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Anonymous and Non-anonymous User Behavior on Social Media: A Case Study of Jodel and Instagram

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ABSTRACT

Anonymity plays an increasingly important role on social media. This is reflected by more and more applications enabling anonymous interactions. However, do social media users behave different when they are anonymous? In our research, we investigated social media services meant for solely anonymous use (Jodel) and for widely spread non-anonymous sharing of pictures and videos (Instagram). This study examines the impact of anonymity on the behavior of users on Jodel compared to their non-anonymous use of Instagram as well as the differences between the user types: producer, consumer, and participant. Our approach is based on the uses and gratifications theory (U>) by E. Katz, specifically on the sought gratifications (motivations) of self-presentation, information, socialization, and entertainment. Since Jodel is mostly used in Germany, we developed an online survey in German. The questions addressed the three different user types and were subdivided according to the four motivation categories of the U>. In total 664 test persons completed the questionnaire. The results show that anonymity indeed influences users' usage behavior depending on user types and different U> categories.

Keywords: user behavior, anonymity, social media, uses and gratifications theory, identifiability, user roles

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1. INTRODUCTION

As early as 1993, Peter Steiner portrayed the concept of online anonymity with his adage “On the Internet, nobody knows you’re a dog.” The cartoon features two dogs, one of them sitting on a chair in front of a computer and speaking the caption to a second dog sitting on the floor and listening. His cartoon marks a notable moment in the history of the Internet and symbolizes a certain understanding of privacy and personal identity on the web. You can hide your real personality behind the screen and create a new identity. Gender, age, looks—everything is up to you. Thus, facts about one’s self may be true, but alternatively they can be fabricated or exaggerated and used for legal or illegal purposes (Morahan-Martin & Schumacher, 2000; Jordan, 2002). However, this has changed over time through the privacy policies of some social networking services (SNSs) (Krishnamurthy & Wills, 2009; Peddinti, Ross, & Cappos, 2014). These enforce a real-name policy that requires users to reveal their legal name. On such SNSs, if we create an account by adding a profile picture and name, we make ourselves easily identifiable to others. Other SNSs omit this principle as they do not have a real-name policy or do not require creating a profile in general, for example, Yik Yak, 7 Cups, Blind, Jodel, and Whisper. A user can decide what kind of SNSs he or she wants to use and for what purpose. The recurring emergence of SNSs supporting anonymous usage indicates the existing demand for such an option and is a topic of contemporary importance (Zhang & Kizilcec, 2014; Peddinti et al., 2014; Scott & Orlikowski, 2014). It is therefore important to find out what are the possible motives to use anonymous or non-anonymous SNSs. Furthermore, it is interesting to know whether there are any differences in the use of such services depending on the different user roles.

1.1. Research Background

A popular approach to understanding mass communication is the uses and gratifications theory (U>) by Blumler and Katz (1974). This theory follows the approach that people use media to satisfy their specific needs in the form of gratifications. Based on Katz, Blumler, and Gurevitch (1973) and Blumler and Katz (1974), the theory places more focus on the audience instead of the actual sender by asking “what people do with media” rather than “what media does to people.” It assumes that members of the audience are not passive, but take an active role in interpreting and integrating media into their own lives (McQuail, 1994). It is furthermore suggested that SNSs are

applied by users to satisfy their needs for self-presentation, information, socialization, or entertainment. In this study we are going to investigate whether the non-anonymous and anonymous SNSs are being actively applied to meet different needs of the users.

Usually there are three different ways of dealing with social media: We produce (e.g., create a post), consume (e.g., read a post), and participate (e.g., like or comment on a post). Therefore, we take on different roles when using SNSs, which leads to the theoretical constructs of different user types: producers, participants, and consumers. Shao (2009) assumes that every gratification is related to a specific user role. For example, content is produced to satisfy the need for self-representation, it is consumed to satisfy the craving for information and entertainment, and, finally, users participate in order to interact socially.

According to Zimmer, Scheibe, and Stock (2018), user roles are not limited to a specific gratification type but each role may be pursued to obtain different types of gratification. Thus, a consumer, producer, or participant can satisfy his or her need for entertainment, information (Lee & Ma, 2012), and self-representation, as well as socialization. In the role of consumer, users act only passively in social media. They listen to or watch occurrences on social media in order to be informed or entertained. In addition, a user can consume social media in order to identify herself or himself with other users as well as gain insights into the living conditions of others. In the role of a producer, users actively contribute to social media. They produce and send content on SNSs to represent themselves. Also, a user can produce content to inform or entertain others. In addition, a producer has the opportunity to make new acquaintances by addressing other users. In the role of a participant, users partake actively in social media, but their input is not as extensive as the one of the producers. Since they participate in events on social media, they are simultaneously consumers. They comment on, like, or share content with other users to maintain social contacts and promote engaging topics through positive feedback. Users can also participate to share or complete their opinions about certain information. In addition, by participating in SNSs, users can help others in their self-expression (through, for example, likes or positive as well as negative comments and ratings). The different roles that users take on during their social media usage can lead to obtaining different gratifications. Therefore, we are going to examine whether user behavior changes with respect to the role he or she assumes (i.e., consumer, producer, or participant).

