Posting Content, Collecting Points, Staying Anonymous: An Evaluation of Jodel

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Abstract. While most social networking services require a registration and a user profile, the student app Jodel works in a different way, as it is completely anonymous, like its American former counterpart Yik Yak. This article comprises a comprehensive evaluation of the app, leading to a final assessment of its quality as an information service. To conduct this evaluation, the Information Service Evaluation (ISE) model from Schumann and Stock [1] is used. The users' experiences were determined by an online survey with a total of 1,009 participants which therefore provided representative results. Furthermore, the expectations of the Jodel developers, regarding the user responses, were queried and the differences were determined according to Customers Value Research [2]. In addition, an expert interview with Jodel founder Alessio Avellan Borgmeyer was conducted. The survey showed that Jodel reached its target group, since 72% of the respondents are students. The users' satisfaction with the app is extremely high. 92% of the respondents are satisfied with the app while 97% said that they would recommend Jodel. The network effect is therefore particularly pronounced. The used elements of gamification were discreetly but effectively implemented. The results of Customers Value Research showed, on the one hand, the accuracy of the developers assessing the participants' responses and, on the other hand, that they are aware of possible vulnerabilities of the app. Overall, the evaluation showed that Jodel is a social information service of high quality.

Keywords: Usability · Social networking services · Anonymity
User experience · Jodel · Evaluation

1 Introduction

Nowadays social networking services appear in a variety of forms. For full use, most of them require a registration and thus a profile, while the social aspect lies in virtual friendships or followers. The student app Jodel, however, shows that a social network can be structured in a different way and work completely without registration, profiles and friendships. It emphasizes a free and creative exchange between users in the vicinity by granting anonymity. Therefore, Jodel resembles the US-American app Yik Yak which has been shut down in May 2017 [3]. On the one hand, Jodel is an app which should provide for the users' entertainment while on the other hand, it is a

service for the informational exchange between people in the immediate vicinity. This study comprises a comprehensive evaluation of the app Jodel and leads to an assessment of its quality as an information service. In order to conduct this evaluation, the Information Service Evaluation (ISE) model from Schumann and Stock [1] is consulted and the three dimensions information service, information user and information acceptance are considered. Applied methods of this study are, besides a representative user survey, a developer survey and an expert interview with the founder of Jodel, Alessio Avellan Borgmeyer.

Jodel is a location-based social network for mobile devices. The app's users can anonymously send postings, so-called "Jodels", in the form of short texts or photos which are presented to other users in an area of about ten kilometers in a feed (see Fig. 1). These postings can be commented, shared, pinned or reported by others. Postings, as well as comments, can be either up- or downvoted (2) by every user inside the radius. A Jodel, which receives five downvotes, gets automatically deleted from the feed. Above the feed, the user sees his current location (8). Each posting contains its "age" and how far away from the user it was sent (1), as well as the number of received comments (4) and upvotes (2). There are three categories regarding the postings' order, "newest" (5), "most commented" (6) and "loudest" (7). In "loudest", the postings are ordered descending by the number of their upvotes. As an appeal for the app's use, users collect so-called "karma points" (3). They receive them, among other things, for own postings getting upvoted and active contribution to the community, e.g. voting other postings. The app also allows the use of hashtags, but a search for hashtags is not yet implemented. Furthermore, there are channels (9), which work like groups, in which users can exchange to a certain topic. Everyone can search for channels and see their content but has to join to interact. Channels are, however, not available for every location yet. The main aspect, in which Jodel distinguishes from Yik Yak, is the moderator system. An algorithm which regards aspects like positive contribution to the community chooses app users as moderators. An additional area is unlocked to these users where they can allow or block reported postings. Decisions are always made collectively by many moderators. As an addition, Jodel cooperates with the police when postings comprise crime acts or their announcement and offer information like location und IP address. These additional aspects are intended to ensure that the published content on Jodel remains within the law despite anonymity, as Yik Yak was repeatedly accused to have serious problems on this point [4, 5] which ultimately led to the app being shut down.

2   Methods

The approach of this evaluation follows the Information Service Evaluation (ISE) model from Schumann and Stock [1]. The model (see Fig. 2) combines the most important aspects of existing evaluation models from different academic disciplines to create a comprehensive holistic evaluation model which can be used for the assessment of every information service.

The three categories information service, information user and information acceptance were considered. The first dimension includes aspects like the perceived

Fig. 1. Screenshot of the Jodel feed.

quality of the information service, the perceived quality of the content and the objective quality of the information service. The second dimension concentrates on the information user, in particular, on his information need and information behavior. The information service quality, as well as the aspects information need and information behavior, are decisive for the user's adaption of the service. Out of this adaption, a regular use can arise, depending on the user's satisfaction. Through a regular use, an influence on the user's information behavior can occur and the diffusion of the service can be driven forward, if the so-called network effect arises.

2.1 User Survey

With orientation towards the ISE model, a user survey was created which includes questions regarding the three dimensions information service, information user and information acceptance. Many aspects of the ISE model's dimensions walk along with the survey participants' perceptions. As a procedure to measure those perceptions, a Likert scale [6] was consulted. The survey consists of several sections which comprise
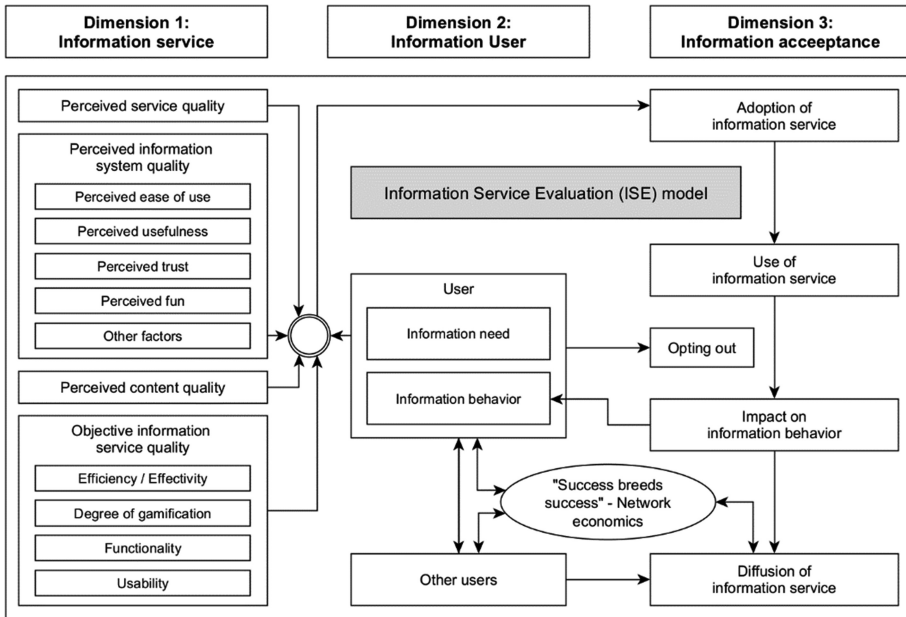
Fig. 2. The Information Service Evaluation (ISE) model based on Schumann and Stock [1].

