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Understanding the Values of Live Game Streaming: a Value-Focused Thinking Approach

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Abstract: Today, along with the development of information communication technology, live streaming is getting more and more popular in China. It has established an integrated industrial chain. There are a large number of users watching different live streams (e.g., games, sports, live shows) through personal computers and mobile devices. In this paper, we aim to investigate the values of live game streaming using the Value-Focused Thinking (VFT) approach. We analyze the values of live game streaming from the perspectives of both streamers and spectators. The identified values are represented in the form of a means-ends objective network. The means-ends objective network derived from this research can serve as a conceptual foundation for future studies and provide useful guidelines for practitioners to better operate live game streaming applications.

Keywords: live streaming, live game streaming, the value-focused thinking approach, the means-ends objective network

1. INTRODUCTION

According to the report from China Internet Network Information Center, China's Internet population has exceeded 730 million at the end of 2016. The number of audience on live-streaming platform is more than 344 million at the end of 2016, which is 3.5% higher than half year ago^[1]. The live streaming is getting more and more popular in China. Top streamers can easily attract a large numbers of spectators in their live streaming room. Some biggest online shopping sites (e.g., Taobao) have launched their own live-streaming platforms. Douyu is one of the most popular live game streaming sites in China due to its popularity of live-streaming video games. Many streamers working with some media agencies together have ambitions to be celebrities on these live game streaming sites. According to the report from Douyu, some of them have millions of spectators for their live shows on Douyu. And mobile games industry was developing rapidly in the past few years^[2]. It seems that young people have great interests in watching entertainment on live game streaming sites on their mobile devices. This offers these live streamers new ways of money-making opportunities.

Although live game streaming is becoming increasingly popular in gaming industry in China, little research has been done on the values of live game streaming. Most previous researches tended to focus on live-streaming communities in China^{[3][4]}. However, to our knowledge none of them is about the values of live game streaming. In this study, we aim to investigate the values of live game streaming from perspectives of both streamers and spectators. The research question of this study is: what are the values of live game streaming from the perspectives of both streamers and spectators. To address this, we employed the value-focused thinking (VFT) to identify the values of live game streaming with some streamers and spectators in China.

The rest of this paper is organized as follows. The Section 2 discusses related works. The research methodology is presented in Section 3. This is followed by the application of this methodology with Douyu in Section 4. Then, the results are presented in Section 5. Finally, Section 6 concludes this research and suggests directions for future research.

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2. RELATED WORKS

2.1 Social media

Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content^[5]. The streaming media and social media have some certain common places. The live stream can be seen as a kind of social media. The famous streamers also belong to a new class of celebrities. By creating attractive streaming content, these streamers show charming character to their audiences, make them feel the sense of belonging and motivate the audience to subscribe to his stream. At the same time, they also encourage their spectators to follow their multiple social media accounts.

Soo Wincci and Wardah Mohamad (2015) studied Malaysia online celebrities on Facebook^[6]. The article illuminated that the social network changed the ways how celebrities communicate with the masses. It made the masses have a quick approach to be aware of the celebrities' status. The virtual image of famous people has become more and more important. The authors compared three celebrities on Facebook with different characteristics and concluded that their successes have a significant relationship of social strategy, content strategy, communication with fans, the authenticity of personal image, management on the mobile platform and maximization of the effectiveness.

Christine M Kowalczyk and Kate Pounders (2015) studied how social media change the connections between the masses and the celebrities^[5]. Their paper interviewed young females about what/how/why they use social media to follow famous stars and found that people are concerned about the stars' career information such as movie releases, album publish and concert schedule information. According to the survey, all the informants expressed interests in celebrities' personal information (personal life). At the same time, they care about the authenticity of the tweets sent by stars. They want to see something living of stars as ordinary people so they can feel an emotional contact.

2.2 Primary live-streaming

The content of primary live-streaming is mainly live shows compare to recent live-streaming. There are some previous studies on primary live-streaming in China. For instance, this research^[3] studied YY voice communication platform, which is the predecessor of live-streaming platform in China. At that time, live-streaming was more like an online talk show where a compere hosted the show, talking something funny, singing, and showing talents. The audience could watch or listen live-streaming on the YY platform. The paper focused on analysis of the company's publicity mechanism to explain its development process. The authors defined this as a "grassroots" phenomenon.

Another study^[4] took the primary live-streaming as the research subject, and enumerated the advantages and disadvantages of it. It made a comparative study of live-streaming platforms in different areas (e.g. entertainment, sports, and education). This study also pointed out some suggestions about how to gain a sustainable development for live-streaming platforms.

