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QUALITY MANAGEMENT OF USER-GENERATED CONTENT IN PARTICIPATORY JOURNALISM

Master of Science Thesis

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ABSTRACT

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When a crowd of readers participate in local news by sending photos and stories to a newsroom, it is hard to manage the quality of the contributions. Readers' expertise, interests, and motivations to participate vary. To produce better news more efficiently, there is a need for quality management of the user-generated content that the newsroom receives. The goal of this study is to define user-generated content quality in news journalism and find indications for quality management in online communities.

This thesis consists of a literature review, a website analysis, and an interview study. In the literature review, issues related to user-generated content, definitions of quality, and motivations to participate are explored. A website review was made to find out the variety of evaluation mechanisms that are in use and their functions on the websites. Definitions for user-generated news content quality were explored in interview data with three news editors and five reader reporters and in a questionnaire for 17 reader reporters.

Evaluation of user-generated content and giving feedback for contributions are approaches to improve the quality of contributions over time. The partner in this research project, Sanoma Kaupunkilehdet from Helsinki, Finland, was in the process of designing an online community for reader reporters. Expectations of the upcoming users on such a community and approaches on motivating them to participate were in interest. A set of interview and prototype evaluation sessions was carried out with twenty active reader reporters.

The results of the empirical study indicated that verbal feedback mechanisms were preferred over nonverbal mechanisms. The most valued feedback was the one from the newsroom. Competitive features were not popular among the participants, but high-quality readers' content was wished to be promoted more in an online service. The average age of the participants was 60 years.

As a result of the literature review and the empirical study, guidelines for managing quality in online communities were proposed. Further comparison of different feedback mechanisms and the relation of age to the motives for participation were discovered to be interesting subjects for further study.

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Uutisten lukijat osallistuvat uutisten tekemiseen lähettämällä kuvia ja juttuja uutistoimitukseen. Lukijoiden osaaminen, osallistumismotivaatiot ja kiinnostuksen kohteet vaihtelevat. Paremman uutissisällön saavuttamiseksi lukijoiden tuottaman materiaalin laatua tulisi kyetä ohjaamaan. Tämän tutkimuksen tarkoitus on määritellä uutismateriaalin laatutekijät ja löytää keinoja lukijoiden tuottaman uutismateriaalin laadun parantamiseen.

Tämä diplomityö koostuu kirjallisuuskatsauksesta ja empiirisestä osuudesta, joka sisältää web-sivustojen sisällön analyysin sekä haastattelututkimuksen. Kirjallisuuskatsaus käsittelee käyttäjien tuottamaa sisältöä (User-generated content, UGC), laadun määritelmiä, sekä osallistumismotivaatioita. Sisällön analyysissä kartoitettiin olemassa olevia verkkosisällön arviointimenetelmiä web-sivuilta. Uutismateriaalin laadun määritelmiä etsittiin aiemmasta uutistoimittajien ja lukijareportterien haastatteludatasta sekä lukijareporttereille tehdyllä kyselyllä.

Käyttäjien tuottaman sisällön laadun arviointi ja palautteen antaminen sisällön tuottajalle ovat tapoja yrittää parantaa tuotetun sisällön laatua. Tutkimuksessa yhteistyökumppanina toiminut Sanoma Kaupunkilehdet Helsingistä oli suunnitellut verkkoyhteisön perustamista lukijareporttereilleen. Yhteisön tulevien käyttäjien toiveita ja odotuksia kartoitettiin haastattelemalla kahtakymmentä lukijareportteria. Haastattelun lisäksi lukijareportterit myös arvioivat esimerkkitoteutuksia sisällön arviointitavoista sekä ideoivat verkkoyhteisöä paperiprototyypin avulla.

Tutkimus osoitti, että sanalliset palautetavat ovat lukijareporttereille mieluisimpia. Uutistoimitukselta tuleva palaute koettiin arvokkaimpana ja laadukkaalle lukijoiden tuottamalle materiaalille toivottiin parempaa näkyvyyttä verkkopalvelussa. Kilpailullinen asetelma ei innostanut tutkimukseen osallistuneita, keski-iältään 60-vuotiaita lukijareporttereita.

Tutkimuksen tulosten ja kirjallisuuslöydösten perusteella koottiin ohjeistus laadun hallintaan verkkoyhteisöissä. Palautetapojen tarkempi vertailu sekä iän vaikutus osallistumismotivaatioihin nousivat kiinnostaviksi aiheiksi tuleviin tutkimuksiin.

PREFACE

This thesis was made at Tampere University of Technology, at the department of Human Centered Technology. It was a part of the research carried out in the Next Media programme by TIVIT, with Sanoma Kaupunkilehdet as a partner.

I am grateful that Sanoma Kaupunkilehdet made this study possible by providing the participants for the study. I want to thank my supervisor Heli Väätäjä and the thesis examiner Satu Jumisko-Pyykkö for tutoring me through the multiple phases of the study. I also want to thank all my work and study colleagues who have been around creating great working atmosphere, assisting and motivating me in my studies.

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Tampere, February 13th, 2013.

Markus Jaakola

CONTENTS

TERMS AND ABBREVIATIONS

Feedback mechanism	A system that enables giving and receiving feedback online.
Gamification	Use of game design elements in non-game context (Deterding et al. 2012).
HTML	HyperText Markup Language.
Hyperlocal media	Geographically-based, community-oriented, original-news-reporting organizations, indigenous to the web and intended to fill perceived gaps in coverage of an issue or region and to promote civic engagement (Metzgar et al. 2011).
Paper prototype	A mock-up of an information system's user interface drawn on paper.
Participatory journalism	A concept where news readers participate in news creation by sending photos, stories and tip-offs to the newsroom.
Q&A website	Question asking website, where the users can post questions and answer the questions posted by others. Also referred as question-answer website.
Quality assurance	Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 2005).
Quality attribute	A factor that affects the perceived quality.
Quality management	Coordinated activities to direct and control an organization with regard to quality (ISO 2005).
UCC	User-created content. Equivalent to UGC.
UGC	User-generated content. Material that an organization has not commissioned and paid for (Bradshaw & Rohumaa 2011).

1 INTRODUCTION

User-generated content (UGC) stands for content produced by the users outside of a news organization. In the case of journalistic content, the users are typically news readers. *Participatory journalism* is an activity where the news readers also voluntarily participate to the news creating process. Participation can be producing novel news material or adding to the existing online content. Augmenting the existing content can be made by taking part to online discussions or, for example, by evaluating, tagging and sharing the content produced by others.

The evolvement of the Internet allowed participatory journalism to take its form. Easiness of uploading content online allowed anyone with Internet connection to participate to the process of news creating. In the traditional setting only few journalists were producing news material, thus there were limitations on the material coverage. Today the quantity of user-generated news content is overwhelming, as anyone can provide their material to the newsrooms. This offers a significantly wider coverage, and many newsrooms have started to systematically exploit the content from their readers. This has formed a new user role that is called *reader reporter*. Reader reporters are active reader contributors, who voluntarily receive assignments from the newsroom and send their photos, stories, and videos to be used in news publications. There are also online news sites that rely solely on user-generated news.

When creating news, reliability and trustworthiness of the information are crucial factors. User-generated content cannot always be fact-checked, which is one of the issues that have been slowing the emerging of UGC in news. Also the quality of the content produced by non-professional readers is variable and generally not as high as the quality of the content produced by professionals. Many of the reader reporters and other content contributors lack information on what type of content is valuable for the newsrooms. The newsrooms would benefit if they could better manage the quality of the material that the crowd of reader reporters is producing.

Quality is defined to be the measure on how well something meets required metrics. Literature on quality points out that quality is a widespread and often subjective term, and the standards and metrics need to be defined for each context (Cappiello et al. 2004). Criteria for news are also very specific (Itule & Andreson 2007; Potter 2006; Burns 2002; Sissons 2006). There is no common definition for user-generated news content quality. For an effective quality management of user-generated news content, a definition for quality is needed.

Content evaluation mechanisms, star rating and thumbs up/down, were studied by Dooms et al. (2011). They found out that the five star rating mechanism was used simi-

larly to the bipolar thumbs up/down mechanism, as the users selected usually either one or five stars. More studies on rating and evaluation mechanisms are needed to find out what type of mechanisms would motivate the reader reporters to develop their skills and continue participation by contributing better quality content.

Gamification is using video game elements in a non-gaming context. Scoring systems, achievements, and badges are examples of such elements. The aim of gamification is to increase users' motivation to participate. 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. The partner of this research project, Sanoma Kaupunkilehdet from Helsinki, Finland, is in the process of designing an online community for reader reporters. Information on reader reporters' reactions on possible gamification is needed to have indications to the design of the participatory journalism activity and services.

The goals of this study are the following. First, inspect how content quality is currently being evaluated on web sites, and how the evaluation mechanisms could be used in the context of participatory journalism. Second, find definitions for quality in the context of user-generated news content. Third, investigate how to motivate reader reporters to participate in an online community, and guide the quality of the content that they produce. The expectations of the upcoming users of a reader reporter online community and approaches on motivating them to participate are in our interest.

The structure of this document is as follows. In chapter 2, user-generated content is defined and its use in news journalism is described. In chapter 3, definitions for content quality are introduced and related work on quality management in online communities is presented. Chapter 4 focuses on motivation theories and motivations to participate in online communities. The theory is summarized in chapter 5. The three studies that were conducted in this thesis are explained in chapters 6 to 8. Study 1 includes the website review on content evaluation methods. Study 2 consists of the exploration of quality attributes for user-generated content from interview data. Study 3 is composed of the interviews and prototyping with twenty reader reporters. The results of the three studies are summarized in chapter 9. The constructed guidelines for user-generated content quality management are listed in chapter 10. The results of the thesis are discussed and the suggested future work is presented in the conclusion in chapter 11.

2 USER-GENERATED CONTENT

Definitions for user-generated content (UGC) are presented in section 2.1 and the term is defined for the purposes of this study. Section 2.2 introduces viewpoints about the relatively new phenomenon of using UGC in news journalism.

2.1 What is UGC?

The abbreviation UGC stands for "user-generated content". Also "UCC" have been used referring to "user-created content" (OECD 2007). According to Halbert (2009), the term "user-generated content" was introduced not earlier than in 1995, and it became popular around 2005 and 2006. Halbert noted that the first suggestion about UGC becoming as important as or even replacing the traditional editors' work was made in 1999. The idea was denied at first by some editors. It was later recognized as a proven change in the process of content producing, so the experts had to adapt to the situation.

Bradshaw & Rohumaa (2011, pp. 139–140) defined UGC in the context of journalism as "material that the organisation has not commissioned and paid for". They also pointed out that the term itself is general, and can refer to a wide range of material, from a single anonymous comment to a wide presentation of results that took ten years to study. That is why specific definitions have to be made when referring to UGC.

McKenzie et al. (2012) defined UGC in broad scope as "content that is voluntarily developed by an individual or a consortium and distributed through an online platform". This open definition allows fitting all kind of material in it. McKenzie et al. introduced a classification of content creation models. Textual, audio, image, video and multimedia productions produced by individuals and distributed online are labelled as *creative content*. Software related individual productions are named *small-scale tools*, and the results of deliberately coordinated group work are referred as *collaboratively created content.* Open source software or Wikipedia are examples of such content, created in collaboration. This study focuses on the creative content, as it is the type of UGC used in news journalism.

The barrier for creating and distributing content online is constantly lowering. The requirements for producing UGC vary, but more and more people are getting access to the needed apparatus and have a connection to the Internet. In addition, creation and delivery of online content is really quick comparing to the traditional physical content, which has led UGC to be superior in quantity over the traditional media, as McKenzie et al. described.

OECD (2007) defined UGC as "content made publicly available over the Internet, which reflects a certain amount of creative effort, and which is created outside of pro-

fessional routines and practices." OECD also noted that UGC includes different forms of media and creative works, such as text, audio, visual, and combination of those. The common characteristics they give to UGC include a requirement of publishing, at least some creativity, and creation outside of professional routines. Even though this classification is subject to change over time, with this classifying OECD described the concept of user generated content.

Undervaluation of UGC just because it is created by "users" and not by professionals was discussed by Halbert (2009). He pointed out that in the commercial world user-generated content and professional content are carefully separated. However, the assumptions about the lower quality of the user-generated content are somewhat irrational. Nowadays the technology has made it possible for everyone to create high quality content, for example photos, audio, documents and graphics.

Hetcher (2008) broke the phrase "user-generated content" apart and examined the linguistic details of the expression. First, Hetcher noted that the word "user" refers to "computer user" and also stands for an unprofessional producer. A professional content producer may also pretend to be unprofessional. The distinction if the content is really "user" generated can sometimes be hard, if impossible. Continuing with the word "generated", Hetcher reminded that some degree of creativity is needed to call the content user-generated and not "user-uploaded". How to define the minimum amount is another question, but directly uploading content as it has appeared already does not meet the criteria of being user-generated. Finally, describing the word "content" as "digital content" Hetcher noted that online availability is characteristic but not essential for user-generated content.

For this study, user-generated content is defined as graphical, textual, or audial content or a combination of those that is sent to a newsroom. The content may be of informational and/or artistic nature. The means of sharing or online appearance is not significant. In this study, user-generated content is content that the newsroom gets from outside of its own organization, regardless whether the creators are casual readers, active reader reporters, semi-professional photographers or something else.

2.2 UGC in news journalism

Bringing user-generated content in news journalism constructed a new concept of *citizen journalism* or *participatory journalism* (Tomaiuolo 2009). Blogs were an early form of it, offering a channel to express opinions and make conversation. They were still more about opinions of an individual and reuse of existing content. According to Tomaiuolo, true citizen journalism sites differ from blogs with full originality of the content and presenting contributions of various people in one site.

