Participants and design

Undergraduate and graduate phontecis and psychology students (80.8% female, median age = 21, IQR = 3, range = [18, 31]) from the University of Zagreb participated in the study in exchange for course credit. Participants were randomly assigned to one of five groups which differed in type of activity between parts of the text and in whether they are to receive feedback on their intermittent test achievement or not (n_{reread} = 40, $n_{content,feed}$ = 41, $n_{content,nofeed}$ = 42, $n_{general,feed}$ = 40, $n_{general,nofeed}$ = 40).

Materials and procedure

Materials

Participants read a text on the evolution, ecological and biological characteristics of weeds. The text was taken from a chapter in a Croatian university-level textbook. Some sentences and passages were slightly modified, so as to avoid odd language constructions; Latin plant names were translated to Croatian, and some plants were removed from the text to make it less difficult for the target participant population. The text was divided into three parts of 874, 754, and 835 words, respectively. Additionaly, there was a practice text taken from the same chapter, but unrelated to any of the other three parts of the text (768 words).

Forty-four content related questions with four response options were generated from the presented texts. Four questions were presented after the practice text, ten after each of the first two parts (only to the participatns in the content related test condition), and twenty after the third part of the text (to all participants). Starting from the second ten question set, the distractor options were chosen so that (a) two distractors were plausible, but unrelated to the text, and (b) one distractor was a term or concept mentioned in the previous part of the text — this was considered to be the "intrusive" option.

An example question is:

> Compared to younger weeds, older weeds:
> (a) have a stronger allelopathic effect
> (b) contain more phytotoxins
> (c) **contain less inhibitory matter**
> (d) *show greater plasticity.*

Option (c) is the correct answer, and option (d) is the intrusive distractor.

Further, twenty general knowledge questions were generated. These questions were presented to participants in the general knowledge test condition, after the first two parts of the text. An example general knowledge question is:

> The name of Kurt Vonnegut's famous anti-war novel is:
> (a) **Slaughterhouse Five**

(b) All Quiet on the Western Front
(c) A Farewell to Arms
(d) Journey to the End of the Night.

At the beginning of the session, participants' ID, age and sex information was collected. At the end of the session, participants were asked to estimate how much of each text they have read. The texts and questions were presented on a personal computer, in an application constructed using the open source `oTree` framework (version 2.0, Chen, Schonger, & Wickens, 2016) for the Python programming language (version 3.7.1, October 20, 2018).

Procedure

Participants were first given a brief introduction to the study, and were encouraged to carefully read and follow the written instructions. Then, they were led to one of six compartments containing a computer, which was running a fullscreen instance of the `oTree` application with a randomly chosen experimental condition. There, participants read the informed consent form and, in case there were no questions, started the experiment.

After entering their personal information, participants were presented with instructions for their first task, which was to read the practice text at a speed that comes naturally to them. They were to click a button at the bottom of the text when they have finished reading it. Unbeknownst to the participants, the time they took to read the practice text was recorded, and used as the basis for determining the reading time limits for the remaining texts. Results of a pilot study using different participant have shown that most participants found 4 minutes to be too short, and 9 minute too long, so we have set the lowest possible limit to 5 minutes, and the longest to 8 mnutes.

References

Chen, D. L., Schonger, M., & Wickens, C. (2016). oTree—An open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance*, *9*, 88–97.