Quality Management of User-Generated Content in Participatory Journalism

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ABSTRACT
Newsrooms utilize increasing amounts of user-generated content (UGC) in news making. However, managing the quality of UGC is challenging. Our three-phase study identifies qualities of newsworthy UGC, and ways to enhance the quality of contributions by online feedback. Review of 31 UGC-driven websites revealed as the most used methods of improving the quality of contributions flagging of inappropriate content, counts of sharing to social media services, ratings, user's activity statistics, and badges. Interviews of news editors and reader reporters showed a conceptual difference in the qualities of good news content. Interviewed reader reporters expressed the feedback from the newsroom as the most important for their development in addition to seeing the examples by other reader reporters. Content was perceived as more important than competition in case of readers' UGC. Communal quality management conventions, online community elements, and guidelines for developing quality management are presented.

Author Keywords
User-generated content, participatory journalism, media, quality management, online feedback, news, hyperlocal.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
User-generated content (UGC) in journalism is content, such as photos, video clips, data, and stories, which is produced by readers or citizens outside of a news organization (Väätäjä et al. 2011). *Participatory journalism* refers to the activity where readers voluntarily participate to the news creating process that is facilitated by a news organization (Väätäjä et al. 2012).

The systematic exploitation of news related content from readers has formed a new user role that is called *reader reporter*. They are readers, who voluntarily create and submit news related content to news organizations. Some news organizations, such as CNN, have created their own communities for reader reporters. These organizations are increasingly engaging readers in various forms to news making and acknowledging their participation. This new group of contributors is in the focus of our study.

News making as an activity has its own criteria for news content that reader reporters need to understand and learn to be able to contribute useful material. When BBC was collaborating with UGC contributors during Iran's election protests 2009 and Arab uprisings in 2011, UGC creators learned the newsroom's expectations and editorial requirements for the verification of UGC (Hänska-Ahy 2013). They learned to produce photos and videos with better quality and include metadata (date, time and location). This increased the usefulness of their material for the newsroom. This example indicates that UGC creators can learn desired content qualities. Therefore, communicating to the audience the criteria for the reader's UGC could be useful in raising the quality of the received UGC. Our research addresses this issue by identifying important qualities for UGC in hyperlocal news, and by identifying conventions to communicate these criteria and provide feedback with UI elements.

The partner of our study, a hyperlocal news publisher in Finland, was in the process of designing an online community for reader reporters to engage them to a closer collaboration. Through a community, it would be possible to motivate the reader reporters to participate and offer a more satisfactory experience through social enhancement. Learning could be enabled by delivering explicit and implicit feedback on reader reporters' contributions. An online community could work as a connector between the reader reporters and the newsroom. The feedback from both the community and the newsroom could be delivered through the online community, enabling the reader reporters to learn and develop their skills. Figure 1 presents a framework of participatory journalism enhanced with an online community.

Figure 1. A framework of participatory journalism enhanced with an online community.

To support the goal of managing content quality and motivating participation we used the following research sub-goals. First, we identified definitions for quality in of user-generated news content for hyperlocal news from the viewpoints of the newsroom and reader reporters. Second, we reviewed existing methods of content quality

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evaluation and how they can be used in the context of participatory journalism. Third, we investigated how to motivate reader reporters to participate in an online community, and guide the quality of content that they produce and contribute. The expectations of the reader reporters for the online community and approaches on motivating them to participate were in our interest.

RELATED WORK

UGC quality in news

Quality is defined as a *"degree to which a set of inherent characteristics fulfills requirements"* (ISO 9000, 2001). The quality of news represents the characteristics of news, newsworthiness. Journalists use as the deciding factors of newsworthiness criteria such as the *scale* of the event, *relevance* to the audience, *unexpectedness* of the topic or event, *timeliness*, *novelty*, *availability*, and *negativity* (Harcup & O'Neill, 2001; Smith 2007, pp. 13–19). Furthermore, common characteristics of news are described as *true*, *fair* and *accurate*, and news are a *trigger that provokes a reaction from the audience* (Smith 2007, pp. 13-16).

Trustworthiness is among the major questions when using UGC in news. Readers perceive photographs taken by citizen journalists more trustworthy than those taken by professional photographers due to another or citizen's perspective, the photos are what-you-see-is-what-you-get photos, ordinary, most authentic, straightforward, and not manipulated (Lai 2001). However, little is known about the qualities of UGC in news and what are the differences between the perceptions of the UGC contributors and newsroom staff in relation to preferred UGC content qualities. This research aims to clarify the qualities relevant to UGC in hyperlocal news production.

UGC quality in online communities

UGC in online communities is contributed by a large and heterogenic group of users. This leads to a more varied quality than in traditional publishing model with only a few users as publishers (Agichtein et al. 2008). Chai et al. (2009) found sixteen dimensions for assessing UGC quality in a review of UGC quality assessment frameworks. User feedback was the most used approach. It can be direct (e.g. rating content quality) or indirect (e.g. displaying usage statistics). Complementing user's feedback with other quality assessment measures can help to manage the twists in evaluations provoked by fraudulent users (Chai et al. 2009).

