

6-15-2020

## **UNDERSTANDING THE PURCHASE INTENTION OF VIRTU-AL GIFTS IN LIVE STREAMING: FLOW THEORY AND SWIFT GUANXI**

Zhengzhi GUAN

*Nottingham University Business School (China)*, zhengzhi.guan@nottingham.edu.cn

Fangfang Hou

*Nottingham University Business School (China)*, fangfang.hou@nottingham.edu.cn

Boying Li

*Nottingham University Business School (China)*, boying.li@nottingham.edu.cn

Alain Chong

*University of Nottingham*, alain.chong@nottingham.edu.cn

Follow this and additional works at: [https://aisel.aisnet.org/ecis2020\\_rip](https://aisel.aisnet.org/ecis2020_rip)

---

### **Recommended Citation**

GUAN, Zhengzhi; Hou, Fangfang; Li, Boying; and Chong, Alain, "UNDERSTANDING THE PURCHASE INTENTION OF VIRTU-AL GIFTS IN LIVE STREAMING: FLOW THEORY AND SWIFT GUANXI" (2020). *Research-in-Progress Papers*. 80.

[https://aisel.aisnet.org/ecis2020\\_rip/80](https://aisel.aisnet.org/ecis2020_rip/80)

This material is brought to you by the ECIS 2020 Proceedings at AIS Electronic Library (AISeL). It has been accepted for inclusion in Research-in-Progress Papers by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# UNDERSTANDING THE PURCHASE INTENTION OF VIRTUAL GIFTS IN LIVE STREAMING: FLOW THEORY AND SWIFT GUANXI

*Research in Progress*

Guan, Zhengzhi, University of Nottingham Ningbo China, Ningbo, China, [zhengzhi.guan@nottingham.edu.cn](mailto:zhengzhi.guan@nottingham.edu.cn)

Hou, Fangfang, University of Nottingham Ningbo China, Ningbo, China, [fangfang.hou@nottingham.edu.cn](mailto:fangfang.hou@nottingham.edu.cn)

Li, Boying, University of Nottingham Ningbo China, Ningbo, China, [boying.li@nottingham.edu.cn](mailto:boying.li@nottingham.edu.cn)

Chong, Alain Yee Loong, University of Nottingham Ningbo China, Ningbo, China, [alain.chong@nottingham.edu.cn](mailto:alain.chong@nottingham.edu.cn)

## Abstract

*Live streaming is transforming how people use social media due to its real-time interaction, improvised content co-creation and unique traffic monetization. However, limited research attention has been paid to such a new social media-enabled business model. This research investigates what factors may affect viewers' purchase intention of virtual gifts in live streaming based on flow theory and swift guanxi. Moreover, the moderating role of free items is considered. The research model developed will be tested using Structural Equation Modeling based on survey data collected in China. The proposed relationships will be examined under different types of live streaming. Our study extends the understanding to the theory of flow by taking the effects of swiftly formed interpersonal relationship (i.e. swift guanxi) and free items into account. The results can be used by platforms and streamers to improve their practices.*

*Keywords: Live Streaming, Flow, Swift Guanxi, Purchase Intention of Virtual Gifts.*

# 1 Introduction

The emergence of live streaming is reshaping the ways people use social media. Anyone can easily sign up to be a streamer and broadcast their lives from eating, online gaming to performing talent shows. In a live stream, viewers can interact with the streamer and other viewers in real time. Viewers are also able to shape the content of live stream together with the streamer via real-time conversations and engagements. Enticed by the grassroots culture, real-time interaction and improvised content co-creation, an increasing number of users are joining live streaming, making live streaming a huge trend. For example, Twitch, one of the most popular live streaming platforms, had 3.3 million unique streamers and received around 15 million visitors each day in 2017 (MuchNeeded, 2018).

Interestingly, many live streaming platforms are relying on an innovative monetization approach - the purchase of virtual gifts, and such phenomenon is particularly significant in China. Virtual gifts vary in shapes and prices, and are purchased with real money via online payments. Ranging from virtual flowers to virtual yachts, these virtual items can be purchased by viewers as gifts to the streamer to express their appreciation. The virtual gifts received can get converted back into real money by the streamer, and the platform takes a cut. Viewers' purchase of virtual gifts enables some popular streamers to earn much more than working a normal day job (The Economist, 2017). It also becomes a key revenue source of live streaming platforms. YY, one of the most popular live streaming platforms in China, achieved around USD 1 billion net revenue from its live streaming business in 2016, and much of the revenue is from viewers' purchase of virtual gifts (Chen, 2017). Figure 1 shows an example of live streaming and the consumption on virtual gift in China. Given the salience of viewers' consumption in live streaming, it is important to understand what drives viewers to purchase virtual gifts in live streaming. A better understanding to the purchase of virtual gifts in live streaming can guide streamers and platforms to formulate appropriate strategies to monetize the traffic and make their success long-term sustainable.