Tomaiuolo (2009) identified several principles how user-generated content can be used in the news sites. In the first model, UGC is a big part of the main content and the whole site runs from the idea of individual contributions. Second method to make use of contributions is to offer the readers a channel to submit content and let the content to

have an influence on the published material. This policy still separates the users' content from the editors' content and remains cautious with the readers' material, as it cannot always be fact-checked.

Third approach is to construct independent sites or separate areas on existing sites concentrating on specified localities, and accept contributions from citizens for these hyperlocal news forums. According to Tomaiuolo these are reported to be hard to get functioning successfully. Finally, a restricted approach is still quite common among legacy newspapers. Allowing just a marginal interaction and contribution from readers is how big newsrooms have to ensure appropriate and credible status of their content. That can hardly be called citizen journalism but interaction with readers, Tomaiuolo concluded.

Apart from online news sites, Tomaiuolo reported another category of web services where the news are not generated, but gathered together from existing sources. So called citizen aggregation sites allow users to easily post links to news stories and rate posted links. In this case, the story itself may not contain UGC, but there is user-generated classification and rating metadata built around it.

Thurman (2008) studied the UGC scene in British online newspapers in 2008, and found seven major types of user participation. *Polls* were used to engage the users by offering binary or multiple choice voting. *Have your says* offered the readers a channel to get their opinions published on the topics selected by the newsroom. Real time conversation was supported with *chat rooms*. *Q&As* were interviews with guests, carried out with questions submitted by the readers. In addition, *Blogs* with commenting enabled and and pre- or post-moderated *message boards* were used. The most popular formats were Q&As (70% of the reviewed sites), polls (50%), and have your says (40%). Thurman discovered that the textual participation on the sites was primarily pre-moderated.

In the study of Thurman, news editors expressed their concerns about user contributions. At least commentary sections were often seen as duplicative and non-constructive, and lowering the standards of the published content was not a desirable outcome of the user participation. Editors addressed some recognition towards blogs, but blogs were seen contradicting the traditional concept of quite anonymous journalism.

According to Thurman, on some British websites the areas with user contributions were recognized as the most popular in 2004, generating about half of the page loads. There have also been systems in use to monetize the forums, such as overlay advertisements and intelligent word ads. These systems were criticized at first, but then accepted by the users as they made the existing of such forums possible on the whole. Legal issues have also been a major topic in the case of non-moderated user contributions. Thurman described that news sites have even dropped off commentary sections because of legal disputes.

Before the Web 2.0 revolution the interaction between readers and editors was most commonly made via email. Thurman (2008) described how the editors' work was to

copy-paste the readers' comments on the websites. The reason why this convention lasted so long was the editors' need to stay in control over the published content. Even if some technologies already existed to implement moderated bulletin boards, the editors were worried if their staff was skilled enough to moderate the comments by certain standards.

Thurman described how BBC experienced a change in UGC handling. In October 2004, BBC had an overload with user-generated content when they received over 100,000 emails after the death of a famous radio presenter. At that point they realized that something must change if they want to be able to handle all the incoming material. In 2004, an editor at BBC news site said they were just realizing that UGC is an interesting source for news, and investments on that area should be made. Finally, in October 2005, BBC took the non-moderated Have Your Say commentary section in use, and relieved itself from revising every single comment manually. An automated commentary section gave a possibility to publish much bigger share of the received contributions than before. Despite these advantages, highly sceptical opinions were present and at least BBC's rivals predicted problems because of malicious users. (Thurman 2008.)

As described above, user-generated content did not become widely used in news organizations all at once, and Paulussen (2008) pointed out some of the most prominent reasons for it. 1) Newsroom organization hierarchy did not support collaborative content creation, as strong distinction between different roles (online editor, print editor, readers, etc.) was present. 2) There was no consensus about the upcoming technological implementations regarding the content management, and as always, there was some initial resistance as well. 3) When the journalists work with a high workload and lack of time and resources, they are likely to return to the familiar routines.

As Thurman (2008) pointed out, also in the study of Paulussen (2008) the journalists were concerned about the control over the published content and an assumption about user contributions with low news value and high personal bias was made. It was also recognized that managing the UGC is time-consuming on the top of their already hectic work.

Summary

User-generated content (UGC) stands for digital content that the users of the web services generate and upload to the Internet. In the context of news journalism UGC typically consists of photos, videos, or textual stories. User-generated material is used in the process of making news, and especially online news sites have realized its value. News sites are using UGC in different scales. A news site can rely mainly on UGC, let it have an influence on its publications, or publish it on independent areas. Many big newspapers have to restrict the readers' interaction to a minimum to preserve their credibility. Another approach is not to create news stories, but let the readers post links and rate existing stories on other sites.

The process of involving readers in making news contains challenges, such as the resource requirements for the content moderation. Reliability of information in news context is an important factor. Together with the incompatibility of the existing workflows within newsrooms it has slowed down the emerging of UGC in news journalism.

3 CONTENT QUALITY AND ONLINE COMMUNITIES

What is quality? What distinguishes high quality from low quality? How quality is defined in the context of user-generated content, and how it could be managed in online communities? These questions are discussed in this chapter. First, quality in general is defined in section 3.1. Then, criteria for what makes news are examined. Online communities are defined in section 3.2, and content quality in online communities is inspected in section 3.3. Finally, current conventions in quality management of user-generated content are reviewed in section 3.4.

3.1 What is quality?

A dictionary definition for the meaning of the word "quality" is *"the standard of something as measured against other things of a similar kind; the degree of excellence of something"* (Oxford 2005). The definition of quality in the ISO 9000 standard is *"degree to which a set of inherent characteristics fulfils requirements"* (ISO 2005). Similarly, the quality of data or information is referred in literature to mean the extent which the user requirements are fulfilled, or *"fitness for use"* (Orr 1998; Cappiello et al. 2004).

Data quality is a multidimensional concept. Cappiello et al. (2004) summarize that the most common classification of data quality includes dimensions of accuracy, completeness, consistency, timeliness, interpretability, and accessibility. When the quality of data is assessed in these dimensions, some type of metrics and scales must be used. However, only a few standardized data quality measures have been developed. Some of the dimensions are even impossible to evaluate objectively, such as interpretability. Therefore, according to Cappiello et al., the measures for data quality tend to be based on a specific use case, and are likely to be subjective. What is more, using predefined static quality measures may not fit in every context either. Data from distinct sources, such as different type of users, may have distinct value within the information system.

What makes news?

The focus of this study is the quality of user-generated content in news journalism. Therefore, it is relevant to examine what actually makes news. In other words, what are the qualities of news?

According to Itule & Anderson (2007, pp. 15–18), newsworthiness is usually determined based on the following themes. 1) Timeliness – recent events are more valuable

than old news. 2) Proximity – events close to home are more interesting. 3) Conflict – big or small scale conflicts are often considered newsworthy. 4) Eminence and Prominence – the story is considered more valuable if well-known people are involved. 5) Consequence and Impact – The effect of the story to the receivers affects its newsworthiness. 6) Human Interest – People are curious to hear stories about interesting people. In addition, Potter (2006, pp. 5–6) and Burns (2002, pp. 51–52) presented the theme of 7) Currency – Locally popular or "hot" topics at the time attract people's attention. Potter mentioned also 8) Oddity – Unusual and extraordinary events tend to gain large audience.

Sissons (2006, pp. 27–30) introduced more factors affecting to the determination of newsworthiness including 9) Meaning – A story which meaning is rapidly revealed, such as an accident, is easy to publish. In contrast, there is a problem with information that takes long time to evolve, for example social or cultural trends. 10) Clarity – The easier the story is to understand, the better. 11) Predictability – Surprisingly, important events that are predictable, such as elections, are easy to determine as newsworthy. 12) Composition – The publications cannot be monotonic. Even if there were many important stories about the same theme, all of them are not published. This is because the publications have to cover many different topics to be interesting. 13) Negativity – Bad news are alarming and extraordinary. That is why it is easy to make news about negative events, such as crime.

As introduced above, determining what is newsworthy is a result of a multiple factor analysis. Sissons (2006, p. 24) stated it is a process the journalists are doing all the time, and during their career they constantly evolve the skill of detecting news.

3.2 Online communities

A widely cited definition for an online community is Preece's (2000, p. 10) four factors that an online community consists of: 1) "*People*, who interact socially as they strive to satisfy their own needs or perform special roles, such as leading or moderating." 2) "A shared *purpose*, such as an interest, need, information exchange, or service that provides a reason for the community." 3) "*Policies*, in the form of tacit assumptions, rituals, protocols, rules, and laws that guide people's interactions." 4) "*Computer systems*, to support and mediate social interaction and facilitate a sense of togetherness."

Online communities can also be defined through the software environment that is used for the social interaction. There have been many chat services, bulletin boards, newsgroups, and web pages where people have been able to intercommunicate and form social connections. Those communities are easy to identify by many, referring to the medium of communication. (Preece 2000, pp. 15–16.)

Not all online groups form a community. Preece (2000, pp. 17–19) summed up from various sources that the term online community is often used loosely. If an online group is just a group of people interested in a specific topic, it may not yet form a community. Also, when real world communities connect with each other via online tools, they are

also often called online communities, even if the proper term could be community network or networked communities.

Online communities are referred also as virtual communities. Koh et al. (2007) described that the typical virtual community activities include sharing information and news, solving problems together, and communicating with each other textually. They emphasized that even if there might be direct communication through voice calls (nowadays also video calls and video conferences) or physical meetings, the main activity is still posting and viewing posts by others online.

For this paper, the definition by Preece (2001) is adapted, stating that an online community is "any virtual space where people come together to get and give information or support, to learn or to find company. The community can be local, national, international, small or large."

3.3 Content quality in online communities

User-generated content in online communities is contributed by a large and heterogenic group of users. This leads to a more varied quality of content than in the traditional publishing model, where only few users publish, as Agichtein et al. (2008) described the situation. Constantly increasing quantity of variable quality content makes finding high-quality content even more challenging than it was before the content consumers turned into contributors.

Chai et al. (2009) reviewed the research on user-generated content quality assessment frameworks. They found sixteen dimensions with which user-generated content quality had been assessed. They noted that user feedback is the most used approach. User feedback can be direct or indirect, such as rating content quality or displaying usage statistics. Chai et al. stated that user feedback should not be the only source for quality evaluations, but using complimentary quality assessment measures can help to manage the twists in evaluations provoked by fraudulent users.

In addition to user feedback, the other dimensions Chai et al. found for assessing content quality included such measures as amount of data, reputation of the data source, objectivity, relevancy, reliability, completeness, and accuracy. Moreover, timeliness, understandability, added value, consistency, security, accessibility, believeability, and usefulness were also used as an indicator of data quality in online communities. The variety of measures demonstrates the concept of multidimensional and case-specific definition of quality in practice.

Online question asking (Q&A) sites are a typical platform for studying user-generated content quality. In such services the contributions are normally textual, and several usage statistics are available. Various features affecting the quality of the answers in such sites were found by Agichtein et al. (2008). 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. The ratio between the length of the question and the

length of the answer, or the number of abuse reports received by the asker are examples of such measures. In addition to textual features, what they call intrinsic content quality, the model by Agichtein et al. emphases the relationships between the users and the usage history of the community members.

John et al. (2011) also developed a model for finding high quality answers in a question-answer service. In their framework, the quality of user-generated answer was predicted to consist of *social*, *textual*, and *content-appraisal features*. Social features include the authority of both the asker and the answerer, and the amount of thumbs-up ratings the content has received. Textual features of an answer are such as the length, the number of unique words, overlapping words with the question, and the number of high frequency words. Content-appraisal features mean the measures used in determining the accuracy, completeness, presentation, and reasonableness of an answer. Accuracy measures the correctness and completeness measures the coverage of an answer. Presentation stands for good spelling and grammar and reasonableness refers to the perceived truthfulness of an answer.

John et al. found that completeness, accuracy, and users' endorsement were the strongest predictors of high quality answers. In contrast, long answers and answers where the question was repeated were of low quality. The authority of the asker or the answerer did not relate to the answer quality.

A contrary result to the one mentioned above was found in an earlier study by Shah & Pomerantz (2010). They argued that the answerer's profile in the community, together with the presenting order of the answers, is one of the strongest predictor for an answer being selected as the best answer. The differences may be result from a different method of assessing the quality of the answers that were used in the study. John et al. evaluated the quality of the answers with two experts, whereas Shah & Pomerantz used random online users from Mechanical Turk as evaluators.

Multidimensional model of informational content quality may not be easy to understand for a normal user. In some use cases there is a need for simplifying the concept of quality. One approach is to rate the *helpfulness* of a contribution. Otterbacher (2009) studied this measure in the context of product reviews. The result was that this simplified measure did represent the multiple dimensions of high quality in some extent. Even if the system was not fully accurate and had its drawbacks, it provided a usable and meaningful way to evaluate content. The outcome of the evaluations was useful in sorting and finding high quality content.

3.4 Quality management in online communities

Online communities have implemented various feedback, evaluation and rating mechanisms to promote appreciable content and to help the moderation of user-generated content. In the following, some implications for the design of quality management mechanisms researched by others are presented.

Diakopoulos and Naaman (2011) suggested approaches regarding the quality of user comments in online news sites. They presented, that comments could be organized and sorted by their contents, allowing the users to find contributions that match their individual needs in different use cases. The categorization could be done, for instance, to subjective and objective comments, and further on in positive and negative statements. Such organization of the comments would be valuable for both the readers and the journalists, helping them to find the content relevant for them at each situation.

Flagging is a traditional mechanism helping in content moderation. A flagging system offers the 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 and Naaman (2011) proved in their study 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. For example, user can select tags indicating the reason for flagging. This would help the moderators reviewing the flagged content and also increase the awareness of the site users about the desired qualities of the content published on the service. 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.