different Likert items of a certain topic. The participants give their answers by means of a scale from 1 ("I totally disagree") to 7 ("I totally agree"). The number 4 represents abstention or indecision. After finishing and activating the online survey, it was distributed between October 2016 and March 2017, primarily over Jodel itself. The link to the survey was distributed in 16 larger German cities, like Cologne, Düsseldorf, Hamburg and Aachen. The survey was also spread over Facebook, because not only users were interesting for the evaluation, but also non-users and former users. Surveying the non-users should give an insight into aspects which stand against an adaption of Jodel while surveying the former users was important to figure out reasons for performing an opting-out. In total, 1,009 persons participated and finished the survey. As Jodel was the main distribution channel, the absolute majority is using Jodel, with a number of 877 participants, while 93 are non-users and 39 are former users.

For the evaluation of the online survey, it was mainly worked with the statistics software IBM SPSS Statistics and the spreadsheet program Microsoft Excel. To every topic that should be answered by means of scales of Likert-type it was computed the percentage distribution, the average and the standard deviation in SPSS Statistics. Furthermore, the survey results were tested for correlations. With the Pearson correlation coefficient r, it is possible to determine linear relationships between two variables. The accruing result is a value between −1 and +1, whereby a positive or negative correlation can be asserted. The more the value converges +1 or −1, the stronger is the effect. Although it is regarded controversially to equate ordinal scales such as the Likert

scale with interval scales [7], in this study the distances between the values are considered exactly the same, following the opinion of Carifio and Perla [8].

Moreover, within the scope of the survey, the SERVQUAL method [9] was applied, where the users' expectations and perceptions are focused. The users' answers are obtained through Likert-type scales [6] which comprise seven gradations ("I totally disagree" (1) to "I totally agree" (7)) and divided into expectations and perceptions. Following, the difference between the two values is computed with a gap analysis. For the gap analysis, regarding to a question or statement, the perception value (P) is subtracted from the expectation value (E) to estimate the gap (Q). It follows: $Q = E - P$ [9].

2.2 Developer Survey

In addition to the user survey, inspired by the Customers Value Research method [2], the expectations of the developers were surveyed, to compare them to the users' actual perceptions. The aim was to find out, how the developers assume the users' answers to the user survey. For this purpose, an almost identical survey was created. The developers' answers were also given with scales of Likert-type. Their task was to assume, for every statement or question, how the participants of the user survey would answer in average. Afterwards, it should be determined, if the developers' expectations strongly differ from the participants' perceptions, with the mentioned gap analysis. The survey was answered by Alessio Avellan Borgmeyer, the app's founder, representatively for the developers, on November 30, 2016.

2.3 Expert Interview

To receive additional information about Jodel, an interview with the app's founder was conducted. The questions comprised topics like the foundation of Jodel, inappropriate behavior on Jodel, the moderator system and future plans. The questions were answered as a voice mail on November 30, 2016.

3 Results

3.1 User Survey

Out of 1,009 survey participants 87% are active users of Jodel. 9% do not use Jodel, whereas 4% of the participants are former users.

Demographic Data. Around 66% of the respondents are female, 34% are male. 95% of the survey participants were born between 1989 and 1999. The peak is at year 1997 with 15.3%. It can be summarized that most of the respondents are between 19 and 25 years old. Most of the respondents are students (72%). 10% are employed, 8% are training and 6% attend school.

Information Service. Jodel is very easy to handle (mean: 6.67) and is fun (6.24) for the users. Regarding usefulness (4.75) and trust in the promised anonymity (4.99), the results are mixed but with a positive tendency.

To examine the content quality on Jodel, the aspects orthography, currency, clearness and trust were considered, based on the suggestions from Parker, Moleshe, De la Harpe, and Wills [10]. For the clear majority of the survey participants it is important to pay attention to orthography (5.51). Also, the currency of topics (4.87) and the clearness of the postings' meaning (4.93) are relevant for the users. Furthermore, the users are skeptical regarding the veracity of user content in social networks generally (2.76). According to the respondents, it is rather not payed attention to orthography (3.62). The users are often skeptical regarding the veracity of user content on Jodel (2.90). On the other hand, the topics on Jodel seem to be quite relevant (4.87) and the clearness of the postings' meaning attains an intermediate level (4.26).

