

Utilitarian and Hedonic Motivations for Live Streaming Shopping

Jie Cai, Donghee Yvette Wohn, Ankit Mittal, Dhanush Sureshababu

New Jersey Institute of Technology

Newark, NJ, USA

jc926@njit.edu, wohnd@njit.edu, ds676@njit.edu, am2272@njit.edu

ABSTRACT

Watching live streams as part of the online shopping experience is a relatively new phenomenon. In this paper, we examine live streaming shopping, conceptualizing it as a type of online shopping that incorporates real-time social interaction. Live streaming shopping can happen in two ways: live streaming embedded in e-commerce, or e-commerce integrated into live streaming. Based on prior research related to live streaming and consumer motivation theories, we examined the relationships between hedonic and utilitarian motivations and shopping intention. We found that hedonic motivation is positively related to celebrity-based intention and utilitarian motivation is positively related to product-based intention. A content analysis of open-ended questions identified eight reasons for why consumers prefer live streaming shopping over regular online shopping.

Author Keywords

Live streams; live streaming shopping; e-commerce; Technology Acceptance Model (TAM); hedonic and utilitarian motivations; behavioral intentions.

ACM Classification Keywords

Human-centered computing; Human computer interaction (HCI); Empirical studies in HCI.

INTRODUCTION

Live streaming is an increasingly popular form of media, with growing research around this topic, ranging from technical research about live streaming systems [21,31,32] to behavioral studies about streamers' motives and viewers' motives across different platforms, including YouTube Live [9,21], Twitch [10,12,21,33], and Periscope [8,30].

Nowadays, if we open Twitch (which is primarily gaming

content but is quickly expanding into other areas as well) and view a recommended streamer who is streaming a video game, we can see all kinds of technology product links on their channels to shopping sites such as Amazon and Newegg. Sometimes streamers are paid to promote these products in stream; other times the shopping sites such as Amazon give the streamers commissions for sales generated by links on their channels. On the live video platform "Live.me," which was established in 2016, users could buy the items promoted by their favorite streamers while viewing the stream.

In the U.S., the incorporation of shopping into live streams is relatively new and has not always been successful. In March 2016, Amazon launched "Style Code Live" to broadcast fashion and beauty tips via mobile, but the live television show was cancelled in May 2017. In Dec. 2016, Livby launched the first mobile live streaming shopping app in the U.S. [23] but has yet to become mainstream. As of February 2018, no other large U.S. online shopping site has live streaming channels on their websites.

In contrast, almost all main e-commerce platforms in China such as Taobao.com, JD.com, and VIP.com have live streaming channels for their online vendors or brands. For example, users on Taobao.com (similar to eBay) can create an online store and demo products through a live stream with product links on the right side that can be clicked to purchase. In the middle of the screen there is a chatroom for viewers to communicate. Brands often promote events by inviting social media influencers or internet celebrities to broadcast products and increase sales. Sometimes, store owners themselves live stream for their small businesses. In 2016, Meili Inc., a leading fashion e-commerce platform in China, held its first overseas live streaming show in New York [22].

There is very little research, however, on live streaming shopping, perhaps due to it being a relatively new phenomenon. We thus conducted this study to understand why people watch live streams when they shop and why they would prefer shopping on e-commerce websites that have live streams as opposed to those that do not. Understanding the motivations of users would enable us to identify current pros and cons related to existing live streaming shopping sites, opportunities for live streaming platforms to incorporate elements of e-commerce, as well

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from Permissions@acm.org.

TVX '18, June 26-28, 2018, SEOUL, Republic of Korea

© 2018 Association for Computing Machinery.

ACM ISBN 978-1-4503-5115-7/18/06...\$15.00

<https://doi.org/10.1145/3210825.3210837>

as e-commerce sites to incorporate elements of live streaming.

In this paper, we first introduce live streaming from a social media perspective. Then, we summarize current live streaming research related to motives and integrate them with shopping motivation theories to form our hypotheses. Finally, we present survey results of closed and open-ended questions.

LIVE STREAMING SHOPPING DEFINITION

Live streaming is a new type of social media, some research called it mixed media [10], which was different from traditional social media such as Facebook and Twitter. Scheibe et al. [25] mentioned that social networking site was a narrower term of social media and could be categorized into asynchronous [13] and synchronous. Live streaming is a primarily synchronous social media form. It contains some unique features such as simultaneity [25] and authenticity [30].

