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## Prescribed journeys through life: Cultural differences in mental time travel between Middle Easterners and Scandinavians



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#### ABSTRACT

Mental time travel is the ability to remember past events and imagine future events. Here, 124 Middle Easterners and 128 Scandinavians generated important past and future events. These different societies present a unique opportunity to examine effects of culture. Findings indicate stronger influence of normative schemas and greater use of mental time travel to teach, inform and direct behaviour in the Middle East compared with Scandinavia. The Middle Easterners generated more events that corresponded to their cultural life script and that contained religious words, whereas the Scandinavians reported events with a more positive mood impact. Effects of gender were mainly found in the Middle East. Main effects of time orientation largely replicated recent findings showing that simulation of future and past events are not necessarily parallel processes. In accordance with the notion that future simulations rely on schema-based construction, important future events showed a higher overlap with life script events than past events in both cultures. In general, cross-cultural discrepancies were larger in future compared with past events. Notably, the high focus in the Middle East on sharing future events to give cultural guidance is consistent with the increased adherence to normative scripts found in this culture. © 2015 Elsevier Inc. All rights reserved.

#### 1. Introduction

When remembering our personal past we project ourselves backward in time to re-experience an event. Similarly, we have the ability to project ourselves forward in time to pre-experience future events in our imagination. These projections of the self into past and future scenarios are referred to as *mental time travel* (Tulving, 2002). Through the literature there are many suggestions as to what purposes the (p)re-experiencing of events in mental time travel might serve (see Szpunar, 2010, for a review). Memories of past events provide an opportunity to learn from prior mistakes, they help establish self-continuity and the reliving of past events can facilitate emotional regulation through meaning making processes (Kahneman & Miller, 1986; Pasupathi, 2003; Pillemer, 1998; Ritchie, Skowronski, Cadogan, & Sedikides, 2014; Sedikides & Green, 2009; Taylor, 1983). Although related, the representation of future events also referred to as *episodic simulations*, appear to have functions slightly distinct from the functions of autobiographical memory. Episodic future simulations support anticipatory behaviour, planning ahead, decision-making, motivation and goal attainment (Atance & O'Neill, 2001; D'Argembeau, Lardi, & Van der Linden, 2012; D'Argembeau & Mathy, 2011; Suddendorf & Corballis, 2007; Szpunar, 2010).

A prevailing assumption in the literature is that the construction of future events largely depends on the ability to flexibly combine episodic memories of the past (Suddendorf & Corballis, 2007). In the past decade this

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constructive-episodic-simulation hypothesis (Schacter & Addis, 2007a) has been empirically supported by findings at the neural and the behavioural level (e.g., Addis, Pan, Vu, Laiser, & Schacter, 2009). Neuroimaging studies have found that mentally re-experiencing past events and pre-experiencing future events rely on a common set of brain regions (Schacter, Addis, & Buckner, 2007; Spreng & Grady, 2010; Szpunar, Watson, & McDermott, 2007). Behavioural studies have shown that re-experiencing and pre-experiencing events are similarly affected by experimental manipulations regarding temporal distribution, emotional valence and specificity (D'Argembeau & Van der Linden, 2004; Spreng & Levine, 2006; Williams, Ellis, Tyers, & Healy, 1996). These similarities are evident in both voluntary and involuntary mental time travel (Berntsen & Jacobsen, 2008; Finnbogadóttir & Berntsen, 2011). Altogether, these findings indicate that mental time travel into the past and future, respectively, is governed by the same underlying neurocognitive system (see Szpunar, 2010, for a review).

However, normal-functioning individuals are able to distinguish between memories of their personal past and imagination of possible future events. Thus, it is not surprising that studies also show marked differences between remembering past events and imagining future events. At the neural level, frontal areas are more active in the construction of future events than in the re-construction of past events (Botzung, Denkova, & Manning, 2008; Schacter & Addis, 2007b; Spreng & Grady, 2010). Behavioural studies show that past events are rated as more vivid, more specific and more detailed, while future events are rated as more positive, more idyllic and more central to self and identity (Berntsen & Bohn, 2010; Berntsen & Jacobsen, 2008; D'Argembeau et al., 2012; Rasmussen & Berntsen, 2013; Rubin, 2014; Wang, Hou, Tang, & Wiprovnick, 2011). The consensus conclusion following these studies is that, although similar cognitive processes underlie imagined future events and remembered past events, future episodic thoughts contain fewer sensory details and rely more on schema-based construction.

