Learning with Interruptions: Representing Past Computer Activity for Recall of Learned Procedures

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With the increasing amount of everyday demands brings an increasing number of interruptions [Hollan12]. While interruptions provide timely information, they degrade cognitive context by redirecting attention and overwriting working memory, making it hard to resume complex activities later. Thus systems that restore work context must be concerned not only with restoring computing resources, but also with helping users remember their motivations and goals [Cagniano09]. Currently, we are interested in the differences between review methods of previous work activity in computer-mediated tasks. More specifically, previous work activity of an online learner.

Online classroom learning is an accumulation of instances that exemplify working through tasks that require a number of interruptions before completion. Commonly classroom lectures are held every other day whereas online learning only requires only a weekly re-visit. Both online and in-classroom courses range from a few weeks to a few months in duration. This notion of long-term learning with interruptions is what motivated this study. We became interested in what review methods best assist students in getting back in a ‘learning state of mind’ by reminding them of previous content and motivations. Exploration seeks advantages and disadvantages between both presentation systems (images v video) and content (only educational content v entire personal work history). This research will help us establish fundamentals as to what makes a good review system for the increasing population of online learners.

In this study participants are asked to learn 3 sets of procedural computer-based tasks. 48 hours later participants are asked to re-perform the 3 tasks separately using one of the various review methods. We are interested in looking at the differences between participants who reviewed with just information taken from the tutorial (original content) as compared to participants who were able to view their previous work activity (personal). We hypothesize that reviewing your own activity bring back more relevant, contextual memory then just reviewing course material from the tutorial alone. And if so, do static images or video make a better presentation for reviewing? All data has been collected and results / analysis are in currently in progress. Results will consist of quantitative measures including 1) measurement of completion time between different review styles 2) measurement of completion time of between different content 3) measurement of overall success (were subjects able to complete the task) and 4) of those able to complete the task were they able to do so based off the information provided from the original tutorials (or was it completed in another manner). Other qualitative data collected from contextual interviews will be incorporated into analysis and general discussion. These results will give us insight into what style of review prompts the fastest recollection and what context is needed to help prompt relevant contextual memory. These findings will help shape future studies that provide more insight as to how to minimize impact of breaks and reestablish the context of long interrupted activities such as an online learning course.