Shopping through live streams is a new way of shopping and contains not only lots of social commerce attributes but also unique media attributes. Social commerce refers to a way of commerce mediated by social media [26]. Kim and Park [14] defined social commerce as a subset of e-commerce that used social network sites for social interactions to facilitate online shopping. In this study, we refer to *live streaming shopping* as having attributes of social commerce that integrates real-time social interaction into e-commerce. It can be achieved in two ways: live streaming is embedded into e-commerce, such as Amazon live style code, Taobao.com, and JD.com or e-commerce is integrated into live streaming, such as Live.me and Livby.

MOTIVATIONS TO WATCH LIVE STREAMS

In this section we examined the most current research about streamers' motivations. Friedländer [8] measured streamers' motivations on social live streaming services ($N=7,667$) across different platforms and countries and found out that the top six motives were boredom, socializing, to reach a specific group, need to communicate, fun, and self-expression. Hamilton et al. [10] studied streaming on Twitch and concluded that there were two reasons for people to engage in live streaming: unique content, and interaction and participation. For the streamers, desire to build community and encouragement of participation with viewers were their motivations. For the viewers, three motives were identified through interviews: intention to learn about a particular game, friendliness of the streamers, and social interaction.

Other related research did not distinguish the motives between streamers and viewers and just used the general motives of users. For instance, research about YouNow (a social live streaming service) showed that the main motives to use this platform were ease of use, satisfaction of the need of self-presentation, boredom and acceptance by the community [25].

MOTIVATIONS OF LIVE STREAMING SHOPPING

Because live streaming shopping is a new form of mixed media and shopping, it is important to consider both existing consumer literature on why people shop and user experience literature on why people watch live streams. As it has both technology related attributes and general online shopping features, our research drew from previous motivation theories related to acceptance of information technology as well as theories about online shopping.

For consumers' shopping motivations, most research explored utilitarian and hedonic motivations [2,3,7,19,20]. Utilitarian means functional, instrumental, and practical and hedonic means multisensory and emotive [11]. Babin et al. [1] documented that utilitarian outcome was a result from "conscious pursuit of an intended consequence" while utilitarian value could explain "shopping trips described by consumers as 'an errand' or 'work' where they were happy simply to 'get through it all'." Utilitarian benefits could be ease of use and satisfactory outcomes while hedonic benefits could be enjoyment of the shopping experience [2]. Utilitarian motivations included convenience and cost reductions (i.e., money, time, and effort) [15].

Hedonic values are subjective and can be generated from playfulness and fun [11]. Falode et al. viewed hedonic shopping as "a positive experience where consumers may enjoy an emotionally satisfying experience related to the shopping activity regardless of whether or not a purchase was made" [7], and it pertained to hedonic fulfillment such as fun, amusement, and sensory stimulation [1]. Hirschman and Holbrook depicted shoppers as "problem solvers" or "fun, fantasy, arousal, and enjoyment" seekers [11]. Other research described shopping motives as either work [29] or fun [28].

For technology-related motivations, the Technology Acceptance Model (TAM) in information systems is widely adapted and used for research related to understanding why people adapt and use technology. Davis in 1989 developed two scales (perceived usefulness and perceived ease of use) for system usage and defined perceived ease of use as "the degree to which a person believes that using a particular system would be free of effort" and perceived usefulness as the extent that people believe using a particular system would enhance their job performance [4].

Individuals' behavioral motivations are differentiated into extrinsic (behaviors prompted by external contingencies) and intrinsic (perceived pleasure and satisfaction) motivation [6]. From this perspective, both ease of use and usefulness are perceived as extrinsic motivations [16,27]. Therefore, the TAM was extended by many research with enjoyment as an intrinsic motivation [5,16,17]. Thus "hedonic" and "utilitarian" not only applied to consumer motivations but also used to systems and user experiences [19].

TAM has been applied in the e-commerce context. Childers et al. applied TAM in online retail shopping and postulated

that the usefulness referred to the outcome of the shopping experience and ease of use referred to the process resulting to outcome [3]. They also proposed that usefulness could reflect utilitarian motivation and enjoyment embodied hedonic aspect. Shang et al. [27] also applied TAM in online shopping and found the intrinsic motivations were the major reason to shop online.

