface learning strategy (rote memorization). Some studies have also identified a third approach to learning - named achieving or strategic approach - that refers to achieving motivation (learning for good grades) and an organizing learning strategy (management of time and resources) (Entwistle, 2001). However, the achieving approach is less stable and it (or some of its elements) may be included in the deep or surface approach to learning (Fox, McManus, & Winder, 2001).

There is a differential impact of these learning approaches on academic achievement. The surface approach tends to be related to lower grades, while the deep and achieving approaches to higher grade levels (Cano, 2005; Diseth, 2013; Valadas, Almeida, & Araújo, 2016; Watkins, 2001). Moreover, SAL can be conceptualized both as variable behaviors, such as reactions to particular situations, and as relatively constant habits of addressing learning tasks based on the student's characteristics (Biggs, Kember, & Leung, 2001). In addition to its relationship with the learning context, SAL is affected by or relates to various individual characteristics, such as self-efficacy, goal orientations (Diseth, 2011), and personality (Diseth, 2013).

3. Time perspective, approaches to learning, and academic achievement

Because TP is a structural dimension of personal performance that significantly influences judgments, decisions, and behaviors (Zimbardo & Boyd, 1999), it may play a relevant role in students' learning. For example, an extended FTP (e.g., believing that present studies will provide a better future career) is associated with academic persistence and deep conceptual thinking (Peetsma & Van der Veen, 2011; Simons, Dewitte, & Lens, 2004b). Some studies have explored the relationship between TP, particularly future time perspective, and motivational and strategic components of learning, suggesting that the perception of present school tasks as instrumental for the future contributes to an increase in motivation and the use of more effective learning strategies, which in turn promote academic success (Husman & Shell, 2008; Phan, 2009). In their study with first-year nursing students, Simons, Dewitte, et al. (2004b) showed that future orientation (i.e., perceiving the instrumentality of present tasks to future tasks or goals) predicted deep strategies, which ultimately led to higher levels of academic achievement, whereas the absence of that orientation led to the opposite result. Similarly, Phan (2009) found that FTP predicted academic achievement via deep processing and deep processing through mastery goals. Such associations between FTP and motivation in learning have also been described in younger students. Andriessen, Phalet, and Lens (2006), in a study with secondary students, showed that students with higher levels of positive perceived instrumentality of schoolwork for later success in life and internal regulation of school engagement, motivated by a perspective of self-development, used deep learning strategies more frequently, whereas the students with higher levels of external regulation of school engagement, motivated by employment or income, tended to use surface strategies.

Considering these previous studies, it is expected that students' TP will also have a significant role in their approaches to learning; nevertheless, research on this topic is practically non-existent. An exception is a study with first-year university students by Horstmanshof and Zimitat (2007) that found that a "meaningful approach to learning" (i.e., deep and achieving motives, deep and achieving strategies) was positive and significantly correlated with a future time orientation. The same meaningful approach was negatively and significantly correlated with a present fatalistic time orientation. The study also found that a "reproductive approach to learning" (i.e., surface and achieving motives, surface and achieving strategies) was positively and significantly