Good Morning … Good Afternoon, Good Evening and Good Night: Adoption, Usage and Impact of the Social Live Streaming Platform YouNow

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ABSTRACT

Live broadcasting is nothing new, neither is human weakness for reality shows and "Big Brother"-like series. The attraction to uncensored "live" shows has been critically portrayed in the American movie "The Truman Show," where the unaware headliner was entertaining millions of viewers with his life, every day, for 30 years. Today, with a new type of information services emerging—the social live streaming services like younow.com, every Web user can become "Truman" and entertain his viewers with a live performance. Will he take advantage of it? And, will YouNow-like services become the future of reality shows und human interaction? In this study we investigate the adoption, usage and impact of the social live streaming service YouNow. We base our study on an online-survey among YouNow's users as well as observations of the streams. Let the show begin.

Keywords: YouNow, Social Live Streaming Service, Information Service, Information Service Evaluation Model, Information Behavior, User, Impact, Adoption, Use, Information Environment, Law

1. Introduction

In the last few years a new type of information services emerged—the social live streaming services (SLSSs). On SLSSs, information scientists are able to study new kinds of information behavior. This social media type allows its users to broadcast their own program in real-time. This reminds us of The Truman Show, an American film from 1998, presenting the life of its protagonist, Truman Burbank (played by Jim Carrey), in a constructed television reality show, which is a live broadcast to its audience. Burbank is initially unaware of being part of a TV show. Today, with social live streaming services everyone has the possibility to publicly broadcast, now aware of doing so, their own life.

Social media allow users to act as producers and as consumers ("prosumers") of information. Prosumers form virtual communities and are characterized by shared

goals (Linde & Stock, 2011). Social networking services are social media platforms for self-presentation and communication with other members of the community (Boyd and Ellsion, 2007). We can distinguish between asynchronous services (with alternating user activities), like Facebook (Khoo, 2014), or synchronous platforms (user activities are happening simultaneously), like social live streaming services (SLSSs).

In case of YouNow, the active broadcasters (or "streamers") act as information producers. While streaming, they exhibit certain information production behavior. In some cases, this behavior might be problematic and, for example, violate copyright or other laws. The passive (non-streaming) users might exhibit certain information search behaviors, while looking for streams to watch. Of course, most users will probably embody both behavior types. Finally, the services themselves can have impact on all their users.

In contrast to many other social media, SLSSs are synchronous, meaning that all user-activities happen at the same time. In order to actively or passively participate in the service, users employ their own devices (e.g., smartphones, tablets) or their PCs and webcams for broadcasting. In most cases, the audience is able to interact with the broadcaster via chats as well as reward them with points, badges, or (virtual) payments. We can differentiate between general SLSSs without any thematic restrictions (e.g., YouNow, Periscope, Nico Nico Douga, Ustream), and topic-specific SLSSs (e.g., Twitch for games or Picarto for art).

There is limited research on live streaming services. We could identify a general paper on YouNow (Stohr, Li, Wilk, Santini & Effelsberg, 2015), one about its users' information behavior (Scheibe, Fietkiewicz & Stock, 2016), an article on technical issues of such services (LeSure, 2015), one about ethical problems (Henning, 2015), a study on possible law infringements of YouNow users while streaming (Honka, Frommelius, Mehlem, Tolles & Fietkiewicz, 2015), and an evaluation of YouNow (Friedländer, 2017). Fietkiewicz, Lins, Baran and Stock (2016) found out, that especially users from Generation Y (born between 1980 and 1996) and from Generation Z (born 1996 and later) apply YouNow. Therefore, our study is the first empirical analysis of the adoption, usage and impact of the general social live streaming platform YouNow.

YouNow was initially meant for YouTubers to get in contact with fans, to chat with them and to answer their questions. Many teenagers enjoyed the functions of the live streaming service, shared their experiences with friends and started to build their own community—the YouNowers. Most YouNowers come from the United States (31.7%), followed by Germany (11.3%), Turkey (8.4%), Saudi Arabia (5.4%) and United Kingdom (4.6%) (Alexa, 2017). In this study, we will take a look why and how

YouNowers adopt and use the service, and what impact it has on their lives.

2. Methods

For our investigation we apply the Information Service Evaluation (ISE) model (Schumann & Stock, 2014). It is a comprehensive heuristic model and a theoretical framework for all aspects of the description, analysis and evaluation of all kinds of information services (Stock & Stock, 2013: 481 ff.). It consists of five dimensions of the information service (dimension 1: quality of service, system, and content), the service's users (dimension 2: information need and information behavior), the acceptance of the service by users and the community (dimension 3: adoption, use, impact on users' information behavior, diffusion into the community, and opting out), the environment of the service (dimension 4: competition, culture, governance, and marketing) and, finally, the development of the service and the community over time (dimension 5). Since we are going to focus on a critical evaluation of the adoption of the service and its role in the users' community (YouNowers), we only consider dimensions 2 (user) and 3 (acceptance and diffusion into community) in this article (Figure 1).
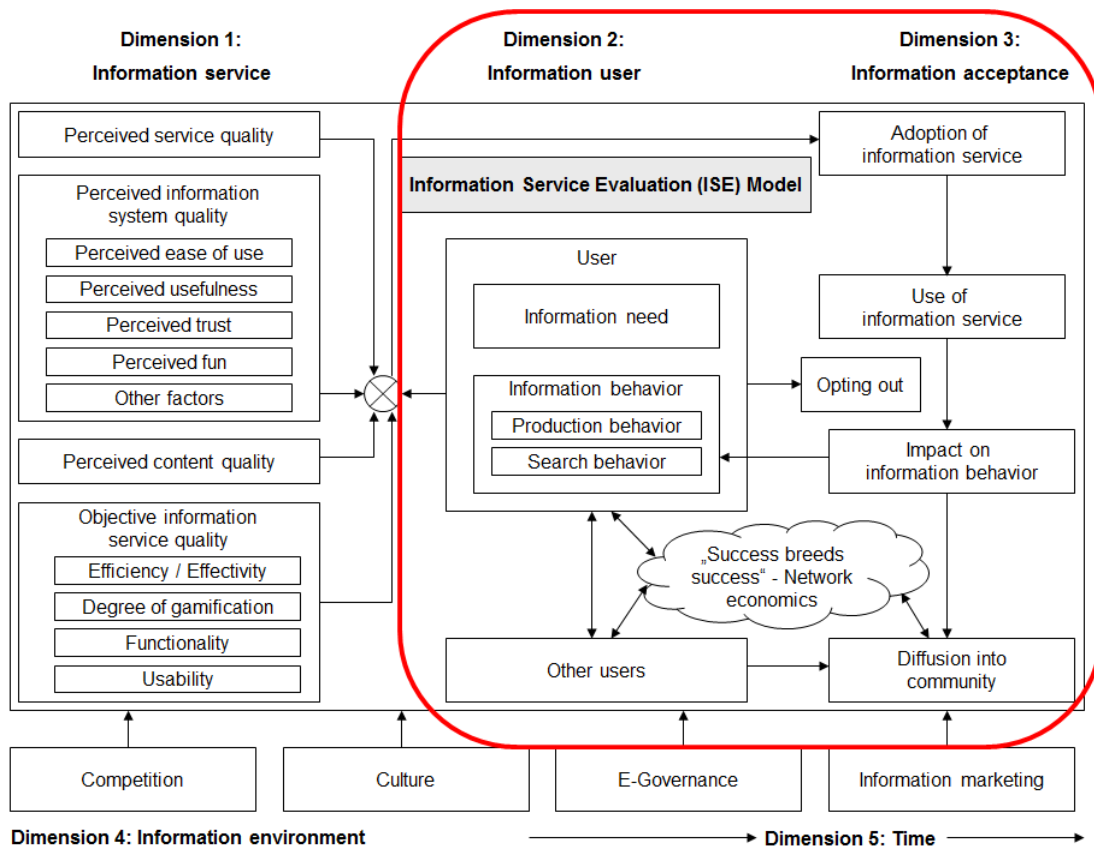

Figure 1. The Information Service Evaluation (ISE) model (Source: Schumann and Stock, 2014, modified).