Online question asking (Q&A) sites are a typical platform for studying user-generated content quality. Several techniques to identify good quality have been proposed. The contributions are often textual, and several usage statistics are available. Agichtein et al. (2008) found that the most important feature predicting high quality was the length of the answer. The other features include measures related to, for example, the textual qualities of the answer and the past performance of the question asker. A study by John et al. (2011) concluded that completeness (coverage), accuracy (correctness), and users' endorsement were the strongest predictors of high quality answers. Otterbacher (2009) used a simpler model: *helpfulness* of a contribution in the context of product reviews. The simplified measure represented the multiple dimensions of high quality to some extent. Even if the system was not fully accurate and had its drawbacks, it provided a usable and meaningful way to evaluate content and the evaluations were useful in sorting and finding high quality content. We aim to address informative and useful ways to evaluate and communicate the qualities of the UGC to contributors to enable learning.

UGC quality evaluation in online communities

Online communities have implemented various feedback, evaluation and rating mechanisms to promote appreciable content and to help the moderation of UGC. Content evaluation mechanisms by rating with stars and thumbs up/down were studied by Dooms et al. (2011). They found that the five star rating mechanism was used similarly to the bipolar thumbs up/down mechanism, as the users selected usually either one or five stars. Flagging offers users a possibility to report inappropriate content on a web service to the administrators. Flagged content is reviewed by the moderators and the required actions, such as modification or removal, are carried out. Diakopoulos et al. (2011) showed that a flagging system can be effective but also has its downside when abusive users raise false flags. They propose a flagging solution where the users can provide also additional information about the flag such as the reason for flagging. This would help the moderators reviewing the flagged content and increase the awareness of the site users about the desired content qualities. Filing the possible problematic content could enable problem prediction based on the history of previous moderation cases, indicating the possible topics where problems tend to arise.

Timely feedback can increase the motivation and improve quality of contribution. An effective mechanism for improving the quality of micro-tasks in Mechanical Turk was developed by Dow et al. (2012). The mechanism adds either self-assessment or external assessment to the workflow, and offers the workers an opportunity to revise their work before submitting it. The results pointed out that assessment of work produced higher quality contributions over time. The study showed the importance of delivering feedback and promoting the awareness of topic specific quality. Our interest is to identify mechanisms that would motivate reader reporters to develop their skills and continue participation by contributing high quality UGC.

Motivating participation with UI elements in online communities

Gamification uses elements from video games in a non-gaming context to increase users' motivation to participate (Deterding et al. 2011). Scoring systems, achievements, and badges are examples of such elements. Achievements and badges have been studied in the context of online news portal (Jones & Altadonna 2012) and in a photo sharing application (Montola et al. 2009). In both cases the results showed only moderate effect to the participation. On the contrary, when Zachary et al. (2011) studied a mobile application with achievements in the context of student orientation event, promising results of the motivating value were obtained. Zachary et al.

emphasize how achievements should be designed to support the functionality and goals of the application. When Kim et al. (2011) studied an online discussion board environment where information credibility is in a key role, member badges increased the sense of authority of the site. What is more, indicating quality measurements by peers and the popularity of the thread promoted contribution. The suitability of using elements for achievements and badges depends on the application and the context of use, and should be designed to support the desirable activities and outcomes.

Critical comments on content and scoring of contributions motivates to participation. The relevant negative comments and disagreement have given feeling of importance for contributors, motivated to continue, and resulted in more contributions on the online Q&A forums (Tausczik et al. 2012). An implication for design in online environment is to provide variable options for giving and receiving feedback, both positive and constructive. In addition, scoring of contributions encourages to participation (ibid). Users who received higher scores on their contributed answers continued adding more answers with a greater probability than those whose answers were downvoted. In activities with little direct benefits, providing social benefits (e.g. reputation and connection with other users) would be important. We aim to identify what types of elements are suitable to motivate UG news content contributors in an online community to participate.

RESEARCH STRATEGY

To design participatory journalism activity and services, information on quality attributes of UGC, and reader reporters' perception on feedback mechanisms for content quality is needed. Three sub-sequent studies were conducted (Table 1). The guidelines for UGC quality management are constructed based on these studies and prior literature.

STUDY: Goal Method, sampling
STUDY 1 : Quality attributes of UG news content Interview 3 news editors 5 reader reporters Questionnaire - open questions 17 reader reporters
STUDY 2 : Typical mechanisms for UGC evaluation Content analysis 18 news portals 13 non-news, but UGC-driven sites
STUDY 3: Motivating feedback mechanisms and online community for reader reporters Prototype evaluation and interview 20 reader reporters 16 feedback mechanisms (content and users)

Table 1. Studies, goals, used methods and samples.

STUDY 1: CONCEPT OF QUALITY IN UGC

A goal of study was to identify conceptual differences in quality attributes of UGC from newsroom and reader reporters' perspectives. These quality attributes could be communicated to reader reporters and used to direct their content submissions. We focus on photos as the most important type of UGC content on this site and for the newsroom.

