Performance Predictions Improve Prospective Memory and Influence Retrieval Experience

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In retrospective memory, performance predictions have been found to enhance performance on subsequent memory tests. In prospective memory, the influence of metacognitive judgments on performance has not been investigated systematically. In the present study, 140 undergraduate students performed a complex short-term memory task that included a prospective memory task. Half of them gave performance predictions after the prospective memory task instructions. In addition, the specificity of the prospective memory task was manipulated by instructing participants either to perform an action when a word that belongs to the category of musical instruments was presented or to respond when the word "trumpet" was presented. The results showed that performance predictions enhanced performance, but only for the categorical task. Additional analyses of retrieval experience showed that performance predictions lead to an increase in *search* experiences while cue specificity was accompanied by an increase in *pop up* experiences. The results indicate that performance predictions can improve prospective performance and thus may be a valuable strategy for assisting prospective memory.

Keywords: metacognition, intention, pop up, search

Making performance predictions can enhance performance on a subsequent memory test. This finding is established in the domain of retrospective episodic memory that involves the deliberate attempt to remember a previous study episode when prompted to do so (Kelemen & Weaver, 1997; cf. Spellman & Bjork, 1992). In prospective memory—that is, remembering to perform an intention as planned—the question whether performance predictions affect subsequent performance has not yet been answered. The goal of this study is to fill this gap.

A few studies have investigated how accurately people can predict prospective memory performance. In a naturalistic task (i.e., making telephone calls over a 4 week period), Devolder, Brigham, and Pressley (1990) found that younger, but not older adults overestimated prospective memory performance. In a video-based prospective memory task, Knight, Harnett, and Titov (2005) found that patients with traumatic head injury also overestimated their future performance while a control group underestimated performance. Similarly, in a more typical laboratory paradigm with a lexical-decision task as an ongoing activity, Meeks, Hicks, and Marsh (2007) found that participants underestimated their

future performance. They used two different prospective memory tasks; one involved finding animal words and one finding words with the syllable "tor" in them. Predictions correlated moderately with finding animals, but not with finding the syllable words. However, only in the latter condition did response times to the ongoing lexical-decision task correlate with prospective memory performance. Meeks et al. suggested that participants in this condition may have used a compensatory strategy that was not taken into account when the actual prediction was given.

This interpretation would be consistent with the assumption that predicting performance results in a change of task orientation. Making performance predictions may enhance the commitment/ motivation of the participant to perform the prospective memory task. This in turn may also enhance the perceived importance of being successful which may result in a more deliberate search for the prospective memory targets that may then have a cost in the ongoing task (cf., Kliegel, Martin, McDaniel, & Einstein, 2003). However, an alternative hypothesis would be that making performance predictions involves the activation of a mental representation of the anticipated situation and therefore increases the accessibility of the plan in the appropriate situation. This hypothesis is based on similar assumptions that have been put forward to explain the benefit of implementation intentions in terms of an automatized prospective memory response (Gollwitzer, 1999; cf., Chasteen, Park, & Schwartz, 2001; McDaniel & Scullin, 2010; Zimmermann & Meier, 2010).

The question what processes underlie prospective memory performance is highly controversial and is directly linked to a contention between theories. According to one theory, preparatory processes are always required for successful retrieval (cf., Smith, 2003, 2010; Smith, Hunt, McVay, & McConnell, 2007). That is, resources are required to remain in a retrieval mode to monitor the

environment for the presence of appropriate retrieval cues. Accordingly, ongoing task performance may be affected when a prospective memory task has to be accomplished. In this situation, retrieval of the intention may be experienced as the result of a successful search. In contrast, according to a different account, retrieval may take place spontaneously (cf., Einstein et al., 1995, 2005). That is, encountering a prospective memory target may automatically activate the intention and retrieval may be experienced with the intention just "popping into mind." According to a third explanation, retrieval may depend on the situation and may be because of either strategic monitoring or to spontaneous retrieval (cf., multiprocess model; McDaniel & Einstein, 2000; Einstein & McDaniel, 2010).

