Responsible Remembering: How Metacognition Impacts Adaptive Selective Memory

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We are often exposed to far more information than can be remembered. For example, students are often overwhelmed when studying for an exam, the internet provides endless amounts of information, and distracted people may forget where they parked their car or where they put their cell phone. However, we can overcome these challenges by prioritizing attention towards high-value information to maximize the likelihood that this information will be remembered (Ariel, Dunlosky, & Bailey, 2009; Castel, McGillivray, & Friedman, 2012). One’s knowledge about these selective memory processes may be a form of metamemory that allows for the efficient use of memory in a variety of contexts.

Judgments of Learning and Failures of Fluency

Metacognitive measures often involve monitoring and making judgments regarding one’s learning. Judgments of learning (JOLs) are metacognitive self-assessments of how likely one is to later remember information on a test (Rhodes, 2016). These judgments are often related to the difficulty of initial learning and later recall (e.g., Hertzog & Dunlosky, 2011) and can involve the effortful and strategic incorporation of multiple cues (e.g., Undorf & Bröder, 2019). However, there are instances where JOLs are based on erroneous beliefs about memory and ease of processing that can result in a weak relationship between metamemory and performance (Besken & Mulligan, 2013; Kornell, Rhodes, Castel, & Tauber, 2011; Mueller & Dunlosky, 2016). This can lead to the illusion that more easily perceived items (e.g., words in a large font versus a small font) are more likely to be remembered (Rhodes & Castel, 2008).

Accurately predicting recall is a sign of good metacognition but people often have difficulty anticipating future forgetting (Koriat, Bjork, Sheffer, & Bar, 2004; Kornell et al., 2011). Most of us have had experiences where we expected to remember important information but forgot it at an inopportune time and had to deal with the consequences. When we forget
names, to take medication, or to pick up a child from school, there are clear consequences. In some extreme cases, the consequences for inaccurate metacognition can be dire and disastrous, such as distracted parents forgetting infants in the back seats of hot parked cars (Fantz, 2015)—something that seems unfathomable to many who have not experienced it.

**Responsible Remembering**

We introduce the notion of *responsible remembering* as it captures how our memory allows for the strategic allocation of attention toward important information to avoid undesirable outcomes, and even tragic consequences. When JOLs fail to accurately indicate recall performance (poor resolution), participants’ allocation of cognitive resources may be ineffectively used leading to insufficient learning and failure to recall the information on a subsequent test (e.g., Hargis & Castel, 2019; Rhodes & Castel, 2009). Thus, in circumstances with negative consequences for poor metacognition and memory retrieval, people should engage in responsible remembering to prioritize important information and increase resolution by remembering the things they expect to remember and also be aware of what is less likely to be remembered.

To engage reward-based learning and consequences for misguided metacognition in a memory task, McGillivray and Castel (2011) had participants study words paired with point values. If participants “bet” on and later remembered the word, they would receive the points but would lose the points if they forgot the word, thus there were negative consequences for inaccurate metacognition. Results indicated that metacognition and learning outcomes were enhanced in both younger and older learners, suggesting that failing to consider the consequences of inaccurate metacognition and forgetting could explain many instances of faulty JOLs.
Thus, people may learn to be responsible rememberers when considering the costs and benefits of remembering information of varying importance.

Older Adults As Responsible Rememberers?

People sometimes feel like they have forgotten something and these feelings of forgetting are often related to one’s memory failures (e.g., Halamish, McGillivray, & Castel, 2011). This awareness of how much/often one forgets may lead to older adults to engage in responsible remembering. For example, when remembering allergy information or information about medications, older adults may be responsible in remembering by focusing only on what is most critical, perhaps to compensate for declines in memory (Friedman, McGillivray, Murayama, & Castel, 2015; Hargis & Castel, 2018; Middlebrooks, McGillivray, Murayama, & Castel, 2016). With increased task experience, older adults may engage in responsible remembering by systematically shifting their attention towards items of importance and also updating this information. Additionally, older adults’ responsible remembering may reflect a selective and strategic information search in the context of decision making—searching less exhaustively or using fewer pieces of information but also focusing on the more diagnostic information (e.g., Mata, Schooler, & Rieskamp, 2007; Queen, Hess, Ennis, Dowd, & Grün, 2012).

Summary

Inaccurate metacognitive judgments can lead to illusions of learning but awareness of the consequences of forgetting may inform metacognition. Responsible remembering captures how the strategic allocation of attention toward important information can help avoid undesirable outcomes and unexpected forgetting by enhancing metacognition and learning outcomes in both younger and older learners. Learners of all ages should strive to be responsible rememberers as
accumulated memory challenges and awareness of forgetting over the lifespan may enhance metacognition.
References