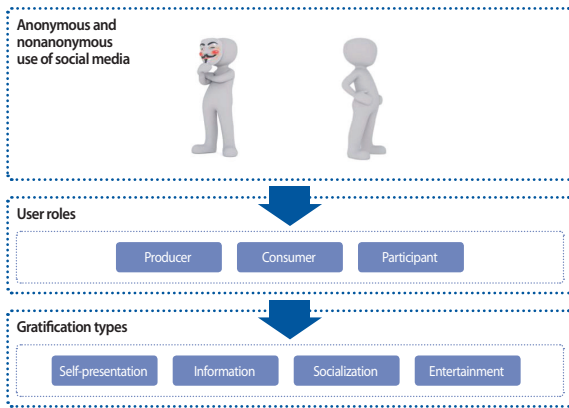


Fig. 1. Our research model.

1.2. Research Questions and Objectives

This study examines the impact of anonymity on the behavior of users on Jodel compared to non-anonymous usage of Instagram as well as the possible differences between the different roles that the user can take on. We formulate two research questions:

What are the differences in social media usage motivation on anonymous and non-anonymous platforms?

Does the social media usage behavior change when considering the different user types (producers, participants, and consumers)?

As seen in Fig. 1, we distinguish two types of social media usage, namely non-anonymous and anonymous. Non-anonymous users are clearly identifiable by their real name or pseudonym (including artist name). Anonymous (also pseudo-anonymous) users are not identifiable. Pseudo-anonymous users are users who have no visible identifier or information that can be linked to them. However, this does not mean that messages cannot be traced back to their sources because a user's identifier is available to service providers or website administrators in the form of login ID's or IP addresses. It is not clear to other users who the real person is because there is no name or image connected to the profile.

In a further step, we assign different roles to the users. Here, a distinction is made between producers, consumers, and participants. All users are consumers, users producing content are producers, and users who react to posts in the form of likes, votes, or comments are participants. We assume that each user in each role applies social media to obtain certain gratifications. Following U>, we selected four gratification types: self-presentation, information, socialization, and entertainment (Katz et al., 1973; Blumler & Katz, 1974; McQuial, 1994; Zimmer et al., 2018). These

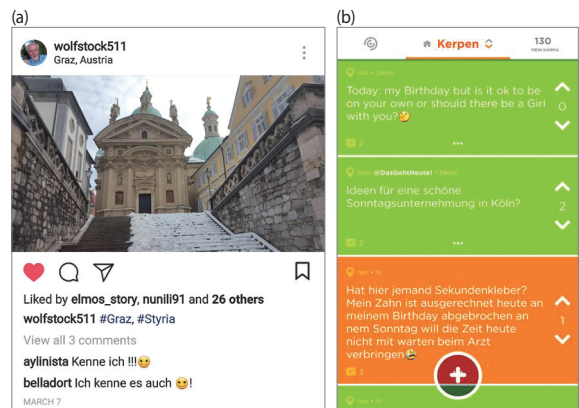


Fig. 2. Post on Instagram (a) and posts on Jodel (b).

are needs that a user with a particular role wants to satisfy by using anonymous or non-anonymous social media platforms.

To target users of anonymous and non-anonymous social media, we have chosen to study two mobile SNSs, namely Jodel and Instagram. Instagram represents an SNS in which users can be identifiable, whereas Jodel is an SNS where users remain anonymous. These two services were chosen because they are very successful as well as of high quality (Nowak, Jüttner, & Baran, 2018; Scholl, 2015). They both have a high number of active users and can therefore be considered as suitable media for estimating a representative mass.

Instagram is a free online sharing service for photos and videos owned by Facebook Inc. It was developed in 2010 by Kevin Systrom and Mike Krieger. It is a combination of a microblog and an audiovisual platform. When creating a profile on Instagram, users can decide whether or not to use a real name and profile picture. With 800 million active users worldwide, Instagram is currently one of the most popular social media platforms (Sheldon & Bryant, 2016). We have chosen Instagram as an example of a platform that can be applied by non-anonymous users characterized by a high degree of identifiability.