To follow up on the question whether performance predictions induce a monitoring strategy or whether they make the intention more accessible and thus stimulate the automatic retrieval of an intention, we assessed retrieval experience in the present study. We have shown previously that particular retrieval situations are typically accompanied by particular retrieval experiences, that is, monitoring with a *search* experience and spontaneous retrieval with a *pop up* experience (Meier, Zimmermann, & Perrig, 2006). In that study, we used a complex short-term memory test as an ongoing task that involved the simultaneous processing of line drawings of easy-to-name objects and unrelated nouns. The ongoing task required participants to read each word aloud while memorising the object for later recall. The prospective memory task was to perform an action when a word from the category of musical instruments was displayed. When an associated prime preceded the prospective memory target, performance improved and this improvement was accompanied by a higher number of *pop up* experiences (Experiment 1). Moreover, when participants were informed about the context in which the prospective memory task would occur, performance also improved, but in this condition the improvement was accompanied by a higher number of *search* experiences (Experiment 2).

In the present study we used the same general method to test whether performance predictions improve prospective memory performance and to test whether making performance predictions also affects retrieval experience. Given that we have only used categorical intentions in the previous study, a further goal was to test the impact of a cue specificity manipulation. As there is evidence that with specific cues, retrieval is less resource demanding and occurs automatically, we expected that the performance advantage typically found with specific compared to categorical cues would be accompanied by a higher amount of *pop up* experiences (cf., Ellis & Milne, 1996; Marsh, Hicks, Cook, Hansen, & Pallos, 2003).

Method

Participants and Design

A total of 140 undergraduate students from the University of Bern (124 women and 16 men, $M = 22.3$ years, $SD = 4.4$) participated in this study for course credit. The core part of the experiment consisted of four between-groups conditions that were defined by crossing two performance prediction conditions (performance predictions, no performance predictions) and two cue specificity conditions (categorical, specific). Participants were pseudorandomly assigned to each condition, which ultimately resulted in cell sizes of 34 to 36 participants.

Materials

A total of 72 words and 72 line-drawings were used for the complex STM-task. Four- to eight-letter German nouns with medium frequency and medium to high concreteness were selected from two different sources (Hager & Hasselhorn, 1994; Ruoff, 1981). Line-drawings of easy-to-name objects were taken from the material of Snodgrass and Vanderwart (1980). These stimuli were grouped into four sets of lists. Each set consisted of four lists of word-object pairs. Within each set the lists contained 3-, 4-, 5-, and 6 items (i.e., word-object pairs). Two sets were used for baseline and experimental trials each. In the fourth set of lists, the final 6-item list included the prospective memory target on the fifth position. The name of a musical instrument (i.e., "trumpet") was used as the prospective memory target.

Two distractor tasks were used to create a filled retention interval. The first was a lexical discrimination task, with word material taken from the WST (Schmidt & Metzler, 1992) and the MWT-B (Lehrl, 1989) vocabulary tests. A total of 108 foreign words and 498 nonsense words, which resembled existing foreign words, were selected. The second was a concreteness judgment task for which a total of 400 nouns from different sources were used. Approximately half of these items were abstract nouns, the other half were concrete nouns.

Presentation of stimuli was controlled by E-Prime 1.1 software (Schneider, Eschman, & Zuccolotto, 2002) running on an IBM-compatible computer. Experimental materials were presented in black against a white background in the centre of a 15" VGA-monitor.

Procedure

Participants were tested individually. They were seated in front of a computer and they were informed that the experiment consisted of a variety of tasks. Then the STM task was explained. Participants were told that they would be presented with a series of words and line drawings, which would appear simultaneously on the screen. They were instructed to read each word aloud and memorise the line drawing on each trial. They were also told that after a few pairs of words and line drawings, the instruction to recall the line drawings would appear on the screen. They were instructed to recall all of the line drawings—or as many as possible—in any order. The procedure was the same for all trials of the STM task. For each list of word-object pairs the experimenter started the presentation by pressing the space bar. Each word-object pair was centered vertically and horizontally within a 7 cm × 7 cm square; the word was horizontally centered and was printed in 18-point font. Each word-object pair was presented for 1,500 ms. After each list, the instruction to recall the line-drawings appeared on the screen. An example of a 6-item list is shown in Figure 1.

