Department of Education and Psychology

The Open University of Israel

The impact of hypervideo on self-directed vocational video-based e-training

By: **Ben Fhala**

Advisor: **Dr. Ina Blau**

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Abstract

Narrated screen recordings (screencasts) introduced in 2005, have grown in popularity as a vocational educational tool and created a significant opportunity in enhancing distance learning and training. Yet, they still face cognitive and educational challenges that relate to videos in general. Hypervideo can provide means to overcome these challenges, offering new possibilities of creating scaffold-based interaction to enhance reflective processes. There is a shortage of non-corporate independent research on the topic of design of hypervideo for effective e-learning and e-training (Cattaneo, Nguyen & Aprea, 2016). Using a field experiment, we aim to explore two distinctive design approaches to hypervideo by changing the level of flow of within hypervideo experiences. Our hypothesis is that deeply connected scaffolds within video will outperform e-training with scaffolds that break the video flow. To test this hypothesis we will expose students of vocational e-training to a two level of connectivity between scaffold and video (video interruptions and integrated experiences). The results of this study will enhance understanding of the effects hypervideo flow has on student activity, performance and learning experiences.

Experience in Vocational Education:

As the lead researcher on 02GEEK.com with a background in programing and a Masters in Educational Technology and Learning Systems I am working on the topic of interactive video and hypervideo research and development to enhance e-learning and e-training. 02GEEK.com is an online video and screencast-based vocational programing and e-marketing training site. Most of the research conducted over the last few years in the field have focused on users' experiences in MOOC courses (Breslow et al., 2013; Liyanagunawardena, Adams, & Williams, 2013; Gaševic, Kovanovic., Joksimovic, & Siemens, 2014). Our approach is to decouple the research findings into any self-directed learning hypervideo based e-training environment.

Background:

Video and screencasts has been embraced as an educational tool by both business and educational institutions (Cisco, 2011). The reduction of costs to produce video based e-training (Copley, 2007) has corresponded to a massive growth in online video distribution (Morris & Chikwa, 2014; Longstaf, 2014). Video based training has comparable performance outcomes to traditional learning (Glance, Forsey & Riley, 2013) and can increase student participation.

Yet, traditional video based learning environments don't address the cognitive needs of the learner. Learning through videos fosters a passive watching experience (Petan, Mocofan & Vasiu, 2014) and practice shows that it is hard to retain attention of students in long videos (Kahn, 2012). Self-reflection prevalent in video without scaffolding can creates cognitive disequilibrium in the process of accommodating new skills (Roth & Radford, 2010).

The use of hypervideo can lead to a substantial improvement in the educational processes and outcomes (Cisco, 2012; Zhang, Zhou, Briggs & Nunamaker, 2006; Delen, Liew & Willson, 2014), as well as reduce training time and costs (Martin & Collins, 1991; Cisco, 2011). However, not every type of scaffolding is equally effective (Delen, Liew & Willson, 2014).

Current study:

This study is a field experiment on the effects of e-scaffolding on hypervideo as a way to advance students within their Zone of Proximal Development (Vygotsky, 1978) and promote Self-Directed Learning (SDL). Self-directed learning (SDL) is present when individuals diagnose their learning needs, strategies and evaluate the outcome of their learning (Caravello, Jiménez, Kahl, Brachio & Morote, 2015; Knowles, 1989). The Zone of Proximal Development concept (ZPD; Vygotsky, 1980) suggests that cognitive development depends on interactions with a teacher or more advanced peers that enhance the student's capabilities beyond current independent capabilities (Roth & Radford, 2010). Recently digital scaffolding has become a common strategy used instead of inter-personal interactions to enhance students SDL (Barzilai

& Blau, 2014 ; Fani & Ghaemi, 2011 ; Lantolf , 2004) by acting as a guild within a students ZDP. However, digital scaffolding can harm the experience of flow in SDL. Our study aims to examine whether the level of flow between the video and scaffolds enhances self-directed hypervideo learning and improves learner's activity in the environment, performance and learning experience.

Methodology:

The participants of the study are students enrolled in e-training on 02geek.com. 02GEEK is an online vocational video-based training platform. Students in the study are randomly assigned into two experimental conditions where one group will be exposed to video breaks question based interactive scaffolds with integrated quiz questions where the second group will be exposed to the same questions integrated into the hypervideo, without breaking out of the video flow. The participants' activity levels are measured by learning analytics, performance is assisted by a content-related task and learning experience are reported via flow and perceived learning questionnaires.

ZPD and SDL in the context of hypervideo-based training are under-researched topics. The research findings will expand our understanding on the effects scaffold flow has on hypervideo learning experiences. In addition, the proposed study has an important educational contribution. The research findings will triangulate student performance and self-report with learning analytics of their actual online behavior that can help improve the design of hypervideo and screencast-based learning environments to promote improved SDL and enhance existing hypervideo environments for e-learning and e-training.

My contribution to workshop:

As a developer that specializes in interactive hypervideo, with an academic background in the field and an owner of a vocational video-based e-learning and e-training environment with over 10,000 students, I can help share incites both from a technical standpoint, theoretical standpoint and practical standpoint. Through my research and background I can contribute to and learn form the workshop about effective design of hypervideo to enhance vocational e-learning and e-training.

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