A central point for using or not-using an information service is the information need of a person. The information need of an individual is the starting point of any information behavior (information production as well as information search and reception behavior). In his or her information production behavior, the user might get in trouble with the law (e.g., by violating copyright law).

If the "right" user meets the "right" information service, they will adopt and use it. Adoption does not mean use. One can adopt a service and stop using it. And one can adopt it and use it permanently. Hence, only when the continuance of the service usage is given, we speak of "use" and not "adoption" (Bhattacherjee, 2001). In the case of use, it is possible that the user's information behavior, or their general behavior will change (impact of the service).

Finally, an information service can diffuse into a community, when many people use it and it has an impact on their information behavior. Diffusion is a typical phenomenon of network economics (Greenwood, 2013) following the principle of "success breeds success." The more users an information service is able to attract, the more the value of the service will increase. More valuable services will attract further users. If an information service passes the critical mass of users, network effects will start. This leads to positive feedback loops for direct network effects (more users—more valuable service—any more users) and indirect network effects (more complementary products—more valuable service—any more complementary products) and—when indicated—in the end to a standard (Baran, Fietkiewicz & Stock, 2015). Diffusion is a social process depending on the extent to which friends, family members, peers, colleagues, club members, etc. influence a user's information behavior. Finally, we may not forget the aspect of quitting an information service. Opting-out is motivated by (altered) information behavior of the user and by his or her position in the community.

In line with dimensions 2 and 3 of the ISE model, we are going to answer three research questions:

RQ1: What leads to the adoption of YouNow (i.e., how did the users get to know the service? what is their primary motivation to use it)?

RQ2: How do the YouNowers use the service (e.g., how often, for how long, what is their information production behavior)? Is there possibly a problematic use of the service (e.g., potential law infringements while broadcasting)?

RQ3: What impact has YouNow on its users (e.g., what is its influence on their leisure

time? What would be a reason for opting-out)?

Figure 2 shows our research model and focus on the three aspects: adoption, continuance leading to the usage, and impact of the social live streaming service.
In order to answer our research questions, we (1) conducted an online survey and (2) observed streams for potential law infringements. The first empirical survey-based investigation took place from June 3rd till June 28th 2015 on umfrageonline.com and had 123 YouNow users as participants. In the survey, the users were asked questions about the service, their behavior concerning YouNow, and the acceptance of the service in the community. The majority of questions had pre-formulated answers that could be rated on a 7-point Likert-scale (from "highly disagree" to "highly agree"). The questions about usage frequencies could be answered with one out of four values: never, rarely, sometimes, and often. Additionally, we formulated open questions (e.g., "Besides YouNow, what other live streaming platforms do you use?").
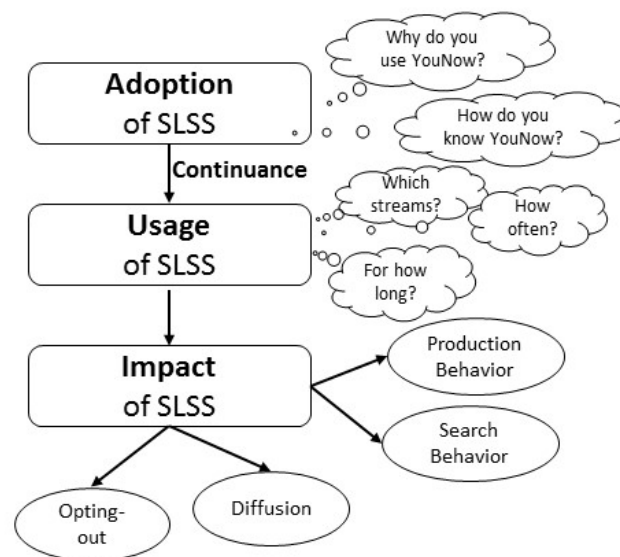

Figure 2. Research model: adoption, usage and impact of SLSS.

Apart from the socio-demographic data, in this study we evaluated answers to the following online-survey questions about the adoption of the service:

- How did you come across YouNow?
- Why are you using YouNow?
- Is it important to you to become famous on YouNow?
- Is it important to you to get accepted by the YouNow community?
- Do you think YouNow is easy to use?
- Do you think YouNow is useful?

- Do you have experience with other streaming platforms?

Questions about the usage of the service:

- How often do you use YouNow?
- Which streamers do you usually watch?
- How are you preparing for a stream?
- Did you read and understand the terms and conditions of YouNow?
- Do you use music from TV, radio or other media in your streams?
- Do you use pictures (like photos from Tumblr, Facebook or Instagram) in your streams?
- Do you use videos in your streams (e.g. from TV or mobile phone)?

And finally, questions about the impact of the service:

- How big is YouNow's influence on your leisure time?
- Would you recommend YouNow?
- What could be a reason to quit YouNow?

The second part of our empirical study concerns potential law violations by YouNow users (Honka et al., 2015). Here, the data was obtained through an observation of a significant amount of streams. A similar approach was applied by Casselman and Heinrich (2011), who analyzed YouTube videos and the behavior of their participants. The results of the observations are enriched with data gathered from the online survey (e.g., regarding streaming music or reading the terms and conditions prescribed by YouNow).

The streams were observed during June 2015 and limited to the ones from Germany and the USA. The socio-demographic data was obtained either from the streamer's profile or by asking the streamer during his or her broadcast. The observation period was divided into four parts, where different groups of streamers were in focus—females from Germany, males from Germany, females from the USA, and males from the USA. Each group was observed for an entire week. Each day of the observation was divided into four time slots (12 p.m. - 6 a.m., 6 a.m. - 12 a.m., 12 a.m. - 6 p.m. and 6 p.m. - 12 p.m.). In each slot, four streams had been investigated for 15 minutes respectively (i.e., total 16 streams or 4 hours per day). The gathered data was stored in a database and statistically analyzed.

The streams were studied for legally concerning actions. The points of reference were law infringements frequently observed in social networks (or the Web in general) according to the German law, which is stricter than the U.S. law regarding, for example, copyrights or personal rights. This way we gain a broader range of possible legally concerning actions. Demeanors being in the focus of this observation were: copyright infringements (concerning music pieces protected by intellectual property

rights), youth protection (regarding sexual content or underage use of alcohol or drugs), personality rights (right in one's own picture, spoken or written word), and defamation.

The classification of a stream as one with potential law infringements was based on a rough assessment by the observer—is music being played in the background, or, are other people being filmed without their explicit consent?—and did not include a complex legal examination or consideration of exception regulations. Therefore, it is to emphasize that the results include only potential illegal actions. The outcomes of the observation are included in the results section concerning the usage of the services. First, we will present the general data we have gathered from the online survey and analyze the adoption of YouNow.

3. Results

There were total 123 respondents to the online survey, and total 443 observed streams. From the survey participants, 60.6% were male and 39.4% were female. The median age of our participants was 20 years, and the most frequent age group was the one of 16 year-old adolescents. As for the observed streams, they were almost evenly distributed by gender of the broadcaster (111 "girls" and 100 "boys" from Germany, 112 "girls" and 111 "guys" from the USA). The most of the observed streamers were 13-16 (43%) and 17-18 (23%) year-olds; the average age was 16.9 years.

3.1 Adoption of YouNow

The first research question concerned the adoption of the service YouNow. How did the users get to know the service? As we can see in Figure 3, total 48% of our respondents heard about YouNow from the Internet, especially from other social media platforms, and 35% from their friends. Only 4.1% of the users knew it from the television, 0.8% from the family, and 12.1% from other sources.

The participants were asked for their motivation to adopt YouNow, hence, the reasons why they use this service (Figure 4). The two mostly chosen answers were typical site activities—watching streams (59.5%) and chatting (58.4%). Over the half of the participants (56.1%) use the service out of boredom, and 46.3% for (new) friends and acquaintances. Total 45% of the participants apply YouNow to broadcast their own streams. Further possible answers concerned contacting fans (30%), self-realization (24.2%), or becoming famous (19.2%). These are aggregated values for users' answers that could be classified as positive (from 5 to 7 on the 7-point Likert scale). The "neutral" answers oscillated around 10%, with exception for 16.7% for "self-realization" and 15.8% for becoming famous. The negative attitude towards the individual reasons for using YouNow was inferred from the aggregated values 1 to 3.