To ensure that participants had understood the instructions correctly, they were asked to repeat them in their own words. Then, the baseline measure of the STM task consisting of eight trials (i.e., two sets with four lists each) was administered. The experimenter wrote down the responses on a separate answer sheet. Next, the
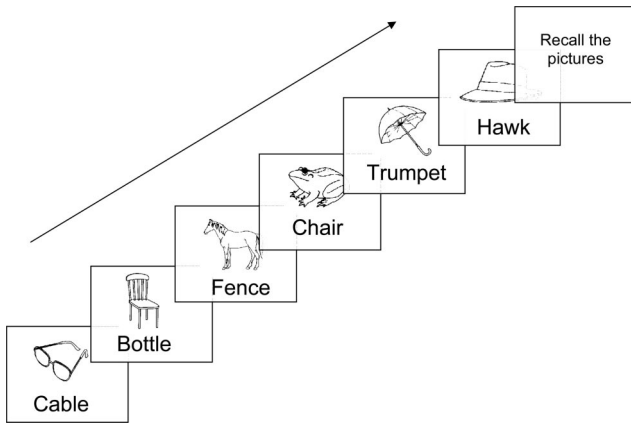
Figure 1. STM list with embedded prospective memory task.

instructions for the prospective memory task were given. In the categorical condition participants were instructed to inform the experimenter *whenever you see a word that is the name of a musical instrument* and to give a brief description of what it looks like. In the specific condition participants were instructed to inform the experimenter *whenever you see the word "trumpet"* and to give a brief description of what it looks like. To ensure that participants understood the instructions they again had to repeat them in their own words.

After the prospective memory instruction, participants in the performance prediction condition were asked to fill out a brief 6-item questionnaire about their expected performance: "Will you remember. . . 1. To perform this task at the appropriate occasion? 2. That you have to do something when the target word appears? 3. What to do when the target word appears? 4. That you have to detect the target word? 5. To perform the correct action when a target word appears? 6. That you must not forget to perform this task?" Each item had to be answered on a 6-point rating scale (1 = not sure I will remember; 6 = very sure I will remember) and an average score was calculated for further analysis.

Next, all participants carried out the lexical discrimination task and the concreteness judgment task. For the lexical discrimination task, a foreign word or nonword was presented on each trial in a random order and participants had to indicate whether or not they thought this was a foreign word. For the concreteness judgment task, a word was presented on each trial in a random order and participants had to rate the word on a 5-point rating-scale between 1 (concrete) and 5 (abstract). The software was programmed in such a way that each of the tasks ended automatically after 2 min. Given that the instructions for each distractor task lasted another half minute, the total retention interval was approximately 5 min. It might be argued that filling out the performance prediction questionnaire lead to a somewhat longer retention interval in that particular condition. However, as filling out the questionnaire took only a very brief time (about a minute) and as—by definition—it was concerned with the intention we do not believe that it contributed to the retention interval.

Then, the ongoing task consisting of the other eight word lists of the STM test was administered. The procedure was identical to the baseline task with one exception: The prospective memory target *trumpet* was embedded in the last list at the fifth position. Pro-

spective memory performance was scored as correct when a participant recognised the prospective memory target any time from the occurrence of the word (i.e., at the fifth position of the last six word-object pair list) until the end of the recall phase of that list (i.e., when the participant stated that he or she did not remember any further object). Participants who carried out the prospective memory task as planned were asked whether they remembered the prospective memory task "because you were continually searching for a musical instrument" (or "the word trumpet," depending on the cue specificity condition) or "because it just popped into your mind." Participants who failed to remember the prospective memory task were asked whether they still remembered that there was a prospective memory task and what it was. All of them were still able to remember. In addition, these participants were also asked when was the last time that they were thinking about the prospective memory task.