Research method

Data-collection and participants - The sample was composed of interviews of three professional editors, interviews of five reader reporters, and a questionnaire with open questions for 17 reader reporters. The data-collection was conducted during and after two reader reporters' field trials on using mobile photo assignments. The news editors were interviewed in pairs and independently on two occasions - during and after the trial (6-10/2011, Väätäjä 2011). The interviews included in questions about the characteristics of the UGC they receive and they would like to receive from their readers. After the second trial (spring 2012, Väätäjä et al. 2013), reader reporters' data was collected with questionnaire from seventeen reader reporters who were active hobby photographers (15-53 years, 16 male, 10/17 daily shooting of photos, 7/17 weekly shooting of photos). Questionnaire had three open questions about content quality (What is a good reader's photo/story/video like?). In addition, five questionnaire respondents (26-53 years, all male) voluntarily participated to an interview (Väätäjä et al. 2013) in which they described characteristics of UGC they have sent to the newsroom. The reader reporters, aged 26-53 years, were active hobby photographers. They were categorized to hunters (2/5 actively look for topics to shoot and send them to media companies) and snappers (3/5 take photos when a suitable topic happens to appear and submit) (Väätäjä et al. 2013).

Method of analysis – The *interviews* of news editors and reader reporters were analysed separately, using the original transcriptions. Data-driven qualitative analysis with no predefined taxonomies was used. All expressions used to describe the UGC, its properties and quality were coded. In addition to In Vivo coding, the statements were interpreted and the meaning behind the expressions was listed (Saldaña, 2009). Magnitude and evaluation coding was applied in defining the nature of the expression in the context whether positive, negative, not clear, or varied. Identical and similar codes were grouped and labelled with a descriptive word for the group. Groups were then categorized based on similarity and theme to second level groups and from the second level grouped to third level. Data was quantified by counting the frequency of each code, indicating the importance to the interviewees both individually and as a group of interviewees. By counting from first level codes, the cumulative frequencies for second and third level groups were created. The *questionnaire* responses to open question on photo, video and story quality were analyzed similarly as the interviews to make the results comparable. The frequency of mentions for each participant on an attribute was counted. These steps resulted to a list of quality attribute categories and the amount of references to them based on questionnaire answers.

Results

The results from interviews and questionnaires are summarized in Table 2 descripting the main quality attributes, their definition and appearance frequency. The results show that news editors describe the news value of the content to the readers most frequently (32.5%). News editors emphasize the locality of the UGC, i.e. UGC is

identifiable with a specific district (14%). In addition, the newsworthiness in terms of revealing information and that the UGC can be used as a tip-off for news stories is frequently addressed in relation to news value (10.5%). About one out of five expressions (21.9%) are related to the uniqueness of the material. Technical qualities of UGC are described least frequently by news editors in the case of hyperlocal news making (6.1%).

The reader reporters describe a good readers' photo most often with photographic properties (20.3%), specifically related to composition and emotional expression in the interviews. This may be due to the fact, that the interviewed reader reporters were hobbyists, and therefore well-informed of these type of characteristics. Almost of equal frequency in the descriptions is the value for the newsroom (18.4%) was emphasized in terms of fitting their needs to serve the audience, having appropriate metadata and communicativeness to be used to support the story. Similarly, the value for the readers (18.0%) was emphasized in terms of interestingness and newsworthiness. A new group of descriptions also emerged: value for the reader reporter (8.4%). This was described in terms of personal motives, such as influencing on societal or environmental issues as well as related to the monetary rewards.

The questionnaire respondents mentioned the technical properties clearly over any other characteristic (47.8%). The second most often described characteristic are the photographic properties (21.7%). This group differed from the interviewed reader reporters by being less familiar and having less experience in participating to news making. In addition, their hobbyist background in photography was less active than the interviewees' background.

In comparison of the reader reporters' and the news editors' descriptions, trustworthiness of UGC is only mentioned by professionals. Even though it is also the