2.3 Live game streaming

Previous research works on live game streaming are summarized as follow. Sripanidkulchai K etc. (2004)^[8] found out that stream session inter-arrivals within small time-windows were exponential and session durations were heavy-tailed. Then, they covered two additional characteristics that are more specific to the nature of live streaming applications: the diversity of clients in comparison to traditional broadcast media like radio or TV and the phenomena that many clients regularly join recurring events. They found that Internet streaming did reach a wide audience, often spanned hundreds of application server domains, and recurring users often had lifetimes of

at least as long as one-third of the days in the event.

Gustavo Nascimento *et al.* (2014) modeled and analyzed the video live game streaming community^[9]. This paper modeled and analyzed the live-streaming of StarCraft 2 and the behavior of audience by using Twitch's data. The results presented that users would stay longer in the next stream after leaving the latest one and users who browsed more stream rooms would be more loyal to their preference stream. It also indicated that nearly 80% of the entrance actions were conducted by top 10% users.

Mehdi Kaytoue, Arlei Silva (2012)^[10] studied the usage of E-Sports: "Online live video streaming". This study used data to analyze the characteristics of audience and concluded a linear regression to help predicting the audience of streamers. The results showed how audiences of each specific game were related to real world events and presented how to utilize Twitch's data to determine and rank popular professional gamers.

3. RESEARCH METHODOLOGY

The Value-Focused Thinking Approach can elicit the values and organize them in a systematic way. VFT is developed based on The Means-Ends Chain (MEC) theory.

The MEC theory proposes that knowledge held in consumers' memories is represented as hierarchical cognitive structures at various levels of abstraction (e.g., Gutman, 1982; Gutman, 1997)^{[11][12]}. The lowest level describes an object's attributes, those that are typically physical or concrete, although they can sometimes be abstract. The higher level refers to the psychological or social consequences of consuming the product or service, which is then followed by the consumers' instrumental values and terminal values^[11].

The MEC theory focuses on the linkages between the attributes that exist in products (the lower-level "means"), the consequences for the consumers provided with the attributes (the higher-level "means"), and the personal values (the "ends"). Means are objects (products) or activities in which people engage with. Ends are valued states of being (such as happiness, security, or accomplishment). Achieving a valued state is brought about, facilitated, or caused by consequences at the lower levels of abstraction^[12]. Consequences can be defined as results (e.g., physiological or psychological) accruing directly or indirectly to a consumer from his/her behavior. Consequences can be desirable or undesirable. Consequences may be physiological in nature, psychological or sociological. Consumers choose actions that produce desired consequences and minimize undesired consequences^[11].

Keeney (1992) defined values as principles used for evaluation by customers. Values that are of concern are made explicit by the identification of objectives. An objective is a statement of something that one desires to achieve^[13]. VFT defines the attributes from the lower level and the higher level as the means objectives, and the personal values as the fundamental objectives. It also identifies the relationships between these objectives, giving us a clear map of its construction.

The VFT approach has been applied to many research areas such as creativity in decision making^[14], strategic decision making^[15], to gain insights into the values of internet Commerce to customers to facilitate design; to understand the values of mobile technology of education^[16]. The VFT approach is particularly apt in this context as it imposes no limit of identifying 'what we care about' and the values elicited also inform the relative desirability of consequences.

In this study, we employed VFT approach as follows (see Figure 1):

- Step 1: Identify users of the live-streaming platform. Getting information and insights from the users of the live-streaming platform from the community is significant to assure the accuracy of the values and objectives. The content receivers are the spectators of the streams, while the content producers are the streamers who

generate contents for spectators to enjoy. Therefore we choose to interview both spectator and streamers. Seven persons were interviewed that included four streamers form Douyu.TV (a famous live-streaming platform in China) and three advanced spectators who has much experience of watching live-streaming on Douyu.TV.

- Step 2: Make a list of objectives of interviewees and convert them into common form. An objective is characterized by three features, namely a decision context, an object and a direction of preference. According to that, several techniques can help conclude the possible objectives from the insights and make them easier to comprehend.

- Step 3: Structure the fundamental and means objectives. This step distinguishes between fundamental objectives and means objectives. Fundamental objectives concern “the ends that decision makers value in a specific context” whereas means objectives are “methods to achieve ends”. By using the “why is that important” test suggested by Keeney, we are able to distinguish these two types of objectives and establish the relationships between objectives. For each identified objective, asking “Why Is That Important?” yields two types of possible responses. One response is that this objective is important because of its implication for some other objective(s). This kind of objective is called a means objective. The other response is that an objective is important because of happiness or self-esteem. This kind of objective is one of the essential and fundamental reasons for interest in the context of decision making. This is called a fundamental objective.

