

I. WATKINS, B. XIE, R. DEVANARAYANAN, L. KANAL. **Older adults, computer literacy, and web-based intelligent tutoring.** *Gerontechnology* 2012;11(2):207; doi: 10.4017/gt.2012.11.02.538.00 **Purpose** Prior research indicates web-based intelligent tutoring can improve learning outcomes by adapting learning content to learners' abilities<sup>1</sup>. However, it remains unclear how tutorial formats may influence older adults' learning of computer technology<sup>2</sup>. Our experimental study aimed to address this gap. **Method** We tested the effectiveness of a computer literacy tutorial for older adults in three formats: (i) paper-based, which included 12 single-sided black and white pages presenting the terms, along with illustrations; (ii) Web-based free-form that included a menu on the left side of the screen allowing participants to control which term they could view; and (iii) adaptive, which sequenced content based on learners' knowledge level and provided immediate feedback on learning. A total of 105 older adults aged between 56-86 (M=66.8, SD=6.3) were randomly assigned to one of the three experimental conditions. Each session lasted 2 hours. Computer literacy knowledge was tested before and after participants completed the tutorial. Cognitive ability, attitude towards the intervention, computer and internet use frequency, and demographics were measured to serve as controls. **Results & Discussion** Overall, knowledge improved significantly from pre- to post-testing:  $t(89)=-6.70$ ;  $p<0.001$ . Repeated measures analysis found a significant difference in knowledge improvement among the three formats:  $F(2,85)=3.45$ ;  $p=0.035$ . Post hoc tests revealed that the adaptive format was significantly more effective than the paper-based format in knowledge acquisition ( $p=0.027$ ); no significant difference was found between the adaptive and free-form formats or between the free-form and paper-based formats. A likely reason for the superiority of the adaptive format over the paper-based format is that the adaptive format provides levels of detail or information more suitable to the learner and thus reduces cognitive load<sup>3</sup>. Future research may investigate how to optimize content sequencing, detail levels, and the number and difficulty of practice questions for older adults learning computer literacy.

## References

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