Here, total 65% were indifferent about becoming famous, approx. 59% did not care much about self-realization or contacting fans, and 49.2% did not use the service for broadcasting own stream.
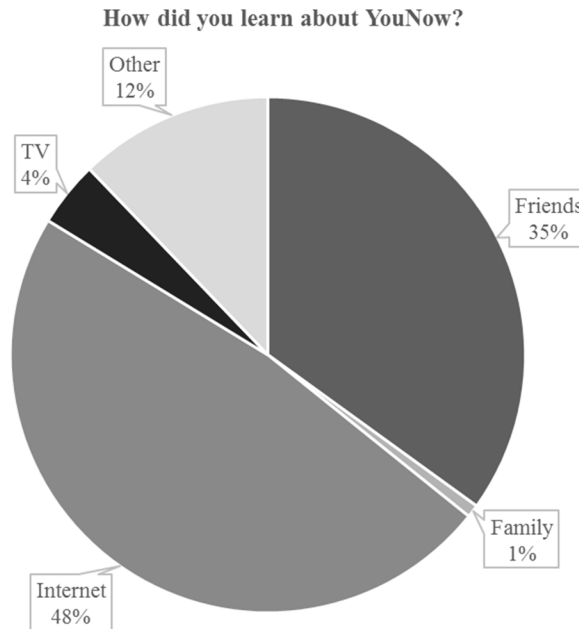

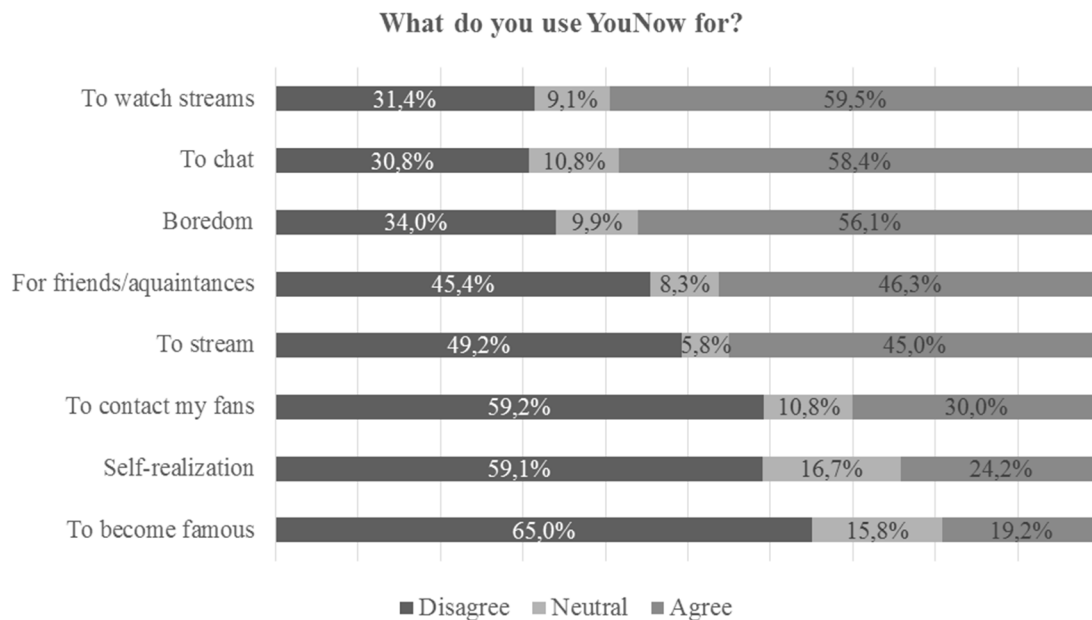*Figure 3. Sources from which users learned about YouNow (N=123).*

Figure 4. Reasons for adopting YouNow, multiple answers allowed (N=122).

Watching streams out of boredom, or to chat and meet new people appear to be the most important factors to adopt YouNow. Only 45% express positive attitude towards

active information production behavior—streaming, from which 30% appear to already have a fan-base (with whom the steamer wants to maintain contact). The biggest "uncertainty" (neutral answers) was given for the motivational factors self-realization and becoming famous (16.7% and 15.8% respectively). This means that even though for some users these activities are not the primary reason to adopt the service, they do not fully rule them out for the future. Interestingly, only 5.8% remain "uncertain" about adopting YouNow to stream (whereas, 45% are positive about it). Hence, when adopting YouNow, the users are relatively certain about whether they will broadcast own streams or not; and the ones decisive about it are open to the idea of becoming a micro-celebrity.

3.2 Motivations to use YouNow

During the online survey we considered two motivational factors to be of potentially high importance for adoption and continuance of using the service, namely fame (becoming a "micro-celebrity") (Marwick & Boyd, 2011) and feeling of belonging (becoming part of the community) (Nadkarni & Hofmann, 2012). As we have already seen in Figure 4, 19.2% of the respondents considered becoming famous as an important aspect of using the service. When explicitly asked, how important it is to the participants *to become famous on YouNow* (Figure 5), 51% responded negatively (as a comparison, to the question *why do you use YouNow,* total 65% spoke against fame), whereas 16% considered it to be important (compared to 19.2% in previous question, see Figure 4).
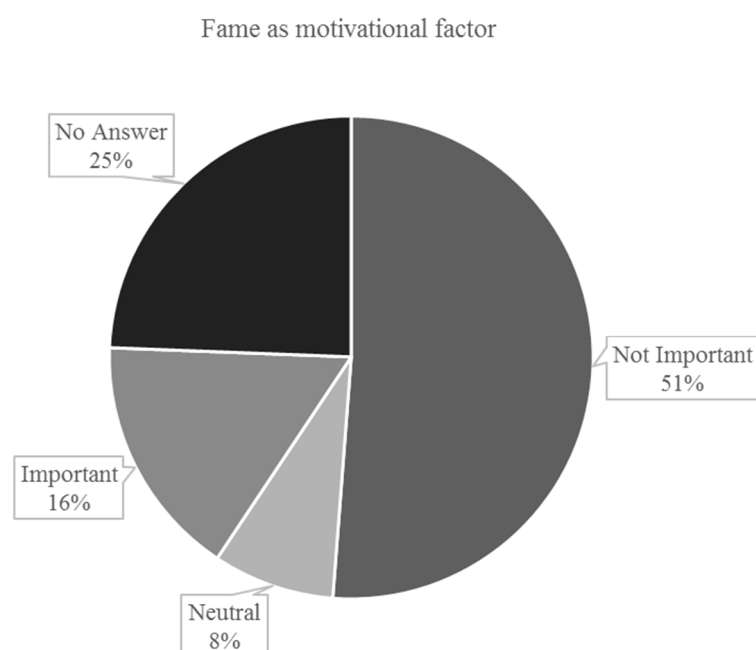

Figure 5. "Becoming famous" as motivational factor to adopt YouNow (N=123).

Regarding the general question for motivation to adopt YouNow, almost 16% were neutral about the aspect of fame; however, when directly asked about its importance, only 8% of the respondents remained undecided. Furthermore, total 25% restrained from answering this question. It can be only speculated where this reservation came from and to which group (positive/indecisive/negative) these participants actually belong.

When considering sense of belonging as a motivational factor, it is of higher importance (for 40% of the respondents) than fame (16%). Still, 11% of the respondents remained neutral about this aspect, and 25% explicitly claimed it to be less or even not important at all. Total 24% did not provide any answer to this question. We have further investigated these two motivational aspects by examining the age-dependent differences as well as differences between male and female users. For this examination only complete records were included. The differentiation was conducted for male (n=56) and female users (n=36), and for the age groups of 14-17 (n=33), 18-21 (n=28), 22-29 (n=21), and over 30 (n=11) year olds. Regarding the chance for becoming famous (Table 1), most female and male users had rather negative attitude (63.9% and 71.4% respectively), whereas similar ratios were motivated by the opportunity to become micro-celebrity (22.2% of female and 21.4% of male users). A higher ratio of female (13.9%) than the male users (7.1%) was indecisive about this factor.