Jodel is an anonymous mobile social media application that is mostly used by students. It was developed in 2014 by Alessio Borgmeyer in Aachen, Germany and quickly became popular in German-speaking countries. The free app allows users to send short messages that anyone in the community can read. Those short messages may contain jokes, opinions, questions, discussions, or (real-time) photos and can be seen by community members who are located within the radius of about ten kilometers. Each of these so-called "Jodel" can be positively or negatively evaluated

(applying up- and down-votes) and commented on by other community members situated nearby. The valuation is ultimate and cannot be undone. If a Jodel receives a negative valuation of minus five, it is removed from the feed. The community is self-regulating and decides independently what it wants to see in the feed. One of Jodel's features is "Karma," which is displayed in the top right corner of the app (Thiele, 2015). According to the developers of Jodel, the karma points indicate how much good has been done for the Jodel community so far. Jodel's use is always anonymous. There are no friends or followers. It only counts who is nearby (Nowak et al., 2018; Wielert, 2017). In general, Jodel is similar to Yik Yak, a former successful anonymous application which ceased operation in May 2017 (Kolodny, 2017). In Fig. 2 we can see an example of a post on Instagram (left hand side) and on Jodel (right hand side).

2. RELATED WORKS

Anonymity, even in the form of quasi-anonymity, offers users a new way of communicating and expressing themselves. Non-anonymous social media can put pressure on users to manifest themselves as consistent, optimistic, and competent all the time. If this is the case, our user behavior can change as soon as we are anonymous. Another possibility is that there is no behavioral change in the use of social media and, thus, no difference between identifiable and anonymous usage.

The fact that anonymity strongly influences people's behavior has long been established by socio-psychological research. One of the most remarkable works was done by Zimbardo (1969). In a series of experiments he found out that people in an anonymous state develop a tendency towards greater aggression and violence. Katzer (2016) also indicates that the behavior of an individual changes when in a group and that anonymity promotes this process of deindividuation. Similar behavior can also be observed on SNSs. But do we only use anonymous social media to satisfy our need for aggression, violence, and immoral actions?

Several studies have shown how the state of anonymity affects online behavior (Bernstein et al., 2011; Postmes, Spears, & Lea, 1998; Seigfried-Spellar & Lankford, 2017; Saveski, Chou, & Roy, 2016; Black, Mezzina, & Thompson, 2015; Wielert, 2017; Wodzicki, Schwämmlein, Cress, & Kimmerle, 2011). Generally, they indicate that anonymity can have both a positive as well as a negative effect on user behavior. Negative influences include mob and antisocial behaviors, which are triggered by the "online disinhibition

effect" (Suler, 2005). Disinhibition can also have a positive effect on communities and their online behavior. For example, anonymity can provide coverage for intimate and open conversations. This is also stated by Peddinti et al. (2014), who found a correlation between content sensitivity and a user's decision to be anonymous. Zhang and Kizilcec (2014) state that anonymous sharing is a popular choice, especially for controversial content. In addition, anonymity can encourage experimentation with new ideas or memes. Furthermore, under the mask of anonymity, failures (e.g., no reaction to threads) can be mitigated (Dibbell, 2010), whereas identifiability preserves the memory of failure and feelings of being ignored for a longer time. Black et al. (2015) and Saveski et al. (2016) found no significant differences in the usage behavior of anonymous and non-anonymous users on social media with regard to the content of posts. Only a slight increase in vulgarity usage was identified for anonymous users.

Seigfried-Spellar and Lankford (2017) go one step further, not distinguishing between anonymous and identifiable users, but focusing on individuals (posters, trolls, lurkers, confessors) on the anonymous social media platform Yik Yak. They suggest that there are differences in behavior in terms of online environment and morality of individuals who post, troll, confess, or passively lurk on anonymous social media.

So far no one has investigated how anonymity affects the user behavior of consumers, producers, and participants, also without reference to aggression, vulgarity, and violence. When disregarding aggression, violence, and anti-social or unrestrained behavior, is there a difference between anonymous and non-anonymous producers, consumers, and participants in terms of gratifications they seek when using a social media platform?

3. METHODS

To find out how anonymity affects user behavior in terms of the four motivation categories (self-presentation, information, socialization, and entertainment) and with regard to the three user roles (consumers, participants, and producers), a questionnaire for Jodel and Instagram users was created. Since Jodel is most popular in German-speaking countries, we restricted our investigation to German-speaking users and created an online survey in German (Fig. 3).

First, we inquired whether the survey participant has an Instagram and Jodel account. If the participant has an

I use Instagram, ...								
Self-presentation *								
The distance between two values is always the same.								
		disagree						fully agree
		1	2	3	4	5	6	7
to identify myself with other users.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to present myself.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to present myself or help others representing themselves through likes or positive/negative comments.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig. 3. Sample question from the online survey (translated from German).

account on both platforms, we asked for the durability and the type of activity on each of them. In order to identify the different user types, we asked how frequently a user performs different actions on each platform (e.g., posting, voting, or commenting).