Amazon Mechanical Turk is a micro-task platform where online users perform work tasks for small monetary compensations. Controlling the quality of contributions may be difficult because of the diversity of the anonymous crowd of workers. An effective mechanism for improving the quality of work in Mechanical Turk was developed by Dow et al. (2012). The mechanism is based on the simple motivational concept that is later presented in chapter 4; timely feedback increases human motivation. 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 of an empirical study pointed out that assessment of work produced higher quality contributions over time. Feedback from external assessment motivated the workers to perform more work for the same reward. The study showed the importance of delivering feedback and promoting the awareness of topic specific quality regulations.

As presented in the previous section, user feedback is a commonly used method for measuring content quality. A study on the use of five star rating and thumbs-up/thumbs-down rating systems was carried out by Dooms et al. (2011). In their experiment 1.5 million page views produced around 8100 ratings. They found that the five star rating systems are used as the thumbs systems. Users tend to select the extreme values, either one or five stars. The majority (98.5%) of the ratings were done anonymously. Moreover, against their hypothesis, dynamic implementation using JavaScript was not preferred over the static systems that were regular HTML forms. An assumed reason for this was that the traditional HTML form was easy to recognize as a rating mechanism.

Summary

Summarizing this chapter, the term “quality” means the degree of excellence of something. Quality of information is defined as “fitness for use”. A fine grained definition of quality is context-dependent, as the measures vary based on the case-dependent requirements and needs. News value is based on features such as timeliness, proximity, and the consequences of an event. The event has to be relevant and interesting for the receivers to be considered as news.

An Online community In online communities the quality of user-generated content alternates because of the wide crowd of contributors with different skills and motives. Dimensions of user-generated content quality have been researched in the context of question-answer services.

4 MOTIVATING PARTICIPATION

This chapter presents motivation theories and introduces earlier research on motivations to participate in online communities. In section 4.1, the history of the motivation study is introduced briefly and three theories that have influenced the modern philosophy of motivation are presented. Section 4.2 presents motivations to participate in online communities, and in section 4.3 examples of mechanisms for influencing the motivation to participate are described.

4.1 Motivation theories

What is motivation? A definition given by Ryan & Deci (2000a) states to be motivated means "to be moved to do something". According to McShane (2008, p. 134) motivation is "The forces within a person that affect the direction, intensity, and persistence of voluntary behavior". Reeve (2005, p. 6) declared that the study of motivation "concerns those processes that give behavior its energy and direction."

History

Reeve (2005, pp. 22–25) explains how motivation was already a part of the philosophy of the ancient Greeks, but the first major theories are from seventeenth century. René Descartes put together the first "grand theory", concluding that all motivation is based on will. These theories were still not complete enough, so the discussion moved on to the second grand theory, a theory about instinct.

Evolution theory by Darwin led to a thought that everything is based only on physiology. The concept of instinct explained animal behaviour, unlearned or adapted, and suggested that there is no distinction between animals and humans (Reeve 2005, pp. 25–26). Evolution theory can also be used to explain that the base of all motivation is the adaptation of an individual to its environment, to survive and reproduce (Salmela-Aro & Nurmi 2002, pp. 18–19). Evolution theory helps us to understand something of human behaviour in general, but for more accurate information on individuals, more detailed models are needed.

The model replacing the theory of instinct was the concept of drive, which is also based on biology (Reeve 2005, pp. 28–33). In early twentieth century, Sigmund Freud among others believed in homeostasis, which means balance in the human body. According to this theory, as imbalances occur in a body, drive is the force that determines the behaviour of an individual, targeting to restore the balance again. This theory was criticized of focusing too much on biological forces, unreliable case studies and concepts that were impossible to test scientifically. The theory was later enhanced by Clark

Hull, adding for example a new assumption that motivation could be predicted. Hull's theory was widely adopted and became one of the most important psychological theories, preceding a rise in motivation literature in the 1950s.

A classic theory worth mentioning is Maslow's needs hierarchy, where basic human needs are divided in five categories atop of each other. According to Maslow, from the several concurrent needs the lowest unsatisfied need generates the strongest motivation. Despite its popularity, there has been little support for Maslow's needs hierarchy theory in the research, as need hierarchies seem to be individual and not universal. (McShane & Von Glinow 2008, pp. 135–138.)

Though the drive theory by Freud and Hull was supported by many empirical tests, it could not explain all behaviour, and there was a need for more studies on motivation. So far, there had been major theories explaining the motivations, but now several smaller theories rose to explain different aspects of the variable theme on motivations. These theories emphasized the active nature and mentality of humans. They focused on topics that are relevant for normal people in everyday life, causing the study of motivation to bias from physiology to psychology. (Reeve 2005, pp. 31–35.) Next, some of these theories from the twentieth century are examined.

Expectancy theory by Vroom

Expectancy theory by Vroom in 1964 introduces an idea of a relationship between effort, performance, and outcome valence. McShane & Von Glinow (2008, pp. 143-146) present that Vroom's theory is based on the three factors the motivation of an individual depends on: 1) effort-to-performance (E-to-P) expectancy 2) performance-to-outcome (P-to-O) expectancy, and 3) outcome valence. First, an individual has an expectancy about how they will perform with the effort they put in a task. Second, P-to-O is the perceived probability of a specific outcome with some level of performance. Third, the valence of an outcome represents the anticipation of how well the outcomes fit to an individual's needs and values.

In the expectancy theory, as McShane & Von Glinow (2008) described, all three factors affect the motivation of a worker and a decrease of one factor lowers the overall motivation. The theory fits well in practice, offering clear guidelines for employees to better performance in every three component. Example about improving motivation on E-to-P factor is to increase the belief that employees are capable of performing the job successfully by providing training, simpler tasks, and so on. On P-to-O factor the belief of good performance resulting valued outcomes is to be increased by measuring right things and connecting the rewards to the past performance. Regarding to outcome valences, rewards should be individual and valuable for the employees to provide motivation on that factor.

Goal-setting theory and feedback by Locke

According to McShane & Glinow (2008, pp. 146-148), Locke's goal setting theory among other research suggest six basic principles in goal setting: 1) Specific goals mo-

tivate more than “do your best” –goals, 2) goals must be relevant to the individual, 3) goals must be challenging enough, 4) but not too hard to keep individuals committed to reaching them, 5) goals can be adjusted in collaboration with the employees and supervisors, and 6) individuals should receive feedback on their behaviour. The theory about goal setting is based on the research made since the 1960s, thus having a strong empirical ground (Locke & Latham 2002).

Two points worth highlighting in goal-setting theory are specific goals and feedback. Locke & Latham (2002) described how various studies have confirmed that difficult and specific goals produce the best effort and performance. They also summarized the importance of feedback, as workers are not aware of their performance related to the goals if they do not receive feedback on their actions. McShane & Von Glinov (2008, pp. 148-149) described effective feedback being specific, relevant, timely, credible, and sufficiently frequent. As “do your best” goals are not effective, neither is “you are doing well” feedback as it does not relate the performance to the given goals. Feedback should be related to the individuals and their behaviour, and it should be given as soon as possible after the behaviour that is been evaluated. What is more, individuals value feedback from reliable sources the most. For example feedback from a company may solely be a major motivation to participate in a community. Some users value recognition from a well-known company more than recognition from peers (Jeppesen & Frederiksen 2006).

Intrinsic and extrinsic motivation by Deci and Ryan

Ryan and Deci (2000a) summarized the theory of intrinsic and extrinsic motivation describing the basic distinction between the two motivation types as follows. Intrinsic motivation is present in a situation where the activity itself is interesting and enjoyable to the person. Extrinsic motivation exists when a person adapts his or her behaviour in order to reach a specific outcome. In addition, Ryan & Deci state that recent research gives some new angles of view to the classic theory.

Intrinsically motivated person acts because of the fun or challenge offered by an activity, not in hope of rewards or fear of threats. According to Ryan and Deci (2000a) operant theory suggests all activities to be based on rewards. In the case of intrinsic motivation, the reward is seen to be the task itself. The reason for intrinsic motivation can be examined from two perspectives; 1) what makes particular tasks interesting; or 2) what generates the interest in an individual. In the Self-Determination Theory, Ryan and Deci focus on the human needs for autonomy, competence, and relatedness to a group. Other researchers have concentrated in their studies, for example, on task design.

Self-Determination Theory

Ryan and Deci (2000a; 2000b) presented in Self-Determination Theory that the sense of competence and autonomy are essential in creating high intrinsic motivation. They argue that enhancing the individual's feeling of competence, for instance with rewards, feedback, or communication with others, can increase intrinsic motivation. In contrast, research on motivations has revealed an interesting fact that extrinsic rewards, as well as threats, deadlines, directives, and competition, can also diminish intrinsic motivation. That is because people perceive external factors as controlling, limiting their freedom of choice and self-direction, which are key components of autonomy. Supporting the needs of autonomous work and feeling of competence is given as guideline by Ryan and Deci for providing motivating environments.

Under Self-Determination Theory Ryan and Deci (2000a; 2000b) included a theory of organismic integration, explaining how extrinsic motivation can vary in the scope of autonomy, and define four levels of integration. By integration they mean the extent of which an external regulation is adapted by an individual and turned towards an internal value. Extrinsic motivations on the first level are seen as tools for solely obtaining the outcome of an activity. On the second level an extrinsic motivation is still seen mostly as an external regulation, but some approval of the values it presents is perceived. On the third level, extrinsic motivation contains elements that the individual consciously identifies as valuable, and on the fourth level of integration an individual has fully adopted the goals and values of the extrinsic regulation, and behaves consistently with that regulation.

As described above, behavioural regulations of an extrinsic motivation can be adapted by an individual, and converged closer to self, forming a part of the individual's internal interest. It will not still be intrinsic motivation, but an integration of externally provided values. The level of integration can change over time, and the regulation can be promoted or demoted to any level at any time, depending on the interests of the individual.

4.2 Motivations to participate in online communities

The Web 2.0 phenomenon promoted the users from consumers to consumer-producers. But what actually drives people to participate? Why does someone spend time in online communities, and puts effort in contributing to them? Apparently, the motivations to participate vary depending on the purpose of the community (Moore & Serva 2007), so these questions are examined in this chapter in the context of photo-, collaborative intelligence, and other user-generated content communities.

First of all, not every user in social communities is an active contributor, not even every second of them. It has been studied, that the majority of the user-generated content in online communities is created by a small minority of users. The majority of the users are observed to be "lurkers" (Tedjamulia et al. 2005), who are just exploiting the content that is effortlessly available. This has been confirmed in various contexts, such

as Wikipedia, social networks, forums, and mailing lists (for example Panciera et al. 2009; Lampe et al. 2010).

Money, love, and glory, as Malone et al. (2010) presented, are the three major categories of motivations why people participate in online communities, or *collective intelligence systems*. An expectation about monetary reward is nowadays often an important factor of human motivation, urge for recognition is another, and enjoyment, socializing, and other altruistic motivations form the third category. With this categorization, extrinsic motivations can fall into any of the three categories, and intrinsic motivations fit into the love category. Presenting motivations that way is understandable, but it may lack many details and perspectives. That is why other studies that go more into the details in various contexts are presented next.

Five motivations of participation in a virtual community were described by Dholakia et al. (2004). First, people have an initial interest to 1) get or share information (*purposive value*). Second, people may want to 2) interact with other users ending up understanding more about themselves (*self-discovery*). Third, the motivations of 3) *maintaining interpersonal connectivity* and 4) *social enhancement* reflect the social benefits the user gains from the community. Last, the 5) *entertainment value* the users obtain from using the community may motivate to participate. These five factors have strong focus on functional and social issues, but “money” or “glory” does not have such an important role in this model. As stated earlier, the most important motivation varies depending on the type of the community. That will be examined more in this chapter.

Lampe et al. (2010) found that in an informational community the main motivation to start using the site is obvious, seeking information. Over time, the users could find other motivations trough receiving additional benefits, entertainment is one example. In the case study of Lampe et al., social interaction was not a strong motivator for participation in general. For some specific group of users it could still be important. Lampe et al. also found that social and cognitive factors were more important in predicting contributions than the usability of the site that did not form a barrier for contribution. However, Koh et al. (2007) proposed a different model where besides other motivations, the system usability and technical viability are, indeed, important factors affecting the usage of an online community.

In a question asking (Q&A) website focused on professional level mathematics, the main motivation to participate was reputation building (Tausczik & Pennebaker 2012). That demonstrates how the type of the community affects the motivations to participate. In this case, the site was professionally orientated, thus its members had a strong need for recognition to help building their careers.

Nov et al. (2009) divided motivations to participate in photo-sharing communities to four categories including enjoyment, commitment, self-development, and reputation building. They also emphasized the differences between the motivations of new and experienced users. While experienced users with self-development as a motivation are willing to contribute more, new users with same motivation may feel the opposite.

Motivations in a crowdsourcing photo site iStockphoto were studied by Brabham (2008). He argued that in such a site, social connections and community activities are not primary motivators, but the activity is a mix of work, hobby, and earning. The amateur photographers using the site most often seek for extra income and want to develop their skills as a photographer. Similar motivations were found in hyperlocal news content creation by Väätäjä (2012). Readers reported to be motivated to contribute photos by the opportunity to get a reward, entertainment, and the need for sharing information. Self-expression and participation to the news making activity were also mentioned by the readers as important motivations to participate.

Contribution habits also change over time. Nov et al. (2009) found out that users that had been active longer in a photo sharing community shared less photos, but instead contributed more photo-related meta information. Motivation for the habit change seemed to be related to increasing social connections through more time in the community and need for better content organization as the material quantity increases. Wohn et al. (2012) found that the users can also develop a habit of participating, which is a non-conscious motivation for activities. It applies usually on less cognitively demanding tasks, such as reading and social messaging, but it cannot predict contributing. Also in collaborative science projects the motivations of the volunteers change from egoism to collectivism and altruism during the participation to collaborative projects (Rotman et al. 2012).