As for the different age groups, the biggest share of negative attitude towards becoming famous can be found within the oldest one, with total 90.9%, and with no users attuned positively. They were followed by the group of 18-21 year olds with 78.6% of negative attitude. The age group with biggest share of positive attitude towards becoming micro-celebrity was the youngest one, 14-17 year olds with total 30.3%, followed by the group of 22-29 year olds with total 23.8%. However, these two groups were also the ones with highest ratios of indecisive users (15.2% and 14.3% respectively).

Table 1. Fame and sense of belonging as motivational factors to adopt and use YouNow, by gender and by age.

	Fame			Sense of Belonging		
	No	Neutral	Yes	No	Neutral	Yes
Men *N=56*	71.4%	7.1%	21.4%	41.1%	12.5%	46.4%
Women *N= 36*	63.9%	13.9%	22.2%	22.2%	13.9%	63.9%
14-17 y/o *N=33*	54.6%	15.2%	30.3%	21.2%	9,1%	69.7%

18-21 y/o *N=28*	78.6%	3.6%	17.9%	39.3%	14.3%	46.4%
22-29 y/o *N=21*	61.9%	14.3%	23.8%	47.6%	9.5%	42.9%
30 ≤ y/o *N=11*	90.9%	9.1%	0%	27.3%	36.4%	36.4%

When considering the sense of belonging as a motivational factor, the difference by gender is more distinctive. Total 63.9% of female users, whereas only 46.4% of male users see this aspect as important. A similar ratio of both groups is rather neutral in this respect (13.9% and 12.5% respectively). For 41.1% of male users, and for 22.2% of female users, the sense of belonging is not important. Considering the different age groups, the most of 22-29 year olds are not interested in becoming a part of the community; the biggest ratio of indecisive users (36.4%) is given in the oldest group (30 and over), whereas the most users seeking for the sense of belonging can be found in the youngest one (69.7% of the 14-17 year olds).

YouNow is not the only streaming service and its competition is getting bigger. The participants were asked if they have ever used any other video or social live streaming service and if so, which ones (Figure 6). The mostly used service for video sharing is YouTube—total 69.2% of the respondents use this platform. The second and third most popular services are Google Hangouts (41.8%) and Twitch (39.6%). The following services are Ustream with only 14.3%, Paltalk with 4.4%, Picarto and Periscope with 3.3%. 8.27% of the participants also use other services, whereas total 16.5% of the respondents do not use any other LSSs despite YouNow.
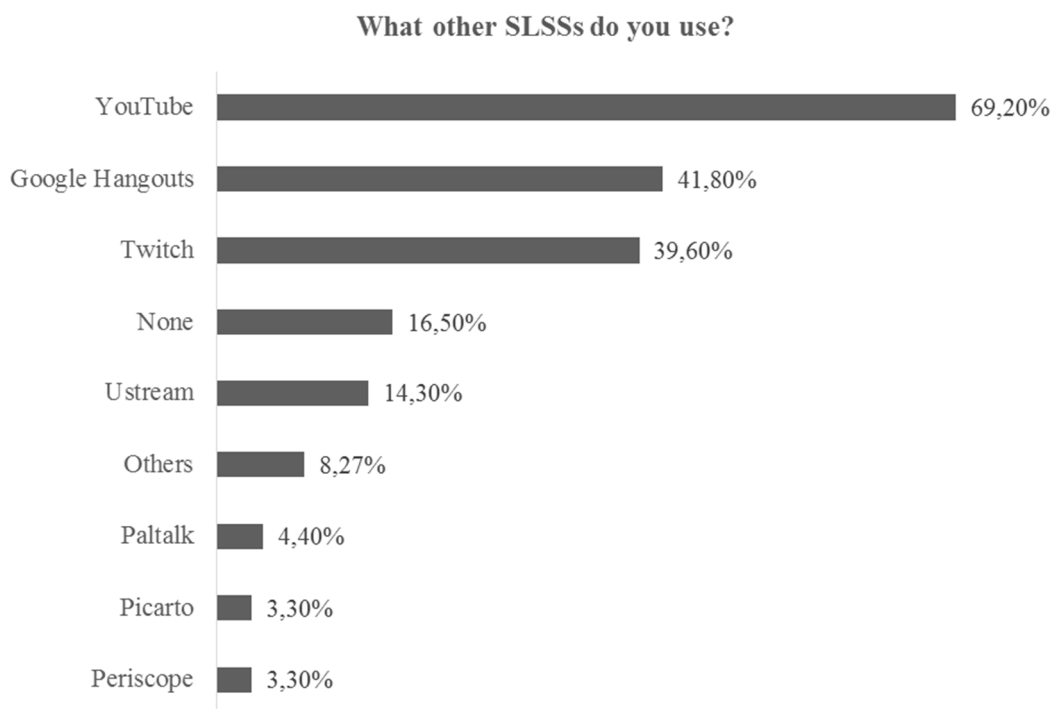
What other SLSSs do you use?

YouTube	69,20%
Google Hangouts	41,80%
Twitch	39,60%
None	16,50%
Ustream	14,30%
Others	8,27%
Paltalk	4,40%
Picarto	3,30%
Periscope	3,30%

Figure 6. Usage of other social live streaming services.

The relatively high ratio of participants not using any other SLSSs gave us the opportunity to investigate, whether the experience with other similar platforms makes the adoption of YouNow easier. The participants were asked if the service YouNow is easy to use (perceived ease of use) and if it is useful (perceived usefulness). They could mark their impressions on a 7-point Likert scale. The perceived usefulness and ease of use of an information service influence user's acceptance of it (Davis, 1989) (the adoption and continued usage).
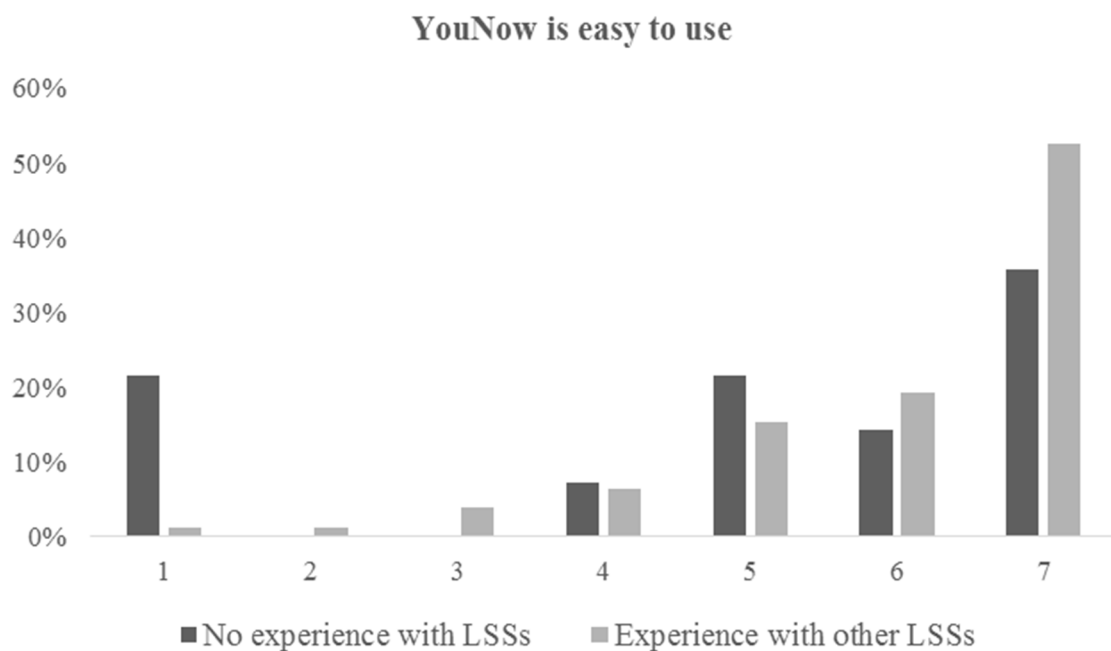

Figure 7. Experience with other SLSSs and the perceived "ease of use" of YouNow (1="not at all" 7="easy to use"), (experienced users N=78; inexperienced users N=14).