The following questions addressed the four motivation categories of the U> adjusted to the three user types. The first category, *self-presentation*, includes such factors as identifying oneself with other users, presenting oneself, or helping others in their self-presentation. The second motivation category, *information*, covers the questions whether the user distributes, receives, or complements news and information. For the third category, *socialization*, we asked if the user is on Instagram or Jodel to establish contacts and whether the user wants to gain insights into the lives of others. For the fourth category, *entertainment*, we asked if the users apply the service to entertain themselves or others and if they promote entertaining content. In order to exclude anonymous Instagram users, we asked if the user is registered with his or her real name on Instagram. Subsequently, we asked about the user's attitude towards being anonymous on Instagram and Jodel, and how he or she values anonymity. Finally, we collected socio-demographic data (gender, birth year, and educational background).

To adequately measure Jodel and Instagram usage behavior of the survey participants we applied a 7-point Likert scale for the responses. Likert (1932) developed the principle of measuring attitudes by asking people to respond to a series of statements about a topic. The responses can be marked on a 7-point scale where 1 stands for disagreement and 7 for full agreement. This way it is possible to provide a neutral response (4) as well as a precise evaluation of the tendency of the answers.

The online survey was distributed in the period from

October 31, 2017 to November 22, 2017 on various social media channels such as Facebook, Jodel, and Instagram. This ensured that both Instagram and Jodel users could be reached. Since Jodel is a location-based service, we artificially altered the location in order to distribute the survey throughout Germany. We focused on cities with universities or other institutions of higher education so that we could reach a large amount of Jodel users (who are usually students). Based on these criteria 40 cities were selected to distribute the survey via Jodel.

The collected data were not normally distributed (Shapiro-Wilk test). Therefore, for the evaluation we calculated median and the interquartile range for each investigated aspect distinguished by the application (non-anonymous Instagram and anonymous Jodel usage), user type (consumer, participant, and producer) and motivation category (information, self-presentation, entertainment, and socialization). We applied the Wilcoxon signed-rank test to investigate the differences between anonymous and non-anonymous usage behavior. The test was proposed by chemist and statistician Wilcoxon (1945) and is a nonparametric statistical test that uses two paired (dependent) samples to check the equality of the key trends in the underlying populations.

To determine the different user types, we referred to the posting, liking, or voting behavior. The consumer category included all users of the respective social media. Producers were the ones who generated content more than once a week. Participants were those who responded to content more than once a week. In order to investigate the difference between sought gratifications while using an anonymous and a non-anonymous platform, we selected users who were producers or participants on both platforms, Instagram and Jodel, for the statistical analysis with Wilcoxon signed-rank test.

4. RESULTS

Out of 746 respondents, 664 completed the questionnaire. Out of these, 224 (33.8%) respondents were male, 420 (63.4%) female, and 16 (2.4%) of another gender. 4.5% of the respondents were 14 to 17 years old, 71.3% of the respondents were in the age range of 18 to 24, 16.8% were 25 to 30 years old, and 6.8% were more than 30 years old. We had 426 consumers on Instagram and 424 on Jodel. Participants included 411 Instagram users and 422 Jodel users. The producers included 371 Instagram users and 351 Jodel users.

Table 1 shows the medians and interquartile ranges for consumers, producers, and participants regarding the sought gratification categories of self-representation, information, socialization, and entertainment while using Instagram (not anonymous) and Jodel (anonymously).

For the gratification type socialization there is no result for participants, because it could not be investigated. The reason is the impracticability of anonymous participants to stay in contact with friends. They are not able to recognize their new or old friends, so they cannot be compared to participants who are identifiable.

Strong differences between anonymous and non-anonymous social media usage are particularly noticeable among *participants* who are motivated by information and among *producers* who are motivated by entertainment and self-presentation. Nearly all differences between anonymous and non-anonymous usage are statistically significant, with the exception of socialization by *producers*. In the following, we investigate the different gratification types for each user role more closely.

The results in Fig. 4 show boxplots for different gratification

Table 1. Sought gratifications of identifiable (Instagram) and anonymous (Jodel) consumers, producers and participants

	Consumer (n=245)					Participant (n=232)					Producer (n=174)				
	Instagram		Jodel		Sig ^{a)}	Instagram		Jodel		Sig ^{a)}	Instagram		Jodel		Sig ^{a)}
	Median	IQR	Median	IQR		Median	IQR	Median	IQR		Median	IQR	Median	IQR	
Self-presentation	3	3	4	3	***	3	3	3	4	*	4	3	2	2	***
Information	5	2	6	1	**	2	2	4	3	***	3	3	4	3	***
Socialization	5	2	4	3	***	NA	NA	NA	NA	NA	2	3	2	3	NS ^{b)}
Entertainment	6	2	7	1	***	4	2	5	3.5	***	2	4	4	3	***

Likert scale from 1 ("do not agree") to 7 ("fully agree"). IQR, interquartile range; Sig, significance of difference; NA, not applicable; NS, not significant. *P<0.05, **P<0.01, ***P<0.001; ^{a)}Wilcoxon rank test; ^{b)}p>0.05.

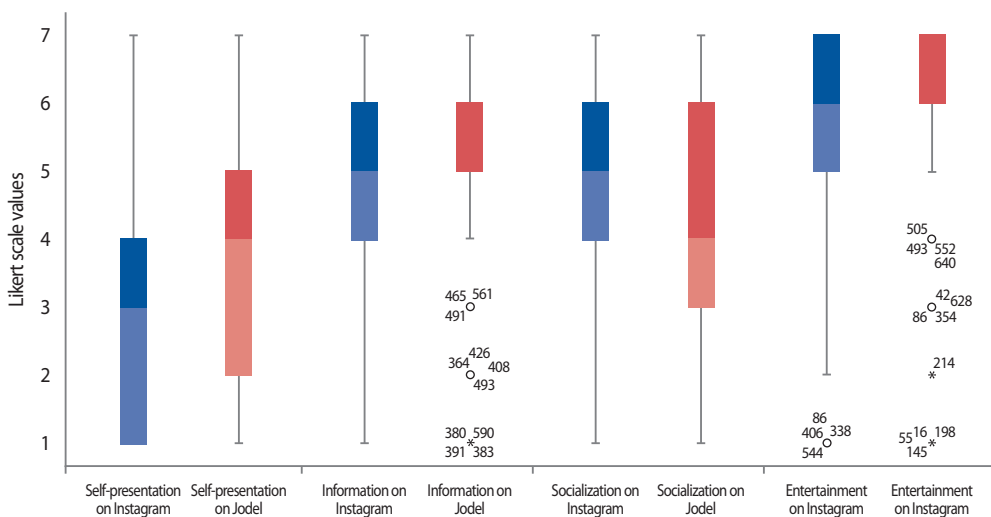


Fig. 4. Sought gratifications of identifiable (Instagram) and anonymous (Jodel) consumers.

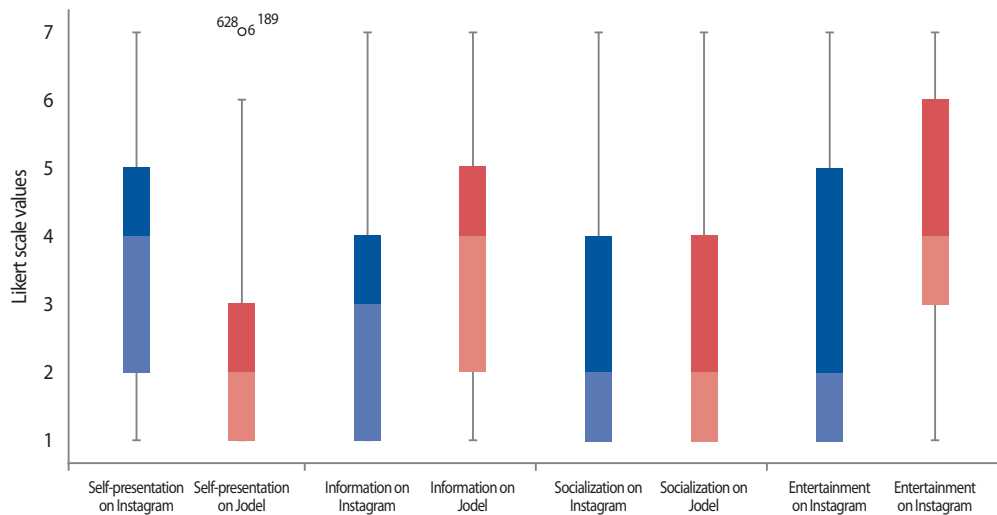


Fig. 5. Sought gratifications of identifiable (Instagram) and anonymous (Jodel) producers.

types distinguished between anonymous and identifiable social media usage by *consumers*. Considering the motivation category *self-representation*, consumers on the anonymous platform are rather moderately motivated by this factor (median of 4 on the 7-point Likert scale), whereas on the non-anonymous platform (Instagram) the tendency is rather negative (median of 3). As for the motivation category *information*, consumers on both platforms seem to be driven by this factor. The need for information is, however, stronger when using Jodel (median amounts to 6) than when using Instagram (median of 5). When using Jodel, consumers are rather neutral regarding the *socialization* (median of 4), while when applying Instagram they have a slightly higher interest in the living conditions and lifestyles of others (median of 5). Usage of both platforms is strongly driven by the need for entertainment, especially on Jodel where the median reaches the highest possible value of 7. Still, the use of Instagram is also strongly motivated by this factor (median of 6). All differences between Jodel and Instagram usage are statistically significant (at least at the level $P < 0.01$).

All in all, the results show clear differences in usage behavior when using anonymous and non-anonymous platforms. When being anonymous (Jodel), consumers want to identify themselves with others and they seek a great deal of information and even more entertainment. While being identifiable (Instagram), the consumers are more likely to gratify their need for socialization.

The boxplots in Fig. 5 summarize the responses from

producers on the two investigated platforms. It can be observed that producers do not apply media in which they are anonymous to represent themselves; this is shown by a very low median of 2 for Jodel. The non-anonymous usage of Instagram is more motivated by this factor with a median of 4, which is a rather neutral value, but the highest one for usage of Instagram in the role of producer. We observe that producers prefer not to use Instagram to spread information or news (median of 3). They are more neutral about this factor when applying Jodel (median of 4). For the motivation category *socialization* both usage types by the producers, anonymous as well as non-anonymous ones, have a median of 2, meaning that producers do not seek social relationships on either of the platforms. For this motivation category there is no significant difference between the two usage types.

It can be observed that producers seek more entertainment on the anonymous platform than on the non-anonymous one (median of 4 for Jodel in contrast to median of 2 for Instagram). Thus, anonymous producers tend to entertain users more than while using a non-anonymous platform. However, the interquartile range for Instagram is very high (4), meaning that there are also producers who might be slightly motivated by this factor, as there are many answers in the spectrum between 1 and 5. Still, these results are very surprising, especially regarding the behavior of producers on non-anonymous platform. On Instagram, they are rather “neutral” towards self-presentation, not very motivated by information, and very negatively opposed to socialization

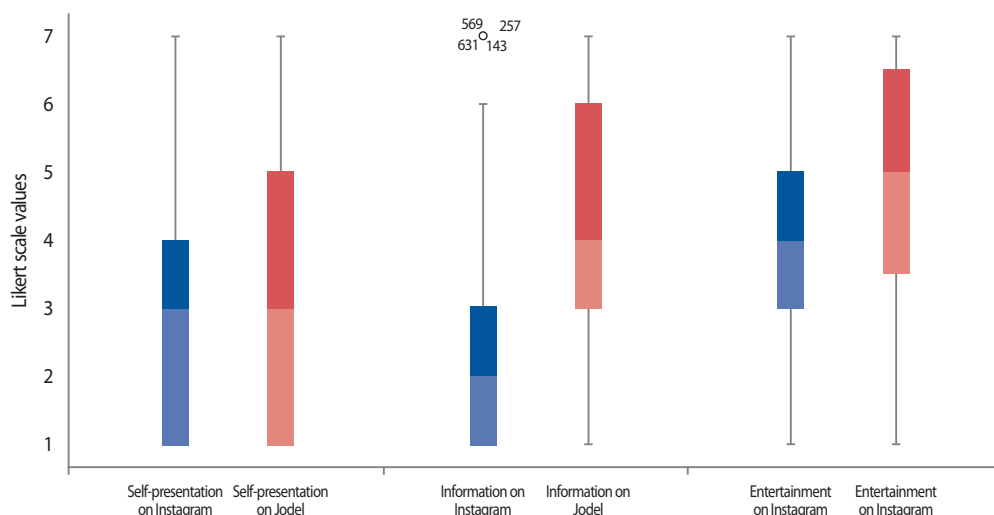


Fig. 6. Sought gratifications of identifiable (Instagram) and anonymous (Jodel) participants.

Table 2. Attitudes towards anonymity on Instagram and Jodel by non-anonymous Instagram users (n=132)

	Instagram		Jodel		Sig ^{a)}
	Median	IQR	Median	IQR	
I (would) like to be anonymous on...	4	3	7	1	***
I (would) dare more when (I were) anonymous on...	4	3	6	2	***

Likert scale from 1 (“do not agree”) to 7 (“fully agree”).
 IQR, interquartile range; Sig, significance of difference.
^{a)}P<0.001; ^{b)}Wilcoxon rank test.

and entertainment. On Jodel they are neutral about information and entertainment, whereas for entertainment we can recognize a rather positive tendency (spectrum between 3 and 6). Finally, there appears to be no seeking for self-presentation and socialization on this platform.

When analyzing the results for *participants* (Fig. 6), we can recognize that there are again visible differences between anonymous and non-anonymous usage. With a median of 2 (and interquartile range between 1 and 3), participants on Instagram do not seem to want to spread or receive information at all, while on Jodel they are more neutral about it (median of 4 with a rather positive tendency). Participants seem to be little interested in self-presentation as well, as median amounts of 3 for both platforms (however, with a more positive tendency on Jodel). Finally, participants on Instagram are rather neutral regarding entertainment (median of 4) while on Jodel they are more motivated by this factor (median of 5).

Overall, participants are more likely to promote entertainment on an anonymous platform as well as help

others in their self-representation and evaluate or comment on information than on a non-anonymous one. Altogether the differences between anonymous and non-anonymous usage are significant.

The boxplots in Fig. 7 show the users’ attitudes towards being anonymous on Instagram and Jodel. The differences are according to Wilcoxon rank test significant (Table 2). As expected, identifiable users of Instagram have a neutral opinion (median of 4) regarding being anonymous on this platform. In contrast, they appreciate being anonymous on Jodel. The median of 7 on the Likert scale represents an unambiguous attitude. In contrast to the anonymous use of Jodel (median of 6), when anonymously using Instagram, the users would still not dare more when producing content or participating in exchanges (median of 4). This could indicate that the general type of social media platform—one being purely anonymous (Jodel), the other enabling either anonymous or non-anonymous usage (Instagram)—has an impact on user behavior. In general, anonymity seems to play a minor role on Instagram and, logically, a very high one on Jodel.

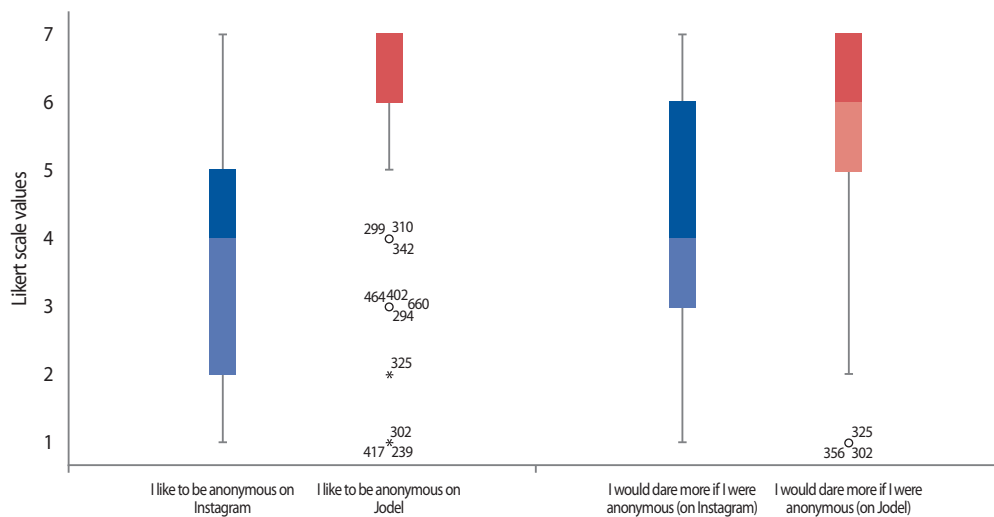


Fig. 7. Attitudes towards being anonymous on social media.

5. DISCUSSION

Anonymity plays an increasingly important role on the Internet and on social media in particular. There are more and more applications that allow users to preserve their anonymity. Such applications, like Jodel, are particularly popular among students. Anonymity offers users new opportunities to express themselves in a community and to satisfy certain needs that one would suppress under other circumstances. There are already some studies that deal with anonymity on social media, but many questions remained open. With our study we tried to close this research gap. For this purpose we conducted an online survey and determined whether users are motivated by different aspects when taking on different roles (as producers, consumers, and participants) and whether this changes when using anonymity-based and non-anonymity-based platforms.

Regarding the three user roles the output of the survey shows that there are significant differences between anonymous and identifiable usage. *Consumers*, when being anonymous, seek for some self-presentation (i.e., they try to identify themselves with others), as well as a large amount of information and entertainment, while when being identifiable they are looking for socialization (which is doomed to be rather unsuccessful when being anonymous). When being anonymous, the *participants* seek especially more entertainment and some information, whereas when being identifiable they are not interested in information at all, but instead a little bit in entertainment. *Producers* seek more

information and entertainment when being anonymous, and more self-presentation when being identifiable. Except for socialization as a *consumer* and self-presentation as a *producer*, in eight remaining cases the median values for sought gratifications are either higher or at least the same for anonymous usage (Jodel). Only for *producers* seeking socialization is there no statistically significant difference between anonymous and identifiable usage.

Do users change their usage behavior when they are anonymous? Previous studies showed that anonymity has different influences on the (online) behavior of people. Anonymity can promote negative behaviors such as aggression, antisociality, and violence (Zimbardo, 1969; Katzer, 2016; Suler, 2005) as well as positive behaviors such as intimacy, openness, the promotion of ideas, and concealment of failures (Peddinti et al., 2014; Zhang & Kizilcec, 2014). Similarly, there are some studies that found no significant differences between anonymity and non-anonymity (Black et al., 2015; Saveski et al., 2016). The results of this study show that anonymous and non-anonymous usage exhibit great significant differences for all user types. There are two considerable differences between anonymous and non-anonymous usage, where the difference of the median values equals 2. The first one is given between anonymous and non-anonymous usage by *participants* who are seeking information. When being anonymous, the *participants* tend to rate and comment more on information rather than when they are identifiable. The second major difference is apparent between anonymous and non-

anonymous usage by *producers* seeking self-presentation. When being identifiable, producers tend to post more content in order to present themselves rather than when being anonymous. This outcome is not surprising, since when being anonymous one cannot present him or herself to the fullest extent as it is possible on non-anonymous platforms.

