The Motivations of Live Virtual Reality Shopping and Design Principles

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Abstract

Virtual Reality (VR) and live streaming are new forms of media and obtained a lot of attentions from researchers. Virtual Reality (VR) shopping recently is a popular research topic but live streaming shopping just started to catch attention from researchers. In this thesis, I traduce a new novel concept called "Live Virtual Reality Commerce". The goal of this PhD project is to explore consumers' motivations of live VR shopping and investigate the feature and principle design of live VR shopping system.

1. Introduction

Live stream is not a new concept but is really popular not only in academia but also in industry. There is lots of research about live streams or social live streaming services[3, 12]. Live streaming started to extend in e-commerce from entertainment and this new shopping form was called live streaming shopping or live streaming commerce, which means that e-commerce business integrates real-time social interaction via live streams[2]. Live streaming commerce just started in the United States such startups as Livby, Popshop Live, and ShopShops [10, 14, 15]. There has been many news about live streaming commerce since 2018 around the world, especially in China [8]. Currently, regular e-commerce is still growing around the world and cross-border e-commerce enables consumers to purchase and sell globally. New shopping ways are explored, and Virtual Reality (VR) shopping is also a hot topic and considered new way shopping of the future. The main characteristics of live streaming are live streamers and the real-time interaction among streamer and viewers; the main characteristics of VR are immersion, interactivity, and presence [1]. The goal of this PhD project is to explore the ultimate form of e-commerce, a new form of e-commerce that we called "Live Virtual Reality Commerce". I wanted to understand the motivation of live VR commerce and explore the system design of it.

I started the project with live streaming shopping and the next step to investigate motivations of VR shopping. The third step, I intended to build a connection between live streaming and VR shopping and lead the theories to live VR commerce. Finally, these theories would be applied to a prototype design and system evaluation.

2. Related work

As for live streaming shopping, little research has been conducted. Jie et al. explored utilitarian and hedonic motivations, such as usefulness and physical attractiveness, for live streaming shopping from social media and e-commerce context [2], I have another research paper discussing consumers' motivations of live streaming shopping, such as enjoyment of interaction and substitutability of person examination, from a uses and gratifications perspective and currently under review in a certain conference.

As for VR shopping, many researches discussing VR focus on technical issues and little is reported in information system domain. VR could induce a feeling of "presence" and the level of presence is associated with emotional environment [11]. From a intrinsic and extrinsic motivation perspective, users' motivations to engage in virtual worlds are economic value, ease of use, escapism, visual attractiveness [13]. Van Kerrebroeck et al. conducted an experimental study and results showed that a relaxing VR experience in a shopping mall allowed consumers to escape the hectic mall environment and was positively associated with level of attitude toward the mall, mall satisfaction, and loyalty intentions [6]. From a modality richness perspective to understand consumers' purchase intention in 3D virtual world, Jin found that, with low pre-experimental product involvement, modality richness is positively associated with buying intention, and with high pre-experimental product involvement, there is no significant relationship between them [5]. In comparison with ordinary shopping mall, VR shopping mall can significantly improve convenience,

enjoyment, and perceived quality assurance and can result in better customer satisfaction [7].

From research related to live streaming shopping and VR shopping, we could find some similarity between these two forms of shopping such as the attribute "interaction" and the relevant variable "enjoyment" and some difference such as live streamers in live streaming domain and immersion in VR domain. Building on these literatures in both live streaming and VR shopping domains, I conceptualized the live VR commerce topic for future study.

3. Research questions

Live streaming is a synchronous media, and some research also called it mixed media [4]. Virtual Reality is also considered an emerging medium [11]. Nemetz proposed that there is missing link between multimedia and e-commerce that needed to be addressed by HCI principles [9]. In the thesis, I planned to understand the motivation behind live VR commerce from consumers' perspective and figure out the features that they prefer to regular e-commerce for system design. Thus, we post the following research questions:

RQ1: What are the motivations of live VR shopping?
RQ2: What are the features that they expected for live VR shopping system?

4. Completed work and work in progress

Live streaming shopping is comparatively new, and, to the best of my knowledge, I am the first person starting research in this domain. One empirical study has been done, and another has finished writing and was ready to present.

In the first study, Technology Acceptance Model (TAM) and motivation theories were applied as a theory background and a survey method with open-ended questions was used. I refined four motivations for live streaming shopping: two utilitarian motivations (ease of use and usefulness) and two hedonic motivations (physical attractiveness and interpersonal attractiveness) and found that usefulness is positively significant for intention to watch live streaming during shopping when searching a certain product and physical attractiveness is positively associated with intention to watch live streaming during shopping when admired internet celebrity was involved. The content

analysis of open-ended questions revealed eight reasons why people prefer live streaming shopping other than regular online shopping, and they are product demonstrations, product information, excitement about novelty of live streaming, interaction, convenience, hype about the product, wanting other opinions, and deals.

In the second study, a uses and gratifications theory was applied and combined the eight reasons from the open-ended questions. A survey method with originally developed items was conducted. We identified four motives to use live streaming commerce: enjoyment of interaction, substitutability of personal examination, need for community, and trend setting. In addition to the two intentions in first study, another general intention, intention to watch live streaming during shopping in general, was added. The results showed that trending setting and substitutability of personal examination are positively associated with intention to watch live streaming in general and when searching a certain product; enjoyment of interaction was positively associated with intention to watch live streaming when admired internet celebrity was involved; and interestingly, need for community was not significant for all intentions.

5. Future work

Because live VR shopping is new concept, and little research has been done. In order to better understand it, I will, in the next step, conduct research about VR shopping by applying motivation theories, such as utilitarian and hedonic motivation of online shopping, intrinsic and extrinsic motivation of individual behavior, and social presence theory. Mainly survey method would be used in this step.

After research about VR shopping and comparing the results with live streaming shopping. I will obtain some general ideas about the possibility of live VR shopping.

The third step is to develop a protocol and conduct semi-structured interviews to collect ideas about live virtual reality commerce. For example, I will ask questions such as what do you think about the shopping form in the near future? Why would you prefer live VR shopping? and what features do you expected if you can use a live VR shopping system? Content analysis of the transcriptions of the interviews would help us identify themes related motivations and features. Then, a prototype will be developed by cooperating with research assistants in the lab.

The final step is to evaluate the live VR shopping system by conducting observational study to evaluate the interface design and interaction between participants and the system and by distributing a post-session survey to collect feedback for revising the system design.

6. Contribution

My thesis project aims to explore a novel shopping method and the possibility to implement and popularize live VR shopping system. With VR technology maturity, live VR shopping would catch plenty of attention from researchers. This project might provide some hints for commercial e-commerce business and a foundation for research in live VR commerce domain. In addition, this project would enrich the mini track of not only live streaming service but also social information systems.

7. References

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