

Optimizing Memory Output: Digital Flashcards for Active Recall Testing and Idealized Spaced Repetition

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Active recall testing (ART) and spaced repetition (SR) are among the most underestimated learning / teaching methods. ART enhances learning more than repeated additional study of the material (re-reading, re-hearing, re-viewing) [1]. One of the most popular ART methods are flashcards. However, it is very difficult to keep track of your paper flashcards, especially if you have hundreds or thousands of them. A clear indication for digitization.

Furthermore, we know that there exists an ideal moment to recall information you have learned [2]. If you work on it too early, you'll be wasting time. If you work on it too late, you will forget it and will waste even more time relearning it. If you would follow the ideal spacing between sessions you essentially eliminate the rate of forgetting and end up with remembering forever. Good luck for us. Piotr A. Wozniak et al. developed a mathematical equation for the ideal SR, thus combating the forgetting curve [3]. Even more luck for us: *there's an app for that!*

In this workshop we learn how to implement ART and the ideal SR considering Wozniak's formula using digital flashcards (<https://apps.ankiweb.net>).

Learning objectives:

At the end of the workshop:

- participants will appreciate and use active recall testing (ART) and spaced repetition (SR) for life long teaching and learning
- participants will understand why digital flashcards are superior to paper flashcards
- participants will have used and explored <https://apps.ankiweb.net>

Agenda:

- Introduction
- Impuls: The evidence and cognitive neurobiology of how and why ART and SR work
- Exercise: exploring the many possibilities of <https://apps.ankiweb.net>
- Discussion: Educational settings, possibilities and risks

Target Audience:

Anyone interested in improving life long learning. Standard workshop language will be German or English on demand.

Suggested Preparation:

Preparation is generally not necessary. It can be very helpful, though.

In this workshop we use my favorite flashcard tool <https://apps.ankiweb.net>. It even comes with cloud synchronization. Learning works on all devices. Preparation of flashcards is best with the downloadable computer desktop version. Please install the program and see for yourself the possibilities in advance.

Referenzen

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2. Cepeda NJ, Vul E, Rohrer D, Wixted JT, Pashler H. Spacing Effects in Learning: A Temporal Ridgeline of Optimal Retention. *Psychol Sci.* 2008; 19:1095-1102. <https://doi.org/10.1111/j.1467-9280.2008.02209.x>
3. Wozniak PA, Gorzelanczyk EJ, Murakowski JA. Two components of long-term memory. *Acta Neurobiol Exp.* 1995; 55:301-305. <https://www.ane.pl/pdf/5535.pdf>