The users' expectations and experiences are contrasted by using the SERVQUAL method in Fig. 3. The results show that the expectation of the topics' currency is met exactly, both means yield 4.87. In turn, the clearness of the postings' meaning is on a lower level than expected. The difference is −0.67 with means consisting of 4.93 (expectation) and 4.26 (experience). On Jodel it is significantly cared less about orthography (3.62) than the users would have wished (5.51) which results in a profound difference of −1.89. The users evince increased trust in the veracity on Jodel compared to other social media, the difference is 0.14 with small means of 2.76 (expectation) and 2.90 (experience). However, the means are on a very low level.
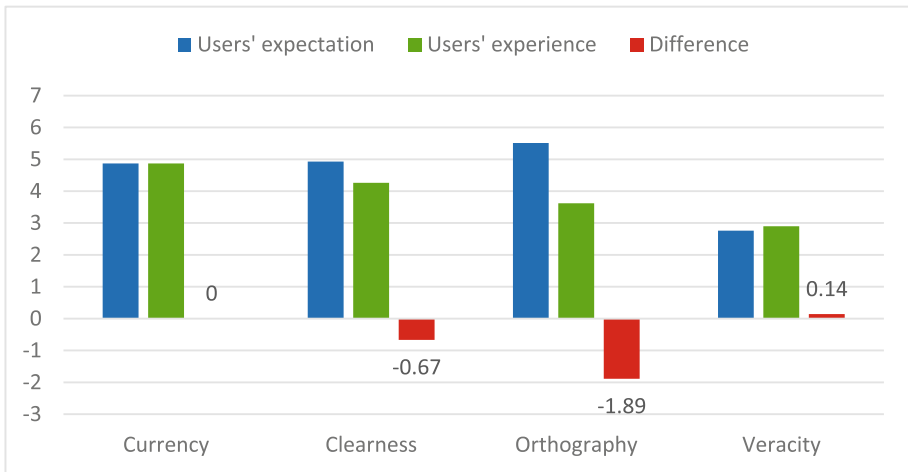

Fig. 3. Gap analysis of users' expectations and experiences with Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

Jodel is characterized by an intuitive usability (6.11) and a reliable handling (5.62). Technical problems occur rather rarely (5.40).

Within the Information Service Evaluation (ISE) model the aspect of gamification is also playing an important role. According to Knautz [11], gamification elements are implemented into "non-game contexts" [12] "to obtain an increase of the use motivation". Such elements can be, among others, a reward system, levels, virtual goods,

leaderboards and so-called quests [13]. The grade of gamification is examined by counting the implemented gamification elements of the information service. Regarding Jodel, the karma point system is the most conspicuous element. It is intended to motivate the users to become active in a positive way, that means writing postings or answers which are appreciated by other users and using the voting system to receive karma points. Another element of gamification is the category "loudest". Here the current postings get sorted in descending order regarding their number of upvotes, hence the category can be considered as a sort of leaderboard. This can motivate the users to produce content which receives upvotes to position their postings as high as possible in the leaderboard. When a moderator successfully evaluated several postings, he gets rewarded with the "picture of the day". In the broadest sense, this feature also can be considered as an element of gamification, as reward or achievement which motivates the moderators to not abort the moderation session early. It can be doubted if the rewarding effect of the "picture of the day" suffices to apply it as an adequate element of gamification, because it is not really a game element. Therefore, we count 2.5 gamification elements.

Most of the survey participants would use Jodel even without the existence of karma points (5.99), whereas the voting function is considered as quite relevant ("usage without voting function": 3.57). The joy about the own posting being among the "loudest" is especially high (6.32). Thereby is no appreciable difference to the own posting becoming the "loudest" in the vicinity (6.33). The impact of karma points on voting is indicated as low (2.78). At the time of the survey, the users received karma points for both up- and downvoting. Since November 2017, downvotes "cost" the voting user karma points to restrict the so-called "Downvote mafia", which means users who vote other postings consequently down regardless of their content.

The number of required clicks to manage a specific task can be an indicator for the quality of the navigation elements [14]. The possible main activities include reading postings, voting postings, publishing short texts or photos (as posting or comment) and for several users moderating reported content. To read postings the app only needs to be opened since the start screen is already showing the "newest" feed. One click is necessary to switch between the categories "newest", "most commented" and "loudest". The voting function is usable directly in the feed by clicking the "arrow" up or down. To write a posting, one click on the big "plus" is required, for photos an additional click on the camera symbol. After writing a short text or taking a photo, it is required to click on "send". To moderate reported content, the user reaches the menu by one click on the karma points and selects the item "moderation". Due to these two clicks the user gets to the moderation screen which displays the first posting as well as the options "allow", "I don't know" and "block". Overall, not more than three clicks are necessary to perform the main activities.

Information User. Jodel is mainly used to read funny postings (5.94) and out of boredom (5.52). On the other hand, it is not a relevant issue to find a partner (1.42) or friends (1.76). Trolling, which means to provoke others aiming to cause damage [15], is also less pronounced (1.62). The incentive to collect karma points is with a mean of 3.13 rather weak, the high standard deviation of 1.88 indicates that the survey participants' motivations vary widely. There is a similar high standard deviation from 1.8

to 1.9 regarding the aspects "reach people in the vicinity" (3.51), "exchange with others" (4.01) and "ask questions anonymously" (3.81).

Information Acceptance. A vast majority (71.4%) uses Jodel several times a day, 11.1% even every hour. 9.5% of the respondents use the app once a day and 7% several times a week. The answer possibilities "once a week", "once a month" and "less than once a month" hardly attracted attention with summed about 1%.

Jodel is used 5 to 30 min at a stretch by 92.5% of the users, divided into three groups: 31.8% use Jodel around 5 min, 37.2% use the app circa 10 min at a stretch and 23.5% use Jodel 15 to 30 min. 4.3% use Jodel 30 to 45 min, whereas only a few users use the app under one minute (1.5%), one hour (1.3%) or even longer (0.5) at a stretch.

The users are satisfied with Jodel and widely agree on the grade of satisfaction: the mean of 5.80 is high and the standard deviation is with 0.99 at a low level. The survey participants averagely gained positive experience using Jodel: many users felt good after the use (4.52), encountered acceptance and appreciation (4.50) and received good advice on a topic (4.26). Apart from that, less users made friends on Jodel (2.10).

851 out of 877 active users would recommend Jodel or already did, which corresponds to 97%. Only 26 out of 877 (3%) respondents would not recommend the app to others.

Multiple answers were possible, regarding the question how the users encountered Jodel. With more than 76% the survey participants most commonly became aware of Jodel through friends. Facebook pages about Jodel aroused interest of 26%. Campus advertising almost reaches 11%, followed by discovering Jodel in the "App Store" or "Google Play Store" with more than 6% and through relatives with almost 5%. Print media has as good as no relevance on the adaption, only 1.7% of the respondents encountered Jodel this way. 1.9% of the survey participants gave an individual answer, primarily mentioning social networks like "Instagram", "YouTube" and "Twitter".