Using the framework of utilitarian and hedonic motivations, we incorporated the original TAM to understand the utilitarian aspects. But since this model only covers utilitarian motivations, we had to add hedonic motivations. There could be many different types of hedonic motivations, but we decided to focus on the aspect of the live streamer, as that was a novel component to live streaming shopping in comparison to regular shopping. We chose interpersonal attractiveness as a measure of how much the viewer thinks the streamer is interesting as a person, and physical attractiveness as a measure of how much the viewer likes the streamer's outwardly appearance.

Integrating the reasons and motives summarized from previous literature to use live streams with the TAM and motivation theories, we finally refined four motivations for live streaming shopping: two utilitarian motivations (ease of use and usefulness) and two hedonic motivations (physical attractiveness and interpersonal attractiveness). Correspondingly, we developed two types of intentions for these motivations: one is utilitarian intention (intention to watch because of the product), and another is hedonic intention (intention to watch because of the streamer).

RQ1: How do utilitarian (product-related) motivations and hedonic motivations (streamer-related) explain intention to watch a live stream for shopping?

Because live streaming shopping is a new phenomenon in online shopping domain, we wanted to understand not only why people engage in it but also why they would prefer it over other modes of shopping. Because we did not find a good theoretical framework for this, this was a preliminary attempt to get some idea of users' preferences. Thus, we posed an open-ended question:

RQ2: Why do people prefer live streaming shopping as opposed to regular online shopping sites?

METHODS

Participants

An online survey was designed and approved by IRB, then distributed on Amazon Mechanical Turk. Only English-speaking participants that were 18 years or above and with an approval rate higher than 90% were qualified to complete the task. Since our questions were about shopping experiences that involved live streaming, in order to avoid missing data, two qualifier questions were set: "Have you ever used a shopping website that had a live stream?" and "Have you ever watched a live stream about a product before purchasing it?" Only participants who answered "yes" for both were qualified. Thus, all our respondents had

some live streaming shopping-related experience. Because we encouraged our participants to explain more in open-ended questions, we gave them \$2.

We collected a total of 220 responses. We cleaned the dataset by looking at the open-ended question answers and removing cases where people wrote gibberish. We also eliminated cases where there were substantial missing values. The final dataset contained 199 valid answers. Most of respondents were from United States (78.4%), followed by India (14.6%); the rest were from 11 different countries. The average age was 31.7 ($SD=7.89$), but most of them were between 25 and 34 years old (64.8%). In our survey, there were more male (61.8%) than female (37.2%) participants. Most of them had a bachelor's degree or higher (58.2%) and were full-time employees (73.4%).

Survey Measures

All the items for motivations were borrowed from prior research. Interpersonal attractiveness ($M=4.13$ $SD=.64$, $\alpha=.73$) was from [24] and had three items: "The streamer was likeable," "The streamer was approachable," "The streamer was very warm." Physical attractiveness ($M=3.62$ $SD=.88$, $\alpha=.88$) was from [18] and had three items: "The streamer was quite handsome/pretty," "The streamer was attractive physically," "The streamer was very good looking."

Usefulness ($M=4.19$ $SD=.55$, $\alpha=.81$) and ease of use ($M=3.92$ $SD=.60$, $\alpha=.77$) were adapted from [1,3,27] to fit the context of live streaming shopping. Usefulness contained seven items such as: "It was useful in getting information about the product," "The live stream shows the effectiveness of the product," and "It would improve my shopping ability." Ease of use contained seven items such as: "It would allow me to save time when shopping," "It would be convenient for me," and "I could find products easier through live streaming." We prefaced all the items with "I watched a live stream before purchasing a product because ..." and measured them with a 5-point Likert scale from "Strongly disagree" to "Strongly agree".

For our dependent variable, we had two types of intention: intention to watch a live stream if an individual is searching for a product online and just happens to find a live streaming event ($M=4.25$, $SD=.70$) and intention to watch a live stream if a shopping website invited their favorite internet celebrity to stream an event for an hour ($M=4.10$, $SD=.81$). These were single item measures on a 5-point Likert scale from "Very unlikely" to "Very likely".