- Step 4: Build the means-ends objective network. This is the final step of VFT approach. This graphical depiction can give clear interrelationships among the means objectives and their relationship to end objectives. This would be helpful to understand the complexity of the decision makers’ value structure, which is concerning what they really want at the end and how they get it.

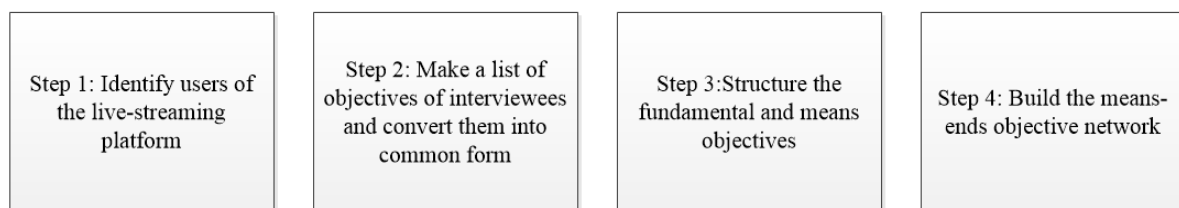


Figure 1. Steps of VFT approach

4. APPLICATION OF METHODOLOGY

4.1 Subjects

Seven persons were interviewed regarding the values of live game streaming in the biggest city in central part of China in December 2016. Among these people, four of them are streamers from Douyu.TV and three of them are experienced spectators. Streamers and spectators are two important actors in live game streaming actions, therefore, we choose people from these two groups. The number of people who has subscribed these four streamers ranges from thousands to tens of thousands so that we can get information from streamers from different ranks. And the spectators we interviewed all have given different amount of gifts to streamers they are fond of. Hence, they are the appropriate candidates to be interviewed in this context.

Following the VFT approach, probing questions that were used in the interviews are as follow:

“Why do you choose to be a streamer/spectator?”

“What are the benefits of live-streaming for streaming/watching?”

“What problems or concerns can arise in using live-streaming application?”

“If there is no limitation at all, what are the features or functions of live-streaming you wish to have?”

Based on these questions, we developed an initial list of values that are relevant to live game streaming. This list helped us to develop the means-ends objective network for further study. After probing one of the four beginning questions, we asked “Why is that important” to make the subjects to manage some clear relationships between objectives. Then we distinguish the fundamental and means objectives based on their responses.

4.2 Data collection and analysis

We carried out 4 face-to-face interviews and 3 telephone interviews with the respondents. Each interview lasted approximately 30-45 minutes. Each interview session continued until no further values could be elicited from the subject via various probing questions. All interviews were audio-recorded.

We derived the means end objectives from the values elucidated by the interviewees according to their responses. Upon obtaining the set of values, these values were first converted to a common form - a decision context, an object and a direction of preference. Then we used the “Why is it important” test to drive the fundamental objectives from these means end objectives. For example, when one subject responded to the question “*If there is no limitation at all, what are the features or functions of live-streaming you wish to have*” that “*I would like the platform to design a new function for streamers to interact with audiences*”. The researcher followed up with “*Why is that important?*” The streamer participant then mentioned, “*so that I could have more close interactions with the audiences in my streaming room*”. After being asked “*why?*” again, the participant responded, “*this may help increase the chance that the spectators would subscribe my channel*”. When asked “*why?*” the participant then answered, “*Then there will be more people getting the reminder when I am streaming, and more people watching me while I am streaming*”. When the researcher asked “*Why Is That Important?*” the participant stated, “*it will increase my popularity and help me earn money*”. The example suggests the following means-ends chain: “maximize interaction with audience” → “maximize the number of subscribers” → “maximize exposure on live-streaming platform” → “maximize streamer’s popularity”, “maximize streamer’s income”.

5. RESEARCH RESULTS

Based on the data collected from the interviews, we developed a means-ends objective network to depict the objectives and relationships between objectives (see Figure 2). The results are discussed below.

Seven fundamental objectives and twenty-six end-means objectives were identified. The fundamental objectives included: maximize personal income; maximize abilities for future life; maximize popularity in live-streaming business; maximize security of streamer/spectator information; maintain a better environment of live-streaming; maximize the usability of live-streaming application; maximize happiness.

From fundamental objectives of the network, we can learn that there are pecuniary and spiritual reasons why people stream on the live-streaming platform. Some of the streamers want to increase their personal income. Some of them want to train themselves to be communicative and to gain abilities and popularity to enter entertainment business. We know that streamers consist of professional players, employees, unemployed people etc. The professional players often have high salary. They might do live streaming just for popularity of fun. Some other streamers may consider live-streaming job as a full-time job or a part-time job, which are a result of different personal situations. Hence, we conclude that into “maximize personal income”, “maximize abilities for future life” and “maximize popularity in live-streaming business”.