ATTRIBUTES (major and sub)	**DEFINITION (examples)**	**Newsroom Interview** % of 228 mentions (n=3)	**Reader reporter Interview** % of 261 mentions (n=5)	**Reader reporter Questionnaire** % of 46 mentions (n=17)
NEWS VALUE FOR READERS	**Interests the readers of a local newspaper and is valuable for a newsroom in the progress of generating and publishing news stories on local topics.**	**32.5%**	**18%**	**13%** (5/17)
Locality	Identifiable with a specific district	14% (2/3)		
Newsworthy	Reveals information and can be used as a tip-off for news stories	11% (3/3)	6.5%(5/5)	
Interesting	Interests widely audience and initiates discussion, relevance for readers	15% (3/3)	11.5%(5/5)	
Timely	Recent, pictures a current event	2.6% (3/3)		
UNIQUENESS	**Different, unique, extraordinary material, hard to obtain elsewhere**	**21.9%**	**11.8%**	**6.5%**(3/17)
Differentiation	Differs from majority of the other photos, has special point of view.	9.6% (3/3)	7.3%(5/5)	
Surprising	Unexpected or unpredictable content	6.1% (3/3)		
Effort	Requires time consuming effort from photographer, hard to take	4.8% (2/3)	4.5%(4/5)	
Good observation	Points out details that are usually undiscovered	1.3% (1/3)		
VALUE FOR NEWSROOM	**Material allocated for news, with additional information helping the newsroom to understand and make use of it.**	**12.3%**	**18.4%**	**10.9%**(4/17)
Useful for newsroom	Fits the needs of newsroom to serve audience	7.5% (3/3)	9.6%(5/5)	
Appropriate metadata	Additional information on the event, subject or location in photo	3.1% (2/3)	4.6%(5/5)	
Supports the story	Helps to communicate the essential point of the story to newsroom and readers	1.3% (1/3)	4.2%(5/5)	
PHOTOGRAPHIC PROPERTIES	**Composition and interpreted impression of images**	**10.5%**	**20.3%**	**21.7%**(9/17)
Composition	Photographically advanced, e.g. composition, angle, eye-catcher, artistic	6.6% (3/3)	11.5%(5/5)	
Impression	Emotional impression conveyed, e.g. funny, bluffing, atmospheric	3.9% (3/3)	8.8%(5/5)	
DESIRED CONTENT	**Appropriate content for the purpose of newspaper**	**8.8%**	**16.9%**	
Undesired content	No need for newsroom, e.g. nature, family portraits, buildings, animals	5.3%(3/3)		
Desired content	Needed content types for newsroom, e.g. people, snapshots	3.5%(3/3)	16.9%(5/5)	
TRUSTWORTHY	**Trust to content and to reader reporter can be identified**	**7.9%**		
Trust on content	The events in the photo can judged to be authentic	3.5% (1/3)		
Reliability of Photographer	The photographer is an active and known reader reporter	3.1% (2/3)		
Motives of photographer	The photographer's motivations behind the contribution	1.3% (1/3)		
TECHNICAL QUALITIES	**Technical properties of a photo**	**6.1%**	**5.4%**	**47.8%**(13/17)
Technically advanced	Technical quality is high in overall	1.3% (2/3)	5.4%(4/5)	
High-resolution	Resolution is high enough for a print	1.8% (2/3)		
Sharpness	Well-exposed and correctly focused	1.8% (2/3)		
Capturing device	Capturing device (mobile/camera) influence on quality	1.3% (1/3)		
VALUE FOR READER REPORTER	**Reader reporters' action personal aims for societal or environmental influence and can be rewarded**		**8.4%**	
Societal/environmental	Can have positive influence on surroundings, e.g. underline faults		6.9%(4/5)	
Reward	Rewarded, or published without reward		1.5%(3/5)	

Table 2 Conceptual differences in quality of UGC

second least described group by news editors (7.9%), important aspects for the development of the cooperation and supporting tools are included in this category, such as being able to judge the authenticity of events in the photos, the contributor is known by the newsroom staff, and understanding the motivations.

STUDY 2: CONVENTIONS FOR UGC EVALUATION

A goal of the second study was explore the most typical conventions of evaluation mechanisms used for managing user-generated content. A total of 31 UGC-driven websites, 18 news sites, 13 other sites, were studied. The sites selected according to five criteria: 1) they were widely spread among users, 2) majority of them (29) were studied in previous UGC research (Tomaiuolo 2009, Bradshaw et al. 2011, Dijck 2009, Ghosh et al. 2011), 3) they enabled rich media contributions (text, video, image) and/or 4) mechanisms for user's reliability evaluation, and 5) offered more mechanisms for evaluation than sharing and flagging. Content analysis, as in previous study, was also used in the site review. All selected sites were reviewed to identify the evaluation mechanisms and their characteristics, the object of evaluation and evaluator (who evaluates).

The most typical evaluation mechanisms – 13 different evaluation mechanisms were identified (Table 3). On average, the sites contained evaluation mechanisms from 4.7 categories (Mean=4.7, SD=1.8). Three most typical mechanisms, flagging, displaying number of shares and badges were used in more than half of the reviewed sites. Over 30% of the sites used positive rating, statistics about usage, following or rating on an ordinal scale. Points, descriptive classifying and points were included in more than 20% of reviewed sites. Finally, external authentication and qualifications were the least used mechanisms (<10% of sites).

The mechanisms were differentiated for evaluating content, user or both of them. To assess different types of media content, flag, share, ratings (positive, positive-negative, ordinal) were almost consistently used. Badges, statistics, points, external authentication and qualifications were used only for evaluating users. The mechanisms to evaluate both users and content were Follow/Subscribe/Favorite, feedback profile, descriptive classifying and ordinal rating.

The mechanisms studied covered four different evaluator's profiles – any users, only registered users, system, or other sources were used for assessment. Sharing was the only mechanism used always without registration. Flagging, ratings (positive, positive-negative, ordinal), descriptive classifying and feedback profile were used for both registered and non-registered users. Badges, statistics, ordinal rating, points, and qualifications were automatic evaluation mechanisms created by the system. Rating with ordinal scale and feedback profiles offered an opportunity for anyone, registered users and system to evaluate UGC.

STUDY 3: PROTOTYPING FEEDBACK MECHANISMS

Goal of the study is to explore 1) reader reporter's preferred ways for giving and receiving feedback and 2) design ideas for motivating participation to reader reporter's online community.

Research Method

Participants – A total of 20 active reader reporters, aged between 28-76 years (M=57.0, SD=12.0), participated to the study. 50% of the participants had sent photos at least weekly and 95% of participants had contributed content (photos, stories, tip-offs) to newsroom within last three months. All participants followed either online or print versions of the hyperlocal newspapers publishing UGC. In contrast, usage of social media was distributed into two main groups (Facebook: daily users (50%) vs. not at all (30%). Youtube: weekly watching (65%). twitter at least monthly users (10%). The participants were recruited by email from the pool of 113 active reader reporters of the hyperlocal news publisher. They were also active readers of the online news site of the publisher. The participants were compensated with two movie tickets (15€) for attending the meeting.