Results

An alpha level of 0.05 was used for all statistical tests. Prospective memory performance was measured as the proportion of correct responses. Because only one prospective memory target was administered, the proportion of correct responses was equal to the proportion of successful participants. A graph of the results is presented in Figure 2. To test whether performance predictions and cue specificity affected prospective memory performance, we used a hierarchical log-linear analysis. Prediction condition (yes vs. no), task specificity (specific vs. categorical), and prospective memory performance (success vs. failure) were entered as factors. The number of participants in each combination of the three variables is presented on the left hand side of Table 1. The three-way log-linear analysis produced a final model that retained all effects. The likelihood ratio of this model was $\chi^2(0) = 0$, $p = 1$. This indicated that the highest-order interaction (the prediction × specificity × prospective memory performance interaction) was significant, $\chi^2(1) = 4.52$, $p < .05$. To break down this effect, we used separate chi-square tests on the performance prediction and prospective memory variables separately for the two specificity conditions. For categorical task instructions, there was a significant association between performance predictions and prospective memory task performance, $\chi^2(1) = 5.72$, $p = .02$. In contrast, for specific task instructions, this effect was not significant, $\chi^2(1) =$
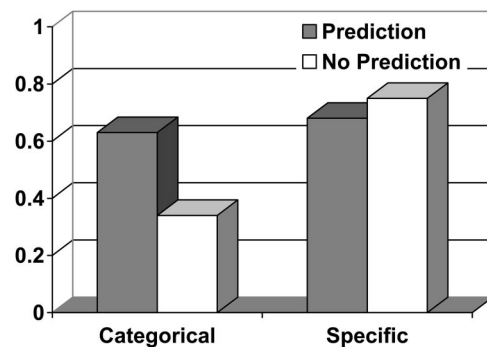

Figure 2. Prospective memory performance as a function of cue specificity and performance prediction.

Table 1

Prospective Memory Performance and Retrieval Experience as a Function of Cue Specificity and Performance Predictions (Number of Participants in Each Condition)

Cue specificity	Prediction	Prospective memory performance		Retrieval experience		
		Missed	Remembered	Pop up	Search	N
Categorical	Yes	13	22	5	17	35
	No	23	12	6	6	35
Specific	Yes	11	23	14	9	34
	No	9	27	24	3	36

.46, $p = .50$. Thus, performance predictions improved prospective memory performance, but only for the categorical intention.

Next, we investigated whether the experimental manipulations affected retrieval experience. The number of participants with *pop up* and *search* experiences are presented on the right hand side of Table 1, separately for each experimental condition. To test whether performance predictions and cue specificity affected retrieval experience we conducted another hierarchical log-linear analysis. Prediction condition (yes vs. no), task specificity (specific vs. categorical), and retrieval experience (pop up vs. search) were entered as factors. While the elimination of the three-way log-linear model was not significant, $\chi^2(1) = .15$, $p = .69$, the elimination of the two-way model was, $\chi^2(3) = 26.99$, $p < .01$. This latter model produced a reasonable fit of the empirical data with a likelihood ratio of $\chi^2(2) = .27$, $p = .88$. The final model retained both the prediction × retrieval experience interaction, with $\chi^2(1) = 10.68$, $p < .01$, and the specificity × retrieval experience interaction, $\chi^2(1) = 16.19$, $p < .01$. Therefore, performance prediction and cue specificity affected retrieval experience independently.

To test exactly how pop up and search responses were affected we conducted further χ^2 tests separately for the performance prediction and the cue specificity variables. For performance predictions, 30 participants (out of 71) who made predictions and 19 (out of 69) who did not make predictions reported a *pop up* experience. These proportions did not differ statistically, $\chi^2(1) = 3.32$, $p = .07$. Moreover, 9 participants (out of 71) who made performance predictions and 26 (out of 69) who did not make performance predictions reported a *search* experience. These proportions were different, $\chi^2(1) = 11.67$, $p < .01$. Thus, performance predictions did not affect the number of *pop up* experiences, but they increased the number of *search* experiences.

For cue specificity, 38 participants (out of 70) with a categorical intention and 11 (out of 70) with a specific intention reported a *pop up* experience. These proportions were statistically different, $\chi^2(1) = 7.61$, $p < .01$. Moreover, 12 participants (out of 70) with a categorical intention and 23 (out of 70) with a specific intention reported a *search* experience. These proportions were also statistically significant, $\chi^2(1) = 4.61$, $p = .03$. Therefore, specific intentions increased the number of *pop up* experiences while categorical intentions increased the number of *search* experiences.