First, we investigated the influence of experience with other SLSSs on the perceived ease of use of YouNow (Figure 7). Indeed, the perceived ease of use is very high for users with SLSS-experience (approx. 87%), with only few (approx. 13%) users who marked the values 1-4 ("not at all" to "neutral"). However, not all inexperienced users have necessarily problems with the service, as a great share of them regarded platform as easy to use. Still, the share of inexperienced users who find YouNow not easy to use (or neutral) is higher than share of experienced ones (28.6% vs. 13%). Therefore, we can assume that experience with other social live streaming services makes the adoption of new services, like YouNow, easier.

Furthermore, we examined whether the experience with other SLSSs influences the

perceived usefulness of YouNow (Figure 8). Indeed, 57.1% of the inexperienced users did not perceive the services as useful, as opposed to 24.4% of the users that already apply other live streaming platforms. Total 57.7% of experienced users were positive regarding their perceived usefulness of YouNow, against only 28.6% of the inexperienced users. Hence, we assume that the experience with other SLSSs might influence the adoption and usage of YouNow, since in this case, the ease of use as well as the perceived usefulness of the service are higher.
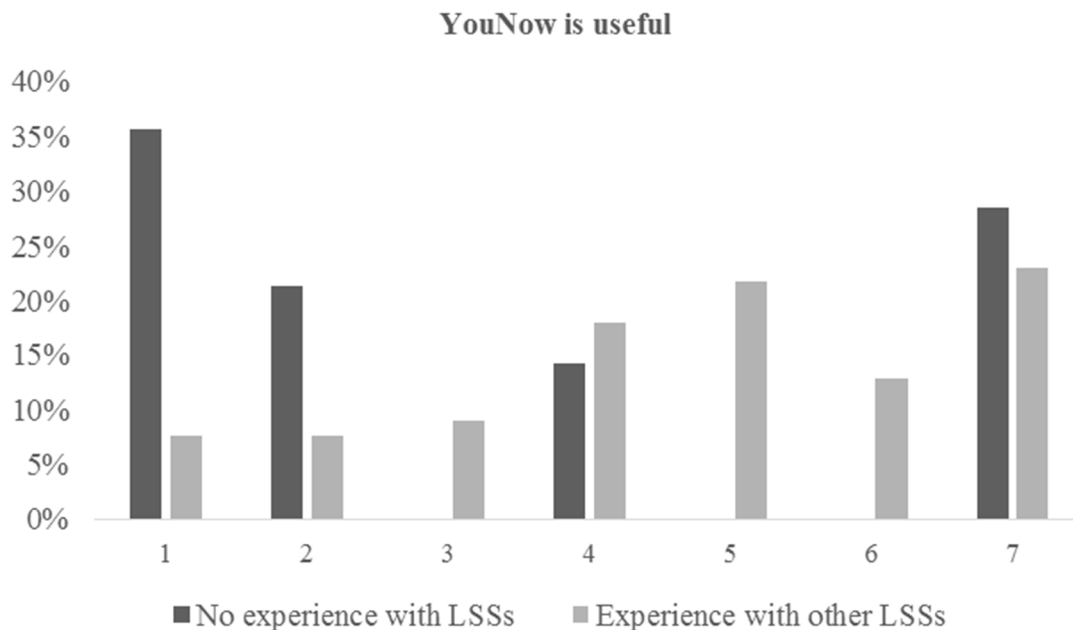

Figure 8. Experience with other SLSSs and the perceived "usefulness" of YouNow (1="not at all", 7="useful"), (experienced user N=78; inexperienced user N=14).

We have seen possible factors influencing the adoption of the service YouNow, partially distinguished by gender and age of the users. In the following, we will take a better look at what happens after the service is already adopted and regularly used by YouNowers.

3.3 Usage of the Service

The second investigated dimension was the usage of the service. For this purpose, the participants were asked how often they use YouNow. More than half (51.6%) disclosed that they often used the live streaming service, only a few (11.5%) admitted to use it sometimes and more than one-third (36.9%) rarely.

Further, we examined the information search behavior of the users by asking the participants which streams they chose to watch and whether they used hashtags during their search. Figure 9 depicts the streams the participants usually choose to watch.

The answers can be split into four categories: status of the person, similarity, gender, and age. Regarding the first category, the status, 58.2% of the users are watching streams of their friends, and 37.7% (each) are watching YouTubers or new broadcasters. In the similarity category, the most participants are watching streams of people in the same age (34.4%), followed by same interests (33.6%) and same country (30.3%). If distinguished by gender, the female streamers (39.3%) are watched slightly more often than the male ones (35.2%). To compare the age groups, a total of 42.6% watches streams from users aged 16 to 20, 37.7% from users aged over 20, and 20.5% from users aged 13 to 15.
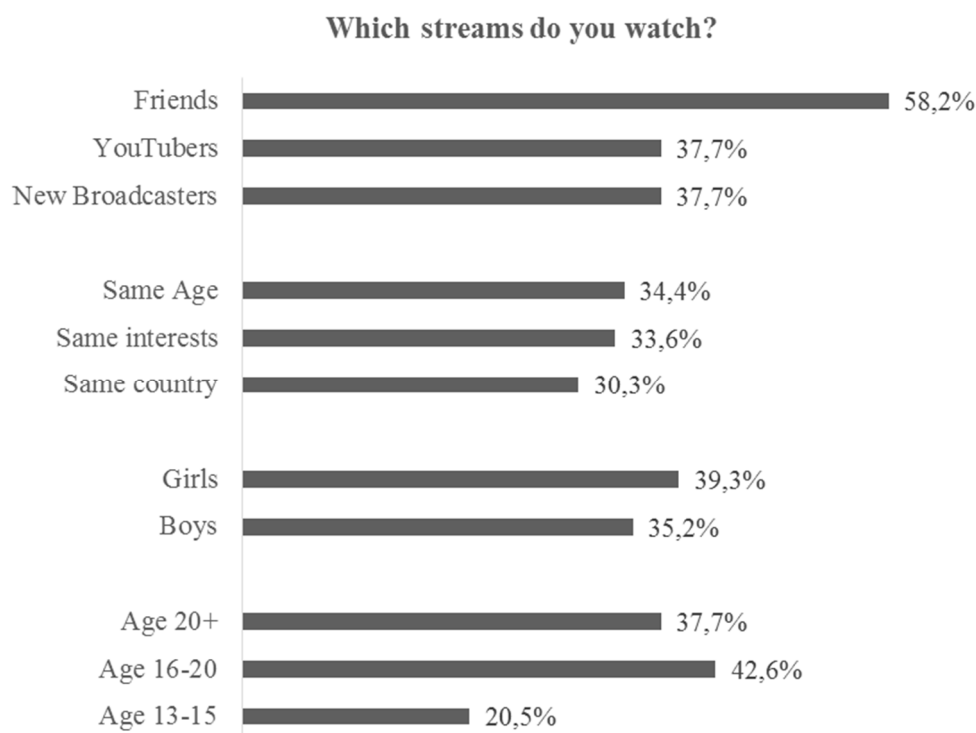

Figure 9. Watched streams by status of the person, similarities with the streamers, by their gender, and by their age (N=122).

Regarding the information search behavior, we also asked whether the users search for streams with the help of hashtags. Apparently, 34.5% of the participants (N=110) do not apply hashtags during a search, whereas 44.5% do. Approximately 21% of the participants sometimes use hashtags. Hence, most of them (more or less) regularly use hashtags during a search for streams on YouNow.