Procedure – The data-collection session was divided into three parts. Data-collection was carried out in three cafés in Helsinki metropolitan area and the duration of the session was approximately an hour.

1) **Demo/psychographic data collection and semistructured interview** - At the beginning, the demo/psychographic data-collection and interview about feedback in participatory journalism took a place with a questionnaire. Semistructured interview targeted on usage habits of local newspaper website for contributing the content and patterns of receiving and giving feedback in online community with the following themes: *The current use of newspaper's website, the most memorable experience for receiving feedback after contribution to local newspaper, the form of the most important feedback, descriptions of situations for commenting or sharing other reader reporter's material, preferred forms of giving the feedback for other readers about their photos or stories on a platform (omakaupunki.fi)?*

2) **Evaluation of six feedback mechanisms** - The selection of six evaluation mechanisms was based on the site review of Study 2: 1) Share buttons (e.g. for Facebook, Twitter and email displaying the number of shares in each medium), 2) Descriptive classifying buttons with the number of clicks on each button. The descriptive attributes were selected from Study 1 on user-generated content quality attributes. 3) A "like" button displaying the number of likes, 4) The number of views, 5) A commentary textbox with the number of comments, 6) 5-star rating with the total number of ratings. The evaluation mechanisms were presented on a paper contextualised with a neutral and typical sample photo of traffic and text user's photo on the top (see Figure 2). Stimuli were presented in an uncontrolled random order.

The evaluation was conducted using scenario-initiated sorting and evaluation task. In scenario, the users had taken a photo an uploaded it to the local newspaper's service. For displaying the image on the site, six alternative designs with different evaluation mechanisms were shown to participants. The participants were given

MECHANISMS Description	News n=18 %	Other n=13 %	All n=31 %	Evaluator n=31 %				Object of evaluation n=31 %			
	News sites	Other sites	All	Any user	Registered user	System	Other	User	Story	Comment	Other video/photo
LAG Inappropriate content is marked for someone to take the action on it e.g. report spam	78	69	74	52	48				9	83	44
SHARE(with count) Content can be shared directly from links of buttons to social media or email. Shared count is visible for all users.	89	38	68	100					86	5	24
BADGES Virtual badges are attached to user' profile implicating user's achievements	39	69	52			100		100			
RATING – POSITIVE Users are given only option to 'like' content, a button	61	31	48	33	67				27	60	13
STATISTICS Statistics about usage, visible for other users. Top lists can be created.	56	38	48			100		100			
FOLLOW, SUBSCRIBE, FAVORITE Users can subscribe a source, giving an easy access to content	33	62	45		100			100	21		14
RATING-ORDINAL Content can be rated on ordinal level, e.g. 1-5 stars	33	38	35	33	67				42	42	33
POINTS Users earn points from activities and the users can be ranked based on them.	17	23	19	46	46	18		9	55	9	64
DESCRIPTIVE CLASSIFYING Content can be classified by associating descriptive text to it, e.g. tags.	6	23	13			100		100			
FEEDBACK PROFILE Users have a profile page containing feedback given by other users.		38	16	50	50			100	20		
EXTERNAL AUTHENTICATION Users' identity is authenticated via external service.		15	6	20	80	20		25	50	50	
QUALIFICATION Users' capabilities are examined and proved with a test.		8	3				100	100			

Table 3 Conventions for UGC evaluation.

a task to sort the mechanisms into preference order of receiving feedback and describe the reasons behind the ordering. Secondly, the participants rated six items for each mechanism. The level of fascinating, rewarding, fun and motivating was evaluated on a 11-point unlabelled scale to measure engagement and stimulation of each feedback mechanism (Hartmann et al. 2008). Willing to give and willing to receive feedback with each mechanism were assessed on a nominal scale (yes/no).

Figure 2 Examples of stimuli.

3) **Paper prototype brainstorming of online site** - Goal of the third part of the interview session was to get feedback for use of gamification elements and ideas for online community development. It consisted of selecting preferred elements for a reader reporter community website and brainstorming with a low fidelity paper prototype. Snyder (2003, pp. 3-12) defines that "paper prototyping can be considered a method of brainstorming, designing, creating, testing, and communicating user interfaces." Snyder mentions as benefits of paper prototyping: 1) getting user feedback early in the development process, 2) a possibility to experiment many ideas, and 3) supporting creativity in the development process. For these reasons, the method was seen suitable for testing the feasibility of gamification elements and gathering ideas for design from the potential users.

Stimuli – The site elements communicating excellence of content and performance of reader reporter to community were studied using paper prototypes. Participants were shown a hand-drawn paper prototype of a website titled "Reader reporter community" ("Lukijareportteriyhteisö") The prototype was a hand-drawn mock-up based on simple reader reporter's website for sending material to the newsroom with white space on the bottom and right side for new elements. The mock-up had three main functionalities for reader reporters to contribute material to newsroom (write a story, send a photo, and send a tip-off), to show earlier sent content after signing in with a user account, and to display assignments for reporter. The site elements formed four groups with four different presentation forms in each (Table 4); Top user photos, Top user stories, User statistics, and Honoured users.