Next, we analysed whether a performance cost occurred in the ongoing STM task. STM performance was calculated as the number of correctly recalled items for the lists presented during base-

line and ongoing task separately. To allow for a fair statistical comparison, the final 6-item list of word-object pairs (i.e., the list that contained the prospective memory target in the ongoing task condition) was not included in both baseline and ongoing task scores. The total number of recalled objects for baseline and ongoing task STM-lists, respectively, is presented separately for experimental conditions and retrieval experience in Table 2. To test whether the experimental conditions and retrieval experience had an influence on STM-performance, we conducted two separate ANOVAs.[1]

First, a 3-factorial ANOVA with predictions (yes vs. no) and cue specificity (specific vs. categorical) as between-subjects factors and experimental phase (baseline phase vs. ongoing task) as a within-subjects factor resulted in a main effect of experimental phase, $F(1, 136) = 20.78$, $p < .01$, $MSe = 4.41$. No other effect was significant (all $Fs < 1.21$, $p > .05$). Thus, adding a prospective memory task seems to have resulted in a performance decrement in the ongoing task, but neither the performance prediction manipulation nor the variation of cue specificity affected STM-performance.

Second, a 2-factorial ANOVA with retrieval experience (missed vs. pop up vs. search) as a between-subjects factor and experimental phase (baseline phase vs. ongoing task) as within-subjects factor resulted in a main effect of test type, $F(1, 137) = 27.24$, $p < .01$, $MSe = 4.41$ and a significant interaction, $F(2, 137) = 4.53$, $p < .05$, $MSe = 4.41$. To follow up this interaction, we calculated the difference between baseline and ongoing task STM performance, that is, the cost associated with performing the prospective memory task. This score was $M = .48$ for missed, $M = 1.06$ for *pop up*, and $M = 2.34$ for *search*. A one-way ANOVA followed by LSD post hoc tests showed that the significant interaction pertained to the *search* condition compared to each of the other two conditions ($ps < .05$). In contrast, the difference between *pop up* and missed was not significant ($ps > .05$).

Finally, we also assessed the relation between performance prediction scores and actual performance for each cue specificity condition. By design, only participants in the performance prediction condition were considered. The mean prediction ratings of participants with a categorical intention were $M = 3.54$ ($SD = .51$) for those who failed, $M = 4.07$ ($SD = .61$) for those with a *pop up* experience and $M = 4.07$ ($SD = .49$) for those with a *search* experience (higher ratings indicate more confidence in remembering to perform the task). The mean ratings of participants with a specific intention were $M = 4.05$ ($SD = 1.03$) for those who failed, $M = 3.99$ ($SD = .61$) for those with a *pop up* experience and $M = 3.57$ ($SD = .74$) for those with a *search* experience. A 2-factorial ANOVA with prospective memory performance (missed, *pop up*, *search*) and cue specificity (categorical, specific) as between-subjects factors and the performance prediction score as the dependent variable, revealed a significant interaction $F(2, 63) = 3.36$, $p < .05$, $MSe = 0.096$. Separate ANOVAs for categorical and specific intentions followed by LSD post hoc tests revealed

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[1] We present two separate ANOVAs rather than one 4-factorial ANOVA with performance predictions, cue specificity, retrieval experience, and experimental phase as factors because breaking down across experimental conditions *and* retrieval experience would have resulted in several cells with very few observations (cf. Table 1).

Table 2

STM-Performance (Total Number of Recalled Line-Drawings Out of 30) as a Function of Experimental Phase (Baseline vs. Ongoing Task) Separately for Experimental Conditions and Type of Retrieval Experience

| | Prediction | Baseline | SE | Experimental phase | |
				Ongoing task	SE
Experimental condition					
Cue specificity					
Categorical	Yes	19.60	0.61	18.31	0.68
	No	20.20	0.51	19.26	0.52
Specific	Yes	19.62	0.53	18.82	0.63
	No	20.14	0.40	18.58	0.43
Retrieval experience					
Missed		19.73	0.44	19.25	0.45
Pop up		19.84	0.36	18.78	0.50
Search		20.23	0.57	17.89	0.52

that the source of this interaction was a significant difference in performance prediction ratings for the categorical intention between participants who reported a *search* experience and those who did not remember ($ps < .05$). In contrast, there was no significant relation between performance predictions and performance for the specific intention (all $ps > .05$).