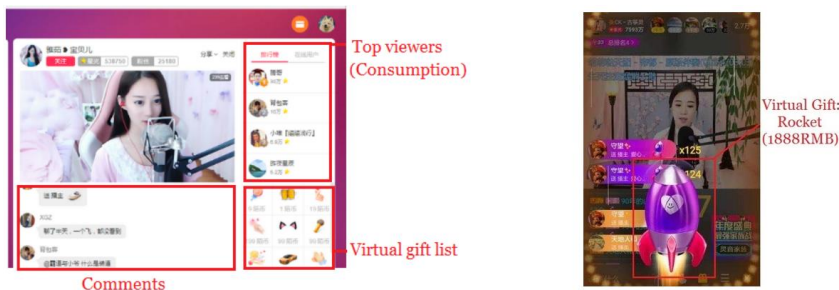


Figure 1. An example of Chinese live streaming and virtual gifts.

Buying and sending virtual gifts in live streaming is different from consumer behavior in online shopping because the purchase is made to express appreciation towards the streamer rather than for one self's own benefits. Such purchase of virtual gifts also creates a new way for people to interact in social media and allows viewers to engage in content co-creation. Moreover, even though the buyer-seller communication is supported in online shopping, the communication is highly textual and aims at improving shopping success. In live streaming, the interaction between viewers and the streamer is video-based and has strong social orientation. In addition, live stream serves not only as a product or service, but also as an advertisement which is a kind of persuasive stimulus (Moore and Lutz, 2000; Bart, Stephen and Sarvary, 2014). This makes the live streaming a unique context where features of live streaming should be given significant attention in the study of viewer behavior. Therefore, existing theoretical frameworks that study purchase decisions in e-commerce may not be sufficient to understand the purchase of virtual gifts in live streaming.

Prior literature suggests that live streaming satisfies two core needs of people: entertainment and social interaction (Hou *et al.*, 2019). Drawing on the flow theory, this study seeks to examine how live streaming features (i.e., interactivity, challenge, knowledge and stimuli) lead to flow state and subse-

quently drive viewers' purchase intention of virtual gifts. Moreover, real-time interaction and content co-creation in live streaming may promote the establishment of social connections, and interpersonal relationship may also play an important role in affecting viewer behavior. Therefore, in this study we seek to combine flow theory with the concept of swift guanxi, a swiftly formed interpersonal relationship in online environment, to gain a deep understanding of the purchase intention of virtual gifts in live streaming (Ou, Pavlou and Davison, 2014). Moreover, even though it is not uncommon to boost sales of digital products with free trial, few researches have looked at the role of free gift items on purchase of virtual gifts in live streaming. Thus, in this study, we seek to examine whether the influences of flow and swift guanxi on purchase intention will be strengthened when free gift items are offered.

This study intends to make several important contributions. First, it extends our understanding of purchase of virtual gifts in live streaming, which is a new practice that transforms the user interaction and content co-creation in social media. Second, drawing from flow theory, this study develops a theoretical framework that aims to delineate how flow can be used to explain the purchase intention of virtual gifts. It also takes interpersonal relationship - swift guanxi - into consideration and examines its role in the live streaming context. Moreover, by considering free items as a moderator of the relationships between flow, swift guanxi and consumption intention, the study advances previous theory by showing how the effects of flow and swift guanxi can be amplified. Furthermore, this study plans to compare how these factors shape viewers' purchase intention of virtual gifts under different types of live stream sessions. This can provide strategic insights to live streaming platforms and streamers to fine-tune their practices and in turn enhance their competitiveness and sustain their success.

## **2 Theoretical Background**

### **2.1 Flow**

Flow refers to a psychological state when people fully devote themselves to their preferred activities with total involvement (Hoffman and Novak, 1996). When people reach a flow state in a certain activity, they heavily concentrate on the activity, temporarily lose the sense of time and self-consciousness, immerse themselves with immediate feedback during the activity, and experience strong intrinsic enjoyment. Flow is a continuous construct which means people can have different levels of flow state (Obadă, 2013). People in the flow states are immersed in their 'own world' and their awareness of time and space can be distorted (Chen, Wigand and Nilan, 2000). Flow state in general is considered to be a desired outcome, and prior studies have attempted to understand the antecedents of flow state (Hoffman and Novak, 1996; Obadă, 2013).