Jodel has the biggest impact on the daily smartphone usage (3.90). On social behavior (2.13), sleep (2.30) and leisure time (2.14) Jodel has less impact. Beyond that, the app most likely impacts the learning behavior (2.73).

Opting-out. The most distinct reason for active users to opt out is "too much distraction" (3.47). This is followed by "too many reposts" (3.17), that Jodel became boring or less interesting (2.98) and that too many inappropriate postings circulate (2.60). Less relevant are possible negative impacts on the user's behavior (1.73), friends or the environment not using the app anymore (1.54) or getting too old for Jodel (1.36).

The users also had bad experiences with Jodel. The respondents mostly bothered about baseless negative ratings regarding their own postings (4.37), followed by spotting racist, sexist or otherwise inappropriate content (3.97). The users were rather less offended or threatened in comments (2.38). After the usage hardly anyone felt bad (1.87). The very high standard deviations (circa 2) regarding the first three named experiences are striking: therefore, the extent of the negative experiences with Jodel were quite different.

Non-users. So far, 877 users of Jodel were examined, now the 93 non-users are considered. Main reason for not using Jodel is lack of interest (4.95). The second most important reason is that nobody in the vicinity uses the app (4.40). Also quite relevant

are no awareness of the app (3.35) and the concern that Jodel would be too distracting (3.57). There is nearly no shortage of trust in the promised anonymity (2.89). Almost nobody was discouraged from using Jodel (1.69).

Former Users. Finally, the motives for the opting out of 39 former Jodel users are being investigated. The most important factor for ending the use of the app was that Jodel became boring or less interesting (4.97). Also quite relevant was that the app had caused too much distraction (3.92) and that in the opinion of some former users too many reposts were in circulation (3.59). Less relevant was that friends no longer used the app (3.08), too many "inappropriate postings" circulated (2.85), or negative impact on the users' behavior (2.36).

3.2   Correlations

Below, the results of our survey are examined on Pearson correlations regarding the answer options. Significant correlations (error probability below 5%) are marked with "*", very significant linear relationships (error probability below 1%) with "**". In the following, the focus is placed on correlations between usage reasons, usage time and usage frequency.

Usage Frequency, Usage Time and Usage Reasons. The more Jodel is used, the less the users do it out of boredom (−.068*), but rather due to productive reasons, led by collecting karma points (.190**) and asking questions anonymously (.185**). It is similar regarding the duration of use, except that there is no linear relationship between the length of the session and collecting karma points (.045) as well as between the length of the session and reading funny postings (.030). The more the app is used out of boredom, the less Jodel is used for other reasons. The most pronounced are the negative correlations with social interactions ("exchange with others": −.198**, "reach people in the vicinity": −.146**), whereas there is no connection between boredom and reading funny postings (.037) or collecting karma points (.063).

Anyone who uses Jodel primarily because of funny postings uses the app more often (.115**) and is less in search of friends (−.094**) or a partner (−.091**); however, the effect size here is low. To ask questions anonymously correlates with the exchange with others (.533**). Also, the linear relationship to reaching people in the vicinity is worth mentioning (.334**). In general, it can be stated that all social aspects of using Jodel correlate consistently with each other. Also worth mentioning in this context are the effect sizes of the correlations between finding friends and finding a partner (.546**), finding friends and reaching people in the vicinity (.410**) as well as exchanging with others and reaching people in the vicinity (.445**). Users who want to disturb the positively connoted construct of Jodel, prefer hating or trolling. The more such users do this, the more they want to earn karma points (.148**) and, interestingly, the more they are looking for a partner (.135**). There is also a negative correlation to reading funny postings (-.105**).

Usage Reasons and Perceived Quality. The higher the quality of Jodel is perceived, the more often the app is used. The usage frequency correlates most with the fun factor (.289**). Regarding the duration of use, the correlations are smaller, concerning the

ease of use not even present anymore. Anyone who uses Jodel primarily out of boredom considers the quality slightly worse, except for the ease of use.

Particularly large are the effect sizes of the correlations between fun and reading funny postings (.318**), usefulness and asking questions anonymously (.286**), usefulness and the exchange with others (.319**), as well as usefulness and reaching people in the vicinity (.278**).

Usage Reasons and Gamification. The more often one uses Jodel, the greater is the joy of having a "loud" posting (.212**), and the more often the voting function will be used just to get karma points (.138**). In terms of usage time, there is no correlation with gamification incentives. The joy about a "loud" posting is especially high for those who want to collect karma points (.296**), compared to other usage reasons. The more these users want to earn the points, the less they would use Jodel without karma points (−.445**) and the more likely they would vote just to get karma points (.446**). The effect sizes here are noticeably high.

Usage reasons and positive experiences. Those who use Jodel more often gain more positive experiences and are more satisfied with the app (.140*). Those who use Jodel out of boredom feel less accepted (−.147**) and got rarely advised well (−.116**). On the other hand, users who use Jodel more for asking questions and exchanging information with others were able to find particularly good advice (.482** and .400**). If you want to find friends on Jodel, you will rather find them (.509**), even those who are originally looking for a partner (.347**). Above all, users who want to exchange with others (.292**) and reach people in the vicinity (.249**) felt good after using Jodel. The more you use the app because of funny postings, the more satisfied you are with Jodel (.244**). This is the only usage reason where there is a more pronounced correlation with user satisfaction. Haters and trolls are rather dissatisfied with the app (−.150**).

Usage Reasons and Change of Behavior. The more often or longer Jodel is used, the greater are the behavioral changes of the users. Especially the use of mobile phones is influenced by the frequency of use (.266**). While the use due to boredom and funny postings does not affect the users' behavior, it is, from a lesser to a moderate extent, the case due to social reasons. For example, the linear relationships between social behavior and the motivation to find friends (.238**) or a partner (.257**) or the correlation between sleep and asking questions anonymously (.202**) deserve special mention. The more users hate and troll, the greater is, at least to a lesser extent, the impact on their social behavior (.106**).

Usage Reasons and Possible Reasons to Opt Out. There are only a few linear relationships between the reasons for the use and possible reasons for opting out. Anyone who uses Jodel out of boredom more likely opts out than other users. Negative influences (.165**), distraction (.185**) and rising boredom (.203**) are the most important aspects.