The next investigated aspect was the information production behavior of the users, which can be described, for example, by their (pre-)streaming routine. The participants were asked if they prepare themselves for the stream (Figure 10). We analyzed only the answers from participants who stated to use the service for

streaming. More than half of the (streaming) respondents check the camera and/or micro (57.4%) and inform their friends and fans about upcoming broadcast. Fewer broadcasters style themselves (31.1%) or prepare topics for the stream (23.0%). Only 6.6% of the respondents, probably, do vocal exercise. Total 32.8% do not prepare for the stream at all.
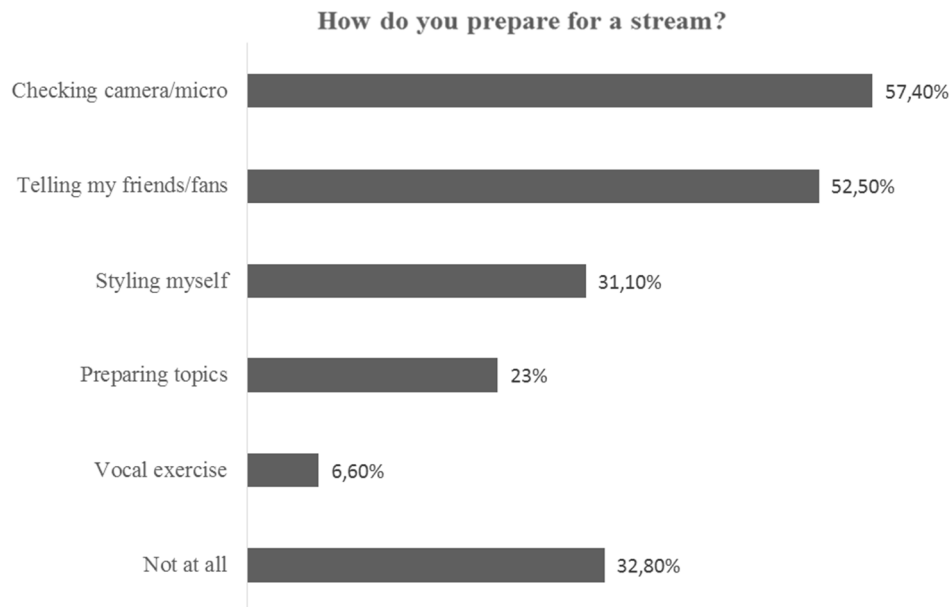

Figure 10. Preparation for a live stream (N=61).

Furthermore, our investigation of usage encompasses the problematic (mis)use of YouNow. For this purpose, the streams were observed for potential law infringements and the participants were asked about using additional multimedia during streaming (hence, this question targeted only potential copyrights violations). In course of the investigation by Honka et al. (2015), total 434 different streams were observed, whereof 211 were German and 223 were US-American. Altogether 248 potential law violations were noted, which makes a total 57.7% of all observed streamers. Regarding the gender, 143 of the observed female streamers (65.6%) and 112 of the male streamers (50%) took a potential legally concerning action. The major part of this behavior considered possible copyright infringements of music pieces. In total 177 (40.7%) of all observed streamers had music playing in the background during their stream, whereof 92 streamers (52%) were female and 85 (48%) were male.
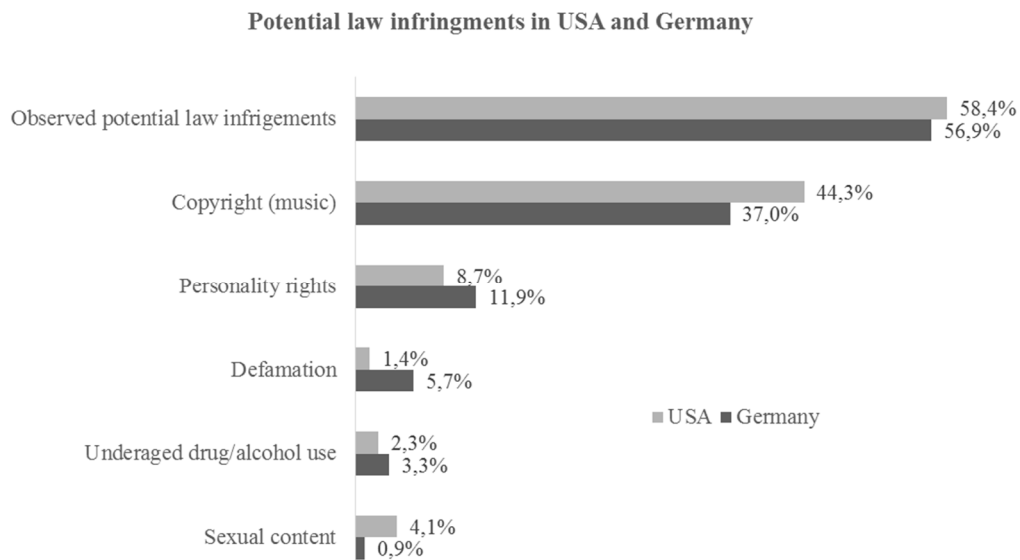
Potential law infringments in USA and Germany

Figure 11. Potential law infringements in Germany (N=211) and the USA (N=223).

There are minor differences between streamers from Germany and the U.S. As we can see in the Figure 11, 56.9% of German and 58.4% of US-American streamers potentially violated the (German) law. In both countries, the most common potential violation was the copyright infringement of music—total 37.0% of German and 44.3% of U.S. streams. The second most observed concerning behavior were possible violation of personality rights. The actions chosen for this category were: filming third parties, showing pictures of third parties, reading aloud chat-conversations (or similar) with third parties, or putting phone conversation with third parties on speaker during a stream, all without consent of these parties or even their awareness, their picture or their words are being brought to the public. Here, total 11.9% of German streams and 8.7% of the U.S. streams included potential violations of personality rights. The category of defamation includes insulting remarks made by the streamer or by the audience, and were observed in 5.7% of German and 1.4% of U.S. streams. Regarding the youth protection, two aspects were elaborated—the underage use of alcohol or drugs, and sexual content (revealing appearance of the streamer, or pressuring requests from the viewers to the streamer to undress etc.). Total 3.3% of German and 2.3% of U.S. streams included underage drinking or drug use, whereas 0.9% of German and 4.1% of U.S. streams had sexual content.

All the observed potential law infringements are explicitly forbidden by YouNow's terms of use, which every user has to agree with in order to use the platform. In particular, we read: "You further expressly agree that any Content, including Sponsored Content you submit will not be: (1) defamatory, libelous, abusive, or obscene, including, without limitation, include material which encourages conduct that would constitute a criminal offense, give rise to civil liability or otherwise violate

any applicable local, state, federal, or international law; (2) infringe on the copyright or any other proprietary right of any third-party; (3) invade the privacy of any other person" (younow.com/terms.php).
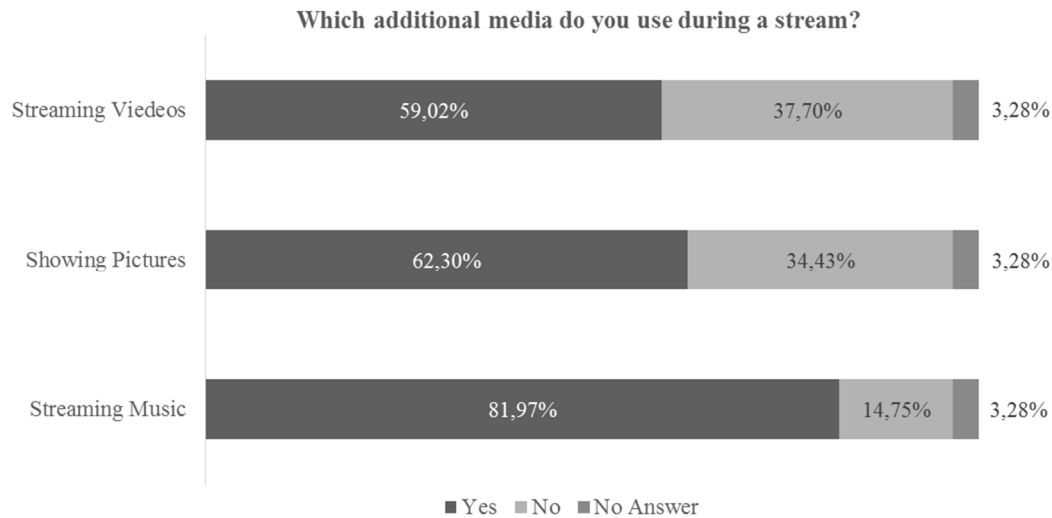
Which additional media do you use during a stream?

Streaming Viedeos	59,02%	37,70%	3,28%
Showing Pictures	62,30%	34,43%	3,28%
Streaming Music	81,97%	14,75%	3,28%

■ Yes ■ No ■ No Answer

Figure 12. Usage of additional media (videos, pictures, music) during a stream (N=61).

