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Kung Wong Lau, Pui Yuen Lee, Min Ying He,

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360 degree immersive videos: a way to improve organizational learning practices

Kung Wong Lau, Pui Yuen Lee and Min Ying He

1. Introduction

Situated learning approaches with the adoption of virtual reality (VR) are believed to improve organizational learning through dramatic progress in distributed learning and training environments and a growing market of various innovative learning systems. As documented in relevant studies (Lau, 2012), enhancing the experience and learning achievements of employees is always in the spotlight. Inspired by such phenomenon and studies, this empirical study has involved employees in an advanced situated-training program on Omni-channel retailing. Using designed 360-degree videos (with Oculus system), the program aimed to develop their professional knowledge and problem-solving skills.

Situated learning with panorama and an interactive mode is the main focus in this training program. A set of six tailored 360-degree videos (360Vs), a video-recording technique allowing employees to experience real-world view in every direction, was developed. The aim was to enhance their learning achievements on the Omni-channel retailing method and knowledge, including inventory management, customer experience and loyalty, productive technology investments, and customer retention. Each designed 360V lasted for 10 min and could be watched through 360 gears and stereoscope-style headsets, immersing employees in real store practices and situated-training activities. In addition, a quasi-experimental research method was used to investigate employees' learning achievements.

2. Experiment design

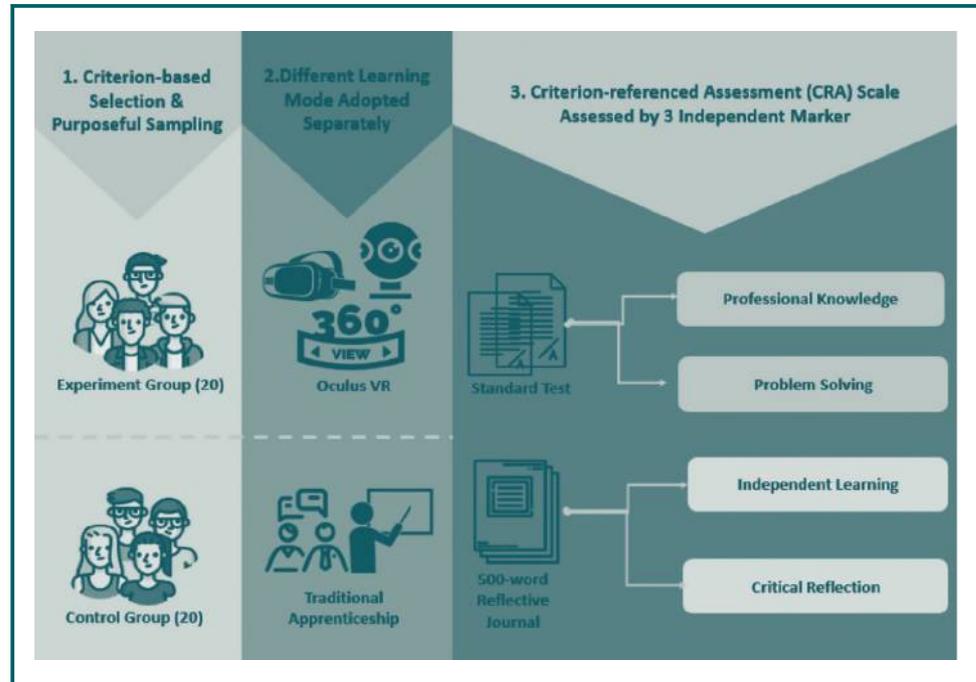
A total of 40 participants (employees experienced with retailing practices) were involved, chosen by criterion-based selection and purposeful sampling and divided equally into an experimental group and a control group (Figure 1). The immersive learning mode with 360Vs (using Oculus VR) was used with the experimental group, whereas the control group applied traditional apprenticeship in-house training. Both the training content and assignment remained the same in the two groups.

After 12 teaching h in four weeks, a criterion-referenced assessment scale was chosen to examine their learning progress from four perspectives:

1. professional knowledge (PK);
2. problem-solving (PS);
3. independent learning (IL); and
4. critical reflection (CR).

Kung Wong Lau and Pui Yuen Lee are both Assistant Professors at The Hong Kong Polytechnic University, Kowloon, Hong Kong. Min Ying He is based at The Hong Kong Polytechnic University, Kowloon, Hong Kong.

Figure 1 Experiment design



The assessment was divided into two parts: a professional test and a 500-word reflective journal on self-evaluation and study insight. The professional test examined the participants' achievement on the first two key indicators, PK and PS, and IL and CR were assessed by the reflective journals.

The professional test contained two sets of questions: first, 30 multiple-choice questions designed to assess learners' professional knowledge on understanding theories and terminology, and, second, three short questions on real-world practices designed to assess learners' problem-solving skills on applying theories to situations. To ensure the reliability of the short questions marking, three independent markers were appointed to mark all participants' tests in both the experiment and control groups.

The reflective journal aimed to assess the learners' independent learning process and their critical reflection on their achievements. Learners (in both groups) were asked to write 500 words based on two key open questions:

Q1. What is the most important idea that was generated in this study?

Q2. How to apply the theories and practices on improving your routine?

A rigorous assessment was graded by a five-level scale, from:

1. Not satisfactory (0-20 per cent);
2. Fairly satisfactory (21-40 per cent);
3. Satisfactory (41-60 per cent);
4. Good (61-80 per cent); and
5. Very good (81-100 per cent).

A rubric of descriptors was delivered to the three independent markers to maintain the reliability and validity of marking.