Usage Reasons and Negative Experiences. Particularly negative experiences had the users who want to ask questions anonymously. Their postings were more often rated

negatively for no reason (.251**) and they were more often insulted or threatened in the comments (.234**).

3.3 Customers Value Research

According to Customers Value Research [2], the expected values of Alessio Avellan Borgmeyer, representative for the Jodel developers, are compared with the results of the user survey and a gap analysis is used to calculate the difference between the values. Just like the users, Borgmeyer only had the opportunity to express his answers through integral numbers on a scale from 1 to 7. A deviation of less than 0.5 is therefore to be regarded as correctly expected, because in some cases a closer approximation was not possible.

Information Service. The usefulness of Jodel was rated much smaller by the developer than by the users. The difference is 1.75 (Fig. 4). Also, the confidence in the promised anonymity is greater among the users than Borgmeyer suspected. The ease of use and the high fun factor almost met the expectations of the developer.

With regard to the users' expectations about the clearness of a posting's meaning and respect for orthography, Borgmeyer's values are a bit lower (Fig. 5). The expectation regarding the currency of the topics was met. Concerning the trust in the veracity of content on social media in general, users are more critical than he expected.
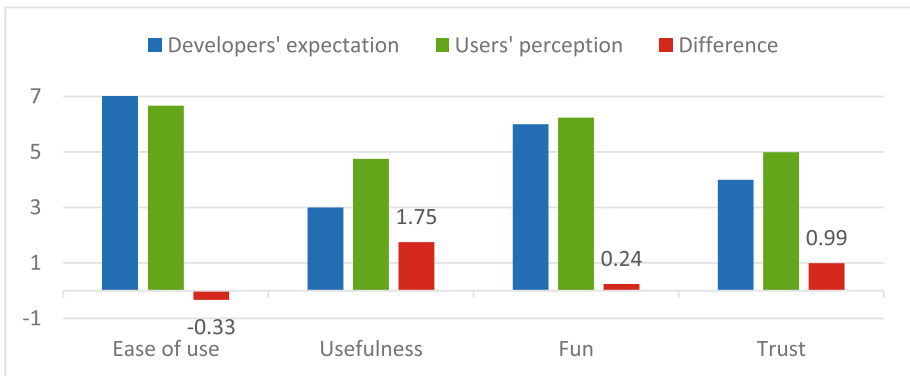

Fig. 4. Perceived quality of Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

On Jodel, respect for orthography and trust in the veracity are lower than Borgmeyer expected (Fig. 6). The currency of the topics and the clearness of the postings' meaning are in line with his assessment.

Users have far fewer technical problems than the developers suspect, with a gap value of 2.4 (Fig. 7). The level of immediate intuitive usability was rated a bit too high, but the reliable handling was expected correctly.

Borgmeyer overestimated the relevance of the voting function, the difference to the users' assessment is 1.57 (Fig. 8). The joy of seeing own postings among the "loudest"
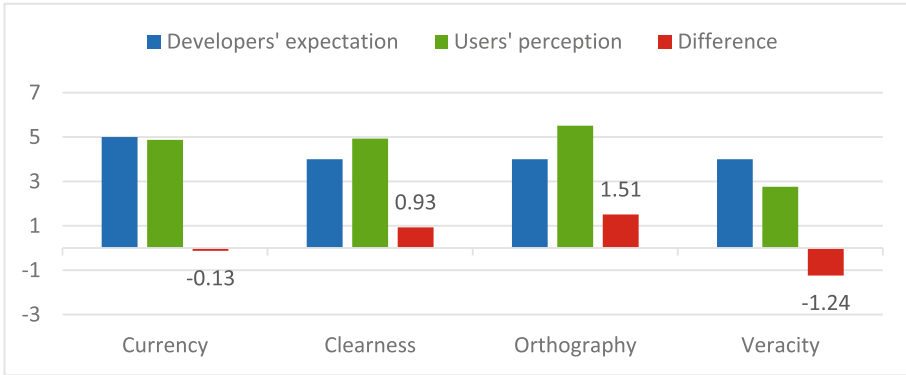
Fig. 5. Expected content quality of Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).
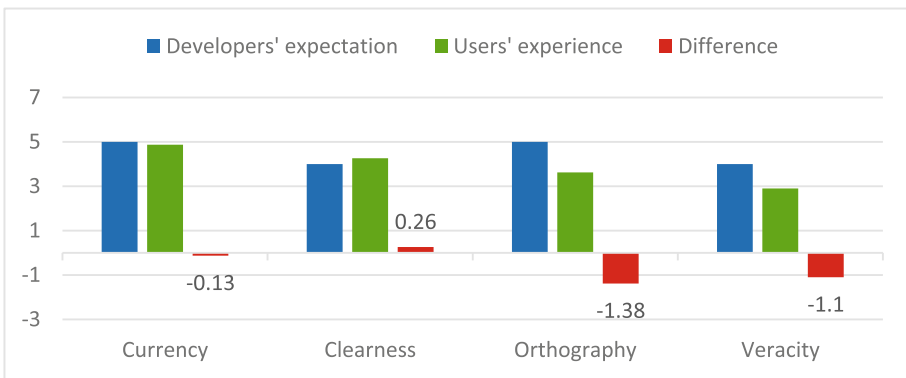

Fig. 6. Experienced content quality of Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

was correctly predicted, but he did not expect that there is almost no difference to reaching the first rank in the list. The influence of karma points on the voting activity was also overestimated. The developer correctly guessed that most respondents would use Jodel without karma points: the difference amounts to only −0.01.

Information User. With three exceptions, Borgmeyer was able to correctly assess the weighting of the different reasons for using Jodel (Fig. 9). He weighed the reasons to anonymously ask questions, to exchange with others and to reach people in the vicinity higher than the users of the survey did.