Besides the major independent variables and dependent variables, we also asked questions about the streaming content and their decision-making factors with the question: "How important are the following factors in your decision to buy the product?": "how much I like the streamer" ($M=3.56$, $SD=1.11$), "how much I need the product" ($M=4.12$, $SD=.83$), and "how much I like the product" ($M=4.19$, $SD=.82$). These three items were on with a 5-

point Likert scale from “Not at all important” to “very important.”

We also had two open-ended questions. In the beginning of the survey, we asked, “What are some examples of products you bought after seeing it on a live stream?” Toward the end of the survey, we asked, “Why did you shop on a live streaming site rather than other online shopping sites that don’t have live streaming?”

RESULTS

Descriptive Data

We asked questions about how often they shop online and watch live streams to understand general shopping frequency (see Table 1). When asked about which live streaming shopping sites they have used (check all that apply), participants had used Amazon style live code the most (62.4%), followed by Live.me (23.6%), VIP.com (7.5%), Taobao.com (7%), JD.com (4%), Livby (4%), and other (34.7%).

When asked which platforms they watched live streams on before purchasing a product (multiple choices allowed), participants reported Facebook Live (62.8%), followed by YouTube Live (46.2%), Twitch (25.6%), Instagram (21.1%), Periscope (8.5%), and other (10.1%). The products they bought after watching a live stream were: Electronics, Computer, and Office (30.2%), Clothing, Shoes, and Jewelry (24.1%), Home, Garden, and Tools (14.1%), Music, Movies, and Games (11.1%), and Beauty and Health (10.1%).

Relationship Between Motivation and Intention

For the relationship between motivations and intentions, we put the four motivations and the decision-making factors as independent variables, and two scenario-related intentions as dependent variables. Results are shown in Table 2.

For the utilitarian intention, which was whether they would watch a live stream if an individual was searching for a product online and just happened to find a live streaming event, 24% of the variance were explained by the model, $F(7,191) = 10.15$ and $p < .001$. Usefulness was the only significant motivation and liking product was the only significant decision-making factor, indicating that if the users were goal-oriented and looking for a specific item, the more useful they thought the product info was and the more they liked the product, the more likely they would go watch the live stream in this situation.

For the hedonic intention, which was whether they would watch a live stream if a shopping website invited their favorite internet celebrity to stream an event for an hour, the model accounted for 23% of total variance, $F(7,191) = 9.40$ and $p < .001$. Physical attractiveness of the streamer and liking the streamer were significant, meaning that if users were driven by hedonic motivations, the more attractive the streamer was and the more they liked the streamer, the more likely they would watch a live stream promotion event.

Frequency	Q1	Q2	Q3	Q4
Never	.5	4	8.5	.5
Once	5	24.6	22.6	6.5
Two to three times over six months	25.6	28.6	24.1	20.6
Four to five times over six months	15.1	11.6	10.1	13.6
About once a month	11.6	12.6	12.1	8.5
Two or three times a month	14.1	10.6	10.1	12.1
About once a week	16.1	5.5	6	14.6
Two or three times a week	8.5	2.5	6.5	15.1
Four or more times a week	3.5	0	0	8.5
Total	100	100	100	100

Percentage %

Note: “In the past six months, how frequently did you (Q1) shop online through a website or shopping app, (Q2) shop online AFTER watching a live stream on a shopping website, (Q3) shop online after watching a live stream that was not part of the shopping website, and (Q4) watch live streams (in general)”.

Table 1: Live streaming and online shopping frequency

	Product Scenario	Celebrity Scenario
<i>Streamer related</i>		
Interpersonal attractiveness	.13	.03
Physical attractiveness	.04	.14*
Liking streamer	.06	.29***
<i>Product related</i>		
Usefulness	.27**	.11
Ease of use	.01	.07
Needing product	.03	-.03
Liking product	.17*	.14
Adjusted R ²	.24***	.23***

* $p < .05$, ** $p < .01$, *** $p < .001$. Values are standardized beta coefficients

Table 2: Linear regression models explaining intention to use live streaming shopping in the future in two scenarios.

Comparison to Traditional Online Shopping

RQ2 inquired into why individuals would shop on a live streaming shopping site rather than other online shopping sites that don’t have live streaming. Two of the authors sat down together and sorted participants’ short answers into groups without any prior categories in mind. The categories were then reviewed by all authors and best examples were selected to present in the results. We identified eight

reasons: product demos, product information, excitement about novelty of live streaming, interaction, convenience, hype about the product, wanting other opinions, and deals. Some participants reported more than one reason.