In our survey, we asked the participants whether they read and understood the terms and conditions of the service, as well as if they use additional media like music, pictures or videos during their streams (implication for potential copyright violations). We created a cross-table with these two variables as well as analyzed the usage of additional multimedia by gender and age to further investigate the problematic use of the service.

Only 24% of the participants (N=123) read and understood the terms of use dictated by YouNow. Total 48% admitted not to have read and/or understood the terms, whereas 28% restrained from answering the question (which in turn might indicate not reading the terms).

The amount of live-streaming users including additional multimedia in their broadcasts is rather high. As we can see in Figure 12, most of the participants admitted including additional multimedia in their streams. Total 82.0% stream music, 62.3% show pictures (which, in turn, could also indicate possible violations of personality rights), and 59.0% stream videos during their broadcast. Only few participants do not stream music (14.7%), whereas 34.4% claim they do not show pictures and 37.7% do not stream videos. Only 3.3% restrained from answering this question. These results show that most streamers on YouNow are very likely to violate at least the copyright law.

To see if there is a possible connection between not reading the terms and conditions and potential copyright violations, we created a cross-table (Table 2), including the discussed variables. Only active "streamers" are considered in this analysis and we have excluded all cases that stated not to use YouNow "to stream."

Table 2. Acknowledgement of T&C and usage of additional multimedia (N=61).

		Did you read and understand YouNow's terms and conditions?		
		Yes	No	n/a
Do you use music during stream?	Yes	49.18%	21.31%	11.48%
	No	8.2%	6.56%	0%
	n/a	0%	0%	3.28%
Do you show pictures during your stream?	Yes	39.34%	16.39%	6.56%
	No	18.03%	11.48%	4.92%
	n/a	0%	0%	3.28%
Do you show videos during your stream?	Yes	37.7%	18.03%	6.56%
	No	19.67%	13.11%	4.92%
	n/a	0%	0%	3.28%

Apparently, the acceptance of YouNow's terms of use does not necessarily reduce the number of potential copyright violations. As we can see in Table 2, 49.2% of the (streaming) participants have read the terms and conditions, but still stream music. Furthermore, 39.3% show pictures and 37.7% stream videos during their broadcast. The amount of music- (21.3%) and video-streaming (18.0%) as well as picture-showing (16.4%) users that did not read the terms is actually lower. In turn, when considering the number of users that do not use additional multimedia, the ratio of the ones that acknowledge the terms of use is slightly higher—for streaming music 8.2% against 6.56% who did not read the conditions, for showing pictures 18.0% against 11.3%, and for streaming videos 19.7% against 13.1%.

In Table 3 we can see the classification of streamers using additional multimedia by their gender. When considering all users streaming music there are more male (42.6%) than female ones (27.9%). The same holds for other media—showing pictures (34.4% are male and 21.3% are female) and streaming videos (32.8% are male and 19.7% are female). However, we have to consider that some streamers did not disclose their gender (e.g., 11.5% of the music-streaming users).

Table 3. Usage of additional multimedia by gender (N=61)

		Men	Women	n/a
Streaming music	Yes	42.62%	27.87%	11.48%
	No	11.48%	1.64%	1.64%
	n/a	0%	0%	3.28%
Showing pictures	Yes	34.43%	21.31%	6.56%
	No	19.67%	8.2%	6.56%
	n/a	0%	0%	3.28%
Streaming videos	Yes	32.79%	19.67%	6.56%
	No	21.31%	9.84%	6.56%
	n/a	0%	0%	3.28%

Finally, we have investigated how different age groups apply additional media. Due to uneven distribution of the users by their age (there are three times as many participants aged between 14 and 17 than there are 30 and over year olds), we only analyzed which media are used by each age group the most. As we can see in Table 4, the biggest shares of users streaming music are from the youngest age groups—the 14 to 17 year olds (90.9%) and the 18 to 21 year olds (91.7/%). Considering the older groups, 72.7% of the 22 to 29 year olds stream music and over the half of 30 and older participants (57.1%) use all additional media. Pictures and videos are applied by smaller shares of the users, both by 68.2% of the 14 to 17 year olds and by 63.3% of the 22 to 29 year olds. Considering the 18 to 21 year olds, 66.7% show pictures and exactly half of them stream videos during their broadcast.

Table 4. Age groups divided by usage of additional media.

	Streaming music	Showing pictures	Streaming videos
14-17 y/o N=22	90.9%	91.7%	72.7%
18-21 y/o N=12	68.2%	66.7%	63.6%
22-29 y/o N=11	68.2%	50%	63.6%
30 ≤ y/o N=7	57.1%	57.1%	57.1%

All in all, we have learned about the habits of YouNow users. Over the half of the participants uses the services often, most of them prefer to watch streams of their friends or streamers aged 16 to 20 years. Regarding their search behavior, less than a half of the users applies hashtags to find a stream. The participants using YouNow to actively stream prepare themselves before the broadcast by checking the micro and camera as well as informing their friends and fans. The extent of problematic service use appears to be in no small measure. The observations of the streamers lead us to conclusion that the most probable violations are the copyright infringement. The legally significant user behaviors are explicitly forbidden by YouNow, however, reading the service's terms and conditions (even if only by 24% of the participants), does not necessarily reduce the potential violations. Still, over 80% of the broadcasters stream music, and over half of them streams videos and shows pictures. Streaming music as enrichment for the stream is the first choice for both, male and female users. This is the (problematic) use of the service. Now, what is the impact of YouNow on its users?

3.4 Impact on the Users and their Information Behavior

In order to establish the impact that YouNow has on its users, the participants of our survey were asked what influence this service has on their leisure time. Total 41.8% of all respondents confessed that YouNow has a high influence on their leisure time, 13.9% thought that it has a medium influence and 44.3% answered that there was only a low impact on the leisure time. Hence, YouNow appears to have a strong impact on almost half of its users.

When investigating the information search behavior (section 3.3), the users were asked whether they apply hashtags while searching for streams. In order to examine if the service had any influence on this search behavior, we asked the participants whether they use hashtags while searching on other social media platforms. Even 44.5% of the participants use hashtags while searching on YouNow, only 36.4% use hashtags on other social media platforms. Total 34.5% use hashtags for stream-search rarely or not at all, whereas 47.3% claim not to use hashtags in other social media channels. There is a slight positive correlation between these two measures significant at a 0.01-level. Hence, there might be a slight change in the information search behavior regarding the usage of hashtags, while using YouNow.

Total 93 participants of our survey responded to the question whether they would recommend YouNow and 65.6% of them would do that. Apparently, 34.4% of the users are not as much impressed by the service to make a recommendation. This outcome is not surprising, since a rather big share of participants (45.9%) is not convinced of the system's usefulness; also many of them apply it out of boredom

(56.1%).

Finally, the respondents were asked about reasons that would make them quit using the platform (Figure 13). About half of the users would stop using YouNow, should the usage get boring (54.8%) or should YouNow abuse users' personal data (51.6%). About one-third (35.5%) stated that if they were getting too old for the information service, they would stop using it; more than one-quarter (28.8%) would quit the service if their friends would stop using it.
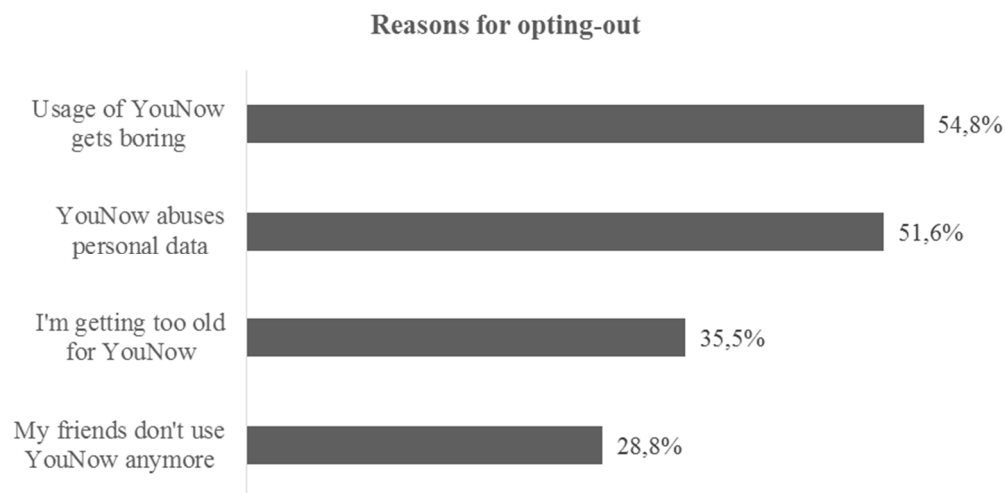
Reasons for opting-out

Figure 13. Potential reasons to stop using the service (N=93).