Information Acceptance. On the one hand, the users received less good advice and fewer friendships arose than Jodel's developer would have thought, but on the other hand, the user satisfaction is higher than expected (Fig. 10). Regarding the good experiences "encountered acceptance and appreciation" as well as "felt good after the use", Borgmeyer met the result of the user survey with a small deviation of −0.5.
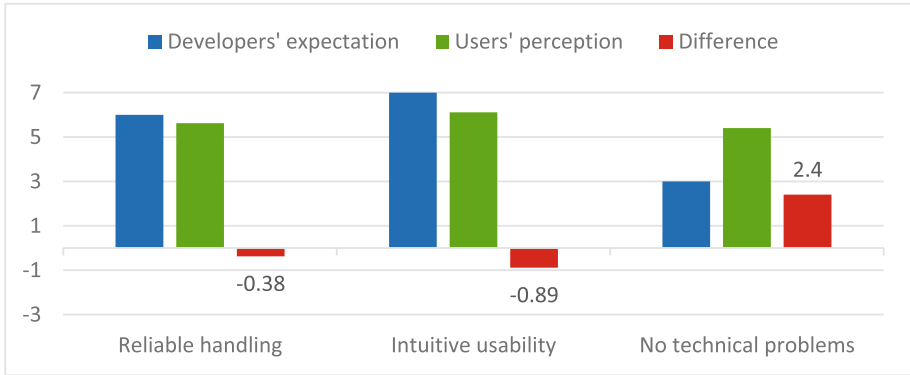
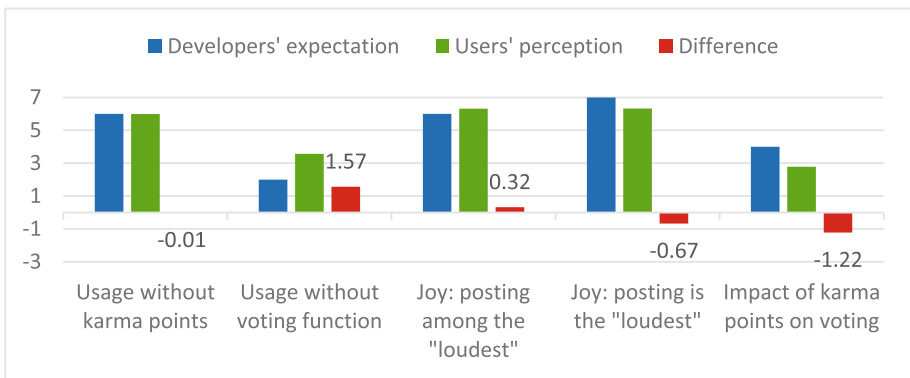**Fig. 7.** Operability of Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

Fig. 8. Gamification and incentives. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

Opting-out. There is a large discrepancy between Borgmeyer's expected values and the users' assessment regarding possible reasons to opt out of Jodel (Fig. 11). There were consistently higher scale values assessed than it actually was the case. The biggest gap exists for the reason to have grown too old, with a value of −4.64. A difference of over −3 points exists for the motives that friends no longer use the app and that Jodel became boring. Also, the extent of too much distraction, inappropriate postings and too many reposts was overestimated. Only the low mean of the reason "negative influences on behavior" was correctly predicted.

Borgmeyer estimated the users' negative experiences with Jodel a bit too high in three out of four cases (Fig. 12). Self-written postings got less downvotes for no reason, not so much racist or sexist content was spotted, and the users felt less bad after use than the developer assumed. Borgmeyer expected correctly that users were not that often threatened or insulted in comments: the difference is only 0.38 here.
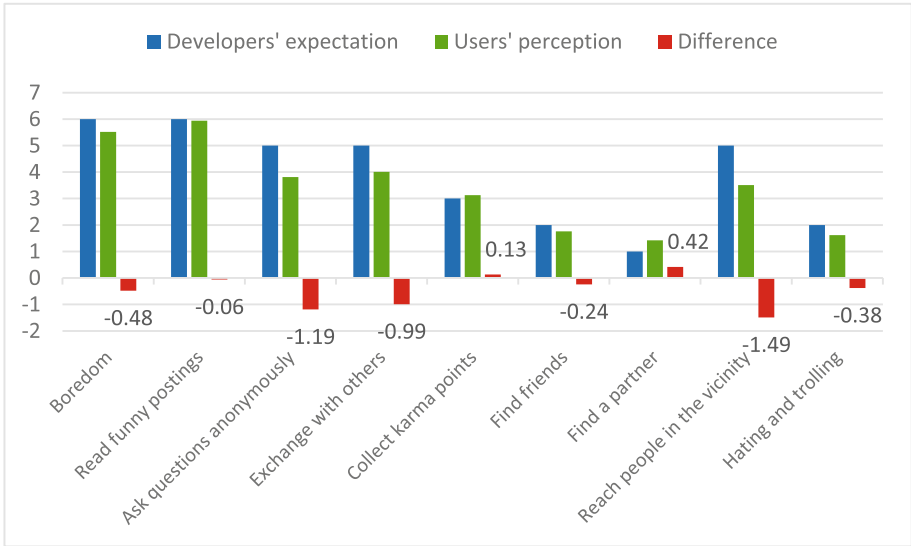
Fig. 9. Reasons for the use of Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).
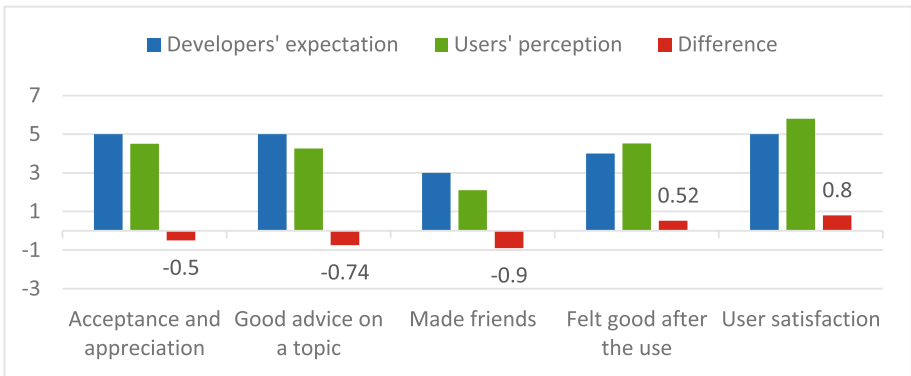