Csikszentmihalyi (1997) has proposed that the main antecedents of flow state in offline settings are the challenge from the undertaken activity, skills of the person and focused attention. High level of challenge and skill can keep people involved in the given event; otherwise they may get bored and lose their attention quickly. While in online shopping environment, Novak et al. (2000) have suggested that telepresence and arousal are also important factors contributing to one's flow state. In a later study of tourism website, prior domain knowledge (user skill), content of webpage (challenge) and telepresence are considered as three key antecedents of flow state (Skadberg and Kimmel, 2004). Flow state is found to result in positive affect and emotion (Obadă, 2013). A crucial consequence of flow state is the purchase intention in online shopping (Korzaan, 2003). It has been found that flow is positively associated with online consumption (Luna, Peracchio and de Juan, 2002; Richard and Chandra, 2005). Explorative behavior and perceived control are also considered as the outcomes of flow. A person in the state of flow would have a strong curiosity in the activity and get a feeling of active control on the task at hand (Webster, Trevino and Ryan, 1993).

Flow theory is applied to live streaming context in this study. Live streaming viewers have dual-roles: live streaming viewer and potential consumers. It is expected that if a viewer experiences flow in watching and exploring live streams, she or he is more likely to further engage in live streaming consumption. Prior study has pointed out that flow state accounts for unplanned purchase which fits the purchase of virtual gifts in live streaming. However, live streaming itself is a new form of media and

people watch it mostly for entertainment rather than making transactions. Thus, it is worthwhile to test the influence of flow on purchase intention in the context of live streaming.

## 2.2 Swift Guanxi

Guanxi refers to a close and pervasive interpersonal relationship. It is a critical element affecting people's behavior in social life (Lee and Dawes, 2005). As an extension of traditional offline guanxi, swift guanxi refers to an informal and temporary relationship established in the computer-mediated communication (Ou, Pavlou and Davison, 2014). Different from traditional guanxi, swift guanxi is established in the online context and can be more quickly formed and less pervasive (Ou, Pavlou and Davison, 2014). The literature has stressed the important role of swift guanxi in influencing people's online purchase behavior (Ou, Pavlou and Davison, 2014; Shi *et al.*, 2018; Lin *et al.*, 2019). It is suggested that swift guanxi can alleviate the risks and uncertainties involved in online transactions and in turn contributes to buyers' purchase intention (Chiu *et al.*, 2018; Lin *et al.*, 2019). Swift guanxi consists of three dimensions, namely mutual understanding, reciprocal favor and relationship harmony (Ou, Pavlou and Davison, 2014). Mutual understanding is the appreciation between two parties; reciprocal favor refers to the positive benefits from interactions between two parties; and relationship harmony reflects mutual respect and conflict avoidance.

In this study, we apply the concept of swift guanxi into the context of live streaming. We believe that live streaming environment may facilitate the emergence of such shallow and temporary interpersonal relationship between the viewer and the streamer, which in turn contributes to viewers' purchase behavior. Swift guanxi in live streaming has specific characteristics that distinguish it from swift guanxi in e-commerce. First, the goal of technology facilitating interaction is different. Live streaming encourages conversation between viewers and the streamer for establishing social connections, while e-commerce enables communication between buyers and the seller for improving shopping efficiency (Li *et al.*, 2018). Second, the focus of live streaming is on the content delivered by the streamer while the focus of e-commerce is on the product. Live streams can serve as stimuli which may affect viewers' experience in the environment (Hou *et al.*, 2019). Therefore, such specific characteristics should be taken into consideration in investigating the establishment of swift guanxi in live streaming.

## 2.3 Free Items

Free items have been frequently used to promote sales. There are three primary effects of free items on consumption (Lammers, 1991). First, free items may generate shaping effect from operant conditioning perspective. Approximate behavior can lead to desired action of the subject. Therefore, free items may encourage customers to make a real purchase since their use of free item can be an approximate behavior of actual purchase. Second, free items may generate foot-in-door effect. When a customer decides to use free items, it indicates that the one is willing to try the product, and there is higher likelihood of subsequent purchase (Lammers, 1991). This is because people tend to maintain cognitive consistency and avoid cognitive dissonance. Finally, it has been argued that free items are given with intrinsic emphasis on its salient function or traits. As long as the emphasized characteristics are perceived to be positive, there is increased possibility of real purchase. Due to the importance of free items in influencing sales, its moderating role will be discussed and tested.