Carpenter (2011) put together that in crowdsourcing the important motivations are mainly extrinsic, and pointing out the benefits for participating is a good starting point to motivate a crowd. According to Carpenter, being able to make a notable difference in the environment and achieving rewards are important sources of motivation in crowdsourcing initiatives. A crowd can also be socially motivated by interaction with others with similar interests, but in cases with highly valuable prizes the social motivation does not have a role. Carpenter states that efficacy and learning are a natural source of motivation, as people like to solve problems and see the impact of their work. The process of doing is actually more interesting than the outcome, he explains.

In collective intelligence systems it is important to realize different types of participants, and their motivations. Rotman et al. (2012) studied citizen-science projects and highlighted the differences between the groups of volunteers and scientists. Volunteers valued similarly four categories of motivation: 1) getting benefits for self and 2) for the whole group of volunteers, 3) helping the scientists in their work, and also 4) acting for the common good. The scientists, in contrast, valued significantly less the collectivistic benefit of the activity for all scientists, and saw the volunteers only as a tool for data gathering. The scientists should have understood the motivations of the volunteers, and keep them engaged with a proper acknowledgement of their work. Important factors for motivating participation were found to be the timing and consistency of information and feedback, highlighting the use of the collected data, and the locality of the projects. Also creating synergy between networks of different people should have been encouraged more. Finding the right people to participate in projects would be beneficial to the suc-

cess. Matching the interests of the crowd workers would lead to higher motivated participation. Rotman et al. conclude that breaking huge science projects into smaller and simpler tasks that are easier to understand would promote the project in a right way and lower the barrier for participation.

The basic principles of the motivation theories presented earlier can be clearly identified in different online communities. For example, knowing the variety of motivations of the crowd and delivering appropriate feedback are important issues in creating and keeping alive an online community.

Studies on motivations to participate in online communities show that communities have similarities and differences. Seeking or sharing information is a common factor in almost all communities. Social relations between the users are naturally a part of many communities, but there are also communities that concentrate solely on the functionality. The motivations of the users are evolving, depending on the type of the community, the role of the user, and the phase of the membership. Various intentions to build a comprehensive model on motivations to participate in online communities exist. It can be observed that the more uniform model is intended to build, the more imprecise and coarse the model tends to be. In other words, it is challenging to include all types of communities within a single motivational model.

4.3 Approaches to promote participation

How an individual can be motivated to work and participate in activities? In this section, various approaches on motivating people are presented. The topic is discussed in the context of online communities where participation is the most important activity, because without participation no communities would exist.

Implications for designing virtual communities that motivate to participate were proposed by Lu et al. (2011). First of all, a community should have good usability by offering a decent technological quality of service. Second, finding information should be made easy through effective content structure and advanced search functionality. According to Lu et al., these implications offer a more enjoyable experience and increase sense of belonging, thus motivating participation. High-quality and reliable information system can be seen as a precondition for motivation; even if it may not create motivations for participation on its own, the lack of it can easily decrease motivations that exist for other reasons.

A guideline by Lampe et al. (2010) for keeping up the user activity is not to presume only certain intentions of using the community, but support multiple use purposes the users develop during their stay and over time. With this approach the users are not limited to the activities anticipated by the community administrators, but are allowed the use that springs from their self. As described in the previous chapter, greater autonomy provides space for more intrinsic motivation.

Studying an online question answering forum, Tausczik & Pennebaker (2012) argued that among the contributions which had comments, negative comments motivated

the most to contribute more. This is because disagreement in the comments often expressed that the question asker had taken the answer seriously, even if it was not helpful. The users need this kind of acknowledgement of the performed actions to get a feeling of being important and stay motivated. An implication for design in online environment is to provide variable options for giving and receiving feedback, both positive and constructive.

Tausczik & Pennebaker (2012) also confirmed in their study that scoring contributions can be used to encourage participation. They found that the users who received higher scores on their contributed answers continued adding more answers with a greater probability than those whose answers were downvoted. They propose that in activities with little direct benefits, providing social benefits such as reputation and connection with other users would be important.

Support for interaction between the users is obviously a crucial factor in online communities. Lu et al. (2011) suggest implementing techniques that are already used in existing social networks. For example automatic following of the friend network, notifications about important events, and specifying the types of connections between the users are this type of features. With these implications an online community could better engage its users to a long term commitment.

Persuasive technology

Fogg (2003) focused on the concept of persuasive technology, which concerns the influence the technology has to its users. Among other topics, Fogg described that the perceived sociability of a computer outlines its impact to the users. The main approaches that can be used in creating sociability to computers are artificially representing physical cues, modelling psychological properties, using human language skilfully, applying principles of social dynamics, and making use of social roles.

Physical attractiveness, use of human-like characters, use of language, and psychological aspects play main role on how a computer affects its users. Fogg presents study results about how attractive hardware or software has more impact on users than unattractive technology. For example, if human faces are represented, they should be attractive to promote human cooperation with the system. Language is also a key element in user interfaces, and skilful use of it can make the user experience more engaging and motivating. Use of familiar, in some cases even informal language can increase the users' commitment towards the software.

These are some of the affecting factors Fogg (2003) discussed in his book. Moreover, persuasiveness in technology design consists of obeying social rules of communication, adopting social roles, and other psychological and social factors that can be modelled in computer systems.

Gamification

Gamification is a term used to represent "the use of video game elements in non-gaming systems to improve user experience" (Deterding et al. 2011). These elements can be, for

example, points, badges, levels, and leaderboards, which are used in games to indicate success, progress, and achievements. The term gamification is novel, being used widely since year 2010 (Deterding et al. 2011), and the whole concept of gamification has been trending only in the past few years.

Despite of some successes, the whole concept of gamification has received criticism. According to Nicholson (2012), implementing a scoring system to a non-interesting activity is an example of meaningless gamification. In contrast, design should be aimed towards meaningful gamification, where the objective is not only to introduce scoring systems on top of an existing activity, but to modify the activity itself to be more playful, and therefore more interesting.

Nicholson makes a difference between game and play, where play is a game setting without a scoring system. According to him, playfulness or "playification" is a better objective than gamification in a meaningless sense. When users have good game-like experiences on tasks in a non-game environment, the organization behind the application will have long-term benefits in form of deeper engagement. Deterding et al. (2011) are in the same school when defining the term "gamification", proposing that "gameful" phenomena would be complementary to "playful" phenomena in design.

Achievements and badges

The effect of "traditional gamification", where game elements are added afterwards to an existing non-game context, on motivations and user experience was tested by Montola et al. (2009). In their study setup, achievements were added to a multiplatform photo sharing service. Their results show that achievements provoked different reactions, from confusion to moderately increased motivation. On average, achievements had little effect on the perceptions of the users, but were seen as a feature that could be worthwhile for at least someone. Zachary et al. (2011) studied a mobile application with achievements in the context of student orientation event, and had promising results of their motivating value. All but one participant of their sample of 26 students reported that the achievements motivated them to explore the event premises and perform actions they would not have done without them. Zachary et al. emphasize how achievements should be designed to support the functionality and goals of the application, not to restrict them. These results show how the suitability of achievements depends on the application and the context of use, and should be designed to support the desirable activities and outcomes.

Virtual badges, a mechanism to represent achievements, were studied in the context of an online news community by Jones and Altadonna (2012). They concluded that badges are a feature newsrooms can try to use for steering a community to fit in its own purposes. They did not find strong evidence for the hypothesis that different badge owners at the beginning of a commenting thread would affect the number of replies accumulated. There were only indications that threads started by a user with a moderator badge were shorter than average, and threads started by a user with a status of network-moderator were longer than average. Apparently, badges somehow affected the moti-

vations of the commenters, and it is worth noticing that some of the most active and popular users had, most likely, opted out of the whole badge system, thus not having any badges on their user profiles.

More studies on badges and other interface elements that indicate content reliability and their effect on user perceptions and contributing behaviour were conducted by Kim and Sundar (2011). In 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 did promote contribution.

Antin and Churchill (2011) present five functions for badges: goal setting, instruction, reputation, status/affirmation, and group identification. When implementing a badge system to an online community, the desired roles should be considered and design the system to represent those roles for the target audience.

Non-competitive settings

Deiml-Seibt et al. (2009) presented an experimental conversational user profile, where activities and user statuses in an online community are represented verbally. In their approach, no rankings or other competitive elements are implemented. Instead, every user profile includes an automatically generated textual description. The text depicts the user's recent activity history and status in the community. The solution tries to overcome the problem of user rankings where few users will reach the highest levels of appreciation. This challenge may have a discouraging effect on the rest of the users who are not reaching a high status despite their effort. In a preliminary study, Deiml-Seibt et al. (2009) found conversational user profiles promising. The number of activities the users performed in the community increased, at least temporarily, and the users also reported mostly positive perceptions about the new functionality.

Communicating the benefits of contributing can have positive or negative effects on participation, depending on the manner it is done. Beenen et al. (2004) suggested that informing about the benefits of contributing can actually have a demotivating effect by restricting the anticipated perceptions about possible benefits. They used a textual approach delivering the information in email messages in order to motivate the email receivers to participate to an online community.

In comparison, Rashid et al. (2006) tested a graphical mechanism to display cues about participation benefits. They came to a conclusion that using smileys indicating the value of a contribution for other users increased the motivation for contribution. More in detail, the effect was greatest when benefits for a group of users similar to the contributing user were displayed, and there was no effect when benefits for self (for the user) were indicated. They stated that their "more integrated and subtle manner" comparing to the approach of Beenen et al. to present the benefits confirmed that showing the value of a contribution can indeed increase the intention to contribute.

Summary

Motivation means the forces that affect in a person to be moved to do something. A wider understanding on the topic through research has been achieved not earlier than in the twentieth century. The modern motivation theories picture the several perspectives of the complex systems of human motivation.

The theory of intrinsic and extrinsic motivations is relevant in the context of participatory journalism. Reader reporters usually have a need for self-development, but they also value monetary rewards. An effective goal-setting is a manner for motivating participation that can be realized in designing reader reporter assignments.

In online communities, the type of the community and the user role affects the motivations to participate. The motivations also change over time. In addition to the functional needs for getting and sharing information, social benefits and entertainment value are emphasized in the motivational models developed by various researchers. The quality factors of the information systems, such as usability, also affect the motivations to participate at some level. The motivations of the online users should be recognized, to be able to offer a good user experience. Still it is not recommended to restrict the use of an online community to certain purposes only. Over time, the users may find alternative ways of using the community and restricting the autonomy of an individual may result to a lower motivation.

Gamification is an approach where video game elements are added to a non-gaming activity to motivate participation. The model may work in some contexts, but it also has challenges. Pursuing rewards and honours, the users may actually perform unwanted activities. In a large community, it is hard to reach the top in the rankings. These factors may demotivate the majority of the users.

5 SUMMARY OF THE THEORY AND RESEARCH QUESTIONS

User-generated content

User-generated content (UGC) is photographic, video, or textual material produced by the users of an internet service. UGC is widely used by newsrooms to augment the news coverage and to activate the reader community. UGC can be cost-effective means for the newsroom to collect material for creating news stories.

Reliability of information is an important factor in news. Allowing readers to participate with their material is seen as a threat by some journalists. The quality of user-generated content is predicted to be low, and moderation demands resources. In spite of these drawbacks, user-generated content is often superior in quantity over professional news content. The quality also tends to be decent enough for the purposes of a newsroom. Therefore, it has been taken widely in use by many newsrooms in the past few years.

Content quality

Quality is the measure of excellence of something. Quality is a construct of multiple dimensions, and always relative to something. Data quality is defined to be the fitness of the content for its use. Individuals have different needs, so the perception of quality tends to be highly subjective. In the case of news journalism, meeting the news criteria stands for one dimension of content quality.

Online Q&A sites have been studied and models for finding high quality contributions have been developed by various researchers. Frameworks for revealing high quality content consist of multidimensional analysis of various factors, such as the linguistics of the content and the authority of the source. Promising, but also contradictive results have been achieved.

Feedback mechanisms have been studied and some suggestions for motivating the users to participate and contribute have been made. Adding metadata to comments would make them more useful, increasing the perceived quality. Rating with stars is observed to be used equally with the thumbs up/down mechanism, using only the extreme values. Recognisability of the rating mechanism affects how often it is used.

Motivation theories

Motivation theories have been evolved since the seventeenth century. From the primitive theories of instinct and drive, more specific theories on motivation have been constructed. From these theories, Expectancy Theory, Goal-setting Theory, and the theory of intrinsic and extrinsic motivation were introduced.

Motivations to participate in online communities vary depending on the type of the community and the role of the user. In professional oriented communities reputation building is an important motivation. In photo sharing communities, the motivations of self-development and enjoyment affect to the participation. The habits of participation also change over time. A challenge for online community administrators is to recognize the motivations of their users, but not restrict the types of use. Study results point out that for better user satisfaction the users should be able to fulfil their creative ideas on how to use the community.

The starting point for this study

The starting point for this study is illustrated in Figure 1. In the current situation, the reader reporters are activated by the newsroom with occasional photo shooting assignments. The reader reporters can comment the content in the website, but the content is not explicitly evaluated. Feedback on contributions is delivered as monetary rewards from the photos published in a print. In many cases, there is a lack of feedback. That may diminish the reader reporters' motivations to participate. What is more, reader reporters cannot develop their skills, and the perceptions of the newsroom requirements take long time to evolve.