Fig. 10. Good experiences with Jodel and user satisfaction. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

3.4   Expert Interview

In addition to user and expert survey, an expert interview was conducted with the Jodel founder to get more detailed information about the app from the developers' site. Borgmeyer explained that the app launched on October 20, 2014 and that the diffusion nearly "exploded" for that time. Initially, the distribution took place mainly via campus advertising in form of flyers. He explained that at the time of the interview, Jodel was, besides Germany, successful in all the Nordic (European) countries, Austria, Switzerland, France and partly in Italy. The establishment in the Southern countries is
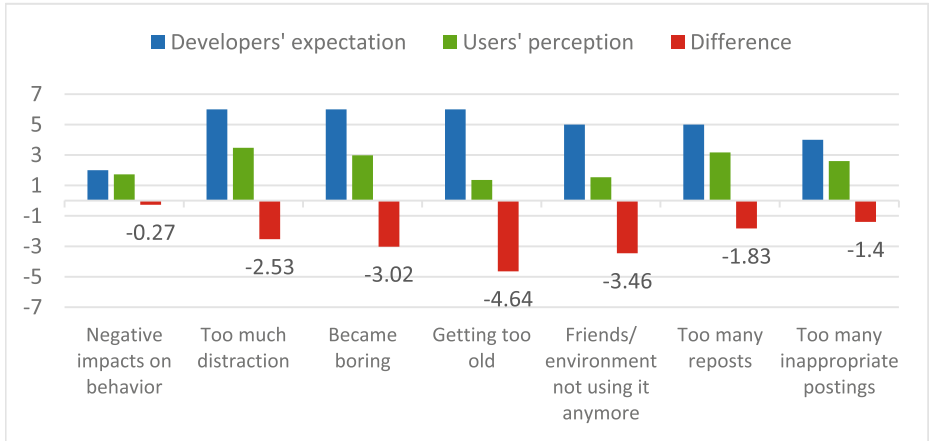
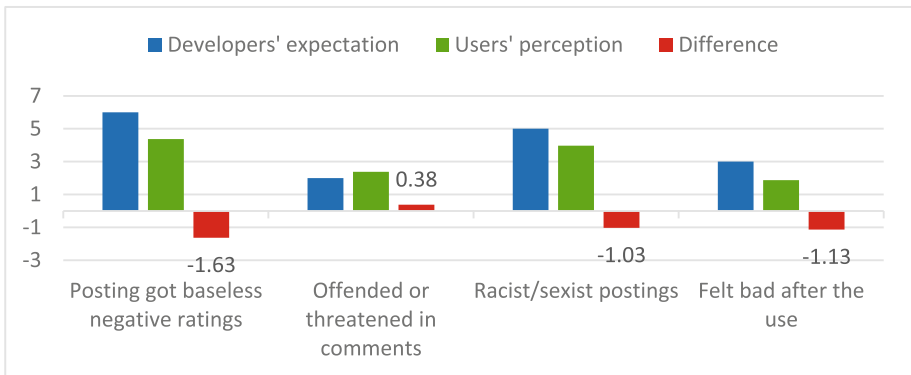**Fig. 11.** Possible reasons for opting out. N = 800, Scale: 1 (totally disagree) - 7 (totally agree).

Fig. 12. Negative experiences with Jodel. N = 877, Scale: 1 (totally disagree) - 7 (totally agree).

harder, while especially in the Nordic countries, there are partly more downloads of the app than students, according to Borgmeyer. He explained, that they aim to make Jodel a must-have for every student and that they want to "instantly connect everyone sharing the same location". Furthermore, Borgmeyer stated that they want to reach this goal for students first and afterwards want to focus on other demographics, too. So far, no revenue could be generated with Jodel and the whole funding is currently held only by investors. According to Schlenk [16], Adam di Angelo, the first CTO of Facebook, is one of these investors. Borgmeyer said that Jodel's business model will most likely be ad-based in the future.

4 Discussion

From the answers of overall 1,009 participants it clearly arises that the student-app Jodel did not miss its target group. 72% of the participants are students. The users' age underlines this, because the majority is in the typical student age, between 19 and about 25 years. The participants' age indicates that they almost completely belong to the generation of "digital natives" and only a few exceptions can be associated to the "digital immigrants". Prensky [17] explains "The 'digital immigrant accent' can be seen in such things as turning to the Internet for information second rather than first". This statement emphasizes that a platform like Jodel is, especially for this reason, more interesting for those, who meet their information need, as well as their need to communicate, primarily online, which should be mainly the case for the "digital natives". As a border between the two generations, the birth year 1980 was considered, as suggested by Palfrey and Gasser [18].

Regarding the perceived quality of Jodel, the users agree that Jodel is easy to use, even at first use. This result is underlined by the analysis of the number of clicks which are necessary to perform certain tasks. All the main tasks, which are possible on Jodel, are reachable with at most three clicks. Jodel furthermore means a lot of fun for its users, a significant aspect in relation to the service quality. The usefulness of Jodel is regarded controversially, but the participants tend to agree with it, while it is even higher rated than the developers expected.

Referring to the content quality, it is noticeable that the currency of the topics is perceived just the same as expected. The perception of the orthography significantly sinks in contrast to the expectations of the participants and the developers. It is interesting that the participants tend to not believe what other users publish on Jodel, but still the veracity is perceived higher than in other social media, despite the anonymity.

From the sum of experiences, the participants made with Jodel, it is possible to gain an approximate impression of Jodel's objective quality. Overall, it is perceived as quite positive. Regarding the effectivity, the users agree that Jodel "always does, what it should do". Furthermore, the users tend to not have any technical problems with the app, even less than the developers expected. This can be seen positively for the effectivity, as well as for the efficiency of Jodel. The immediately intuitive use of Jodel, which represents the aspects ease of use, functionality and usability, also finds agreement among the participants. These positive experiences, especially at the first use, support the transition from the adaption to the use and significantly increase the probability that the users accept the service.