Product demonstrations (37%): By far the most popular reason was the ability to see demonstrations of how products worked. Participants could see how the product looked, how it was assembled, or how to properly use the product. P24 (male, 35) said, “I could get a good visual examination of the product and how it is used.” In particular, people wanted to see demos of software. “You can’t really tell how useful it’ll be to you without seeing it in action,” said P90 (male, 33).

Product information (27%): The second frequent response participants gave was that they wanted more information about the product they were interested in. They said that the short product descriptions or photos on many shopping sites might not give all the information a person needs when making a purchase or not be timely. For example, P22 (female, 52) said, “Live streaming is up to date and gives me much more information about the product.”

Excitement about novelty (26%): Participants also thought the idea of shopping via a live stream was an exciting new idea or found it entertaining. P12 (male, 23) said live streaming shopping was “a fun new way to shop” while P98 said live streaming shopping was “more entertaining” than regular online shopping. The participants wanted a new, engaging way to shop for products. P38 (male, 28) said, “Most of the times when I want to buy something, I rather search for the live streams because it is more fun than just surfing through shopping websites.”

Interaction (23%): Interacting with other people was the third reason why participants shopped on a live streaming site. Having the ability to directly communicate with the streamer and other viewers in real time helped facilitate their decision to purchase a product. As P197 (female, 50) put it, “If I want to see someone interact with the product and be able to ask questions, it makes it more immediate than going to a website and sending an email, for example.” P147 (female, 23) also made comparisons to other services: “If I don’t understand something about the product (especially with tech products) you can ask all the questions you want until you get a satisfying answer (which you rarely have with customer service).” Interacting directly with the product maker was also a reason. P94 (male, 26) said that they would watch live stream shopping “if it was an exclusive product, like one that someone had invented/manufactured themselves and therefore were the experts.”

Participants also appreciated the opportunity for more personal questions. P22 (female, 52) said that they seek live streams when buying food products, so they can question relevant to their dietary restrictions. Finally, participants

noted that they can get benefits and supports from other viewers as well. P194 (female, 42) said that having many people in a chat interested in the same product led to unique questions that they may not have thought of.

Convenience (15%): Participants liked being able to view and buy a product they were interested in without having to leave their home. As P54 (female, 49) put it, a live stream “showed me all about the product and how it works from the comfort of my home.” P1 (male, 50) said that live streams helped him save time: “For a more expensive product such the iPhone it saves me time when I can’t get to the store, but the item is expensive and important, so I need to make a good decision but save time in the process.” P151 (female, 25) said purchasing products through a live stream was easier for them because they have kids, so it is hard to get out of the house.

Hype (7%): Only a few participants purchased something on a live stream because of a lot of other people were interested in it, which made them curious. In the case of P116 (male, 28), watching a live stream made them want the product more. For example, someone could be interested in a new video game but is unsure of purchasing it. Watching someone play the game and talking to the chat on a live streaming service like Twitch could push them to purchase the game.

Wanting other opinions (4%): Some participants wanted a review or opinion for the products they were interested in. This was different from objective product information in that participants were specifically seeking opinions. In particular, they sought out reviews from streamers they trusted. P105 (male, 26) said, “It also allows me to get an opinion of the product from a person that I have trusted with other similar products.” Participants also wanted reviews from people that do not work for the company selling the product they were looking to buy because they believed that the streamers would be unbiased and knowledgeable. They also wanted to see live streams for opinions when online written reviews were mixed.

Deal or discounts (3%): A few participants said they watched a live stream to get a deal on an item they were interested in. For example, P66 (male, 34) described that popular streamers had partnerships with companies where the company gave streamers a unique discount code to share with their viewers. When a viewer of the stream used the code to purchase an item, a portion of the sale went to the streamer. In this business strategy, the company got more exposure, the streamer got additional money, and viewers saved money and supported the streamer.