Procedure – Visible features of the mock-up were described to the participant and 16 optional presentation forms of site elements were presented one-by-one in a controlled Latin square randomised order. The participants' task was to select four forms of elements they would like to include in a reader reporters' website of online community and to describe the reasons for their choice. Finally, the participants were interviewed about their ideas of reader reporter's community, how to enhance the interaction between community members, reader reporters and editors and on participation.

Method of analysis – The qualitative data from the interviews was first coded to seven pre-defined categories (internet activity, experiences on feedback, wishes for feedback, descriptions of the presented feedback mechanisms, descriptions of the presented site elements, ideas for features of the reader reporters' online community, and other wishes regarding activity). Next similar statements and ideas were grouped. The frequency of statements for each participant in each category was counted. The quantitative data was collected from the six different feedback mechanism forms in part two of the session. As each participant filled in six answer sheets with four evaluations in each, a total of 480 evaluations and 240 bipolar yes/no answers were recorded as data. SPSS was used for the statistical analysis.

Results

Newsroom can improve quality of reader reporters' contributions by providing feedback. Feedback from the newsroom was desired, because it would enable the reader reporter to learn more about the content selection criteria of the newsroom (10/20). Personal feedback was appreciated, but the participants were aware that the newsroom's resources are limited. Reader reports are motivated to learn and develop their skills from constructive criticism along with positive comments (10/20). Many participants were photography enthusiasts, but they were still eager to gain more knowledge about the journalistic point of view in photography.

"…there could also be criticism (from the newsroom), that 'Hey, the type of the photos that you are sending are not necessary publishable by us, so you could maybe try to shoot different type of photos.' "–Woman, 62

Monetary rewards and published content are the main forms of external feedback tight to intrinsically motivated action of contributing content. Monetary rewards – money or movie tickets – were seen as a good motivator and feedback for excellent contributions (8/20). Even if the activity was experienced as self-motivating, monetary rewards were seen as an important part of the operation. Participants wished even more monetary rewards, because within the current practice the contributor was rewarded only if the material was published in the print (5/20). Alternative rewards, e.g. movie tickets were also preferred over money, because after the taxes and possible deductions of social benefits, the movie tickets benefit them more (2/20). It was also stated that getting a photo published is the best feedback they can get, even the only response they need (4/20). Visibility of the name of photographer on print was seen as both desired (2/20) and not desired (1/20). One participant also stated that seeing a contribution invoking discussion is nice, giving a feeling of success.

"It's a kind of a reward, when you see your contribution in the print or on the website and your name is mentioned, so it's a matter that already is heart-warming. And in my opinion, this is kind of voluntary activity, so I'm not seeking income but more the enjoyment." –Man, 50

Visibility to the newsrooms' procedures can motivate the reader reporters to continue the activity. After sending the contribution to the newsroom, its progress (fitness to the scope or publication schedule) would motivate the reader reporters to stay active in task (5/20). In the current practice, they are unaware usefulness of contributed material, and have to wait until they see it published. As everything is not always published, there is a major lack of feedback about the contributed material. The main channels for providing visibility of the progress and feedback were seen to be email (5/20), text messages (5/20), real-time feed-back on the Internet (3/20), and possible reader reporter's mobile application (2/20). There appeared also reluctance to receive any notifications to their mobile phone (2/20). Symmetry between channels sending contribution and receiving feedback (e.g. email-email) was seen valuable for effective communication (1/20).

Direct and indirect feedback from other readers was important, motivating and showed value of reader reporters' work for other people (4/20). Knowledge about the size and characteristics of the audience of the reader reporters' contribution would indicate desired content type and engage reader reporters to continue participation. This type of statistical data would communicate the success (2/20). Online comments from readers, were seen as an essential way of receiving feedback for contributions (8/20). Commenting without registration allows spontaneous feedback from anyone while the comments could also be personal or hidden from other users (1/20).

The expectations about the feedback were diverse reflecting the nature of voluntary task and the current practises of receiving feedback. While any kind of feedback was appreciated (3/20), the group of reporters was not anticipating any feedback from their contributions (6/20). They saw the reader reporter activity as voluntary participation, and therefore the commitment is not expected on either side (2/20). The reader reporters were used to the current condition where the primary feedback was either seeing their material published and/or getting a monetary reward.

Preferred feedback mechanisms - Verbal written comments on UGC and descriptive classifying were the most preferred feedback mechanisms in all different measures of the study. In ordering task, different evaluation mechanisms had significant influence on preference order (F_R =22.1, df=5, p<.001; Fig 4). Classification and comments were the most preferred evaluation mechanisms, rated on the same level (Z=.34; p>.05) and outperformed all other mechanisms (p<.05).

Overall, engagement and enjoyment of feedback mechanisms were highly rated. Comments and descriptive classifying were the most motivating (F_R=20.0, df=5, p<.001; Fig 5) and rewarding mechanisms (F_R=19.5, df=5, p<.01; pairwise comparisons: p>.05). These two measures of engagement to interface collected the highest mean (7.5-8) among all measures and were preferred over implicit methods (views, starts and like in both measures p<.05). To reflect the enjoyment of user interface components, the influence of different mechanisms on fun was significant (F_R=20.8, df=5, p=.001). The verbal comments and classification

were experienced as more fun than other methods (p<.05). Although the overall influence of mechanisms on fascination was not significant (F_R=9.8, df=5, p=.082, ns), the pairwise comparisons showed that comments and classification were more fascinating methods than stars and views (p<.05).