2.5 elements of gamification were counted: the karma points, the category with the "loudest" postings and the reward for the moderators with the "picture of the day". 2.5 gamification elements may seem less on the first impression, but if one regards the app's simplicity and that the "normal" use (without moderation) actually only comprises writing postings and voting, it can be seen that the two elements karma points and "loudest" category are used wisely and present to motivate the users to participate positively in the community. The survey results showed that karma points were not rated as very relevant for the use. A reason for this could be that it is neither possible to

compare them to other users' points, nor to change them into something. But it is important to consider that a too strong incentive, like the possibility to use the karma points in online shops, would probably lead to misuse. The survey showed that the karma points, in the way they are implemented, are not having a big effect on the decision to vote a posting. A premium concept would probably change this and would show a negative influence on the honesty behind the votings. The fact, that the developers assessed the relevance of the karma points, with a deviation of 0.01, almost exactly like the users did, lets infer that the degree of motivation was not randomly estimated that low. The fact, that additionally the "picture of the day" was implemented for the moderators, shows, that there is at least one incentive for every (positive) action on Jodel. It is concluded that the selection of gamification elements was thought out and reasonable, especially regarding their degree of motivation, without overloading the app or causing misuse.

The survey showed very clearly in which time intervals the use of Jodel takes place. 92% of the participants use the app at least once a day, most of them even several times. This leads to the assumption that Jodel is not a service which is used in irregular time intervals, but that the app is more like an element of the users' everyday life.

Referring to the user satisfaction, Jodel performs very well. Almost 92% of the participants are rather up to totally satisfied. This satisfaction clearly reflects in the recommendations, as 97% said, they would recommend Jodel. That many users already did this is proven by 76% of the participants who stated they found out about Jodel through their friends. Only 11% took notice of Jodel through campus advertising. Within the interview, Borgmeyer said, this was the initial distribution method. It can be assumed that the campus advertising became redundant at the moment Jodel reached the critical mass and the network effect occurred, because the distribution hived off through recommendations.

It is striking that, despite the daily use of the most users, the participants rather not notice any (negative) influences on their behavior. For Jodel, this is quite positive, as it cannot occur a "pushback" [19] where users see negative influences on their behavior and reduce or even quit the use of the service.

To find out which aspects persuade the users to use Jodel regularly, they were asked about good experiences with the app. The main aspects were that the participants tend to feel good after the use, that they encountered acceptance and appreciation and that they found good advice on a topic. They felt even better than the developers expected. This is an evidence for a positive community which is also willing to share help, advice or information.

The possible reasons for an opting-out showed again that the users in average see no negative influences on their behavior. The highest rated reason to quit the use is distraction through the app. Too many reposts and inappropriate postings can be relevant factors, too. But overall, the participants in average did not agree with any of the reasons. This shows that Jodel has no certain weakness which would lead the users to opt out of Jodel. It seems more like the users see possible reasons, but none of them as critical. It is interesting that it seems like it is not playing any role if friends quit using Jodel. This presents clearly an advantage for the app, because therefore it cannot occur any "negative network effect" where users get enticed away from Jodel by their friends.

"Jodel became boring or less interesting" was rather not a reason to opt out for the surveyed users, however, it was the aspect which the former users rated as the most important reason for quitting the use of Jodel. As it was already found out that many users need Jodel as a remedy for boredom, it makes sense that they opt out when the app cannot serve this purpose anymore.

The strongest pronounced reason for not using Jodel is simply no interest. It is noticeable that the fact that no one in the personal environment uses the app is also not sensed as insignificant. According to this, the personal environment seems to play a role for the adaption of the service but gets irrelevant after passing to a regular use. The fewest participants got advised against using Jodel, what can be explained with the high degree of user satisfaction.

Bad experiences with Jodel were also examined to work out which aspects can provoke discontent. A bad experience which most of the participants had was receiving baseless downvotes for a posting. Regarding the joy, the users feel, when their postings make it into the category of the "loudest" Jodels, it is understandable that the anger about baseless downvotes is high. Racist or sexist postings are a sensitive topic on Jodel, too. To get insulted or threatened in the comments did either happen rarely or was perceived as less severe. However, it can be recorded that the respondents tend a lot more to feel well than bad after the use of Jodel and also less bad than the developers expected them to feel. In general, the users were able to have more positive than negative experiences. This is also reflected in the high user satisfaction and can be seen positively regarding the transition from adaption to regular use. A study from Johann, Wiedel et al. [20] underlines this, since they examined that only 16.7% of 2,542 regarded postings contain slightly toxic expressions, while 38% of all considered answers showed prosocial behavior, like empathy or advices for example.

All in all, the developers accurately assessed the users' answers, without overestimating the app's effect. Summed up, Borgmeyer, representatively for the developers, assessed 20 out of 49 answers "correctly" (with deviations up to 0.5). Eight more were only slightly off target, with deviations less than one point. Only five answers were strongly aside the users' answers, with more than two points of deviation. In those cases, the developers either underestimated positive or overestimated negative aspects of the app. This can be seen as a more conductive result than if the own service was consequently overestimated, because the critical attitude shows that the developers see problems, on which they have to work, even if they are not considered that distinct by the users.

This evaluation, based on the ISE model from Schumann and Stock [1], ensures a comprehensive investigation of the app, as it combines a user survey, a developer survey and an expert interview with the analysis methods correlation analysis, SERVQUAL [9] and Customers Value Research [2]. Arising from this evaluation, the final assessment can be derived that Jodel constitutes a social information service of high quality.

It will certainly be interesting to observe the further development of Jodel. Within the expert interview, Borgmeyer addressed a possible expansion of the user group, after the diffusion among students has been successfully performed. It can be interesting to observe, if such an expansion will actually occur and if it does, which impacts it will have on the communities' group identification if the homogeneity of the user group will

be decreased. Furthermore, it will turn out if Jodel will be successful with its future business model and if the investments will finally pay off. On the one hand, Jodel is very suitable for precise local advertising, due to the restricted area, but on the other hand, students do not present the most profitable target group. According to Schlenk [16], an expansion of Jodel into the USA lies ahead which can be a relevant step regarding the further diffusion. It will be interesting to see if the establishment will succeed and if Jodel will be able to adopt the position of the shut-down app Yik Yak. If this case occurs, Jodel will certainly become the topic of many further researches.

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