# 3 Model and Hypotheses Development

## 3.1 Flow and Purchase Intention of Virtual Gifts

Prior empirical studies indicate that flow would promote consumers' favourable attitudes (Mathwick and Rigdon, 2004; Sánchez-Franco, 2007) and online purchase (Korzaan, 2003). In live streaming, when viewers reach the flow state, they are immersed within the interaction with the streamer. Their increased enjoyment is likely to lead to devotion towards the live stream and the streamer. Such devo-

tion may be expressed by purchasing virtual gifts. Therefore, the possibility of purchase of virtual gifts will rise.

H1: A viewer's flow state is positively associated with the viewer's purchase intention of virtual gifts.

### 3.2 Swift Guanxi and Flow

Prior literature suggests that the social relationship developed in the online context can contribute to one's enjoyment experience (Hartmann and Goldhoorn, 2011) and further engagement with the environment (Men and Tsai, 2013). In live streaming, we expect that swift guanxi developed between the viewer and the streamer is likely to contribute to viewers' flow experience. Swift guanxi can affect flow experience through mutual understanding, reciprocal favor and relationship harmony. When mutual understanding is reached between viewers and streamers, viewers and the streamer can understand each other's needs and are interested in each other's opinions. Reciprocal favor means that viewers and the streamer are willing to benefit each other. For example, streamers may adjust their live streaming content according to what viewers' request; and viewers are willing to favorite the content and post positive comments, thus increasing viewers' popularity. Relationship harmony is associated with reduced possibilities of opportunism. To avoid conflict and achieve mutual respect, the streamer tends to create a friendly environment or establish a pleasant atmosphere. Mutual understanding, reciprocal favor, and relationship harmony together enhance viewers' engagement in the activity and lead to strong enjoyment. Such shallow but favorable relationship is likely to retain the viewers' initial interest, stimulate their positive attitudes and encourage their further involvement in the live stream session. Thus, it is possible that swift guanxi established in live streaming can result in viewers' flow state.

H2: A viewer's swift guanxi with the streamer is positively associated with the viewer's flow state.

### 3.3 Swift Guanxi and Purchase Intention of Virtual Gifts

Swift guanxi established in the online environment can enhance one's trust towards the communicating party and reduce uncertainties involved in purchase (Chiu *et al.*, 2018). When swift guanxi is established between viewers and the streamer in live streaming, the streamer is more willing to take care of their viewers. The streamer tends to have a good understanding about viewers' expectations and needs and is willing to benefit viewers by satisfying their needs and acting as expected. Moreover, the pleasant atmosphere created by the streamer reduces the possibility of conflicts in the relationship and results in viewers' positive attitudes. In that case, in order to show appreciation and benefit the streamer, viewers are more likely to offer gifts. Hence, viewers are more likely to make a purchase when swift guanxi is built.

H3: A viewer's swift guanxi with the streamer is positively associated with the viewer's purchase intention of virtual gifts.

### 3.4 Moderating Role of Free Items

Previous studies have emphasized the direct influences of free items on consumption through mechanisms such as foot-in-door effect. In this study, we focus on the moderating role of free items. In live streaming, platforms may offer viewers some free virtual gift items that can be given to streamers. It is expected that such free items may strengthen the impacts of flow state and swift guanxi on purchase intention. First, when free items are available, the shaping effect from operant conditioning makes people who are immersed in live streams and/or have established swift relationships with streamers more likely to express their appreciation in the form of buying virtual gifts for streamers (Rothschild and Gaidis, 1981). Besides, it is possible that free items enrich the content that a viewer can play around, which may make viewers get more immersed in live streams (Skadberg and Kimmel, 2004). This may subsequently strengthen the increased experience of flow. In addition, it is possible that viewers may link gifting with live streaming quality. This motivates viewers who are fully involved in live streams and/or have built swift guanxi with streamers to consume virtual gift as incentives to gain

more control on the quality and make the live stream more enjoyable (Ghani, 1995). This may further reinforce the effects of flow and swift guanxi on the purchase intention of virtual gifts for streamers.

H4a: Using free items strengthens the association between flow state and viewer's purchase intention of virtual gifts.

H4b: Using free items strengthens the association between swift guanxi and viewer's purchase intention of virtual gifts.

### **3.5 Factors Influencing Flow**

#### **3.5.1 Interactivity**

Interactivity reflects one's perception of interaction quality with another communicating party in a computer-mediated environment (Ou, Pavlou and Davison, 2014). Chen et al. (1999) has found that the Internet as an interactive environment would trigger out flow state when users are navigating online. It has also been suggested that interactivity plays an important role in enhancing the telepresence of computer-mediated environment which in turn would increase one's flow experience (Novak, Hoffman and Yung, 2000; Skadberg and Kimmel, 2004). Interaction is a key element of live streaming, and viewers and streamers can co-create the content. Thus, in the context of live streaming, high level of concentration and time distortion can be achieved since the interaction in live streaming keeps viewers busy and engaged in the real-time communication.