Discussion

The first goal of this study was to test whether performance predictions improve prospective memory performance. The results showed that this was the case for a categorical but not for a specific intention. The second goal was to test whether making performance predictions affects retrieval experience. The results showed that in fact performance predictions increased the likelihood that successful remembering was accompanied by a *search* experience. The third goal was to replicate the effect of cue specificity on prospective memory performance and to test whether cue specificity would increase the likelihood of automatic retrieval as indexed by a higher amount of *pop up* experiences. The results showed the expected performance benefit for a specific intention under standard prospective memory conditions. This effect was compensated for when participants gave performance predictions. Nevertheless, retrieval of the specific intention was accompanied by a larger number of *pop up* experiences.

Performance in the STM-task seemed to be affected by the addition of a prospective memory task. However, no differential effect was found across the four experimental conditions. In contrast, when we tested the relative effect of retrieval experience on STM-performance, the results indicated higher monitoring costs for participants who reported a *search* experience compared to those with a *pop up* experience and also compared to those who missed the prospective memory task. This indicates that retrieval experience complements the assessment of performance costs.

We also tested whether performance predictions were related to subsequent performance. The results showed that this was the case for the categorical but not for the specific intention. This supports

the hypothesis that with a categorical intention, making performance predictions triggers a compensatory monitoring strategy.

Together, the results indicate that making performance predictions may be an efficient strategy to enhance prospective memory performance, particularly for difficult intentions. Theoretically different explanations may be put forward. Thinking about the potential success may lead to a more realistic appraisal of task difficulty and to more efficient retrieval strategies. For categorical intentions, it may involve the generation of category elements that are potential prospective memory target events later. This may be similar to successful retrieval attempts thought to be responsible for the positive effects of delayed performance predictions in retrospective memory (e.g., Kelemen & Weaver, 1997). Making performance predictions in prospective memory may strengthen the association between potential cues and the intention as well as the expected retrieval context. More generally speaking, performance predictions may induce processes during planning that enhance the overlap with those required during retrieval (i.e., sequential overlap; cf. Meier & Graf, 2000). Moreover, making performance predictions is directly related to episodic future thinking (Atance & O'Neill, 2000; Schacter & Addis, 2007; cf., Brewer & Marsh, 2010). A recent study has shown that simulating the performance of a prospective memory task had a facilitating effect on prospective memory performance and furthermore, episodic future thinking was effective in eliminating the detrimental effect of administering an acute dose of alcohol (Paraskevaides, Morgan, Leitz, Bisby, Rendell, & Curran, 2010).

However, despite the obvious relationship between performance predictions and automatic processes, it seems that in the experimental situation tested here these processes were not responsible for the effect of performance predictions for the categorical intention. Rather, performance predictions increased the perceived importance of the intention and resulted in increased monitoring. In laboratory experiments that are typically of short duration, a monitoring strategy may be highly functional (i.e., the maintenance of preparatory attentional processes). Thus, in the present study, monitoring may have overridden reliance on more automatic processes. In contrast, in everyday life, maintaining a monitoring strategy over a long period of time may be much less functional. Even so, it may still be possible in everyday life, for performance predictions to support later retrieval, even without the maintenance of preparatory attentional search processes. Therefore, future research is necessary to elucidate the effectiveness of performance predictions in everyday life settings.

Theoretically, our results are compatible with the multiprocess framework by Einstein, McDaniel, and colleagues as we found evidence for automatic retrieval that was accompanied by a *pop up* experience without a cost in the ongoing task. However, we have used a rather demanding ongoing task while most of the research carried out to distinguish between competing theories is based on rather simple ongoing tasks, such as lexical decisions. Therefore, a different experimental setup with an easier ongoing task may lead to different results and a different distribution of retrieval experiences.