DISCUSSION

Our research showed that different intentions were associated with different motivations. Specifically, utilitarian motivations were only associated with utilitarian intention (product scenario), and only hedonic motivations

significantly predicted hedonic intention (celebrity scenario) in live streaming shopping domain. This paper might provide some hints for current e-commerce businesses that planned to jump into live streaming shopping in the near future. For example, in the regression model, only physical attractiveness and liking streamer could significantly predict celebrity-related intention, suggesting that e-commerce could catch this type of customer and launch a campaign to promote new products/brands by inviting micro celebrities from other live streaming platforms because this type of customer cared only about their admired celebrities. It could be an economical approach to market and expose products instead of using commercial ads and inviting superstars. The potential disadvantages of this approach might be that it attracted a lot of viewers to watch but the actual purchase might happen at very low rate because intention did not equal to actual behavior. Future research can try to identify and measure the difference between the strength of intention before and after watching live streams, or the strength of intention after watching and the actual purchase. Results also showed that if consumers really needed the product, they would not use live streaming shopping because needing product was non-significant for both intentions. Instead, if they think the info is useful and they also like product, they want to watch it and potentially buy it, indicating that e-commerce business can also target these undecided, info-seeking, wobbly customers and convince them to make a purchase.

We found that most viewers watched live streams on Facebook Live (62.8%) and YouTube Live (46.2%) and shopped on other websites. There was a gap between live streaming platforms and online shopping platforms, suggesting huge business opportunities. E-commerce businesses could partner with and add interfaces to live streaming platforms. This method could import the viewers to be potential customers. Alternatively, if the live streaming platforms wanted to expand their business into e-commerce, they could just open a shopping channel on their platforms. For example, Facebook Live can just add a shopping channel on its streaming site.

We can also think of this in another way. For e-commerce businesses, instead of having partnerships with live streaming platforms, they could directly create their own live streaming channels such as Taobao, JD, and VIP, the top three Chinese e-commerce companies. We also noticed that there was a huge variety among categories and electronics and computers (30.2%) and clothing, shoes, and jewelry (24.1%) were the most popular ones. Hence, if an e-commerce wanted to integrate live stream to expand its business, categorization might need to be considered. For example, if an e-commerce business currently focuses on tech products and wants to expand to beauty category, it might need to partner with live stream platforms that have plenty of beauty content and streamers instead of opening a channel on its current tech website.

In Table 1, if we looked at the frequency of equal and more than once a week, 28% of our participants shopped online through a website or shopping app and 38% watched live streams in general. However, only 8% shopped online *after* watching a live stream on a shopping website and 12.5% shopped online after watching a live stream that was not part of the shopping website. The data also indicated a huge potential market for live streaming shopping.

From the results of content analysis of why people prefer live streaming shopping over regular online shopping, we found many product-related motives such as information seeking and product demonstration, indicating that current e-commerce might incorporate more information-oriented features, especially for some complex and new products such as software products that were mentioned by our participants. Interaction with streamers to get consultation and reliable product reviews is unique for live streaming shopping, suggesting that the potential opportunities for traditional e-commerce businesses.

We had a convenience sample of Mechanical Turkers who all had some experience with live streaming shopping, so this sample is not representative of all online shoppers and is most likely biased toward those who are more tech-savvy. Most of the participants were from the U.S. so our results can only be limited to the boundaries of our sample. However, since live streaming shopping is a mainstream phenomenon in China future research may want to look specifically at the Chinese market. Finally, this study used a survey methodology, which answers “what” but not “why.” This was a first attempt at trying to understand live streaming shopping and should be paired with other methodologies in the future.

CONCLUSION

In this study, we used utilitarian and hedonic motivations as a theoretical framework and incorporated the technology acceptance model (TAM) to investigate how these two types of motivations are related to intention to engage in live streaming shopping in the future. Consistently, utilitarian motivations (usefulness) predicted utilitarian intentions while hedonic motivations (physical attractiveness) positively and significantly predicted hedonic intention. We also identified eight motives through qualitative analysis about why people would prefer live streaming shopping over regular online shopping: product demos, product information, excitement about novelty of live streaming, interaction, convenience, hype about the product, wanting other opinions, and deals.

These results are a preliminary investigation into the new phenomenon of shopping with live streams. Our results may give insight into design of both e-commerce and live streaming systems.