H5a: Interactivity is positively associated with a viewer's flow state.

#### **3.5.2 Challenge**

Challenge has been considered as a crucial element contributing to one's flow state, especially in online gaming (Huang *et al.*, 2017). It has also been tested that intrinsic enjoyment can be triggered out by challenge in online shopping context (Koufaris, 2002). With certain level of challenge in playing games or doing shopping task online, people's attention is likely to be hooked in the activities they are working on since they need to focus on solving the problems ahead (Pelet, Ettis and Cowart, 2017). The progress of addressing the difficulties arising from the challenges can stimulate people's enjoyable feeling (Ghani, 1995; Hoffman and Novak, 1996). In live streaming, the streamer would occasionally recognize and interact with specific viewers and such viewers' requests are more likely to be fulfilled by the streamer. In that case, viewers in a live stream are competing for the streamer's attention (Hou *et al.*, 2019). Thus, viewers are faced with the challenge to stand out among other viewers in the live stream. It encourages viewers to engage with activities in the live stream and play around the live streaming features in order to be recognized by the streamer. Thus, it can be expected that challenge would encourage viewers to actively involve themselves in the live stream and lead to flow state.

H5b: Challenge is positively associated with a viewer's flow state.

#### **3.5.3 Knowledge**

People cannot devote themselves in certain events if they cannot handle the incoming problems inside. Without certain level of domain knowledge or skills, people may experience strong anxiety that prevents people's flow experience. It has been tested in online shopping and tourism that with appropriate domain knowledge, people are willing to engage in the task, which leads to higher level of flow state (Koufaris, 2002; Skadberg and Kimmel, 2004). In the context of live streaming, if viewers possess a good knowledge of live streaming features, they tend to participate in live streaming activities actively and become more involved in the environment. In addition, if viewers know how to communicate with the streamer or peer viewers efficiently, they are more likely to involve themselves in the interactions in the live stream and experience flow. For instance, emoji can be used to express viewers' certain emotions in the live stream. Viewers who do not know how to use certain emoji properly in the live stream may find themselves difficult in communicating with others, which discourages further in-

volvement. Thus, we believe that knowledge about how to use live streaming features skillfully can be a crucial element contributing to flow state.

H5c: Knowledge is positively associated with a viewer's flow state.

### 3.5.4 Stimuli

Via live streaming, streamers seek to attract viewers' attention and tend to promote themselves using persuasive stimuli in live streams (Hou *et al.*, 2019). Humor and sex appeals are two commonly studied concepts of advertising stimuli in marketing literature. Humor appeal mostly involves incongruency and brings together frames that are normally unexpected (Conway and Dubé, 2002). Sex appeal can be defined as using sexual information or image in an attempt to influence viewer's attitudes and behaviors (Reichert, Heckler and Jackson, 2001). Based on previous studies, some common sex appeal components include: body display (nudity), sexual behavior, suggestive behavior and sexual referents (Reichert, 2002). Body display, also known as nudity, involves the showing of human body in revealing ways, which depends on the amount and the style of clothing worn. Sexual and suggestive behaviors involve sexually provocative or flirting actions or vocalics, such as emphasizing lip, neck or cleavage, kissing, and speaking with seductive tones. Sexual referent refers to the verbal and visual use of sexual innuendo or double entendre (Reichert, 2002). Humor and sex appeals are common in the live streams of Internet celebrities (in Chinese 'Wanghong'). Many live streamers are known for their humorous communication styles and funny discussion topics. Many others are famous for the good-looking face, erotic dancing, flirty conversation and sexy and revealing clothing.

The value of humor lies in its ability to fulfill people's needs for enjoyment or emotional release (Sternthal and Craig, 1973; Spielmann, 2014). Sex appeals are also considered as able to increase enjoyment. Referring to the excitation transfer theory, sexual content can create arousal for viewers, which may further result in increased enjoyment (Cummins, 2007). Considering that enjoyment is a crucial element of flow state, it is possible that humor and sex appeal may contribute to flow. Moreover, flow state is more likely to be generated if the activities can screen out distraction and keep the people concentrated (Sherry, 2004). Because humor and sex appeals can attract, retain and even enhance people's attention towards the content and influence their responses (Sternthal and Craig, 1973; Zhang, 1996), it is possible that with humor and sex appeals, live streams are more likely to create the state of flow for the viewers.

H5d: Humor appeal is positively associated with a viewer's flow state.

H5e: Sex appeal is positively associated with a viewer's flow state.