Willingness to receive and give feedback was also symmetric within each method (McNemar comparisons p>.05, ns; Fig 6.) For both directions of communication, comments and classification were slightly more positively rated than other methods (McNemar, all comparisons p<.05). The likes were the least preferred feedback mechanisms for both communication directions (vs. others p<.05).

Impressions of feedback mechanisms – The verbal feedback mechanisms were described as the most informative (9/20) enabling a diverse feedback (5/20), but requiring effort (7/20) and being vulnerable to abuse (5/20). The mechanism of classifying was giving more information over the non-verbal methods (11/20), was novel and diverse (5/20). To give even more constructive feedback also the critical terms are needed parallel to the positive ones (7/20). Number of views of a piece of the content was seen meaningful (11/20).

"Well, this tells how much attention it has gained in general, that it has attracted the readers. If something is really boring and has interested less, it may not [be watched many times]. You know straight away from it that it has not succeeded well." –Woman, 65

Sharing feature was not interesting for non-active social media users (7/20). Both rating and liking were seen as easy, nice and familiar way of giving feedback (6/20) but having a limited information value for a receiver. Like feature lacks reasons behind the ratings (9/20).

Excellence of content and reader reporter's performance – The results show that the reader reporters' value the possibility to follow peers' good quality contributions. As a pattern, three items were selected among categories highlighting content (photos and stories) and one from others. Top user photos and stories were preferred over other user' performance methods (Cochran's Q=5.61, df=2, p=.06; McNemar top user photos and stories vs. others p<.05; Table 4).In more detail, the elements of *most viewed/read, best* and *most discussed* were the most typically chosen to mark the content quality in top user photos and stories. *Photographer of the month – editors' selection* was the most popular element in the honors category. In the category of user statistics, *Most followed users* was the most popular item.

Impressions of elements – The elements highlighting the quality of content, photos or stories, offer a good indicator of interesting content (9/20), gives possibility for others to learn (3/20), and act as feedback for reader reporter (3/20). The most viewed and discussed were interpreted especially indicating interesting content.

Honored features were assessed as a tool to create competition (2/20), to learn from others (7/20) and especially from newsroom (7/20). The "Photographer of the month - editors' selection" would enable learning newsroom's needs. This was seen as reliable feedback form for community from professionals, while selection criteria should be visible (7/20). The overall impression towards statistics features was negative due to the competitiveness it would create. It was not in the preference of this reader reporter group (5/20). It was also highlighted that quantity of contributions does not indicate quality (6/20). Reader reporters are interested in good content, not in the evaluations of other reporters.

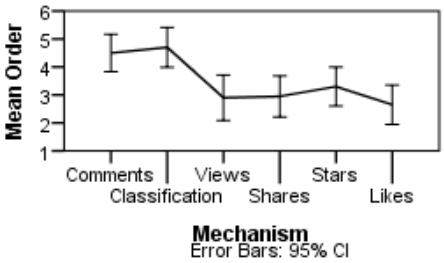

Figure 3. The preference order of feedback mechanisms.

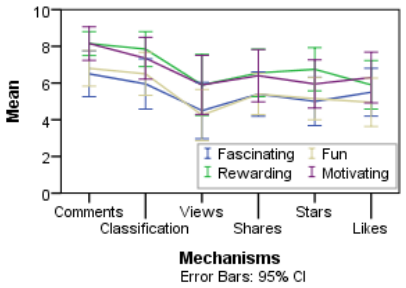

Figure 4. Engagement/enjoyment of feedback mechanisms.

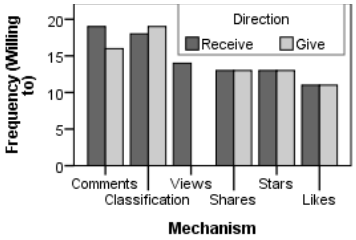

Figure 5. Willingness to give/receive feedback with methods.

Ideas for online community - To improve reader reporters' community, the main ideas focused on communication between newsroom and other reporters, assignments, content promotion and privacy. The general wish to improve the communication to newsroom was expressed (11/20). The reporters expressed the value of getting more personal assignments, or distributed assignments between reporters to keep the community active (8/20). Live meetings were proposed as a new concrete activity type to enhance the communication (2/20). To improve the communication between the reader reporters, the use of discussion forum was suggested (11/20), but small groups of people also felt having no need for this (5/20). Improved promotion of content (e.g. hot topics, excellent user-generated content) was seen appealing for maintaining the interests in the topic (7/20). In other themes, privacy of community and anonymity of participation (7/20), features, content presentation, moderation, and usability of service were discussed.

ELEMENT (presentation form)	% of all selections (n=80)
TOP USER PHOTOS	36.3
The best	12.5
The most viewed	12.5
The most commented	7.5
The most shared	3.8
TOP USER STORIES	33.8
The best	7.5
The most read	8.8
The most commented	12.5
The most shared	5.0
HONORED USERS	17.5
Reader reporter of the month	2.5
Photographer of the month - editors' choice	8.8
Photographer of the month - readers' choice	5.0
The latest achievement	1.3
USER STATISTICS	12.5
Top-5 reader reporter	3.8
The most followed reader reporter	6.3
The most rewarded	1.3
The most contributed photos	1.3

Table 4. Preference of gamification elements.