The impact of YouNow appears to be high on almost half of its users, at least when their leisure time is concerned. There is only a slight change in information search behavior (using hashtags). Finally, for the most of the users, YouNow will stop being useful when they get bored or when their friends stop using it. These reasons for opting-out were expectable, since 58.2% of the respondents watch streams of their friends, whereas for many of the participants' boredom (56.1%) and contact with (new) friends (46.3%) were the reasons to adopt the service in first place.

4. Conclusion

Social live streaming services are a new type of social media. In this study we investigated the adoption, usage and impact of social live streaming services with YouNow as an example. We based our investigation on the ISE-Model by Schumann and Stock (2014). We have retrieved required data by conducting an online-survey among YouNowers (N=123) and by observing streams for potential law infringements (N=434).

Our examination of YouNow's adoption shows that most users learn about the service from the Internet and their friends. Afterwards, they adopt the service in order to watch streams and chat with other users, or simply out of boredom. Only 45% start

using the service with the intention to actually broadcast own streams. An important motivational factor to adopt and continue using YouNow appears to be the willingness to become part of the community (the sense of belonging), especially for the female and the youngest users (14-17 year olds). Finally, we found evidence that experience with other streaming services leads to higher perceived usefulness and ease of use of YouNow, which in turn might also positively influence the adoption and usage of the service.

The investigation of usage of the service shows that most of the YouNowers watch streams of their friends, of female users, or of users aged 16 to 20 years. Regarding the information search behavior, over the half of participants use hashtags to find streams they want to watch. The information production behavior of the streaming users included such pre-streaming activities like checking the microphone and camera, as well as informing friends and fans about upcoming broadcast. Our study also covered the problematic usage of the service that potentially violates copyright laws (on music, videos, or pictures). It appears to be an important issue, since from the observed 434 streams, 44.3% in the USA and 37% in Germany potentially violated copyrights on music pieces. It is questionable if this problem can be solved with appropriate clarification, for example, in terms and conditions. Apparently, not many participants read the terms of use of YouNow, and users that claimed to actually read and understand the terms, were not less likely to use music, videos or pictures in their streams. The mostly used media type was music, especially favored by female users and 14 to 17 year olds.

YouNow appears to have moderate impact on its users, at least concerning their leisure time. There might also be a slight influence on information search behavior regarding the use of hashtags. Total 65.6 % of the participants would recommend the service. However, most would stop using it when YouNow should abuse their personal data or simply when it gets boring.

With this investigation we shed light on the live streaming service YouNow—its adoption, usage and impact. For further research on this topic we would recommend more detailed investigation, possibly with a bigger sample. We have not examined the usability of the service; neither did we observe the streams for aspects different than potential law infringements. These could be interesting issues to investigate in the future.

YouNow and other SLSSs remind us of *The Truman Show*, which is an American film from 1998, presenting the life of its protagonist, Truman Burbank, in a constructed television reality show. Truman's life is monitored 24/7 from his birth until his escape from the studio, when he was 30 years old. When applying YouNow, users can stream wherever they want, without any time limit–and produce their own Truman Show. As

the film was supposed to be a critical discourse on audience's and media's interest in monitoring private and most intimate aspects of a person's life, more reaching research on YouNow could lead to critical discourse on another aspect—why some people actually want to reveal private and most intimate aspects of their own lives to the public? Why do they stream from the morning through the day and even at night while being asleep? On that note, as Truman Burbank would say "Good morning, and in case I don't see ya, good afternoon, good evening, and good night!"

REFERENCES

Alexa. 2017. *Monthly unique visitor metrics*. http://www.alexa.com/siteinfo/younow.com; viewed 26 February 2017.

Baran, K. S., Fietkiewicz, K. J., and Stock, W. G. 2015. Monopolies on social network services (SNS) markets and competition law. In F. Pehar, C. Schlögl, & C. Wolff (Eds.), *Re:Inventing Information Science in the Networked Society. **Proceedings of the 14th International Symposium on Information Science (ISI 2015):** 424-436. Glückstadt, Germany: Hülsbusch.

Bhattacherjee, A. 2001. Understanding information systems continuance: An expectation-confirmation model. **MIS Quarterly**, 25(3): 351-370.

Boyd, D. M., and Ellison, N. B. 2007. Social network sites: Definition, history, and scholarship. **Journal of Computer-Mediated Communication**, 13(1): 210-230.

Casselman, I., and Heinrich, M. 2011. Novel use patterns of salvia divinorum: Unobtrusive observation using YouTube. **Journal of Ethnopharmacology**, 138(3): 662-667.

Davis, F. D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. **MIS Quarterly**, 13(3): 319-340.

Fietkiewicz, K. J., Lins, E., Baran, K. S., and Stock, W. G. 2016. Inter-generational comparison of social media use: Investigating the online behavior of different generational cohorts. In **Proceedings of the 49th Hawaii International Conference on System Sciences**: 3829-3838. Washington, DC: IEEE Computer Society.

Friedländer, M. B. 2017. And action! Live in front of the camera: An evaluation of the social live streaming service YouNow. **International Journal of Information Communication Technologies and Human Development**, 9(1): 15-33.

Greenwood, D. N. 2013. Fame, Facebook, and Twitter: How attitudes about fame predict frequency and nature of social media use. **Psychology of Popular Media Culture**, 2(4): 222-236.

Henning, C., 2015. Warum durch Phänomene wie YouNow die Vermittlung von Medienkompetenz immer wichtiger wird. Ein Beitrag aus medienethischer Sicht. In T. Junge (Ed.), *Soziale Netzwerke im Diskurs*: 199-212. Hagen, Germany: FernUniversität.

Honka, A., Frommelius, N., Mehlem, A., Tolles, J. N., and Fietkiewicz, K. J. 2015. How safe is YouNow? An empirical study on possible law infringements in Germany and the United States. *The Journal of MacroTrends in Social Science*, 1(1): 1-17.

Khoo, C. S. G. 2014. Issues in information behavior on social media. *Libres*, 24(2): 75-96.

LeSure, M. 2015. Adding live streaming apps to your e-resource arsenal. *Journal of Electronic Resources Librarianship*, 27(3): 199-201.

Linde, F., and Stock, W. G. 2011. *Information Markets. A Strategic Guideline for the I-Commerce*. Berlin, Germany, New York, NY: De Gruyter Saur.

Marwick, A., and Boyd, D. 2011. To see and be seen: Celebrity practice on Twitter. *Convergence: The International Journal of Research into New Media Technologies*, 17(2): 139-158.

Nadkarni, A., and Hofmann, S. G. 2012. Why do people use Facebook? *Personality and Individual Differences*, 52(3): 243-249.

Scheibe, K., Fietkiewicz, K. J., and Stock, W.G. 2016. Information behavior on social live streaming services. *Journal of Information Science Theory and Practice*, 4(2): 6-20.

Schumann, L., and Stock, W. G. 2014. The Information Service Evaluation (ISE) model. *Webology*, 11(1): article 115.

Stock, W. G., and Stock, M. 2013. *Handbook of Information Science*. Berlin, Germany, Boston, MA: De Gruyter Saur.

Stohr, D., Li, T., Wilk, S., Santini, S., and Effelsberg, W. 2015. An analysis of the YouNow live streaming platform. In *40th Local Computer Networks Conference Workshops*. *Clearwater Beach, FL, 26-29 Oct. 2015*: 673-679. Washington, DC: IEEE.