## 3.6 Factors Influencing Swift Guanxi

### 3.6.1 Interactivity

Interactivity is a considerable element in building good relationships in the online environment (Ou, Pavlou and Davison, 2014; Bao *et al.*, 2016). In live streaming, interactivity facilitated by live streaming platforms contributes to high-quality communication between viewers and streamers. The interactive communication process makes viewers feel that the streamer is approachable. They can freely deliver their messages to the streamer and other viewers in real time. At the same time, the streamer is able to get feedback from viewers and respond to them simultaneously. It increases the speed of accessing information and saves time and efforts from exchanging information. Both viewers and the streamer are likely to actively and productively participate in discussions as the technology is capable of facilitating efficient communication (Lowry *et al.*, 2009). The interactive process then boosts the development of mutual understanding. The high efficiency and effectiveness experienced by viewers also enhance the interaction quality and result in favorable attitudes. The favorable attitudes such as satisfaction or sense of fun may result in relationship harmony. Furthermore, through the high-quality interaction, streamers can express their concerns for viewers and make them feel more involved, while viewers can offer positive feedback to streamers. Hence, reciprocal favors are achieved.



H6a: Interactivity is positively associated with a viewer's swift guanxi with the streamer.

### 3.6.2 Stimuli

Humor is considered as a helpful strategy to reduce tensions and resolve conflicts (BONTA, 1996). Humor appeals in live streams can prevent viewers' feelings of distress. In that case, viewers tend to have positive emotions and thus they are less likely to start or get involved in conflict with the live streamer, which leads to relationship harmony (Conway and Dubé, 2002). Moreover, humor appeal will enhance the persuasiveness of the content, which promotes viewers to accept the idea expressed by the streamer (Hou *et al.*, 2019). Hence, viewers and the streamer are more likely to reach consensus. In addition, mutual favors can also be achieved with humorous content satisfying viewers' entertainment purposes and viewers offering positive feedback to the streamer. Therefore, we hypothesize that:

H6b: Humor appeal is positively associated with a viewer's swift guanxi with the streamer.

According to Maestriperi *et al.* (2017), physically attractive people tend to be perceived as friendlier and more trustworthy than unattractive ones. Thus, with attractive sex appeals delivered in live streams, viewers are likely to experience harmonious atmosphere in live streams. Besides, streamers who are physically attractive are likely to be perceived as more generous and considerate, which may promote stronger engagement of viewers in live streams (Hou *et al.*, 2019). The enhanced engagement helps develop mutual understanding. Additionally, sex appeal in live streams can be perceived as an extra value provided by the streamer (Hou *et al.*, 2019), and viewers are more likely to offer favors to physical attractive streamers. In that case, reciprocity is achieved. Therefore, we hypothesize that:

H6c: Sex appeal is positively associated with a viewer's swift guanxi with the streamer.

The research model is shown in Figure 2.

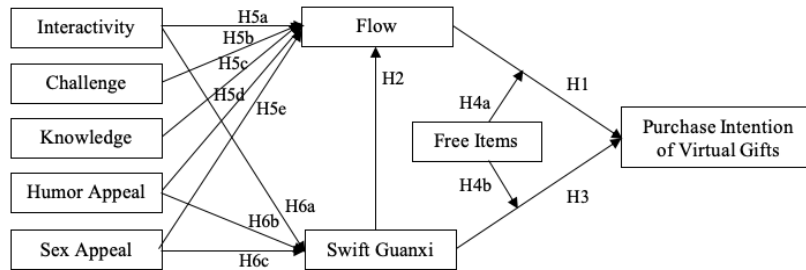


Figure 2. Research Model

## 4 Proposed Methodology

To test the hypotheses, a bilingual questionnaire has been developed and distributed online in China to collect data. The variables in the questionnaire include: purchase intention of virtual gifts, flow, swift guanxi, free items, interactivity, challenge, knowledge, sex appeal and humor appeal. Structural Equation Modeling (SEM) will be used to analyze the data for a preliminary test of the research framework. Moreover, the content delivered in the live streaming varies a lot, and the interaction dynamics may be different; thus, the research model may work differently for different types of live streaming. Prior research has categorized live streaming into three types, namely event, education and personal sharing (Hou *et al.*, 2019). It is possible that for education streaming, sex appeal may not work as expected. Therefore, we plan to classify live streaming into different types based on the content delivered and test the model based on live streaming types. If there is significant difference in how model performs for different types of live streaming, we would like to further improve the model to contextualize it for different types of live streaming. In terms of the role of free items, though it is expected that the free item has positive moderating effect at this stage, the possibility of negative effect would also be considered to refine the conceptualization and effect from free items. In addition, further test will be conducted to clarify the causal relationship between variables (e.g. the association between swift-guanxi and flow state).

