



Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

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



The role of declarative and procedural metamemory in event-based prospective memory in school-aged children



Milvia Cottini^{a,*}, Demis Basso^{b,c}, Paola Palladino^a

^a Department of Brain and Behavioral Sciences, University of Pavia, 27100 Pavia, Italy

^b Faculty of Education, Free University of Bolzano-Bozen, 39100 Bolzano-Bozen, Italy

^c Centro di Neuroscienze Cognitive Applicate, 00174 Rome, Italy

ARTICLE INFO

Article history:

Received 17 November 2016

Revised 26 July 2017

Keywords:

Prospective memory
Declarative metamemory
Procedural metamemory
Performance predictions
Strategic monitoring
School-aged children

ABSTRACT

Prospective memory (PM) develops considerably during the primary school years (7 or 8 years of age). Developmental changes have been mainly related to executive functions, although it has been recently suggested that PM would also potentially benefit from metamemory (MM). To date, only procedural MM, operationalized as performance predictions, has been investigated in relation to PM, whereas declarative MM has remained unexplored. Adults' performance has been shown to improve with predictions, but only in a resource-demanding (i.e., categorical) PM task rather than a more automatic (i.e., specific) one. The aim of the current investigation was to study whether PM performance of 7-year-old children ($N = 59$) would benefit from performance predictions. Thus, half of the children predicted their performance and half of them received standard instructions for two PM tasks: one including categorical PM targets and one including specific ones. To investigate the processes underlying the retrieval of PM targets and the effect of predictions, we obtained measures for declarative MM, inhibitory control, and working memory (WM). Results revealed that children benefitted from performance predictions in the categorical PM task but not in the specific one. This advantage caused slower ongoing task response times, suggesting that strategic monitoring processes were enhanced. Moreover, PM performance was related to WM capacity and declarative MM. However, declarative MM mainly predicted PM advantage in the prediction group, showing that children with high MM knowledge

* Corresponding author.

E-mail address: milvia.cottini01@ateneopv.it (M. Cottini).

benefitted especially from performance predictions. These findings are the first showing the important relation among procedural MM, declarative MM, and PM in school-aged children.

© 2017 Elsevier Inc. All rights reserved.

Introduction

In everyday life, we frequently need to remember to carry out a previously planned action at the appropriate moment (e.g., buying bread when passing by a bakery, taking medicine at 8 a.m., asking a colleague something after a meeting). This ability is defined as prospective memory (PM) (Einstein & McDaniel, 1990), which is crucial for our autonomy and independence in daily life as adults, but especially during childhood and adolescence. For example, PM develops considerably during childhood (Kvavilashvili, Kyle, & Messer, 2008), allowing children to become more and more independent from adult help in daily activities. Particularly when entering school, children are expected to be able to remember (and fulfill) at least some of their self-planned intentions as well as future tasks assigned from others (Mahy, Moses, & Kliegel, 2014). Developmental changes in PM during the primary school years have been shown to be related to development of executive processes (see Mahy & Munakata, 2015). However, recently it has been suggested that PM would also potentially benefit from metamemory (MM), although there is little evidence so far confirming this hypothesis (see Kvavilashvili & Ford, 2014). Our study's aim was to fill this gap and to investigate the role of both procedural and declarative MM in children's PM.

Prospective memory in school-aged children and its underlying processes

During the past few years, interest in PM development has increased substantially (see Mahy, Kliegel, & Marcovitch, 2014). Research has shown that PM develops from preschool age, throughout the school years, until late adolescence (Zimmermann & Meier, 2006), with important developmental advances identified between 7 and 8 years of age. In particular, from this age, children have been shown to become increasingly accurate in remembering to execute delayed intentions (Kerns, 2000; Smith, Bayen, & Martin, 2010; Yang, Chan, & Shum, 2011). Besides the importance of retrospective memory (RM) processes for PM development, age-related improvements have been linked mainly to development of executive processes such as inhibitory control, working memory (WM), set shifting, and monitoring (e.g., Spiess, Meier, & Roebbers, 2016; Yang et al., 2011).

Mahy, Moses, et al. (2014) proposed an Executive Framework to explain PM development, falling clearly within the developmental research domain and based on the *preparatory attention and memory* (PAM) theory (Smith, 2003; Smith & Bayen, 2004) and the *multiprocess* view (McDaniel & Einstein, 2000). Accordingly, developmental advances in executive processes should support PM more effectively, particularly when executive demands of the task are high. Furthermore, the authors claimed that different executive functions would influence PM development at different ages and during different phases of PM (i.e., formation, retention, retrieval, execution, and evaluation of an intention); WM may play an important role during early childhood, whereas inhibitory control, monitoring, and shifting may be crucial later during the school years. Moreover, inhibitory control and set shifting are predicted to influence ongoing task (OT) performance and cue detection, whereas WM and planning would have a greater effect during intention formation and retention. Besides executive processes, the authors also suggested that PM development would benefit from development of MM abilities, which also improve over childhood (especially during the primary school years) and play an important role in RM (see Schneider & Lockl, 2008). However, the study by Kvavilashvili and Ford (2014) remains the only confirmation of this hypothesis in children.

Download English Version:

<https://daneshyari.com/en/article/5039858>

Download Persian Version:

<https://daneshyari.com/article/5039858>

[Daneshyari.com](https://daneshyari.com)