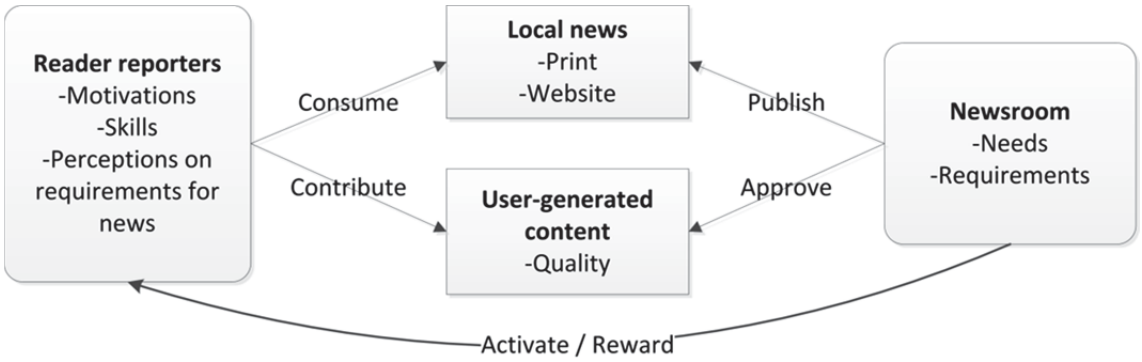

Figure 1. *A framework of participatory journalism in the starting point of this study.*

A step towards increasing the quality of user-generated content in participatory journalism is to create an online community for reader reporters. 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. The enhanced model is illustrated in Figure 2.

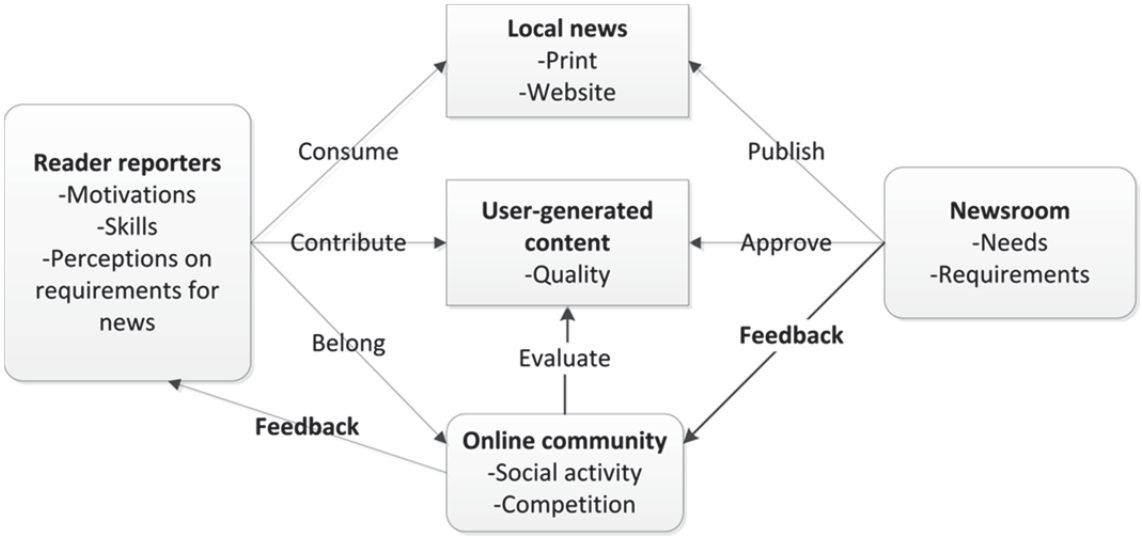

Figure 2. *A framework of participatory journalism enhanced with an online community.*

The research questions

Quality is a widespread term, and needs to be defined in each context. There is no stabilized definition of quality in the context of user-generated news content. Therefore, dimensions of quality need to be examined for this purpose. The first research question covers the definition for quality.

RQ 1: What is user-generated content quality in news journalism?

Among the newsrooms, there is a need for mechanisms to ensure the quality of user-generated content. The suitability of the existing evaluation mechanisms for the context of user-generated news material should be examined. There is little research that compares existing feedback mechanisms. The second research question focuses on the feedback mechanisms.

RQ 2: What mechanisms are currently used to evaluate online content quality and how suitable they are to be used in participatory journalism?

An online community could provide a learning platform for reader reporters. The suitability of gamification features in the reader reporter activity should be investigated. The third research question covers the reader reporters' preferences on feedback, self-development, and participation on a reader reporter online community.

RQ 3: How to motivate a crowd to generate content of desired quality and promote participation to an online community?

6 STUDY 1 – WEBSITE REVIEW

The goal of this study was to find out what evaluation mechanisms are used on websites that contain user-generated content. Thurman (2008) reviewed for types of UGC on news sites and Tomaiuolo (2009) looked for the roles of UGC. This study focused on the current trends in evaluation and feedback mechanisms.

6.1 Research method

Benchmarking method in an organizational context is defined to be comparing the operations of a company to similar organizations, aiming to improve own organization by finding the strengths and best practices of other organizations (Ansell et al. 2003). Benchmarking was selected to this study to attain a picture of the existing feedback mechanisms, and to be able to exploit the existing elements when planning evaluation and feedback mechanisms for reader reporters.

18 news portals and 13 other UGC-driven sites were benchmarked for content evaluation mechanisms. Functionalities for evaluating content or users were inspected in the study. For every mechanism that was found, the following was examined. What is being evaluated? Is the evaluated content UGC? Who evaluates the content? For who is the evaluation made? The non-news sites included in the inspection are listed in Table 1.

Table 1. *Other than news sites included in the benchmarking.*

Website	Address	Source
Amazon	www.amazon.com	* (Ghosh & McAfee 2011)
Digg	www.digg.com	(Tomaiuolo 2009; Ghosh 2011)
eBay	www.ebay.com	* (Mishra 2010)
Flickr	www.flickr.com	* (Bradshaw & Rohumaa 2011)
Huuto.net	www.huuto.net	**
MechanicalTurk	www.mturk.com	(Kittur et al. 2008)
Reddit	www.reddit.com	(Tomaiuolo 2009)
Slashdot	slashdot.org	(Ghosh & McAfee 2011)
Topix	www.topix.com	(Tomaiuolo 2009)
Wikipedia	www.wikipedia.org	* (Ghosh & McAfee 2011; Tausczik & Pennebaker 2012)
Vimeo	www.vimeo.com	*
Yahoo answers	answers.yahoo.com	Ghosh & McAfee 2011
Youtube	www.youtube.com	* (Bradshaw & Rohumaa 2011)

* A widely known web service

** A well-known Finnish online auction site (Taloustutkimus 2008; Sanoma 2012)

The websites were selected for the review mainly from earlier UGC related research papers. To be included to the review, the website had to contain at least one other evaluation feature than the common features “social share” and “flagging”. Websites with user-generated content in an important role were preferred in the selection. Content analysis of the websites was made on 12th June 2012. The news sites that were included in the inspection are listed in Table 2.

Table 2. *Online news sites included in the benchmarking.*

Website	Address	Source
Allvoices	www.allvoices.com	(Tomaiuolo 2009)
BBC Have Your Say	www.bbc.co.uk/news/have_your_say	(Väätäjä et al. 2011b; Tomaiuolo 2009)
CNN iReport	ireport.cnn.com	(Väätäjä et al. 2011b; Tomaiuolo 2009)
Digital Journal	www.digitaljournal.com/	international.ohmynews.com
Express	www.express.co.uk	(Bradshaw & Rohumaa 2011)
Huffington Post	www.huffingtonpost.com/	(Tomaiuolo 2009; Ghosh & McAfee 2011)
iTowns (Hartford Courant)	www.courant.com/community	(Tomaiuolo 2009)
Journal Community (The Wall Street Journal)	online.wsj.com/community	(Tomaiuolo 2009)
Mail Online	dailymail.co.uk	(Bradshaw & Rohumaa 2011)
Newsvine	www.newsvine.com	(Tomaiuolo 2009)
NowPublic	www.nowpublic.com	(Tomaiuolo 2009)
OhMyNews International	internatioal.ohmynews.com	(Tomaiuolo 2009)
The Telegraph	www.telegraph.co.uk	(Bradshaw & Rohumaa 2011)
The Guardian Comment is Free (U.K.)	www.guardian.co.uk/commentisfree	(Tomaiuolo 2009)
The Sun	www.thesun.co.uk	(Bradshaw & Rohumaa 2011)
Time	www.time.com	(Dijck 2009)
Washington Times	www.washingtontimes.com	(Tomaiuolo 2009)
Your Arlington	www.yourarlington.com	(Tomaiuolo 2009)

Online photo and video communities were in interest, as reader reporter activity is firmly based on publishing readers’ photos online and in a print. In online shopping sites the reliability of the users is evaluated, therefore the two big international shopping sites, Amazon and eBay, and the biggest Finnish site, Huuto.net, were included in the review.

6.2 Results

The evaluation mechanisms found on the inspected websites were divided in 13 categories. Seven of the mechanisms were used for evaluating users, and six mechanisms were for evaluating content. The content evaluation mechanisms found in the websites are listed in Table 3.

Table 3. *Evaluation mechanisms found in the site review.*

Mechanism	Examples
Badges	Users have virtual badges attached to their user profile implicating successes and/or milestones in the usage of the service.
Descriptive classifying	Content can be classified by associating descriptive text to it, e.g. tags.
External authentication	Users' identity is authenticated via external service.
Feedback profile	Users have a profile page containing feedback given by other users.
Flag	Content can be marked as inappropriate for someone to take action on it, e.g. "Report spam".
Follow/subscribe/ favourite	Users can subscribe to a source, giving an easy access to the content it produces later.
Other scale rating	Content can be rated using a more detailed scale than just positive or negative, e.g. 1–5 stars.
Points	Users earn points from activities and the users can be ranked based on them.
Positive rating	Users can give a positive rating to a piece of content, for example by clicking a "like" button.
Positive-Negative rating	Content can be given positive or negative rating, for instance by clicking "arrow up" or "arrow down".
Qualifications	Users' capabilities are examined and proved with a test.
Share (with count)	Content can be shared directly from links or buttons to social media or email. Share count is visible to all users.
Statistics	Statistics about the usage is visible to other users. Top lists may be generated based on them.

Mechanism categories for evaluating users were Badges, External authentication, Feedback profile, Follow/Subscribe/Favourite, Points, Qualifications, and Statistics. The category of badges includes virtual badges and achievements the users obtain, based on the activity on the site. An example of badges in Huffington Post website is seen in Figure 3, and more examples of the evaluation mechanisms in Appendix E.

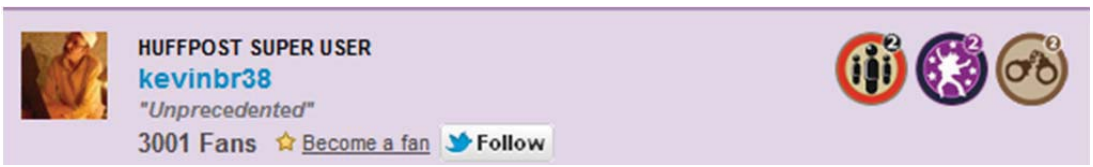

Figure 3. *Status badges in Huffington Post commentary section.*

"External authentication" and "Feedback profile" include the practices used in online shopping sites that measure the trustworthiness of a user. Verification is done by proving the user's personality or making the earlier actions visible for other users. Points and Statistics are both related to ranking the users numerically, based on their behaviour on the site. These mechanisms make generating top-lists possible. Statistical data was in many cases also displayed in a non-competitive way, giving a quick look over the user's overall activity, for example in the video community Vimeo (Figure 4).

Possibilities of subscribing, following, adding to favourites or connecting with other users formed one category. These networking features were important on the social community websites, such as Huffington post, Newsvine, Vimeo, YouTube, and Flickr. The number of followers, subscribers, or contacts was displayed in many sites as a measure of popularity, as seen in Figure 4.

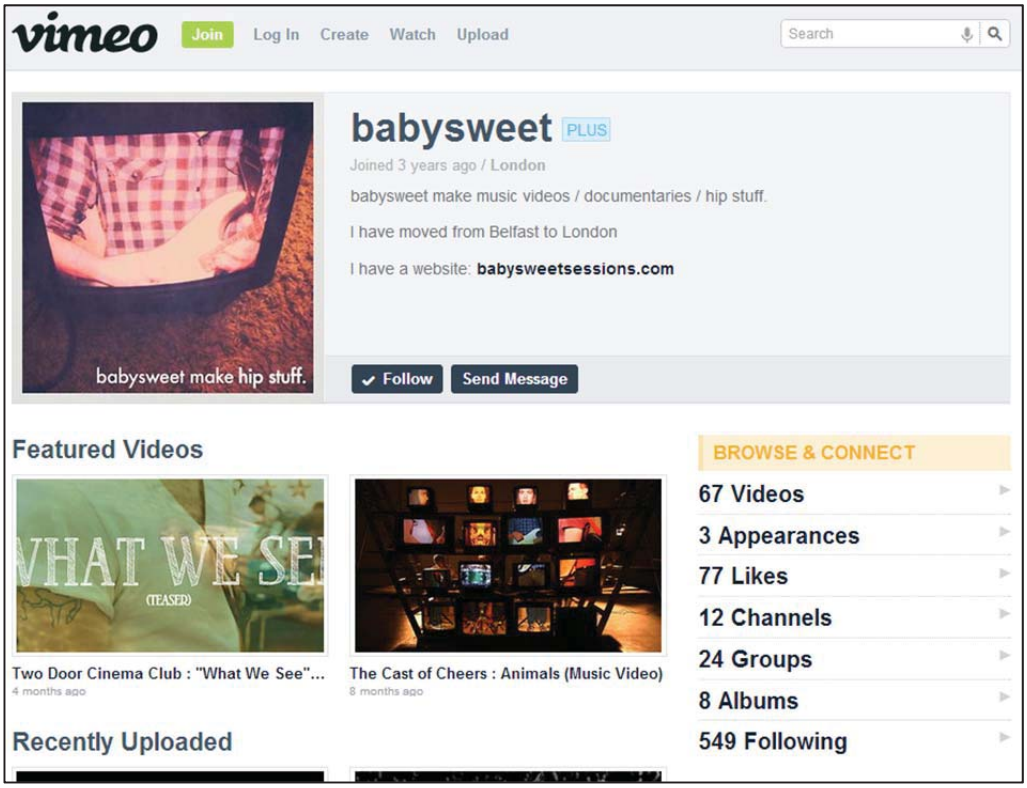

Figure 4. *A profile page on Vimeo (www.vimeo.com/babysweet, accessed 31th December 2012).*

Qualifications category included only one implementation. In crowdsourcing micro-task site, Mechanical Turk, the workers can prove their competence and gain access to certain type of work tasks by passing simple qualification tests. A similar approach was adopted in Huffington Post, where the trusted users gained some extra privileges along with the badges they earned by performing administrative tasks successfully.

Benchmarking table is in Appendix F. Huffington Post, Newsvine and Yahoo answers had most different evaluation features implemented, from eight categories each,

while Mechanical Turk had only one and Your Arlington two types of evaluation mechanisms in use. On average, the sites contained evaluation mechanisms from 4.6 categories (Md=5).

Flagging was the most common feature, appearing in 74% (23/31) of all sites. Displaying the number of shares was also common on all sites (68% 21/31) and on news sites (89% 16/18). These mechanisms were used to evaluate content (see Table 4). The least used mechanism for evaluating content was descriptive classifying (13% 4/31). The frequency of all evaluation mechanisms is presented in Figure 5.

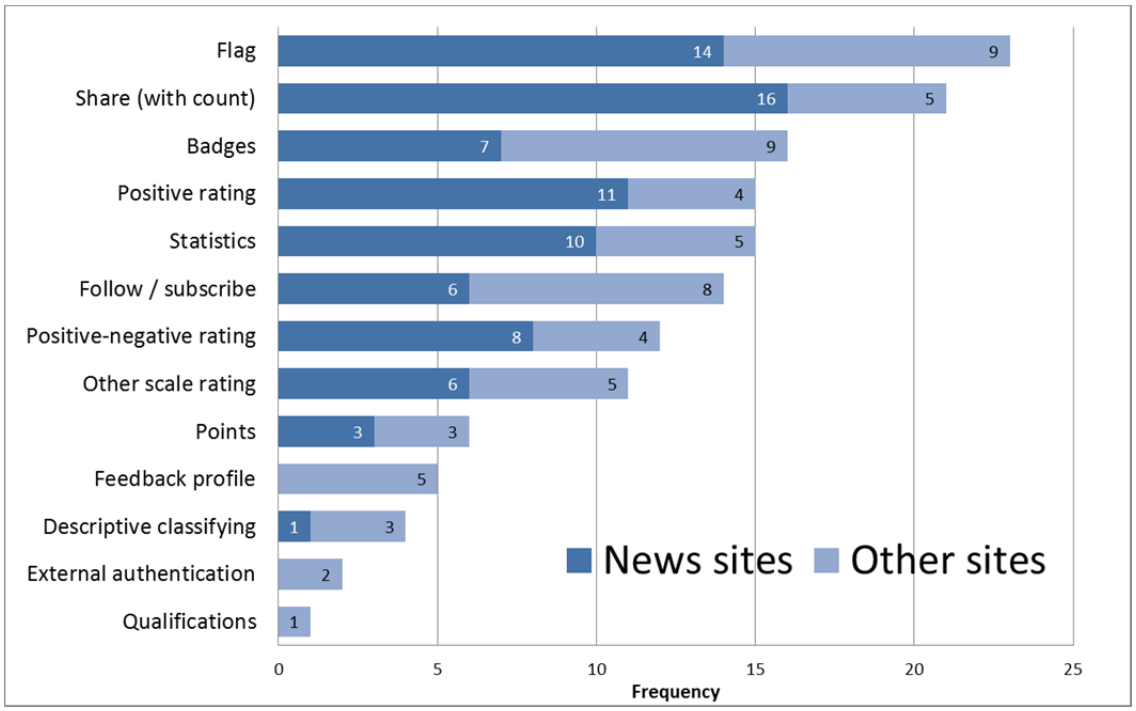

Figure 5. *Evaluation mechanisms found on 31 inspected websites.*

The most common features for evaluating users were badges (52% 16/31), statistics (48% 15/31), and follow/subscribe/favourite (45% 14/31). Least implementations for user evaluation purposes were in categories “external authentication” (7% 2/31) and “qualifications” (3% 1/31).

Displaying the number of shares was more common in news sites (89% 16/18) than in other sites (39% 5/13). Similarly, positive rating was used more in news sites (61% 11/18) than in other sites (31% 4/13). Social features, badges and following / subscribing were implemented more often in other sites (69% 9/13 and 62% 8/13) than in news sites (39% 7/18 and 33% 6/18).

As seen in Table 4, badges, statistics, and points were used only for evaluating users. Some of the content evaluation mechanisms were used quite consistently for certain purposes, such as flagging for comments (83% 19/23), share for stories (86% 18/21), and positive rating for comments (60% 9/15).

Table 4. *The object of the evaluation mechanism.*
Frequency among the websites where the mechanism was implemented.
(A single site could contain multiple use cases of the same mechanism.)

Mechanism	User is evaluated	Story is evaluated	Comment is evaluated	Other (e.g. photo or video)
Flag	-	8.7% 2/23	82.6% 19/23	43,5% 10/23
Share (with count)	-	85.7% 18/21	4.8% 1/21	23.8% 5/21
Badges	100.0% 16/16	-	-	-
Positive rating	-	26.7% 4/15	60.0% 9/15	13.3% 2/15
Statistics	100.0% 15/15	-	-	-
Follow / subscribe / favourite	100.0% 14/14	21.4% 3/14	-	14.3% 2/14
Positive-negative rating	-	41.7% 5/12	41.7% 5/12	33.3% 4/12
Other scale rating	9.1% 1/11	54.5% 6/11	9.1% 1/11	63.6% 7/11
Points	100.0% 6/6	-	-	-
Feedback profile	100.0% 5/5	20.0% 1/5	-	-
Descriptive classifying	25.0% 1/4	50.0% 2/4	50.0% 2/4	-
External authentication	100.0% 2/2	-	-	-
Qualifications	100.0% 1/1	-	-	-

Table 5 summarizes if the users had to register and sign in to be able to use the evaluation mechanisms, or if the evaluation was made automatically by the system. It was found that sharing features were available without registration in all of the reviewed websites where share count was displayed. Respectively, following or subscribing was not possible without registration, but one example of having a feedback profile without registering was found. In Wikipedia, the system adds a discussion page to every story and every user, including the users that are not registered. In case of unregistered users, IP-addresses are used as identifiers. The problem is that IP-addresses are not static. Therefore the feedback cannot always be allocated to the right user.

Flagging and rating with different scales were restricted to registered users in approximately half of the websites. Three of the sites (The Telegraph, Time, Washington Times) used an external commentary platform (Disqus) and in one case (iTowns) positive rating required a Facebook account.

In addition, the target audiences of the evaluations were inspected. It was found that flagging was always made for moderators to inspect the flagged content. In other cases it was hard to define a specific target population, but the evaluations were useful for all users of the community, both the regular users and the administrators. An exception was the system of qualifications that was a tool for the work requesters in the micro-task platform Mechanical Turk.

Table 5. *Common usage of the evaluation mechanisms: What is the source of evaluation with each mechanism? (A single site could contain multiple options)*

Mechanism	Any user can evaluate	Registered users can evaluate	System evaluates	Other source
Flag	52.2% 12/23	47.8% 11/23	-	-
Share (with count)	100.0% 21/21	-	-	-
Badges	-	-	100.0% 16/16	-
Positive rating	33.3% 5/15	66.7% 10/15	-	-
Statistics	-	-	100.0% 15/15	-
Follow / subscribe	-	100.0% 14/14	-	-
Positive-negative rating	33.3% 4/12	66.7% 8/12	-	-
Other scale rating	45.5% 5/11	45.5% 5/11	18.2% 2/11	-
Points	-	-	100.0% 6/6	-
Descriptive classifying	50.0% 2/4	50.0% 2/4	-	-
Feedback profile	20.0% 1/5	80.0% 4/5	20.0% 1/5	-
External authentication	-	-	-	100.0% 2/2
Qualifications	-	-	100.0% 1/1	-

6.3 Discussion

Flagging was the most common mechanism to evaluate user-generated content, and it was commonly used in commentary sections. The convention whether the flagging feature could be used by any user or by registered users only, was split in half. The reasons for this may include some of the following. Allowing anyone to flag lowers the barrier to participate in the moderating process. This may expose low-quality content faster, but accordingly raise the risk of getting false flags from anonymous users. Requiring registration to use content flagging may increase flagging accuracy and user commitment to the site, but as a downside an occasional user may not create an account just for being able to flag an inappropriate comment they face while surfing on the site, so the low-quality content remains on the site longer.

A notable result was that a majority of all revised sites made use of showing the count of page shares in social media. Social media services offer various set of standard buttons and widgets to be used on websites and the news portals have taken them into active use. A downside of these features was noted in the site review: making use of share elements can result a scattered and inconsistent page layout. Adding the elements afterwards to the original site may be one cause for the disorder.

Positive rating and positive-negative rating were commonly used for evaluating comments. The mechanisms are easy to understand and use, as they need only a single click and the effect is immediately visible. A slight majority of the sites required registration to use these features. Same reflection could be made as with the flagging feature, both approaches regarding the requirement of registration have some pros and cons. While rating without registration could encourage users to evaluate more, requiring registration may higher the evaluation credibility as anonymity is somehow limited.

Badges were present on many of the non-news sites and on some news sites. That indicates how the news sites have been adopting the badges from other social communities trying to attract and motivate the users in their own communities.

Points and statistics can both be used to rank users. Statistics are obtained automatically from the system and are often displayed in the user profile; about half of the sites made use of them. Points and leaderboards are a more deliberate approach to a competition between users, but they were only used in 6 of the 31 sites.

Evaluation by classifying content was an uncommon feature. The implementations of the feature varied, for example some of them needed only one click when other required several clicks to submit an evaluation. The easiness of use affects how the feature is adapted to active use. The possible complexity of this evaluation mechanism may be one of the reasons why it is not as widely implemented. No evidence of an extensive use of this feature was found on the websites where it was present.

In online shopping sites evaluating the credibility and reliability of a user is an important aspect, as monetary transactions are taking place. That is why there are various features in use to profile the users and make their reliability transparent. An example of such a feature is external authentication. The trustworthiness of a story is crucial for newsrooms in order to publish it as news. Therefore, UGC-driven news sites have implemented some mechanisms to evaluate the source, even if external authentication was not used in the reviewed news sites.

Micro-task site Mechanical Turk was the only site where qualifications were used, but there were also some derivative implementations. For example in Huffington Post, the community badges gave the users some additional privileges, such as ability to moderate other users' comments.

7 STUDY 2 – EXPLORATION OF QUALITY ATTRIBUTES BY AN INTERVIEW ANALYSIS

The aim was to find quality attributes and expressions that news editors and reader reporters use for describing readers' photos, to reveal dimensions of content quality in news context. A method of analysing interview data and quantifying the results was used to reveal the importance of different themes for the newsroom and reader reporters, as well as the proportions between them. The result can be used in designing quality evaluation mechanisms for online use.

7.1 Research method

Sanoma Kaupunkilehdet arranged a trial in 2011, in which a group of reader reporters received photo shooting assignments via text messages (Väätäjä et al. 2011b). Three news editors were interviewed on their experiences on the trial in June–October 2011. There were four interviews. First, Editor 1 and Editor 2 were interviewed individually in the middle of the trial. Then, after the trial, Editor 1 was interviewed individually and Editor 2 together with Editor 3. In the interviews the news editors described the content they received or would like to receive from their readers in various manners, so the interviews were seen as a suitable source for the purposes of this study.

Another trial was arranged by Sanoma Kaupunkilehdet in spring 2012 (see Ahvenainen 2013). A group of 104 reader reporters received photo shooting assignments via a mobile application called Scoopshot. In May 2012, all of the participants were sent a link to a questionnaire, and 17 responses were collected. The questionnaire included three open ended questions about quality. Descriptions for good readers' photos, stories, and videos were asked. These three questions were analysed in this study were 1) "In your opinion, what is a good reader's photo like? Describe freely." 2) "In your opinion, what is a good reader's story like? Describe freely." 3) "In your opinion, what is a good reader's video like? Describe freely."

From the 17 reader reporters who responded to the questionnaire, five volunteers were interviewed. In the interviews, the reader reporters talked a lot about the content they send to the newsroom, what made the interview data suitable for this study. The contents of the interviews offered an opportunity to get readers' perspective to the user-generated content quality.

The duration of the interviews with the reader reporters was about one hour. The interviewees age was between 26 and 53 years (Md=34). All of the interviewees had photography as a hobby, having photographing experience from a couple of years to several

decades. Together with Ahvenainen (2013), two of the five interviewees were identified as "hunters", who actively look for topics to shoot and send them to several media companies. Three of the interviewees were identified as "snappers", who take photos when a suitable topic happens to appear. The participation styles were adopted from Väätäjä (2012).

Interview analysis – News editors and reader reporters

The interviews with the news editors and the reader reporters were analysed separately, using in both cases the whole transcriptions of the interviews. The data from the interviews with the editors was analysed first. A data-driven qualitative data analysis method (Tuomi & Sarajärvi 2002, pp. 97–98) was adapted for the purposes of this study. The results are based on the interview data, and no predefined taxonomies were used in the coding. All expressions the interviewees used to describe the user-generated content, its properties, and quality were coded. Duplicate expressions were included, irrespective of their appearance in a single statement or in different statements. In addition to In Vivo coding (Saldaña 2009, pp.74–77), the interviewees' statements were interpreted and the meaning behind the expressions was listed. Examples of the source interpretation are found in Table 6.