A schema organizes one's current knowledge while providing a framework for future understanding. In the concept of schema, Bartlett (1932) united the process of imagination with the process of remembering. Schema theory became a keystone of cognitive psychology, and it still provides a framework for new theories. According to Rubin (2014, p. 615) "imagined instances provide the clearest view of schema", because when we imagine our self in a future event there is usually no attempt to recall one single instance. Imagined future events follow the same principles that guides recall by taking into account previously acquired knowledge (e.g., Rubin, 1995). Similarly, Szpunar (2010) argues that future episodic thought might not necessarily rely on specific contents of episodic memory. When characters, conduct and context get to be familiar through numerous encounters, they turn into a series of well-known situations called scripts (Schank & Abelson, 1977). This scripted summary knowledge may suffice to construct an expected event without any episodic input (Szpunar, 2010). Atance and O'Neill (2001) refer to such familiar routine scenarios as semantic future thinking, rather than episodic future thinking. However, a simulation of specific future events probably includes a sampling of both episodic and semantic information in a dynamic interplay (Szpunar, 2010). Accordingly, a recent study by D'Argembeau and Mathy (2011) showed that, in the construction of future events, the participants accessed semantic information and general personal knowledge before they retrieved episodic details. Only a few elements from specific past events were used in the process. In other words, general knowledge structures guided the selection of episodic details that became building blocks in an imagined future event. This is in support of the view that, even though individuals may draw on episodic memory in constructing future events, they are considerably constrained by culturally transmitted semantic knowledge from schemas and scripts.

#### 1.1. Cultural life scripts structure mental time travel

In the present study we compare mental time travel in individuals from the Middle East (predominantly Qatar) and Scandinavia (predominately Denmark), with a special focus on the potential effects of different cultural norms and their associated life scripts (Berntsen & Rubin, 2004). The two cultures differ in a number of ways.

First, Middle Eastern countries are characterized as collectivistic societies due to below-average scores on Hofstede's (2001) individualism index, while Scandinavian countries are characterized as individualistic societies. In previous work based on Asian and Western samples, this difference has been shown to be associated with differences in the qualities of autobiographical memory. For example, Wang (2009) showed that Westerners recall more event-specific details than Asians. This is presumably because Western ideology primarily focuses on independent selves and values autonomy, while East Asian ideology favours interdependence and relatedness. These ideal cultural selves are internalized through socialization within a given culture (Markus & Kitayama, 1991). Parent-child conversations about past events comprise a key element of this socialization process (Fivush, Habermas, Waters, & Zaman, 2011; Nelson & Fivush, 2004). Based on previous studies, Reese, Yan, Jack, and Hayne (2010) proposed that children with elaborative mothers, who are more common in Western cultures (Wang, 2007), draw more on personal memories when developing a self-concept (Reese et al., 2010). However, construction of the self might not be the primary role of parent-child reminiscing in all cultures. In interdependent collectivistic cultures, reminiscing may more often be used to reinforce social and moral values (Fivush et al., 2011).

Secondly, in terms of religion, Islam is prevailing in the non-secular countries of the Middle East (Matsumoto & Juang, 2004), while the traditionally Protestant countries in Scandinavia are secular and best defined as non-religious (Zuckerman, 2008). Ottsen and Berntsen (2014) showed that this difference was manifest in the cultural life scripts generated by a Qatari versus Danish sample, where the former contained more references to religious events than the latter. However, the influence of religion on remembered and imagined personal events remains to be studied in these cultures.

Thirdly, a marked difference regards gender segregation. In spite of increased gender equality in the rich oil countries of the Middle East (Bahry & Marr, 2005), a patriarchal family structure persists in this region, and the role of a woman is viewed

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