REFERENCES

1. Barry J Babin, William R Darden, and Mitch Griffin. 1994. Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value. *Journal of*

- Consumer Research* 20, 4: 644.
<https://doi.org/10.1086/209376>
2. Eileen Bridges and Renée Florsheim. 2008. Hedonic and utilitarian shopping goals: The online experience. *Journal of Business Research* 61, 4: 309–314.
<https://doi.org/10.1016/j.jbusres.2007.06.017>
3. Terry L. Childers, Christopher L. Carr, Joann Peck, and Stephen Carson. 2001. Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing* 77, 4: 511–535.
[https://doi.org/10.1016/S0022-4359\(01\)00056-2](https://doi.org/10.1016/S0022-4359(01)00056-2)
4. Fred D. Davis. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 13, 3: 319.
<https://doi.org/10.2307/249008>
5. Fred D. Davis, Richard P. Bagozzi, and Paul R. Warshaw. 1992. Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology* 22, 14: 1111–1132.
<https://doi.org/10.1111/j.1559-1816.1992.tb00945.x>
6. Edward L. Deci. 1975. *Intrinsic Motivation*. Springer US, Boston, MA.
<https://doi.org/10.1007/978-1-4613-4446-9>
7. Bukola Olamidun Falode, Adetoun Adedotun Amubode, Mojisola Olanike Adegunwa, and Sunday Roberts Ogunduyile. 2016. Online and Offline Shopping Motivation of Apparel Consumers in Ibadan Metropolis, Nigeria. *International Journal of Marketing Studies* 8, 1.
<https://doi.org/10.5539/ijms.v8n1p150>
8. Mathilde B Friedländer. 2017. JISTaP Streamer Motives and User-Generated Content on Social Live-Streaming Services. *J Inf Sci Theory Pract JISTaP* 55, 11: 65–84.
<https://doi.org/10.1633/JISTaP.2017.5.1.5>
9. Oliver L Haimson and John C Tang. 2017. What Makes Live Events Engaging on Facebook Live, Periscope, and Snapchat. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems - CHI '17*, 48–60.
<https://doi.org/10.1145/3025453.3025642>
10. William A Hamilton, Oliver Garretson, and Andruid Kerne. 2014. Streaming on twitch: fostering participatory communities of play within live mixed media. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*: 1315–1324.
<https://doi.org/10.1145/2556288.2557048>
11. Elizabeth C. Hirschman and Morris B. Holbrook. 1982. Hedonic Consumption: Emerging Concepts, Methods and Propositions. *Journal of Marketing* 46, 3: 92. <https://doi.org/10.2307/1251707>
12. Mehdi Kaytoue, Arlei Silva, and Loïc Cerf. 2012. Watch me playing, i am a professional: a first study on video game live streaming. *Proceedings of the 21st international conference companion on World Wide Web*: 1181–1188.
<https://doi.org/10.1145/2187980.2188259>
13. Christopher S G Khoo. 2014. Issues in Information Behaviour on Social Media. *Proceedings of the ISIC Workshop on Information Behaviour on Social Media* 24, 2: 75–96.
14. Sanghyun Kim and Hyunsun Park. 2013. Effects of various characteristics of social commerce (s-commerce) on consumers' trust and trust performance. *International Journal of Information Management* 33, 2: 318–332.
<https://doi.org/10.1016/j.ijinfomgt.2012.11.006>
15. Y. K. Kim and J. K. Kang. 1997. Consumer perception of shopping costs and its relationship with retail trends. *Journal of Shopping Center Research* 4, 2: 27–62. Retrieved January 28, 2018 from http://173.254.37.135/JSCR/IndArticles/Kim_N297.pdf
16. Matthew K.O. Lee, Christy M.K. Cheung, and Zhaohui Chen. 2005. Acceptance of Internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information and Management* 42, 8: 1095–1104.
<https://doi.org/10.1016/j.im.2003.10.007>
17. Hsi-Peng Lu and Philip Yu-Jen Su. 2009. Factors affecting purchase intention on mobile shopping web sites. *Internet Research* 19, 4: 442–458.
<https://doi.org/10.1108/10662240910981399>
18. James C. McCroskey and Thomas A. McCain. 1974. The measurement of interpersonal attraction. *Speech Monographs* 41, 3: 261–266.
<https://doi.org/10.1080/03637757409375845>
19. Heather Lynn O'Brien. 2010. The influence of hedonic and utilitarian motivations on user engagement: The case of online shopping experiences. *Interacting with Computers* 22, 5: 344–352.
<https://doi.org/10.1016/j.intcom.2010.04.001>
20. Jeffrey W. Overby and Eun Ju Lee. 2006. The effects of utilitarian and hedonic online shopping value on consumer preference and intentions. *Journal of Business Research* 59, 10–11: 1160–1166. <https://doi.org/10.1016/j.jbusres.2006.03.008>
21. Karine Pires and Gwendal Simon. 2015. YouTube Live and Twitch: A Tour of User-Generated Live Streaming Systems. In *Proceedings of the 6th ACM Multimedia Systems Conference on - MMSys '15*, 225–230. <https://doi.org/10.1145/2713168.2713195>
22. PR Newswire. 2016. Meili Inc. Publicized its First Overseas Live-streaming Show in Times Square,

