



Contents lists available at [ScienceDirect](#)

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp



The cognitive bases of the development of past and future episodic cognition in preschoolers



Gülten Ünal ^{a,*}, Annette Hohenberger ^b

^aDepartment of Psychology, Faculty of Humanities and Social Sciences, Ankara Yildirim Beyazit University, 06010 Ankara, Turkey

^bDepartment of Cognitive Science, Informatics Institute, Middle East Technical University, 06800 Ankara, Turkey

ARTICLE INFO

Article history:

Received 16 October 2015

Revised 22 May 2017

Available online 20 June 2017

Keywords:

Episodic memory
Episodic future thinking
Minimalism
Mental time travel
Cognitive development
What–where–when task

ABSTRACT

The aim of this study was to use a minimalist framework to examine the joint development of past and future episodic cognition and their underlying cognitive abilities in 3- to 5-year-old Turkish preschoolers. Participants engaged in two main tasks, a what–where–when (www) task to measure episodic memory and a future prediction task to measure episodic future thinking. Three additional tasks were used for predicting children's performance in the two main tasks: a temporal language task, an executive function task, and a spatial working memory task. Results indicated that past and future episodic tasks were significantly correlated with each other even after controlling for age. Hierarchical multiple regressions showed that, after controlling for age, the www task was predicted by executive functions, possibly supporting binding of episodic information and by linguistic abilities. The future prediction task was predicted by linguistic abilities alone, underlining the importance of language for episodic past and future thinking.

© 2017 Elsevier Inc. All rights reserved.

Introduction

The development of episodic cognition has evolved into a major research field over the past decade (Atance & Metcalf, 2013; Cheke & Clayton, 2015; Hudson, Mayhew, & Prabhakar, 2011; Martin-Ordas,

* Corresponding author.

E-mail address: gunal@ybu.edu.tr (G. Ünal).

Atance, & Caza, 2014). Episodic cognition comprises episodic memory and episodic foresight, both of which rest on mental time travel, that is, “the faculty that allows humans to mentally project themselves backward in time to relive, or forward to prelive, events” (Suddendorf & Corballis, 2007). It has been argued that episodic memory and episodic foresight largely overlap yet are distinctive forms of episodic cognition. Besides evidence stemming from introspection, brain imaging, and errors and biases, developmental data are crucial for discerning similarities and differences between the two (Suddendorf, 2010). While the ability to report past and future episodes codevelops in preschoolers (Busby & Suddendorf, 2005), episodic memory seems to lead episodic foresight (Suddendorf, 2010). Few developmental studies, however, directly address the amount of overlap and ask whether the same or different cognitive abilities support the two (Busby Grant & Suddendorf, 2009). The current study, therefore, aimed at comparing children’s performance in episodic memory and episodic foresight and identifying their cognitive bases.

Tulving (1972, 1985, 2002) originally claimed that the development of episodic memory in humans starts at around 4 years of age. Empirical studies have now provided convergent evidence that episodic past and future cognition develop strongly between 3 and 5 years, with 4 years being a critical transition period (Atance & Martin-Ordas, 2014; Atance & Meltzoff, 2006; Atance & Metcalf, 2013; Busby Grant & Suddendorf, 2009; Busby & Suddendorf, 2005; Hanson, Atance, & Paluck, 2014; Hayne & Imuta, 2011; Martin-Ordas et al., 2014; Russell, Alexis, & Clayton, 2010; Suddendorf & Busby, 2005).

Theoretical accounts of the development of episodic cognition have been grouped into two views: conceptualist and minimalist (Russell, Cheke, Clayton, & Meltzoff, 2011). Conceptualist theories relate episodic cognition to three key concepts: (a) mental time travel, (b) meta-representation, and (c) introspection. Minimalist theories try to posit only a minimum amount of concepts for ascribing episodic cognition. The first form of minimalism—“episodic-like minimalism” (Russell et al., 2011)—focuses on three behaviorally based core episodic features: what happened, where, and when. These episodic features can readily be observed in the behaviors of children and animals who might not yet master the three key concepts described earlier. Clayton and Dickinson (1998), therefore, qualified participants showing evidence for these what–where–when features as having “episodic-like memory.” The second form of minimalism—Kantian minimalism (Russell et al., 2011)—focuses on the phenomenal content of episodic cognition and, relying on Kant’s a priori conditions of the possibility of experience, identifies spatiotemporal information as crucial. Here, we follow the minimalist account. For our episodic memory task, episodic-like minimalism is most relevant because the what–where–when (www) task includes these three components of episodic cognition without making any further conceptual claims. For our episodic future prediction task, Kantian minimalism is most relevant because it points to a priori conditions on episodic experience (of some future state) in the form of spatiotemporal reference. In comparing children’s performance in these two tasks, we want to shed light on our first research question: To what extent do past and future episodic thinking overlap?

To test episodic memory in 3- and 4-year-old preschoolers, Hayne and Imuta (2011) developed an object hide-and-seek task. They asked children to report (verbally) and retrieve (behaviorally), after a short retention interval, three objects that had been hidden in three different rooms in their homes in correct order. The verbal performance of 4-year-olds was significantly better than that of 3-year-olds, as was their nonverbal performance, but only for the when component. In a later study, Scarf, Gross, Colombo, and Hayne (2013) showed that although 3-year-olds can readily form episodic memories, they experience difficulty in maintaining them over some short delays of 15 or 30 min, whereas 4-year-olds can maintain them over delays of 1 day and even 1 week.

In a behavioral “item section” task, Russell et al. (2010) aimed at capturing spatiotemporal aspects of episodic future thinking. The experimenter and children played a blow football game on a table. Crucially, children needed to stand on a box in order to reach the table. After playing the game, children were asked which items they would need when they were to play the game on the other side of the table yesterday, now, or the next day. Children needed to choose the function item “straw” and the episodic item “box” to answer the question correctly (Russell et al., 2010). The authors reasoned that children choosing the box did so because they imagined themselves from the new spatial perspective at the indicated time. Results showed that all children passed the “past” and “present” conditions but that only the 5-year-olds performed above chance in the “future” condition. This study, however,

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات