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Edited by Prof. Vincent Cunnane and Dr Niall Corcoran



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An Evaluation of the Social News Aggregator Reddit

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Abstract: Reddit, as being a Social News Aggregator (SNA), is one of the most successful websites in the world and presents a social media service which has not been evaluated as an information service yet. SNAs offer the opportunity to share user-generated submissions and links which can be commented and rated. Former research about Reddit was focused on the readability and characteristics of posts, and the lifespan and propagation of its content, internet activism, and opinion leadership. We offer the first evaluation of SNAs and close the research gap. We analyzed Reddit and its quality as an Information Service using the Information Service Evaluation (ISE) model, with focus on the two dimensions Information Service (objective and subjective service quality) and the Acceptance of the Service. By applying a survey (N=474), we gained insight into the user behavior, and how users perceive the quality of Reddit. A SERVQUAL experiment (N=10) was conducted, using tasks to understand which steps are troublesome for the user on Reddit. A corpus-driven content analysis regarding the readability and understandability of six selected subreddits with an extracted dataset of 315,376 comments was conducted, using the automated readability index and self-provided measures based on sentence length, word length, and frequency distributions of part of speech tags. The results show that Reddit is perceived as being very enjoyable, useful, and easy to use. The majority of the survey participants were male and between 10 to 64 years of age. The quality of the content is easy to read and to understand. The service is used daily and even multiple times a day. The reasons to quit Reddit are related to too much input and time consumption. Our results implicate that Reddit seems to be addictive to some users, since they spend several sessions a day on it. In the field of social media research, Reddit offers an excellent opportunity to study a widely neglected area of science, namely the systematic evaluation of social media systems and services.

Keywords: Social media, Social news service, Social news aggregator, Reddit, User behavior, Content analysis, Evaluation

1. Introduction

In recent years, Social Network Services (SNSs) became a part of everybody's daily life. A special form of SNSs is a Social News Aggregator (SNA) or Social News Service. SNAs' three main functions are sharing, voting, and discussing posts or links (Tsou, 2016; Singer, Flöck, Meinhart, Zeitfogel and Strohmaier, 2014). Moreover, the users can upvote or downvote a post, comment, or link. SNA's most popular representative is Reddit¹, launched in 2005, which ranks fourth of the most popular websites in the United States and seventh in the global ranking according to Alexa.com². Reddit presents a SNS that is not focused on the users and the image they portray, but rather the content they want to share. Posts can be uploaded in "subreddits," which are topics from all possible areas of interest (Figure 1). This concept of democratizing online news and the fact that users can register themselves with an anonymous username made Reddit popular especially in the U.S. Other examples of SNAs are Digg³, ForensicFocus⁴, or Hacker News⁵. But still, we could not identify a throughout evaluation of Reddit or SNAs as an Information Service, making it an interesting new area of research. Former scientific articles about SNAs include investigations on the social information processing (Lerman, 2007), the non-importance of friendships and the propagation of information on SNAs, especially on Digg (Doerr, Blenn, Tang and Van Mieghem, 2012). Other areas of research on Reddit were concerned with the readability and characteristics of posts (Tsou, 2016), the lifespan and propagation of its content (Haralabopoulos,

¹ https://www.reddit.com/

² https://www.alexa.com/siteinfo/reddit.com

³ http://digg.com/

⁴ http://www.forensicfocus.com/

⁵ https://news.ycombinator.com/

Anagnostopoulos and Zeadally, 2015), the behavior and handling of trolls (Bergstrom, 2011), internet activism (Loudon, 2014), opinion leadership (Kilgo, Yoo, Sinta, Geise, Suran and Johnson, 2016), or the "Reddit Score," a common rating of approval for posts on Reddit (Mieghem, 2011). It is suggested that Reddit became a self-referential community that focuses on its own user-generated content over external sources (Singer, Flöck, Meinhart, Zeitfogel and Strohmaier, 2014). The content that gets popular does so by chance, since 50% of the most popular links were ignored the first time they were submitted (Gilbert, 2013). Other studies on Reddit bring attention to how knowledge, ideas, and resources are being shared and supported outside the confines of traditional education and professional environments (Kumar, Gruzd, Haythornthwaite, Gilber, Esteve del Valle and Paulin, 2018, p.1933). Furthermore, researchers determined the knowledge production in relation to social roles in an online user experience (UX) community (Kou, Gray, Toombs and Adams, 2018).



Figure 1: A screenshot of Reddit's frontpage displaying several subreddits

An important factor of Reddit's success is the migration of users from Digg.com to Reddit. Digg.com was a big competitor of Reddit with similar design and attitude, but a change of advertising behavior (Metz, 2012) and auto-submitted publisher news on their frontpage, ruined the democracy feeling of the community (Finn, 2010), which induced many people to switch to Reddit (Metz, 2012). But not even Reddit can survive without advertisement, with "Reddit Ads," companies are able to "launch promoted posts targeting any Reddit community" (Reddit, 2017a). However, by buying "Reddit Gold," the premium membership, Reddit users can disable the advertisement and customize the design (Reddit, 2017b). Furthermore, Reddit tries to distinguish itself from other social media services by using anonymous profiles and connecting users (Leavitt, 2015). The numbers of friends or followers are irrelevant in the Reddit communities (Jacob, 2011). Reddit attaches importance to anonymity. Each user has the chance to separate him- or herself from the own "real-world identity" in form of a persona and consume the content one is really interested in, without having to tell all their friends.

As we were not able to identify studies evaluating SNAs, we are going to close this research gap. In this paper, we evaluate Reddit regarding its quality as an Information Service using the Information Service Evaluation (ISE) model (Schumann and Stock, 2014). First, we point out the functionality as well as the main aspects of the ISE model and how we applied it to evaluate Reddit. For the empirical investigation, we have created a survey and conducted experiments in order to analyze the different aspects of the underlying research model. Finally, we emphasize how Reddit's quality as an online based information service can be assessed.

We are going to answer the following four research questions (RQ):

RQ1. What demographic characteristics do users of Reddit exhibit?

RQ2. How satisfying is the objective quality of Reddit and its content?

RQ3. How satisfying is the perceived (subjective) quality of Reddit and its content?

RQ4. To what degree do Reddit users accept the service and what are their reasons to stop using it?

2. Method

2.1 ISE model

The investigation on the Social News Aggregator Reddit is based on the ISE model (Schumann and Stock, 2014). It is a theoretical framework and comprehensive heuristic model for all aspects of evaluation, description, and analysis of all kinds of information services (Stock and Stock, 2013). The model is divided into five different dimensions (information service, information user, information acceptance, information environment, and time), of which two will be analyzed in this paper: *information service* and *information acceptance*.

The quality of the *information service* can be analytically divided into the *objective information service quality*, as described by an expert with scientific concepts (efficiency, effectiveness, functionality, the degree of gamification, and usability) (RQ2) and the *subjective information service quality* as estimated by the users (*perceived service quality, perceived information system quality* (ease of use, usefulness, trust, fun, and other factors), and *perceived content quality*) (RQ3).

An individual's information need is the starting point of any information behavior (information production as well as information search and reception behavior) and his or her acceptance of a service, or information acceptance (adoption, use, impact, diffusion, and opting-out) (RQ4). If the "right" user meets the "right" information service, she or he 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. We speak of use, when the user applies some of the information service's functionalities in his or her professional or private life once there is information need on hand. In the case of use, it is possible that the user's information behavior or his or her general behavior will change. This aspect is called impact. 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 (Linde and Stock, 2011) 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 establishing itself as a standard (Baran, Fietkiewicz and 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, there is 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.

2.2 Survey

To answer the research questions (RQ1, RQ3 und RQ4), an online questionnaire was developed. The survey was posted on Umfrageonline.com and took place between May 29, 2017 and July 7, 2017. It was shared on different social media platforms like Facebook survey groups and on different subreddits. The survey was not shared exclusively among friend networks, to avoid self-selection bias (Ziliak and McCloskey, 2008). At the end of the survey, the attendees were asked about demographic aspects (age, gender, country of origin, highest educational level). The majority of the questions contained pre-formulated answers, as well as questions which could be rated on a five-point Likert-scale, from 1 meaning "highly disagree" to 5 meaning "highly agree." The questionnaire was split into two parts. If the participant was an active user of Reddit, the following questions were asked. For the aspect of the perceived information system quality, the participants were asked to rate as how easy to use, useful, trustable, and enjoyable they experience Reddit. Furthermore, the perceived content quality of the information service was evaluated with questions about the categories believability, objectivity, readability, timelessness and understandability (Schumann and Stock, 2014). Aspects of the users' information acceptance were queries with questions about the adoption, use, impact, and diffusion of Reddit, as well as the users' possible reasons for opting-out of it. To gain insight into the information acceptance aspect and why a user opts-out of Reddit, at the beginning the participants were asked if they are active users of Reddit. If the answer was no, they were asked why they quit using the service, for which they could choose between pre-formulated answers or write further reason. After this the questionnaire was finished.

2.3 Perceived service quality and SERVQUAL experiments

To measure and evaluate the aspect *perceived service quality* of RQ3, the services offered by Reddit and how they are perceived by the users must be inspected. To study the overall service quality of Reddit, first, the sequential incident technique, allowing the recording of service situations perceived by customers as extraordinarily positive or negative, was applied (Stauss and Weinlich, 1997). Second, the critical incident technique was used to collect direct observations of the participants' behavior that are of critical significance and meet methodically defined criteria (Flanagan, 1954). The objective was to collect all critical steps and processes that many users might have trouble with. To reveal these processes, a study with 13 tasks involving the usage of Reddit was designed. The study contained simple tasks like creating a new post, or more complex ones like the usage of advanced search functions and operators.

While conducting the study, for every single task the handling time and the number of clicks required by the participant to solve the task were written down by an observer. If participants could not complete a task in the given time, it was cancelled by the observer and the solution was shown to them. A small group of participants who use Reddit on a regular basis conducted a pre-test in order to determine the average handling time for an experienced user to finish a task.

Furthermore, the SERVQUAL method (Parasuraman, Zeithaml and Berry, 1988) was applied to evaluate the features of Reddit and measure the difference in the users' expectations and perceptions of it. Two surveys with similar sets of statements were given, were the first one asked for the expectations (EX) of Social News Aggregators in general and the second one for the perceptions (PE) of Reddit. Appropriate service dimensions were determined and a seven-point Likert-scale was used for the survey, 1 meaning "strongly disagree" and 7 meaning "strongly agree." The same group of participants was included in this survey. The survey on expectations was carried out right before the introduction and the test for the sequential and critical incident technique. The second survey was answered after the study was completed, giving the user the opportunity to use and explore Reddit and after a second, more detailed, introduction to Reddit, its services and functions. For each dimension, a difference score (Q=PE–EX) was calculated to measure the "gap" between the expectation and perception a participant has had.

2.4 Corpus-driven content analysis

In addition to the *perceived content quality* of the ISE model, the *objective content quality* (RQ2) was measured to verify whether a variance or conformity could be observed. For this investigation, the readability and comprehensibility of all comments (N=315,376), which were published between June 19 and June 25, 2017, of six selected subreddits ('r/depression', 'r/funny', 'r/gaming', 'r/nsfw', 'r/python' and 'r/worldnews') are measured. The subreddits were chosen based on the range of content and depth of the topics they provide.

For example, the content of the subreddits 'r/python' and 'r/worldnews' are presumably more complex than that of 'r/nsfw' or 'r/funny'. Furthermore, the subreddits are relatively popular and offer a good basis for the number of comments. 'r/funny,' for example, has the most subscribers (nearly 19 million) of all subreddits⁶.

The readability was checked by the "automated readability index" (Senter and Smith, 1967) with a scale from 1 to 12, for which 1 means "very easy to read" and 12 "very hard to read." The understandability was evaluated with a self-provided measure based on sentence length, word length, and frequency distributions of part of speech tags inspired by Kercher (2013). The predicted score is in between -5 and +5, for which -5 means "very hard to understand" and +5 "very easy to understand."

3. Results

All in all, the questionnaire was completed by 474 participants who are active Reddit users, which means they visit the site regularly, and 15 participants who are former Reddit users and do not use the service anymore. The SERVQUAL study was carried out by students (N=10), all of them did not know or use Reddit or other SNAs before. Five of the participants were male and five female students in their twenties who regularly use several internet sites including SNSs like Facebook and Instagram.

⁶ http://redditlist.com/

3.1 Demographics (RQ1)

According to our research results, the biggest respondent group of Reddit originates from the U.S with 42.0%, followed by Germany (18.1%), the UK (8.5%), and Canada (6.9%). Similar findings are supported by the statistics site Alexa.com⁷. As stated by another survey, 15% of all male internet users between 18 to 29 years use Reddit, but only 5% of women (Duggan and Smith, 2013). In the age range of 30 to 49, about 8% of the male and 5% of the female users are active on Reddit. We found that most users are male (58.4%) as well, followed by women (39.1%), and people who identify with another gender (2.6%). The age of the users ranges from 10 to 64 years, with the biggest user group being between 18 to 26 years (48.5%). If the highest level of education is concerned, most of them are high school graduates (39.4%), or hold a Bachelor's or equivalent degree (32.3%).

3.2 Information service (RQ2, RQ3)

3.2.1 Objective information service quality (RQ2)

Our respondents spend an average of 16.21 minutes a day on Reddit and view the website 10.60 times. On Reddit, users can submit posts, which may be a text, or a link to a blog, an article, a picture, or video. Other users are able to rate and discuss the submitted post. The information service offers many subtopics, so called "subreddits," where nearly every topic is represented or can be added ("Reddit is what you make out of it" - survey participant). The structure is similar to chat forums and message boards.

The retrieval system is primarily a fielded search. Boolean operators (AND, OR, and NOT) can be added to the search query. Additionally, Reddit offers the opportunity to use the cloud search syntax. The effectiveness of the retrieval system was computed by the Mean Average Precision (Stock and Stock, 2013). The resulting value was 1. This means that every search query showed only relevant search results. To ascertain how fast the website of Reddit loads, the value from Alexa.com was retrieved. The average time to load the Reddit website is 1.585 seconds. About 55% of the websites on the Internet are slower.

The platform uses some gamification elements. The posts on the front page are ranked; consequently, they are listed as a ranking or leaderboard. Besides, it is necessary to rate the posts and posted comments with "Karma." A user can rate it as positive, with an upvote, or negative, with a downvote. The voting influences the ranking of a post. Furthermore, users can collect badges, which are represented in one's' profile. Badges can be collected through several events or site activities. Concluding, Reddit offers rankings, "Karma" points, and badges as gamification elements. There is also the opportunity to become a Reddit Gold Member. The membership is paid with real money. A Reddit Gold Member will have access to additional site functions. One can edit the style of the website (theme changing), customize Snoo, the alien mascot of Reddit, and has access to a "secret lounge." Furthermore, gold members are able to test Beta versions of the Reddit website and other features. The Reddit gold membership will be updated consequently (Reddit, 2017b).

3.2.2 Perceived information system quality (RQ3)

The subjective information system quality of Reddit, measured by the perceived usefulness and the perceived ease of use, was determined by the four statements: Reddit is *enjoyable*, *trustable*, *useful*, and *easy to use*. The results are clear (Table 1): The participants perceive Reddit as enjoyable, as 48.1% strongly agree (5) with the statement. About 40.9% of the participants rated the service with 4 points of 5 concerning the statement that Reddit is useful, while 46.4% rate it with 3 of 5 points of its trustworthiness and 41.2% rate 4 of 5 concerning the statement that Reddit is easy to use.

Reddit is	1	2	3	4	5	No Rating	Median
		Relative Frequency					
enjoyable	1.27	2.53	6.54	41.35	48.10	0.21	4
useful	0.84	5.06	17.30	40.93	35.23	0.64	4
trustable	6.54	19.62	46.41	20.68	5.06	1.69	3
easy to use	1.05	6.96	19.20	41.77	31.01	0.00	4

Table 1: Perceived	l information	system	quality,	N=474
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⁷ https://www.alexa.com/siteinfo/reddit.com

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3.2.3 Perceived service quality

Since the experiment took a lot of time, with two researchers handling one-hour experiments for each participant, we chose a number of ten participants for the SERVQUAL study to evaluate the critical processes that users are having trouble with. From thirteen given tasks, ten were successfully completed by at least nine out of ten participants. The tasks ranged from easy exercises like finding the most popular link of the last month on the homepage or a certain subreddit. More difficult tasks involved finding a post of a user that links to a news site and has certain keywords in it. Additionally, in each of the tasks, five to eight participants completed the task in about the same time as the average experienced Reddit user. In the three remaining tasks, only one to three participants finished them in short time and up to three participants could not complete the tasks at all. The remaining participants needed several minutes and a lot of searching, clicking and trying to finish the tasks. These three tasks included finding the subreddit-management settings, the usage of advanced search operators, and text-formatting functions. All participants, a more understandable documentation should be offered about non-intuitive features like the advanced search operators or the text formatting syntax. The SERVQUAL evaluation on the expectations of SNAs and the perceptions of Reddit based on the defined dimensions

- user interface
- navigation
- easy to use search function
- search result precision
- coverage of information need
- friendly community
- technical stability

revealed that the overall perceived service quality resulting on the average difference scores (Q=PE–EX) of Reddit equals -0.92, which indicates a slightly negative perception of the service. For the first four dimensions, most of the participants expected more from a Social News Aggregator than they perceived from Reddit (Figure 2). We can say that, based on the results, the perceived service quality suffers from a subpar user interface, navigation, and a user-hostile search function.



Figure 2: Service quality of Reddit according to the participants (N=10)

3.2.4 Perceived and objective content quality (RQ2, RQ3)

The answers about the subjective content quality (RQ3) of Reddit show huge differences in the perception. This may be related to the varying cultures of the subreddits. The participants have pointed out that Reddit "is not very homogeneous" (Participant 220) and "the quality of news and content also depends on which subreddit one is browsing" (Participant 68). The measuring of the objective content quality (RQ2) showed

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similar results: the readability is reliant on the selected subreddit. The comments of 'r/python' (n=1,656, readability Mean (M)=6.11, Standard Deviation (SD)=7.83, understandability M=1.66, SD=1.80) and 'r/worldnews' (n=148,513, readability M=4.40, SD=6.83, understandability M=1, SD=1.78) are harder to read and understand than for instance 'r/funny' (n=80,239, readability M=2.23, SD=7.86, understandability M=1.66, SD=1.83) and 'r/gaming' (n=76,560, readability M=2.87, SD=10.57, understandability M=1.44, SD=1.81) (Table 2; Table 3).

Only 25% of the comments of 'r/funny', 'r/gaming', 'r/nsfw' and 'r/depression' have an understandability score smaller than 1, which means that most of the comments are easy to understand.

Table 2: Readability of the content

Subreddit	Mean	SD	No. of comments
r/worldnews	4.40	6.83	148,513
r/funny	2.23	7.86	80,239
r/gaming	2.87	10.57	76,560
r/Python	6.11	7.83	1,656
r/nsfw	1.85	9.51	1,814
r/depression	2.86	6.50	6,594

Table 3: Understandability of the content

Subreddit	Mean	SD	No. of	
			comments	
r/worldnews	1.15	1.78	148,513	
r/funny	1.66	1.83	80,239	
r/gaming	1.44	1.81	76,560	
r/Python	0.76	1.80	1,656	
r/nsfw	1.54	1.90	1,814	
r/depression	1.16	1.63	6,594	

According to the readability index, more than 75% of the structures of the texts of the subreddits 'r/gaming', 'r/funny', 'r/nsfw' and 'r/depression' and more than 50% of the comments of r/worldnews and r/python are already suitable for children as young as 10 years. Overall, the comments on Reddit are mostly easy to read and understand. The data of the questionnaire suggests this, too. From the participants' point of view, the content is rather up-to-date (Median: 4, Q0.25: 4, Q0.75: 5), rather easy to read (Mdn: 4, Q0.25: 4, Q0.75: 5), rather easy to understand (Mdn: 4, Q0.25: 3, Q0.75: 4), but less unbiased (Mdn: 2, Q0.25: 1, Q0.75: 2) and neither credible nor not credible (Mdn: 3, Q0.25: 2, Q0.75: 3). Overall the content quality of Reddit can be considered as being rather positive (Mdn: 3.5, Q0.25: 3, Q0.75: 4).

3.3 Information acceptance (RQ4)

3.3.1 Adoption

When asking the participants where they heard of Reddit, 52.1% heard about it from other Social Network Services. If social contacts are concerned, friends (40.8%) are another important factor. Advertisements (0.9%) and the TV (0.8%) did not have an impact. Additional 94 answers were given by the participants. Of those, 31.9% stated that they found Reddit through another website which was not related to social media, for example a blog post or a news article; a search engine query concerning a question (25.5%); by chance (36.2%); or because of their interest in gaming (9.6%).

3.3.2 Use, Impact, and Diffusion

If the use, impact, and diffusion of Reddit are concerned, a clear positive attitude of the users can be seen. The participants were asked if they found Reddit to be contagious, of which 68.8% answered with "yes." 73.9% would recommend Reddit to others. For the following questions, the participants could give multiple answers. 86.0% of the survey's participants use Reddit at least daily and 62.8% of those even multiple times a day. Furthermore, per session, 40.8% of the users stay on Reddit up to half an hour or even an hour (28.4%). 57.5%

stated that Reddit has an impact on the way they spend their leisure time. Overall, Reddit is a part of the user's daily life. However, this could be seen as problematic, similar to the phenomenon of problematic Internet use (Aboujaoude, 2010), if the time spent on Reddit is concerned.

3.3.3 Opting-out

The participants were asked for which possible reasons they would quit using Reddit. The biggest reason is the realization that Reddit is time consuming (28.7%). Furthermore, it provides a lot of information and input, which is not always valuable to the user (28.1%) (Table 4). The questionnaire was also designed to find out why people do not use Reddit anymore. Of the 15 former Reddit users, 31.8% stated too much input as one of the main motives (Table 4). The user could state additional reasons. The community was seen as a turn off and in this context, political reasons were also mentioned such as "liberal bias," and the fact that Reddit is "an absolute echo chamber" where "non-leftists opinions just aren't compatible with them [the Reddit community]", according to another participant. Overall, the findings on why people quit Reddit seem to align with the findings on the possible reasons why some users would consider it, with too much useless input and too much time spent on Reddit mentioned as the main motives.

Why would you quit using Reddit?	Rel. Frequency (N=474)	Why did you quit using Reddit?	Rel. Frequency (N=15)
Time consuming	29.15%	Time consuming	23.81%
Too much useless input	28.14%	Too much useless input	33.33%
Boring	23.74%	Boring	23.81%
Found a better SNS	18.97%	Found a better SNS	19.05%

Table 4: Reasons to quit Reddit

4. Discussion

This paper investigated the quality and acceptance of the information system Reddit. Reddit as a news aggregator is the most popular service in this category on a global scale. The results are based on a SERVQUAL experiment with ten participants, and an online-survey with 474 participants, as well as a corpus-driven content analysis.

Reddit's objective service quality seems to be satisfying. The structure is similar to chat forums and message boards with some gamification elements, for example ratings of posts, collecting of badges or the Karma system. The retrieval system is a fielded search with the option to search with Boolean operators.

The results of the study showed that the perceived information service quality suffers from different shortcomings. The expectation of an SNA in general was higher than the experience with Reddit. The interface, navigation, user hostile search function and search results were mostly perceived negatively. But the friendliness of the community was a big positive factor.

The content quality was rather positive. The content of all six analyzed subreddits was easy to understand and to read; it is even suggested that children older than ten years of age are able to understand the posts.

Concerning the information acceptance of Reddit, it is adopted because of other SNSs or friends. The reasons to quit Reddit are the fact that it can be extremely time consuming and provides content that some perceive as useless. Overall, Reddit seems to be problematic for heavy users, because they visit it multiple times a day with sessions lasting up to half an hour.

The study suggests that Reddit, being one of the most successful sites on the web and therefore the most important SNA, offers a great opportunity to study the users and how they interact with this kind of social media service, what content they produce and what their motives are. Reddit offers the opportunity to study an SNS that contrasts other popular SNSs which have their focus set on the identity image a user wants to represent. The opportunities that Reddit offers—the focus on content and democratic decisions on what is important or not—make it special, which the users agree on.

The study has several limitations. The survey was answered by a relatively small number of participants (N=474) when the popularity of Reddit is concerned. A survey with more participants should be conducted.

Additionally, the number of the SERVQUAL participants was also rather small. The participants did not have prior knowledge about the usage of Reddit or similar SNAs, so it would be interesting to see how the results would differ if the participants were acquainted with any other SNA. Furthermore, it would be interesting to investigate why Reddit is so popular in contrast to other SNAs, like e.g. Digg, and which features are the deal breakers for the users.

References

Aboujaoude, E. (2010) "Problematic Internet Use: An Overview", World Psychiatry, Vol 9, No. 2, pp 85-90.

- Baran, K., Fietkiewicz, K.J. and Stock, W.G. (2015) "Monopolies on Social Network Services (SNS) Markets and Competition Law" in Pehar, F., Schlögl, C. and Wolff, C. (eds.) Proceedings of the 14th International Symposium on Information Science, Werner Hülsbusch, Glückstadt, pp 424-436.
- Bergstrom, K. (2011) "'Don't feed the Troll': Shutting down Debate about Community Expectations on Reddit.com", First Monday, Vol 16, No. 8, [online], http://firstmonday.org/ojs/index.php/fm/article/view/3498/3029.
- Dwivedi, Y.K., Williams, M.D. and Venkatesh, V. (2008) "A Profile of Adoption of Information & Communication Technologies (ICT) Research in the Household Context", Information System Frontiers, No 10, Vol. 4, pp 385-390.
- Doerr, C., Blenn, N., Tang, S. and Van Mieghem, P. (2012) "Are Friends Overrated? A Study for the Social News Aggregator Digg.com", Computer Communications, Vol 35, pp 796-809.
- Duggan, M. and Smith, A. (2013) 6% of Online Adults are Reddit User, [online],
- http://www.pewinternet.org/2013/07/03/6-of-online-adults-are-reddit-users/.

Fichman, R.G. (1992) "Information Technology Diffusion: A Review of Empirical Research" in DeGross, J.I., Elam, J.J. and Becker, J.D. (eds.) Proceedings of the 13th International Conference on Information Systems, Association for Information Systems, Atlanta, pp 195-206.

Finn, G. (2010) "Digg v4: How to successfully kill a community", Search Engine Land, [online],

https://searchengineland.com/digg-v4-how-to-successfully-kill-a-community-50450.

Flanagan, J.C. (1954) "The Critical Incident Technique", Psychological Bulletin, Vol 51, No. 4, pp 327-358.

Friedländer, M.B. (2017) "Streamer Motives and User-Generated Content on Social Live-Streaming Services", Journal of Information Science Theory and Practice, Vol 5, No. 1, pp 65-84.

- Gilbert, E. (2013) "Widespread Underprovision on Reddit" in Proceedings of the 2013 Conference on Computer Supported Cooperative Work, ACM, New York, pp 803-808.
- Haralabopoulos, G., Anagnostopoulos, I. and Zeadally, S. (2015) "Lifespan and Propagation of Information in On-line Social Networks: A Case Study Based on Reddit", Journal of Network and Computer Applications, Vol 56, pp 88-100.
- Jacob, S. (2011) The Marketer's Guide to Reddit, [online], https://blog.kissmetrics.com/reddit-marketing-guide/.
- Kercher, J. (2013) Verstehen und Verständlichkeit von Politikersprache. Verbale Bedeutungsvermittlung zwischen Politikern und Bürgern, Springer-Verlag, Wiesbaden.
- Kilgo, D.K., Yoo, J.J., Sinta, V., Geise, S., Suran, M. and Johnson, T.J. (2016) "Led it on Reddit: An Exploratory Study Examining Opinion Leadership on Reddit", First Monday, Vol 21, No. 9, [online], http://journals.uic.edu/ojs/index.php/fm/article/view/6429.
- Kou, Y., Gray, C.M., Toombs, A.L. and Adams, R.S. (2018) "Knowledge Production and Social Roles in an Online Community of Emerging Occupation: A Study of User Experience Practitioners on Reddit" in Proceedings of the 51st Hawaii International Conference on System Sciences, IEEE, Washington, pp 2068-2077.
- Kumar, P., Gruzd, A., Haythornthwaite, C., Gilbert, S., Esteve del Valle, M. and Paulin, D. (2018) "Learning in the Wild: Coding Reddit for Learning and Practice" in Proceedings of the 51st Hawaii International Conference on System Sciences, IEEE, Washington, pp 1933-1942.
- Leavitt, A (2015) "This is a Throwaway Account': Temporary Technical Identities and Perceptions of Anonymity in a Massive Online Community" in Proceedings of the CSCW 15 ACM Conference on Computer Supported Cooperative Work and Social Computing, ACM, New York, pp 317-327.
- Lerman, K. (2007) "Social Information Processing in Social News Aggregation", IEEE Internet Computing: Special Issue on Social Search, Vol 11, No. 6, pp 16-28.
- Linde, F. and Stock, W.G. (2011) Information Markets: A Strategic Guideline for the I-Commerce, De Gruyter, Berlin.

Loudon, M. (2014) "Research in the Wild' in Online Communities: Reddit's Resistance to SOPA", First Monday, Vol 19, No. 2, [online], http://www.firstmonday.dk/ojs/index.php/fm/article/view/4365.

- Metz, R. (2012) "Why Did Reddit Succeed Where Digg Failed?", MIT Technology Review, [online], https://www.technologyreview.com/s/428520/why-did-reddit-succeed-where-digg-failed/.
- Parasuraman, A., Zeithaml, A.V. and Berry, L.L. (1988) "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality", Journal of Retailing, Vol 64, No. 1, pp 12-40.
- Reddit (2017a) Step by Step: How to Create an Ad, [online], https://reddit.zendesk.com/hc/en-us/articles/205118995-Step-by-step-How-to-create-an-ad.

Reddit (2017b) Reddit Gold, [online], https://www.reddit.com/gold/about.

Schumann, L. and Stock, W.G. (2014) "The Information Service Evaluation (ISE) Model", Webology, Vol 11, No. 1, pp 1-20. Senter, R.J and Smith, E.A. (1967) Automated Readability Index, Cincinnati University Ohio, Ohio.

- Singer, P., Flöck, F., Meinhart, C., Zeitfogel, E. and Strohmaier, M. (2014) "Evolution of Reddit: From the Front Page of the Internet to a Self-referential Community?" in Proceedings of the 23rd International Conference on World Wide Web, ACM, New York, pp.517-522
- Stauss, B. and Weinlich, B. (1997) "Process-Oriented Measurement of Service Quality: Applying the Sequential Incident Technique", European Journal of Marketing, Vol 31, No. 1, pp 33-55.

Stock, W.G. and Stock, M. (2013) Handbook of Information Science, De Gruyter, Berlin.

Tsou, A. (2016) "How does the Front Page of the Internet Behave? Readability, Emoticon Use, and Links on Reddit", First Monday, Vol 21, No. 11, [online], http://journals.uic.edu/ojs/index.php/fm/article/view/7013/5651.

Van Mieghem, P. (2011) "Human Psychology of Common Appraisal: The Reddit Score", IEEE Transactions on Multimedia, Vol 13, No. 6, pp 1404-1406.

Ziliak, S.T., McCloskey, D.N. (2008) The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives, University of Michigan Press, Michigan.