- New York. *PR Newswire*. Retrieved October 26, 2017 from <http://eds.b.ebscohost.com/libdb.njit.edu:8888/ehost/detail/detail?vid=6&sid=c83b1947-0faa-40fc-9d58-0ac21e28e5ac%40pdc-v-sessmgr01&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3D%3D#AN=201607140527PR.NEWS.USPR.CN45767&db=bwh>
23. PR Newswire. 2016. Livby Launches The First Mobile Live Streaming Shopping App. *PR Newswire*. Retrieved October 26, 2017 from <http://eds.b.ebscohost.com/libdb.njit.edu:8888/ehost/detail/detail?vid=18&sid=c83b1947-0faa-40fc-9d58-0ac21e28e5ac%40pdc-v-sessmgr01&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3D%3D#AN=201612130900PR.NEWS.USPR.LA67806&db=bwh>
 24. Stephen Reysen. 2005. Construction of a New Scale: The Reysen Likability Scale. *Social Behavior and Personality: an international journal* 33, 2: 201–208. <https://doi.org/10.2224/sbp.2005.33.2.201>
 25. Katrin Scheibe, Kaja J Fietkiewicz, and Wolfgang G Stock. 2016. Information Behavior on Social Live Streaming Services. *Journal of Information Science Theory and Practice* 4, 2: 6–20. <https://doi.org/10.1633/JISTaP.2016.4.2.1>
 26. Mahdi Shadkam and James O'Hara. 2013. Social commerce dimensions: The potential leverage for marketers. *Journal of Internet Banking and Commerce* 18, 1. https://doi.org/10.1007/978-3-531-92534-9_12
 27. Rong An Shang, Yu Chen Chen, and Lysander Shen. 2005. Extrinsic versus intrinsic motivations for consumers to shop on-line. *Information and Management* 42, 3: 401–413. <https://doi.org/10.1016/j.im.2004.01.009>
 28. John F. Sherry, Jr. 1990. A Sociocultural Analysis of a Midwestern American Flea Market. *Journal of Consumer Research* 17, June: 13–30. <https://doi.org/10.1086/208533>
 29. John F. Sherry, Mary Ann McGrath, and Sidney J. Levy. 1993. The dark side of the gift. *Journal of Business Research* 28, 3: 225–244. [https://doi.org/10.1016/0148-2963\(93\)90049-U](https://doi.org/10.1016/0148-2963(93)90049-U)
 30. John C Tang, Gina Venolia, and Kori M Inkpen. 2016. Meerkat and Periscope: I Stream, You Stream, Apps Stream for Live Streams. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems - CHI '16*, 4770–4780. <https://doi.org/10.1145/2858036.2858374>
 31. Eveline Veloso, Virgílio Almeida, Wagner Meira, Azer Bestavros, and Shudong Jin. 2006. A hierarchical characterization of a live streaming media workload. *IEEE/ACM Transactions on Networking* 14, 1: 133–146. <https://doi.org/10.1109/TNET.2005.863709>
 32. Alex Borges Vieira, Ana Paula Couto da Silva, Francisco Henrique, Glauber Goncalves, and Pedro de Carvalho Gomes. 2013. SopCast P2P Live Streaming: Live Session Traces and Analysis. In *Proceedings of the 4th ACM Multimedia Systems Conference on - MMSys '13*, 125–130. <https://doi.org/10.1145/2483977.2483993>
 33. Donghee Yvette Wohn, Guo Freeman, and Caitlin McLaughlin. 2018. Explaining Viewers' Emotional, Instrumental, and Financial Support Provision for Live Streamers. In *Proceedings of the 2018 CHI*. <https://doi.org/10.1145/3173574.3174048>