## References

- Bao, H., Li, B., Shen, J. and Hou, F. (2016) 'Repurchase Intention in Chinese E-marketplace: Roles of Interactivity, Trust and Perceived Effectiveness of E-commerce Institutional Mechanisms', *Industrial Management & Data Systems*, 116(8), 1759–1778.
- Bart, Y., Stephen, A. T. and Sarvary, M. (2014) 'Which Products Are Best Suited to Mobile Advertising? A Field Study of Mobile Display Advertising Effects on Consumer Attitudes and Intentions.', *Journal of Marketing Research*, 51(3), 270–285.
- BONTA, B. D. (1996) 'Conflict Resolution among Peaceful Societies: The Culture of Peacefulness', *Journal of Peace Research*. SAGE Publications Ltd, 33(4), 403–420.
- Chen, H., Wigand, R. T. and Nilan, M. (2000) 'Exploring Web users' optimal flow experiences', *Information Technology & People*, 13(4), 263–281.
- Chen, H., Wigand, R. T. and Nilan, M. S. (1999) 'Optimal experience of Web activities', *Computers in Human Behavior*, 15(5), 585–608.
- Chen, Q. (2017) *Showdown brewing: With lessons learned in China, a rival is taking on Facebook, Snapchat and YouTube*, *CNBC*. URL: <https://www.cnn.com/2017/07/19/showdown-brewing-with-lessons-learned-in-china-a-rival-is-taking-on-facebook-snapchat-and-youtube.html> (visited on 11/01 2017).
- Chiu, T.-S., Chih, W.-H., Ortiz, J. and Wang, C.-Y. (2018) 'The contradiction of trust and uncertainty from the viewpoint of swift guanxi', *Internet Research*, 28(3), 716–745.
- Conway, M. and Dubé, L. (2002) 'Humor in Persuasion on Threatening Topics: Effectiveness Is a Function of Audience Sex Role Orientation', *Personality and Social Psychology Bulletin*, 28(7), 863–873.
- Csikszentmihalyi, M. (1997) 'Happiness and Creativity: Going with the Flow', *The Futurist*, 31(5), 8–13.
- Cummins, R. G. (2007) 'Selling Music With Sex: The Content And Effects Of Sex In Music Videos on Viewer Enjoyment', *Journal of Promotion Management*. Routledge, 13(1–2), 95–109.
- Ghani, J. A. (1995) 'Flow in Human-computer Interactions: Test of a Model', in *Human factors in information systems; Emerging theoretical Bases; Human/computer interaction*, 291–311.
- Hartmann, T. and Goldhoorn, C. (2011) 'Horton and Wohl revisited: Exploring viewers' experience of parasocial interaction', *Journal of Communication*, 61, 1104–1121.
- Hoffman, D. L. and Novak, T. P. (1996) 'Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations', *Journal of Marketing*, 60(3), 50–68.
- Hou, F., Guan, Z., Li, B. and Chong, A. Y. L. (2019) 'Factors influencing people's continuous watching intention and consumption intention in live streaming: Evidence from China', *Internet Research*.
- Huang, H. C., Huang, L. S., Chou, Y. J. and Teng, C. I. (2017) 'Influence of temperament and character on online gamer loyalty: Perspectives from personality and flow theories', *Computers in Human Behavior*, 70, 398–406.
- Korzaan, M. L. (2003) 'Going With the Flow: Predicting Online Purchase Intentions', *Journal of Computer Information Systems*, 43(4), 25–31.
- Koufaris, M. (2002) 'Applying the Technology Acceptance Model and flow theory to online Consumer Behavior', *Information Systems Research*, 13(2), 205–223.
- Lammers, H. B. (1991) 'The Effect of Free Samples on Immediate Consumer Purchase', *The Journal of Consumer Marketing*, 8(2), 32.
- Lee, D. Y. and Dawes, P. L. (2005) 'Guanxi, Trust, and Long-Term Orientation in Chinese Business Markets', *Journal of International Marketing*, 13(2), 28–56.
- Li, B., Hou, F., Guan, Z. and Chong, A. Y. L. (2018) 'What Drives People to Purchase Virtual Gifts in Live Streaming? The Mediating Role of Flow', in *Proceedings of 22nd Pacific Asia Conference on Information Systems in Yokohama, Japan, 2018*.
- Lin, J., Luo, Z., Cheng, X. and Li, L. (2019) 'Understanding the interplay of social commerce affordances and swift guanxi: An empirical study', *Information and Management*, 56(2), 213–224.