We interviewed people from both sides of the live game streaming platform: streamers and spectators. Although they had different perspectives on the value of live game streaming, they still had many similar opinions. For example, both streamers and spectators indicated that they did not want to disclose their personal

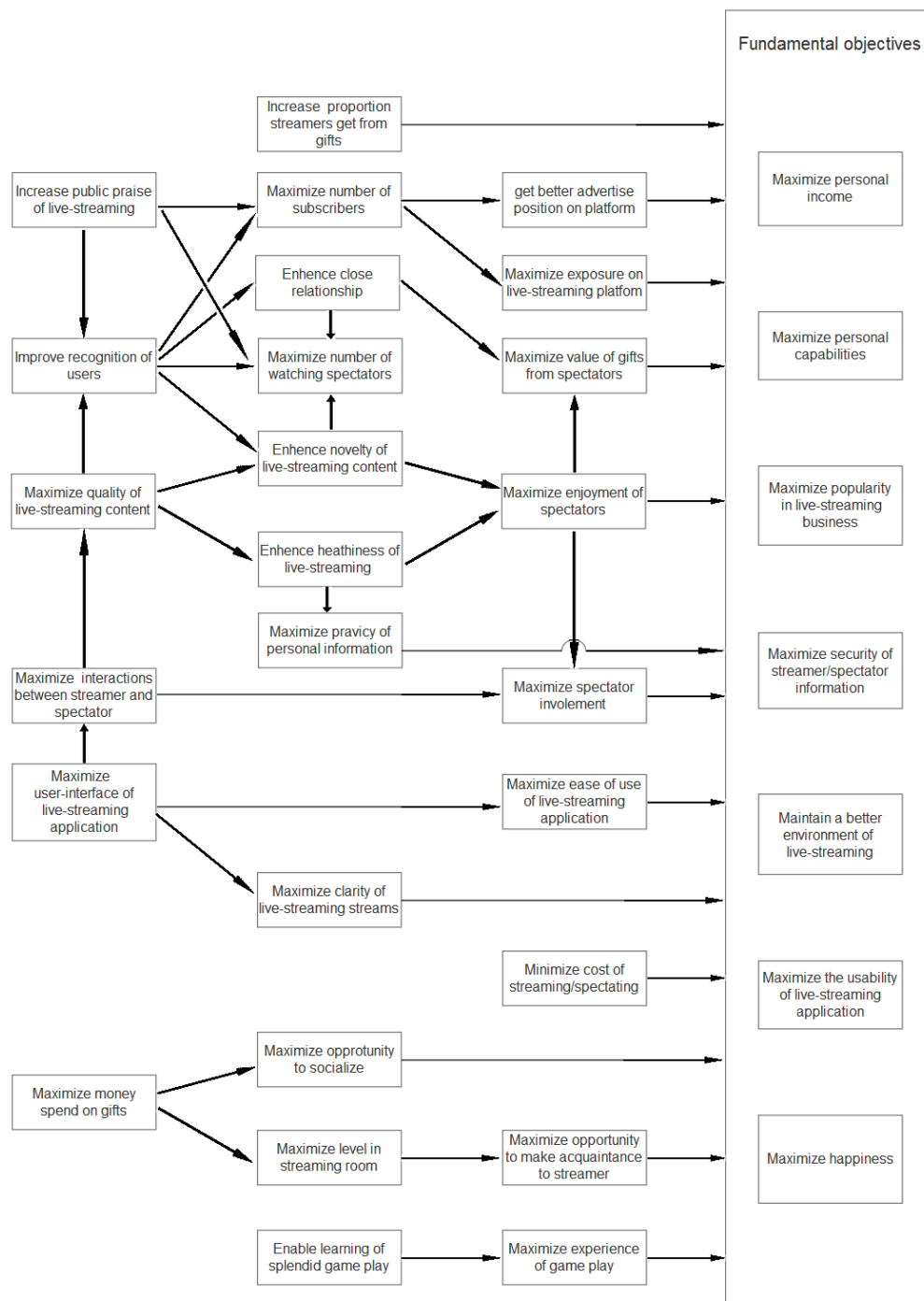


Figure 2. Means-end objective network

information online. “Maximize security of streamer/spectator information” and “maintain a better environment of live-streaming” are mentioned by both streamers and spectators. Furthermore, the streamers that the spectators usually watched and liked are some kind celebrity to themselves, so called, online celebrity. Compared to the real celebrity from entertainment business, these online celebrities are easier to make acquaintance with. Spectators can meet their idol on the live game streaming platform. This can make them really happy.