Importantly, our results demonstrate again that subjective reports can add valuable insights into the processes involved during prospective memory retrieval, thus extending previous research (Meier et al., 2006). We would argue that these reports are very informative about prospective memory retrieval and therefore ide-

ally complement the insight from analysing performance costs in the ongoing task (i.e., the difference between a baseline task and the ongoing task with the embedded prospective memory task). Retrieval experience is directly associated with the processes involved when performing the prospective memory task. In contrast, the analysis of performance costs is linked rather to a general task orientation (although some studies have focused on the costs involved immediately before the occurrence of the prospective memory target event, cf., Loft & Yeo, 2007; Scullin, McDaniel, & Einstein, 2010; West, Krompinger, & Bowry, 2005). This conceptual difference between retrieval experience and monitoring costs may also explain why the performance prediction conditions were not associated with more monitoring costs although overall, performance predictions were associated with more search experiences.

It can be argued that retrieval experience is informative about the involvement of preparatory attentional processes, but not immediately related to the prospective memory retrieval process. As many processes operate outside of conscious awareness, retrieval experience may be biased by other variables that may covary with retrieval experience. Nevertheless, our results show predictable and consistent results. Together with results from other domains— for example, the large body of research using the "remember-know" paradigm—we conclude that assessing retrieval experience provides informative insight into human information processing (cf., Dunn, 2008; Wixted, 2007).

A disadvantage of this approach is that only a few prospective memory targets can be used because repeatedly assessing prospective memory retrieval experience may alter the task orientation, most likely leading to more monitoring (cf., Cohen, Jaudas, & Gollwitzer, 2008). Using only a few target events affects the reliability of the measure and thus makes it less suitable for measuring individual differences (Uttl, 2008). In general, this is a serious concern when abilities are under investigation (e.g., in aging research) and when results from tests with differential reliabilities are compared (Meier & Perrig, 2000). However, in experimental prospective memory research, when the impact of one or more independent variable(s) is tested on the same measure (i.e., with comparable reliability), using a single target event may be the most ecological approach. In everyday life, prospective memory tasks are usually one-off tasks that do not present multiple cues or multiple instances to fulfill the task. Notably, the typical one-off characteristic of intentions has been used as a strong example against associationism nearly a century ago. In a quite famous example, Lewin (1928) noted that according to such an account posting a letter as planned should lead to a stronger association between the letter and the mailbox and thus the thought of having to post a letter when encountering another mailbox should have been reinforced. However, Lewin also noted that in real life the contrary happening usually occurs (i.e., the activation of the intention is reduced).

To summarise, our results indicate that performance predictions may be an efficient strategy to improve prospective performance. This approach may be highly relevant for everyday life and future studies should test the ecological validity of this promising experimental result. Our results also indicate that assessing retrieval experience provides important insights into how participants remember a prospective memory task.

Résumé

En mémoire rétrospective, des données indiquent que les prédictions de la performance améliorent la performance aux tests de mémoire subséquents. En mémoire prospective, l'influence des jugements métacognitifs n'a pas été étudiée systématiquement. Dans la présente étude, 140 étudiants de premier cycle universitaire ont effectué une tâche de mémoire à court terme complexe incluant une tâche de mémoire prospective. La moitié d'entre eux ont effectué des prédictions quant à leur performance après avoir reçu les instructions pour la tâche de mémoire. De plus, la spécificité de la tâche de mémoire prospective a été manipulée en demandant aux participants soit d'effectuer une action lorsqu'un des mots était dans la catégorie des instruments de musique, soit de répondre lorsque le mot « trompette » était présenté. Les résultats ont montré que les prédictions de la performance amélioraient la performance, mais seulement pour la tâche catégorielle. Des analyses additionnelles du processus de récupération ont montré que les prédictions de la performance menaient à une augmentation des épisodes de recherche, alors que la spécificité de l'indice était accompagnée par une augmentation des expériences de récupération spontanée. Les résultats indiquent que les prédictions de la performance peuvent améliorer la performance prospective et peuvent ainsi représenter une stratégie profitable pour seconder la mémoire prospective.

Mots-clés : métacognition, intention, récupération spontanée, recherche

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