3. The analysis and results

Based on the quantitative data collection, analysis of variance was taken to further investigate the learning performances of both groups. The overall learning performance of employees in the experimental group ($M = 73.63$, $SD = 4.37$) was better than the result in the control group ($M = 65.14$, $SD = 4.33$), around 9 per cent higher. This shows that the experimental group had a higher learning effectiveness and implies that the adoption of 360Vs may improve organizational learning experiences and outcomes. 360Vs could become an advanced substitution of traditional apprenticeship pedagogical practices, especially on technology-focused subjects such as Omni-channel retailing methods and practices.

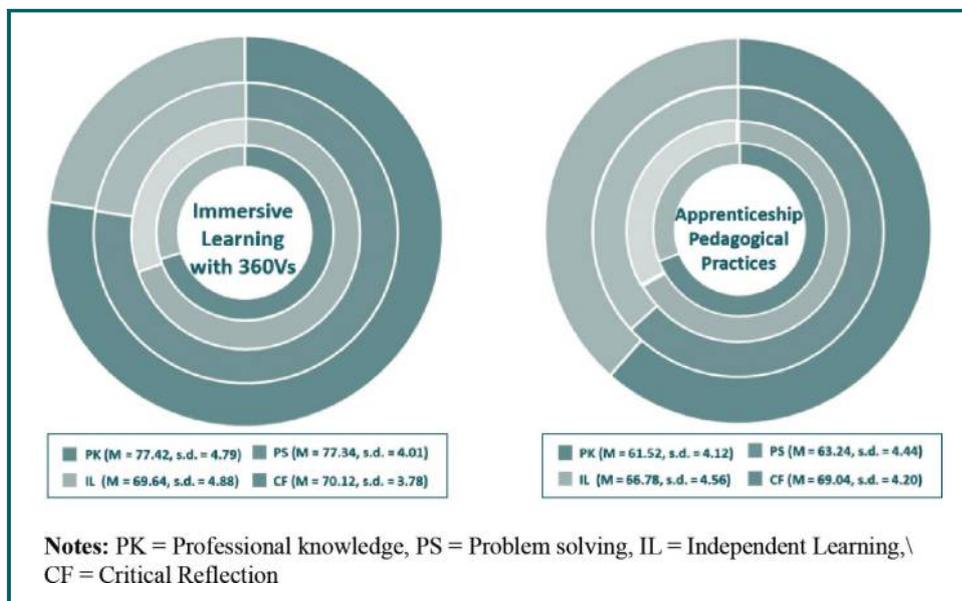
The comparison from different perspectives (Figure 2) shows the immersive learning mode had a significant impact on PK and PS, whereas there was not an obvious enhancement of IL and CR. This latter result calls for a further study, particularly, on these two important perspectives.

4. Conclusion and implications

The study explored the potential of immersive situated learning with the adoption of 360-degree videos to improve organizational learning. The results show there is significant enhancement in employee learning outcomes when using VR, compared with traditional apprenticeship practices. Yet, the result only weakly supports that the new learning program with 360Vs can inspire a rapid progress in independent learning and critical self-reflection. Thus, a possible future research direction is to take different characteristics of employees into consideration when designing a situated learning program.

This study reinforces the opinion that situated learning approaches with 360-degree videos evoke employees to explore new learning behaviors and experience and make proactive adjustments on their own learning pace (Rutten *et al.*, 2012), based on the view from prior

Figure 2 Employees' learning achievement by CRA



Keywords:
Virtual reality,
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360-degree videos,
Omni-channel retailing

study (Blascovich and Bailenson, 2006) that VR in situated learning can enrich the learning experience.

In conclusion, in addition to offering employees a simulated learning environment and a unique learning experience, 360Vs act positively in inspiring learning behavior changes for practices. The findings may contribute to both research and teaching practices in various educational sectors. Also, the generated knowledge on design and application of immersive learning program with 360Vs can also help to identify future research perspectives and improve situated learning pedagogy development.

References

Blascovich, J. and Bailenson, J. (2006), "Immersive virtual environments and education simulations", in Cohen, S., Portney, K.E., Rehberger, D. and Thorsen, C. (Eds), *Virtual Decisions: Digital Stimulations for Teaching Reasoning in the Social Sciences and Humanities*, Lawrence Erlbaum Associates, NJ, pp. 229-253.

Lau, K.W. (2012), "A study of students' learning experiences in creativity training in design education: an empirical research in virtual reality", *Journal of Design Research*, Vol. 10 No. 3, pp. 170-188.

Rutten, N., Van Joolingen, W.R. and Van der Veen, J.T. (2012), "The learning effects of computer simulations in science education", *Computers & Education*, Vol. 58 No. 1, pp. 136-153.

About the authors

Dr Kung Wong Lau is currently an Assistant Professor at the Institute of Textiles and Clothing, The Hong Kong Polytechnic University in the subject area of retailing and fashion business. He graduated from the University of Hong Kong and obtained his PhD at the University College London. His major research areas, as well as his key publications, are about organizational learning, virtual reality, and creativity training. Kung Wong Lau is the corresponding author and can be contacted at: laukungwong@gmail.com

Dr Pui Yuen Lee is an Assistant Professor in the School of Design with expertise in advertising design discipline. She teaches advertising strategy, design research methods, and capstone design projects for the final year undergraduate students. She received her PhD from the University of Edinburgh, with research on advertising creativity and management of advertising organizations. She holds an MSc in Marketing Management and a BA (Hons) in Design from the Hong Kong Polytechnic University. She is interested in investigating the changing roles of creative professionals play within society and how digital and innovative technology informed contemporary advertising practices.

Min Ying He is a Research Assistant at the School of Design at the Hong Kong Polytechnic University. She obtained her BSc in Applied Psychology and BA in business administration from Guangdong University of Foreign Studies, China, and MSc in knowledge management from the Hong Kong Polytechnic University. Her research interests include behavioral psychology, human-technology interaction, social media usage, and design economy.

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