As the live-streaming business is booming, streamers have a strong desire to interact with spectators on the live game streaming platforms. According to the results, we found that both of them had a strong demanding for a well-designed live game streaming platform. The platform providers should pay more attention to provide a user-friendly interface to create an enjoyable interactive experience for both streamers and spectators.

It is unexpected that both streamers and spectators mentioned that they hoped that the live-streaming platform could increase the value proportion streamers get from the gifts. On the one hand, streamers wanted to get a good profit from the platform. On the other hand, some spectators indicated that it was reasonable for streamers to get a majority value proportion of the received gifts on the platform. However, the platform often charges 50% of the value of the received gifts as commission. Therefore, the platform providers might need to design a good mechanism to further promote the business of the gift system on the live game streaming platform.

6. CONCLUSIONS

With the development of information communication technology, live game streaming is becoming more and more popular in China. This study examined the values of live game streaming by using the value-focused thinking approach. We interviewed 7 users of a popular live game streaming platform in China. Based on the data collected from the interviews, we developed a means ends objective network. The results indicated that most streamers carry on a stream to make a better living. Some of them do it for exercise or just for fun.

Both streamers and spectators also frequently mentioned the importance of information security for using live game streaming. Therefore, the live game streaming service providers need to provide more secured services for users. Another interesting finding is that both streamers and spectators care about how platform split the money of gifts with the streamers. For some reason, the proportion that streamers can get has influence on the volume of gifts spectators tend to give.

We are also aware of some limitations of this study. The sample size of this study was quite small. . Therefore, the generalizability of the results to other users remains to be determined. Secondly, the participants of our study were mainly between 18 to 30 years old. Although they can represent the mobile game players to some extent, they cannot reflect the total live game streaming user-population in China.

We plan to study about the regression correlation between the two subjects and find out the relationship between the ratio at which the platform split the money with streamers and the amount of money the spectators will spend on gifts giving in the future.

REFERENCES

- [1] CNNIC. (2017). China Statistical Report on Internet Development. <http://www.cnnic.net.cn/hlwfzyj/hlwzbg/>
- [2] Gao S, Krogstie J, Zang Z. (2016). The effect of flow experience and social norms on the adoption of mobile games in China. *International Journal of Mobile Human Computer Interaction* 8(1): 83-102.
- [3] Xue Xue. (2014). The research on communication science of YY voice communication platform. MA Thesis. Dalian: Dalian University of Technology,(in Chinese)
- [4] Zhang Xiyuan. (2015). The research on resource superiority and mechanism of innovation of Internet video live-streaming room. MA Thesis. Kunming. Yunnan Arts University,(in Chinese)
- [5] Kaplan A M, Haenlein M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons* 53(1): 59-68.
- [6] Wincci S, Mohamad W. (2015). Social media strategies for personal branding – a case study of Malaysian celebrities on Facebook. *American Journal of Economics* 5(2): 236-242.

- [7] Kowalczyk C M, Pounders K. (2016). Transforming celebrities through social media: the role of authenticity and emotional attachment. *Journal of Product & Brand Management* 25(4): 345-356.
- [8] Sripanidkulchai K, Maggs B, Zhang H. (2004). An analysis of live streaming workloads on the Internet. *The 4th ACM SIGCOMM Conference on Internet Measurement*. 2004: 41–54
- [9] Nascimento G, Ribeiro M, Cerf L. (2014). Modeling and analyzing the video game live-streaming community. *Latin American Web Congress*. 2014: 1-9.
- [10] Kaytoue M, Silva A, Cerf L. (2012). Watch me playing, I am a professional: a first study on video game live streaming. *The 21st International Conference Companion on World Wide Web*. 2012: 1181–1188
- [11] Gutman J. (1982). A means-end chain model based on consumer categorization process. *Journal of Marketing* 46: 60-72.
- [12] Gutman J. (1997). Means-end chains as goal hierarchies. *Psychology and Marketing* 14(6): 545-560.
- [13] Keeney R L. (1992). *Value-focused Thinking*. Cambridge: Harvard University Press, 125-128
- [14] Keeney R L. (1994). Creativity in decision making with value-focused thinking. *Sloan Management Review* 35(4): 33-41.
- [15] Keeney R L. (1999). Developing a foundation for strategy at Seagate Software. *Interfaces* 29(6): 4-15.
- [16] Sheng H, Siau K, Nah F F. (2010). Understanding the values of mobile technology in education: a value-focused thinking approach. *ACM Sigmis Database* 41(2): 25-44.