- Lowry, P. B., Romano, N. C., Jenkins, J. L. and Guthrie, R. W. (2009) 'The CMC Interactivity Model: How Interactivity Enhances Communication Quality and Process Satisfaction in Lean-Media Groups', *Journal of Management Information Systems*, 26(1), 155–196.
- Luna, D., Peracchio, L. A. and de Juan, M. D. (2002) 'Cross-Cultural and Cognitive Aspects of Web Site Navigation', *Journal of the Academy of Marketing Science*, 30(4), 397–410.
- Maestripieri, D., Henry, A. and Nickels, N. (2017) 'Explaining financial and prosocial biases in favor of attractive people: Interdisciplinary perspectives from economics, social psychology, and evolutionary psychology', *Behavioral and Brain Sciences*. 2016/06/10. Cambridge University Press, 40.
- Mathwick, C. and Rigdon, E. (2004) 'Play, Flow, and the Online Search Experience', *Journal of Consumer Research*, 31(2), 324–332.
- Men, L. R. and Tsai, W.-H. S. (2013) 'Beyond liking or following: Understanding public engagement on social networking sites in China', *Public Relations Review*, 39, 13–22.
- Moore, E. S. and Lutz, R. J. (2000) 'Children, Advertising, and Product Experiences: A Multimethod Inquiry', *Journal of Consumer Research*, 27(1), 31–48.
- MuchNeeded (2018) *Twitch by the Numbers: Stats, Users, Demographics & Fun Facts*, Much Needed.
- Novak, T. P., Hoffman, D. L. and Yung, Y.-F. (2000) 'Measuring the Customer Experience in Online Environments: A Structural Modeling Approach', *Marketing Science*, 19(1), 22–42.
- Obadă, D. R. (2013) 'Flow Theory and Online Marketing Outcomes: A Critical Literature Review', *Procedia Economics and Finance*, 6(13), 550–561.
- Ou, C. X., Pavlou, P. A. and Davison, R. M. (2014) 'Swift Guanxi in Online Marketplaces: The Role of Computer-Mediated Communication Technologies', *MIS Quarterly*, 38(1), 209–230.
- Pelet, J. É., Ettis, S. and Cowart, K. (2017) 'Optimal experience of flow enhanced by telepresence: Evidence from social media use', *Information and Management*, 54(1), 115–128.
- Reichert, T. (2002) 'Sex in Advertising Research: A Review of Content, Effects, and Functions of Sexual Information in Consumer Advertising', *Annual Review of Sex Research*, 13(1), 241–273.
- Reichert, T., Heckler, S. E. and Jackson, S. (2001) 'The Effects of Sexual Social Marketing Appeals on Cognitive Processing and Persuasion', *Journal of Advertising*, 30(1), 13–27.
- Richard, M. O. and Chandra, R. (2005) 'A model of consumer web navigational behavior: Conceptual development and application', *Journal of Business Research*, 58(8), 1019–1029.
- Rothschild, M. L. and Gaidis, W. C. (1981) 'Behavioral learning theory: Its relevance to marketing and promotions', *The Journal of Marketing*, 45, 70–78.
- Sánchez-Franco, M. J. (2007) 'Exploring the influence of gender on the web usage via partial least squares', *Behaviour & Information Technology*, 25(1), 19–36.
- Sherry, J. L. (2004) 'Flow and Media Enjoyment', *Communication Theory*, 14(4), 328–347.
- Shi, S., Mu, R., Lin, L., Chen, Y., Kou, G. and Chen, X.-J. (2018) 'The impact of perceived online service quality on swift guanxi', *Internet Research*, 28(2), 432–455.
- Skadberg, Y. X. and Kimmel, J. R. (2004) 'Visitors' flow experience while browsing a Web site: Its measurement, contributing factors and consequences', *Computers in Human Behavior*, 20(3), 403–422.
- Spielmann, N. (2014) 'How Funny Was That? Uncovering Humor Mechanisms', *European Journal of Marketing*, 48(9/10), 1892–1910.
- Sternthal, B. and Craig, S. C. (1973) 'Humor in Advertising', *Journal of Marketing*, 37(4), pp. 12–18.
- The Economist (2017) *Life Is But A Scream: China's New Craze for Live-streaming*, *The Economist Newspaper Limited*. URL: <https://www.economist.com/special-report/2017/02/09/chinas-new-craze-for-live-streaming> (visited on 12/30/2018)
- Webster, J., Trevino, L. K. and Ryan, L. (1993) 'The dimensionality and correlates of flow in human-computer interactions', *Computers in Human Behavior*, 9(4), 411–426.
- Zhang, Y. (1996) 'The Effect of Humor in Advertising: An Individual-Difference Perspective', *Psychology & Marketing*, 13(6), 531–545.