Table 6. *Interpreting the descriptive expressions from editors' statements.*

Statement	Interpretation	Listed expression
"Yes. Uniqueness is one, absolutely a criterion, why we have these photos." [1]	Editor uses an adjective while describing the usage of reader reporters' photos.	Unique+
"And on the whole, the kind of photos, that we cannot get anywhere else than from our readers." [2]	Editor describes reader reporters' photos being something hard to obtain by any other means.	Unique+
"That we have stuff that others do not have." [3]	Editor describes material being of rare quality.	Unique+
"… they do not need to be always the same ones, as we have already got bored, with some of them..." [4]	Editor refers to reader reporters' material that represents the reporter.	Boring-

A practice of Magnitude and Evaluation coding (Saldaña 2009, pp. 58–61; 97–101) was applied in defining the nature of the expression in the context. A plus sign was added after positive expressions and a minus sign after negative ones. If the approach was not clear, no sign was added, and in cases where the stance could vary, both signs were added.

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[1] *"Niin. On se ainutlaatusuus yks, ehdottomasti kriteeri, miks meillä näit kuvia on." –V3*
[2] *"Ja siis ylipäätään sellasii kuvia että, joita me ei voitais saada muualta ku meiän lukijoilta." –V3*
[3] *"Et meil on kamaa mitä ei oo muilla." –V2*
[4] *"…eihän niitten tarvii olla aina ne samat, ollaanhan me nyt niihin itekki kyllästytty jo, osaan…" –V2*

When coding the interviews with the news editors, a collaborative coding practice (Saldaña 2009, pp. 27–28) was applied for more reliable interpretation. Two researchers went through the source material individually interpreting and listing the expressions the editors used for readers' material. After that, taking the observations of the two individual coding cycles into account, the codes were refined where necessary. The interviews with the reader reporters were coded only by the researcher.

Identical and similar codes were grouped. A common word was selected to describe the words in the group. After the first level grouping, the groups were categorized based on similarity and theme to second level groups. Further on, the formed categories were grouped to third level categories.

The data was quantified counting the frequency of each code. The frequency indicates the importance of the topic for the interviewees, as some topics were mentioned more often than others. The frequency by every interviewee was calculated for each first level group, so the cumulative frequency in higher-level categories could also be summed. In addition to the total frequency for each topic, the number of individual interviewees who mentioned the topic was marked.

The source material was in Finnish. The analysis was made and the results were in Finnish. The result categories, quality attributes, descriptive properties, and example quotes were translated into English by the researcher.

Questionnaire analysis

The participants in the questionnaire were 16 men and 1 woman, aged between 15 and 53 years (Md=26). Six of the 17 participants were students, and 3/17 had completed higher or lower university degree. The mobile application which was used in the assignment trial requires a smartphone, thus all of the participants owned one. The participants used their smartphones for multiple purposes, such as web-browsing, email, and social media. The participants were active photographers, 10/17 reported to shoot photos daily and 7/17 weekly. Eight of the seventeen participants indicated that they shoot videos at least weekly, 8/17 monthly, and 1/17 less than monthly.

The questionnaire answers were analysed with a method similar to the one used with the interviews. The aim was to make the results comparable. First, the expressions standing for good quality in the answers were grouped based on similarity, and a common word was picked to represent each group. Then the groups were categorized and major categories were formed. Finally, the frequency by each respondent for every topic was counted. As a result, a list of quality attribute categories and the amount of references to them in the questionnaire answers was discovered.

7.2 Results

This section presents the results gathered by analysing earlier interviews with three news editors and five reader reporters, and a questionnaire with 17 reader reporters.

Interviews with editors

Interviews with news editors were analysed for descriptions of user-generated content in the context of news journalism. Apart from quantified coding, general results were noted down.

One of the three editors explicitly mentioned that locality is the most important criterion when choosing photos to a print. Artistic qualities were referenced often, but were not seen as a requirement for publishing a reader's photo. Photos with good composition and other artistic remarks were obviously desired by the editors, but they understood that they cannot expect too much from non-professional photographers. Similarly, they did not raise an issue about the technical quality, as they said that a photo of something interesting and valuable is never left out of a print because of the technical properties.

The editors were enthusiastic about insightful and unique readers' photos. Getting more readers' photos of people was also mentioned as a goal they are still visioning about. In general, the editors saw readers' photos extremely valuable even if they were not meeting the definition of a good photo in every way; the content itself and the information it provided to the newsroom was realized as a priceless factor.

As a result of coding the descriptive expressions from the interviews with news editors, a total of 228 expressions were found from the source material. The expressions were primarily describing photos. After grouping and merging the similar, 74 different expressions were found, 54 of them positive, 15 negative and 5 neutral or ambiguous. Merged expressions were categorized to 22 subcategories and the further on to 7 major categories, see Table 7.

Descriptions for the created categories and their subcategories are presented in Table 8. The distribution of the original expressions is presented as a percentage, and the number of interviewees who mentioned the topic is also visible. News editors talked a lot about the news value of the readers' material, as nearly a third (32.5%) of the expressions concerned that theme. About one out of five expressions (21.9%) related to the uniqueness of the material. Technical qualities were referred the least (6.1% of the expressions).

Table 7. *Classification of the expressions from the newsroom interviews.*

Merged expressions		Category	Major category
Local+ Edition specific+	Territorial+ Targeted+	Locality	News value in hyperlocal news
News photo+ Tip-off+	Non-newslike+-	Newsworthiness	
Interesting+ Worth reading+	Initiates discussion+	Interestingness	
Actual+	Rapidly received+	Actuality	
Unique+ Special+ Creative+ Distinct+	Expected+ Original+ Exciting+ Boring-	Differentiation from other photos	Uniqueness
Obvious- Perspective+	Surprising+	Surprisingness	
Demanding to take+ Easy to take+	Taken with effort+	Demandingness	
Observation+	Insightful+	Includes a good observation	
Useful+ Printable+	Essential Ordered+	Usefulness for the newsroom	Usefulness
Includes additional information+	Includes information on the location+	Metadata	
Supports the story+ Identifiable+	Helps to picture the point+	Supportiveness	
Artistic+ Composed+ Wide-angled+ Detailed+	Special angle of view+ Photographically advanced+ Not special-	Photographical remarks	Photographical properties
Nice+ Atmospheric+-	Funny+ Bluffing+	Impression	
Nature photo- Buildings in the photo-	Children/Family portrait- Animal photo-	Undesired topics	Desired topics
Pictures people+	Snapshot+	Desired topics	
Trustworthy+ Suspicious- Authentic+	Arranged+ Copied-	Trustworthiness	Trustworthiness
Photographer as a selection criterion+ Of uniform quality+	Taken by an active photographer+	Source reliability	
Objective to have an influence	Learned+- Inappropriate-	Photographer's motives	
Technically advanced+	Technically low quality-	Technically advanced	Technical qualities
Low-resolution-	High-resolution+	High-resolution	
Bright+ Dark-	Blurred-	Clearness	
Taken with a mobile phone-	Taken with a camera+	Device	

Table 8. *Descriptions for major categories and their subcategories (newsroom).*

Categories (**major** and sub)	Description	Mentioned by (N=3)	% of 228 mentions
News value in hyperlocal news	Valuable for a newsroom in the progress of generating and publishing news stories on local topics.	**3/3**	**32.5%**
Locality	Identifiable with a specific district.	2/3	14.0%
Newsworthiness	Reveals information and can be used as a tip-off for news stories.	3/3	11.0%
Interestingness	Interests many people and initiates discussion.	3/3	5.3%
Actuality	Recent, pictures a current event.	3/3	2.6%
Uniqueness	Different, unique and extraordinary material that is hard or impossible to obtain from anywhere else.	**3/3**	**21.9%**
Differentiation from other photos	Some way different than the majority of the other photos. With a special point of view.	3/3	9.6%
Surprisingness	Different than expected, including unpredictable content.	3/3	6.1%
Demandingness to take	Requires time consuming effort from the photographer, for example reaching a place with a rough terrain.	2/3	4.8%
Includes a good observation	Points out details that are usually undiscovered.	1/3	1.3%
Usefulness	Material allocated for news, with additional information helping the newsroom to understand and make use of it.	**3/3**	**12.3%**
Usefulness for the newsroom	Fits the actual needs of the newsroom.	3/3	7.5%
Metadata	Includes additional information on the event or location in the photo.	2/3	3.5%
Supportiveness	Helps to communicate the essential point of the story, first to the newsroom and later on to the readers.	1/3	1.3%
Photographical properties	The photographical aspect and the impressiveness.	**3/3**	**10.5%**
Photographical remarks	Photographically advanced, composed using various photographical techniques and elements.	3/3	6.6%
Impression	Emotiveness of the photo.	3/3	3.9%
Desired topics	The topics that the newsroom consider appropriate and interesting for their publications.	**3/3**	**8.8%**
Undesired topics	Topics that are not needed by the newsroom. For example photos of nature and animals.	3/3	5.3%
Desired topics	Topics that are accepted by newsroom, for example pictures about people.	3/3	3.5%
Trustworthiness	It is distinguishable if the events in the photo are real, arranged or fake.	**2/3**	**7.9%**
Trustworthiness	The events in the photo can be judged to be authentic.	1/3	3.5%
Source reliability	The photographer is an active and known reader reporter.	2/3	3.1%
Photographer's motives	Photographer's motivations behind the contribution.	1/3	1.3%
Technical qualities	Technical properties of the photo.	**2/3**	**6.1%**
Technically advanced	High technical quality in general.	2/3	1.3%
High-resolution	High enough resolution for the print.	2/3	1.8%
Clearness	Well exposed and correctly focused.	2/3	1.8%
Device	Whether the photo is taken with a mobile phone or with a proper camera.	1/3	1.3%

Interviews with reader reporters

Reader reporters saw participating in local news creation by sending photos, stories, and videos as a channel to have an influence on the society. Especially the reporters with more experience thought that the effect their material has to the environment and people is the most important outcome of the reader reporter activity. For example getting a reward from published photos was not that important for the experienced reader reporters.

In addition to being influential, readers' material was seen as entertaining and informative. One of the reader reporters expressed that readers' material is packed with feelings, and its purpose is to tell a personal story and give topics for editors to write wider articles.

In the process of exploring the reader reporters' statements describing readers' material, a total of 373 expressions were found. Merging identical and similar, 86 expressions were left for the categorization. 73 of them were positive, 7 negative, and 6 neutral or ambiguous (Table 9). The majority of the expressions were describing photos (70.0%). Photo expressions formed 14 subcategories and four major categories. Other expressions formed only subcategories (Tables 10–13).

Table 9. *The frequency of expressions describing pictures, stories, and video emerged from the reader reporters' interviews.*

	Expressions total	Different expressions after merging	Positive expressions	Negative expressions	Neutral or ambiguous expressions
Picture	261	52	43	5	4
Story	47	15	13	1	1
Video	65	19	17	1	1
Total	373	86	73	7	6

Table 10. *Classification of the reader reporters' expressions describing photos.*

Expressions		Category	Major category
About an event+ Animal photo+ Nature photo+ Pictures an inorganic object+	People / children in the photo+ Landscape+	Desired topics	Photographical properties
Good composition+ Good angle+ Professional+	Artistic photo+ Includes an eye-catcher+	Photographical properties	
Funny+ Satisfies the photographer+ Does not violate privacy of others+ Good observation+	Envy of others+ Touching+ Ugly+	Impression	
Well-exposed+ Taken with a mobile phone- Blurry	Sharp+ Backlight-	Technical properties	
Taken with effort+ A snap-	Easy to take+	Effort	
Published+ Reveals an unknown location+ Useful+	For the public good+ Long life+	Usefulness	Usefulness
Includes location information+ Includes additional information+	Source of the photo is visible+	Metadata	
Affects to the environment+	Reveals faults in the environment+	Influence to the environment	
Rewarded+	Published without a reward+	Rewarding	
Special subject+ Snapshot+	Unique+	Uniqueness	Interestingness
Understandable+ Pictures a casual situation+	Relevant for the viewer+	Relevancy for the reader	
Interesting+	Initiates discussion+	Interestingness	
Accident photo+ News photo+	Rapidly shared+	Newsworthiness	Suitability to news
Value adding+ Supports the story+	Timeless illustrative photo+	Suitability to the story	

The 47 expressions describing readers' stories were distributed to five categories (see Table 11). Interestingness was the most popular theme, as every interviewee mentioned something about it and that category constituted about one fourth of all expressions. Readers' video descriptions were very similar: a total of six categories and every

interviewee mentioned something that fell into the category of interestingness. Concerning videos, technical properties were also important for the interviewees: four of them mentioned something about technical quality (24.6% of all mentions). Entertainment was mentioned by four interviewees in both story and video context.

Table 11. *Expressions describing readers' stories.*

Expressions	Category	Description	Mentioned by (N=5)	% of 47 mentions
A meaningful topic+ Interesting+ Initiates discussion+	Interestingness	Interests the public and generates discussion.	5	25.5%
Tip-off+ Related to a photo+ Truthful+ Worth publishing+	Newsworthiness	Has reliable informational content that can be used in the news.	5	17.0%
Guiding and informative+ Reveals information+	Usefulness	Includes useful information for both publishers and readers.	4	19.1%
Entertaining+ Delighting+	Entertainment	Is amusing and funny to read.	4	12.8%
An opinion letter+ Personal+ Includes errors Naive-	Relevancy for the reader	Written from a reader's point of view containing personal opinions.	3	25.5%

The 65 expressions on the properties for good readers' videos were divided to six categories. Interestingness was mentioned by all of the five interviewees. Technical quality and entertainment value were mentioned both by four of the five interviewees. Newsworthiness and the effect to the audience were mentioned by two interviewees. In addition, examples of interesting topics were mentioned by two of the five interviewees. The categorization of the expressions describing readers' videos is presented in Table 12.