GUIDELINES FOR MANAGING UGC QUALITY

The guidelines for managing content quality in online communities were constructed based on the results of this research and prior literature. The guidelines are targeted for participatory journalism, but can be applicable to other online communities.

Enable verbal feedback - In addition to ratings, an UGC oriented community should have verbal feedback feature, such as commenting. Verbal feedback was highly preferred over clickable or implicit mechanisms. If no resources for moderating comments are available, enabling the users to add predefined qualities can be a substitution. User approval of this needs further research.

Enable constructive feedback - If content is classified with tags, there should be both positive and critical categories available to support self-development. Positive tags would express what is good in the content, while other descriptive tags would indicate what could be done differently to support self-development and learning.

Use bipolar positive-negative rating over other scales - Prefer a rating mechanism with a simple bipolar positive-negative scale (e.g. thumb up – thumb down). This study revealed that reader reporters would like to have also criticism. Rating with only positive scale, for example "Like", does not enable critical rating. Dooms et al. (2011) confirmed the observation presented by YouTube (2009) that a rating mechanism with five stars is used like the positive-negative rating. They do not provide extra value compared to positive-negative ratings. Further work needs to address feedback mechanisms that invite users to give critical feedback in a comfortable way.

Let the users give feedback on content without registration - Let users comment and rate content without registration and signing in. In the interviews reader reporters hoped for an easy way to give feedback. Anonymous commenting was mentioned as a favourable feature. Dooms et al. (2011) found that anonymous users generated a high percentage of pageviews (98.5%) and ratings (95%). Diakopoulos et al. (2011) found that 40% of the users of a community website would cease commenting if registration was needed.

Design recognizable feedback mechanisms - Design feedback mechanisms that are easily recognizable to attract more users to them. The most polished and modern implementation may not be the one attracting the users best. Differences and changes in the feedback conventions between the user groups and over time should be taken in account.

Use redundant evaluation mechanisms, also other than user feedback - Participants expressed their interest towards a combination of feedback with both verbal and numerical mechanisms. The reader reporters realized the value that could be gained from receiving feedback with various metrics, such as a view count. Chai et al. (2009) suggested using more than one user feedback, because there is no certainty on the authenticity and honesty of the user ratings. What is more, all users may not have the proficiency for reliably evaluating a specific content.

Specify the rewarding criteria publicly - The rewarding criteria of the content should be published when possible. Reader reporters' descriptions on honour features for an online community revealed the need for knowing the rewarding criteria. This would facilitate self-development and learning about the needs of the newsroom.

Promote high-quality UGC – In studied case reader reporter activity was focused on the content, and little social connections existed. Highlighting the content was preferred over highlighting the reader reporters. Good content was proposed to be visible for longer time period than currently on the web page, where only the latest UG photos gained visibility for a short period of time.

Organize UGC and offer sorting - In the current website all content was treated similarly and displayed primarily in a chronological order. A wish for better content categorization based on localities and topics was presented by one reader reporter. Diakopoulos et al. (2011) suggested filtering tools for comments. Effective sorting would enable users to find the content fitting to their individual needs and increase the perceived content quality. Same approach should be used with all UGC.

Make use of existing social media services, but do not force their use - The results of our study proposed that possible future social interaction between the reader reporters could be performed within the existing social platforms. However, the results also underlined that the use of existing services should not be the requirement for participation. In addition, the support for easy sharing to existing services is needed. These results were drawn from heterogeneous group of active social media users and non-users. In sum, making use of existing social media services is recommended, but forcing their use may be detrimental.

Provide instructions and tools for self-development - A need for basic instructions on photography was mentioned by reader reporters. Many of the participants

had expertise on photography. They had a perception that the quality of the UG photos could be improved significantly with few simple instructions on photography. Providing this information has been implemented by CNN, for example. In addition, privacy related issues when capturing UGC for news would need education. This type of domain specific information should be available for the users of a reader reporter community. A best practice of providing clear community guidelines and expectations was also mentioned by Diakopoulos et al. (2011).

Use understandable and meaningful measures and examples of quality – Instead of rating the content on multiple and complex dimensions, put together understandable definitions and examples of high quality content. The users should be able to rate the content rapidly and intuitively on the given quality measures. An example is the concept of "helpfulness" in user reviews or question-answer sites (Otterbacher 2009).

CONCLUSIONS

Increasing amounts of user-generated content (UGC) are used in news making by newsrooms. However, managing the quality of UGC is challenging as the creators are a heterogeneous group with varying levels of skills and motivations. We conducted a three-phase study identifying qualities of newsworthy UGC, and ways to enhance the quality of contributions by online feedback. Review of 31 UGC-driven websites revealed as the most used methods of improving the quality of contributions flagging of inappropriate content, counts of sharing to social media services, ratings, user's activity statistics, and badges. Interviews of news editors and reader reporters revealed a difference in the qualities of good news photos. News editors emphasized news value, uniqueness, and photographical properties whereas readers emphasized technical and photographic qualities. Interviewed reader reporters expressed the feedback from the newsroom as the most important for their development in addition to seeing the examples by other reader reporters. Content was perceived as more important than competition in case of readers' UGC. Presented design guidelines are applicable to participatory journalism communities, but also some of them to other online communities. Further work needs to confirm these guidelines, and explore their applicability and extensions to other online communities.

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