Especially for self-presentation there are (for all users) low median values (of 4 or less). When being both, anonymous or identifiable, users rarely use social media to represent themselves or identify themselves with others. This result is surprising, as self-presentation was often named as an important motivational factor (Shao, 2009; Shang, Chen, & Liao, 2006; Heinonen, 2011; Livingstone, 2008). However, there are also studies which indicated the opposite. Friedländer (2017), for instance, showed that only about 11 percent of all producers of social live streaming services name self-expression as one of their motives to produce content. As for the live streaming platform YouNow, Scheibe, Zimmer, and Fietkiewicz (2017) identified 18 percent of users applying this service because of self-presentation. As for Instagram and Jodel, this motivational factor seems to be barely relevant. Overall, users are more likely to consume media, both anonymously and non-anonymously, rather than produce content. This is in line with other research results on social media; e.g., Scheibe, Fietkiewicz, and Stock (2016) found for social live streaming services that about 60 percent of all users consume streams, but only 45 percent produce their own content.

Omitting aggressiveness, anti-social behavior, or violence, and focusing on the motives self-presentation, information, socialization, and entertainment, and considering different user roles, it can be seen that anonymous and non-anonymous usage more or less satisfies the needs for entertainment through consuming as well as rating and commenting (i.e., participating); however, not in producing content on non-anonymous platform. Nearly all consumers and participants seek entertainment on both platforms. This is understandable, given the premise that users use social media to entertain and distract themselves from everyday life. Heinonen (2011) explains that entertainment is understood as an act for “relaxation or escape.”

When on an anonymous platform, users prefer to stay that way, whereas on non-anonymous ones they do not care about anonymity. In addition, on an anonymous platform users dare more to post or comment on and rate content. On a non-anonymous platform (Instagram), users would dare more to post or respond to posts if they were anonymous, though not to the same extent as they do on Jodel. Similar

results were also discovered by Wielert (2017), who found that anonymity is of great importance to Jodel users, especially with regard to creating posts. In the case of votes, however, anonymity does not play a significant role. This is to be expected, since posts are considered much more personal statements than reviews in the form of likes or votes.

In summary it can be said that both systems, anonymous as well as non-anonymous ones, can be popular and successful (Nowak et al., 2018; Scholl, 2015). This is mainly due to the different user gratifications. As mentioned above, this is especially noticeable for *participants* and *consumers*, where the behavior between anonymous and non-anonymous usage is very different. For system developers, it would be interesting to implement a function allowing users to switch between anonymity and identifiability. With our results, the services can better estimate what form of use they should provide to approach a specific type of potential users. If they are looking for users who are supposed to rate and comment on content, they should consider ensuring an adequate level of privacy. In contrast, when their platform is supposed to be built upon user-generated content and evolve around the users themselves (self-presentation), they should focus on producers who do not necessarily look for anonymity, but prefer being identifiable (and, this way, being able to personally receive appreciation for content they created). This can be especially applicable to the so-called influencers or micro-celebrities who, through an intensive self-branding, create an “influential” online persona (Fietkiewicz, Dorsch, Scheibe, Zimmer, & Stock, 2018) and need to remain identifiable to their fans. This, however, does not stand for content creation in the categories of information or entertainment. Here, a good example of successful platforms for producing information could be Reddit, whereas for entertainment—the meme-sharing platforms 4chan or 9gag. On all of them the users are not required to reveal their identity and can publish content anonymously.

6. LIMITATIONS AND OUTLOOK

Until now some studies have covered the aspect of anonymity and non-anonymity regarding aggressiveness, antisociality, and violence on social media. Shao (2009) examined the adaptation of U> on social media with a focus on self-representation, socialization, information, and entertainment. Still, there were no results combining both of these aspects so far.

Considering the median values for producers over

all gratification types, which is only neutral (4) or below on the 7-point Likert scale, the question arises: What do producers want on social media, especially when they are not being anonymous? To better understand why non-anonymous producers tend to act passively in terms of the uses and gratifications of socialization, information, and entertainment, while anonymous producers tend to be only moderately active regarding information and entertainment, their motivation needs to be investigated more closely. Qualitative interviews should be an adequate method to disclose the motives of producers. In addition, one could change the consideration of the user groups in further studies. This study looked at and evaluated users who use both—Instagram and Jodel. To exclude the possibility of usage patterns when using both systems, one might consider users who use only Jodel or only Instagram; however, not both.

The limitations of our study concern the regional distribution of the survey. Since Jodel is an app developed in Germany, it is only well known in German speaking countries. Our survey was therefore created in German to reach the majority of the users of Jodel. That also means that the whole study, including the investigation of Instagram usage, is limited to German speaking users. To conduct a broader study it is necessary to design a survey in English and distribute it in other countries. However, this would pose another limitation, namely that users in other countries might be unfamiliar with Jodel. Therefore, an alternative to Jodel as a mobile app enabling solely anonymous usage should be investigated. Or perhaps Jodel will become as successful in the English-speaking world as formerly Yik Yak, since the company is planning to expand into the USA (Gruenderszene, 2017).

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