Table 12. *Expressions describing readers' videos.*

Expressions	Category	Description	Mentioned by (N=5)	% of 65 mentions
Meaningful content+ About a unique event+ About a topic relevant to the viewer+	Interestingness	Meaningful content from a unique event.	5	26.2%
Shaky- Landscape orientation+ Logical storytelling+ Shot with a mobile phone Full-HD quality+	Technical properties	Technical characteristics, such as stability, orientation, and capturing device.	4	24.6%
Funny+ About a positive topic+ Nice headline+ Shared+	Entertainment value	Entertains the viewers.	4	15.4%
About an accident or a conflict+ Recent+	Newsworthiness	Fresh information on a current event.	2	15.4%
Informing on social topics+ Educational+	Effect to the audience	Affects the attitudes of the audience and/or is educational.	2	10.8%
Animal topics+ Events as a topic+ Nature topics+	Desired topics	The desired topics for videos.	2	7.7%

Reader reporters described reader photos with a variety of expressions, a total of 261 mentions were extracted from the interviews. Most dominant major category for the expressions was "photographical properties" that consisted of almost half of all expressions (47.9%). Even if the obscure category "desired topics" was categorized under other major category, photographical properties would still include 31.0% of the expressions. Usefulness and interestingness contained both about twenty per cent of all expressions, and "suitability to news" the rest ten per cent. In Table 13, the descriptions for the expression categories for readers' photos are listed.

Table 13. *Expressions describing readers' photos.*

Category (**major** and sub)	Description	Mentioned by (N=5)	% of 261 mentions
Photographical properties	The technical and conceptual properties of the photo.	**5/5**	**47.9%**
Desired topics	Mentions about the desired topics.	5/5	16.9%
Photographical properties	Photographical remarks, such as composition, and professional or artistic impression.	5/5	11.5%
Impression	Emotional attitude towards the photos and feelings that the photos generate in the viewers.	5/5	8.8%
Technical properties	Technical characteristics of the photos.	4/5	5.4%
Effort	Mentions about the amount of effort the photographer has put on the photo.	4/5	5.4%
Usefulness	Useful for the newsroom and for the readers.	**5/5**	**22.6%**
Usefulness	Includes useful information for both publishers and readers.	5/5	9.6%
Metadata	Includes metadata about the location and the subject.	5/5	4.6%
Influence to the environment	Has a positive effect to the public environment or attitudes.	4/5	6.9%
Rewarding	Mentions about rewarding and recognition.	3/5	1.5%
Interestingness	Interests both big crowds and individual readers of a local newspaper.	**5/5**	**18.8%**
Uniqueness	Includes something special or unique.	5/5	7.3%
Relevancy for the reader	Has something to do with the reader's life.	4/5	6.1%
Interestingness	Interests the public and generates discussion.	3/5	5.4%
Suitability to news	Fits the needs of a local newspaper.	**5/5**	**10.7%**
Newsworthiness	Has fresh information about a current event.	5/5	6.5%
Suitability to the story	Fits a story and adds value to it visually.	4/5	4.2%

Questionnaire with reader reporters

A questionnaire for the Scoopshot mobile application users included three questions about what makes a good reader's photo, story, and video. The answers regarding reader's photos gave 46 different expressions from 17 respondents. The answers were sorted in 20 groups that formed 5 major categories that were given a definition based on the expressions in it, see Table 14.

In the question regarding photos, technical and photographical properties were mentioned the most, constituting 69.6% of all expressions. The rest of the expressions fit in the categories of news value (6 mentions), usefulness (5 mentions), and uniqueness (3 mentions).

Table 14. *Categories of the reader reporters' answers to an open question: "In your opinion, what is a good reader's photo like? Describe freely." N=17*

Category	Description	Mentioned by (N=17)	Frequency
Technical properties	Well exposed, sharp, clear and high resolution.	13/17	22/46
Photographical properties	Professional or amateur feeling, good composition.	9/17	10/46
News value	Informative, interesting, and about a current event.	5/17	6/46
Usefulness	Fits to the story, is understandable capturing an event to a single photo.	4/17	5/46
Uniqueness	Unique and insightful.	3/17	3/46

The question about good reader's story produced 31 answers. They were divided to 14 groups that formed 4 major categories. The definitions indicate the kind of expressions that formed the category, see Table 15. News value was mentioned the most often. Almost half of the expressions (45.2%) fell in the category of news value. From the total of 31 expressions, the rest of the answers concerned insightfulness (7 mentions), usefulness (6 mentions) and trustworthiness (4 mentions) of user stories.

Table 15. *Categories of the reader reporters' answers to an open question: "In your opinion, what is a good reader's story like? Describe freely." N=17*

Category	Description	Mentioned by (N=17)	Frequency
News value	Interesting, includes new information and is about current event.	12/17	14/31
Insightfulness	Personal, expressing an opinion.	6/17	7/31
Usefulness	Short, compact, and visualizing.	4/17	6/31
Trustworthiness	Realistic and faultless.	4/17	4/31

The descriptions of a good reader's video clip included 38 expressions, forming 19 groups. Those groups were divided under 6 categories that were defined as seen in Table 16. The most common answer categories were usefulness (11/39 mentions), technical properties (10/39), and news value (8/39), that constituted together 74.4% of all mentions. The least mentioned categories were trustworthiness (4/39 mentions) and entertainment (1/39).

Table 16. *Categories of the reader reporters' answers to an open question: "In your opinion, what is a good reader's video like? Describe freely." N=17.*

Categories	Description	Mentioned by (N=17)	Frequency
Usefulness	Short, compact, clear and visualizing.	9/17	11/39
Technical properties	Steady, sharp and with good audio.	6/17	10/39
News value	Informative, interesting, objective and local.	5/17	8/39
Uniqueness	Unprofessional, unusual material of an occasion or event.	5/17	5/39
Trustworthiness	Real and commissioned.	4/17	4/39
Entertainment	Funny.	1/17	1/39

7.3 Discussion

Readers' photos

Similar expression categories describing readers' photos were gathered with all of the data collection methods. Though due to the difference in the scale of the source materials they were at a different level (major or sub category). Table 17 lists the nine expression categories for readers' photos that appeared in both interview sets, with editors and with reader reporters. In addition, the appearance of these expression categories in the questionnaire with reader reporters is visible. In Appendix H, all the expression categories for readers' photos are compared, showing the differences between the views of the newsroom and the reader reporters.

The results show the most dominant conception about a good reader's photo includes the ideas of *photographical remarks*, *newsworthiness* and *usefulness*. Being useful for news purposes can be derived from having news value, so the two categories are complementary. Photographical remarks can be considered as an indicator of a good photo for any purpose, so the category fits well in the context.

The second most common themes that appeared were *uniqueness* and *technical qualities* of the photos. Uniqueness is one of the causes for other properties, such as interestingness and experience of content. Technical qualities appeared most in the questionnaire with reader reporters, but editors and some of the reader reporters downplayed its importance, so it can be seen as a non-critical property.

Table 17. *Categories for readers' photos that appeared in the interviews with news editors and reader reporters.*

Category (major or sub)	Editors (interview) N=3	Reader reporters (interview) N=5	Reader reporters (questionnaire) N=17
Photographical remarks	3/3	5/5	9/17
Newsworthiness	3/3	5/5	5/17
Usefulness	3/3	5/5	4/17
Uniqueness	3/3	5/5	3/17
Technical qualities	2/3	4/5	13/17
Impression	3/3	5/5	-
Desired topics	3/3	5/5	-
Interestingness	3/3	5/5	-
Metadata	2/3	5/5	-

Some of the categories, including *interestingness*, *metadata*, *experience of the content*, and *desired topics*, appeared in both sets of interviews but not in the questionnaire. Interestingness and experience of the content are related to human feelings and emotions that rise from the photos. It proposes that people are expecting more experiences with reader's photos than with traditional news photos.

Metadata augments the information of the photos making them more usable and valuable for the newsroom, so the category relates to usefulness and newsworthiness. Desired topics varied between editors and reader reporters, as reader reporters were more interested in softer topics, such as landscapes and animals, while the newsroom was interested in suitable news topics, such as local events.

The themes that make something to be news were introduced in chapter 3.1. Timeliness, proximity, impact, currency, and oddity of the photos were the clearest components present in the descriptions of user-generated content that was gathered from the interviews. Especially the news editors underlined proximity, currency, and oddity.

In contrast, the themes of eminence and prominence, predictability, and negativity did not show up in the interview data. Sissons (2006, p. 27) declared that there is a problem with the topics that evolve over long time period. The news editors were eager to receive more photos concerning this type of social and cultural phenomena. It was noted that readers preferred to focus on soft topics, such as animals and landscapes. The newsroom was more interested in harder topics with more news value, such as local events.

Readers' stories and videos

Reader reporters' thoughts on high-quality user stories and videos were collected in interviews and in a questionnaire. The answer categories that appeared in both sets of gathered data are listed in Table 18.

Readers' stories were expected to be newsworthy, useful and relevant to the readers. Short, compact and visualized reading experience was expected. Concluding the views on non-editorial stories, readers want them to be personal, from a reader's point of view, and they can be subjective and opinionative, in contrast to editorial news articles.

In contrast, based on how the reader reporters described readers' videos, it was discovered that technical quality and the entertainment value of the video is seen as an important role.

Table 18. *Categories for descriptions of user-generated stories and videos from the interviews and the questionnaire with reader reporters.*

Category	Reader reporters (interview) N=5	Reader reporters (questionnaire) N=17
Stories		
Newsworthiness	5/5	12/17
Relevancy for the reader / Insightfulness	3/5	6/17
Usefulness	4/5	4/17
Videos		
Technical properties	4/5	6/17
Newsworthiness	2/5	5/17
Entertainment value	4/5	1/17

Reliability of the study

The interviews with the news editors were analysed first, followed by the interviews and the questionnaire with the reader reporters. Each of the source materials was treated as an independent whole. However, as the categorization was made by the same researcher, the second and third analyses may have been influenced by the earlier results.

8 STUDY 3 – INTERVIEW AND PROTOTYPING

This chapter describes the empirical research that was carried out within this study by using interview and prototyping. The goals for the interviews were the following. 1) To find out reader reporters' preferences on receiving and giving feedback. 2) To compare various user feedback mechanisms in the context of reader reporter activity. 3) To collect ideas for an online community and for motivating participation to journalism.

The results of the study can be used by the partner of this research, Sanoma Kaupunkilehdet, in the development of their reader reporter activity and services. The existing services contain, for example, an online news portal with readers' photos and stories. In the future, an online community for reader reporters is possibly built.

8.1 Research method

The research consisted of interviews with twenty participants. One interviewing session included three parts. 1) Interview on preferences of receiving feedback in reader reporter activity. 2) Evaluation of six mechanisms for receiving feedback online. 3) Selection of preferred elements for a reader reporter community and brainstorming with a paper prototype.

Twenty individual interview and paper prototype brainstorming sessions were arranged at cafeterias in Helsinki, Vantaa and Espoo in September 2012. The duration of the meetings was between 35 and 80 minutes. Three of the sessions exceeded the target duration of one hour. In the beginning of the interviews, a research agreement was signed by the participants. Demographical data was collected with a form (Appendix A) in the beginning of the meetings. The interview sessions were recorded and the recordings were transcribed.

The participants' background

Twenty active reader reporters were recruited via an email invitation from a group of 113 reader reporters. The invited group contained the most active reader reporters of the local newspaper publisher Sanoma Kaupunkilehdet. A part of them (60 reader reporters) had previously attended to a trial with photo shooting assignments (Väätäjä et al. 2011a). From 34 responses, the reader reporters who had used the local newspaper's website Omakaupunki.fi and other social web services were preferred in the selection to the study. The twenty selected participants were aged between 28 and 76 years (Md=60.5; M=57.0, SD=12.0) (see Figure 6), five of them being pensioners.

70% of the participants' educational background was elementary (1/20) or secondary school (13/20), and 30% (6/20) had lower or higher university degree, as illustrated in Figure 7.

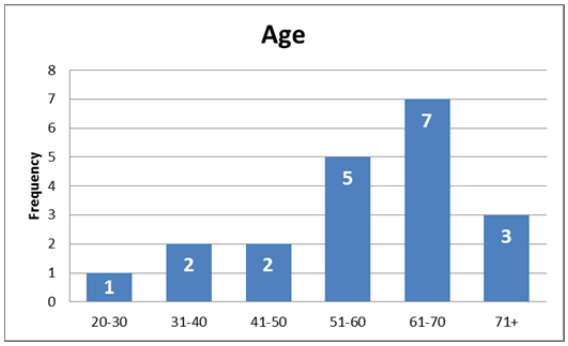

Figure 6. *Age distribution of the participants.*

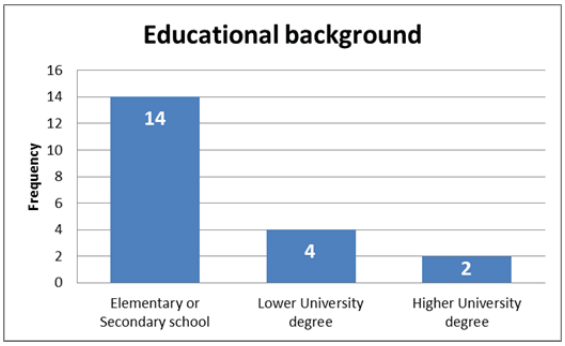

Figure 7. *Educational background of the participants.*

All of the participants were active followers of at least one of the three local news channels of Sanoma Kaupunkilehdet, including the daily print "Metro", the weekly print "Vartti", and the local news website "Omakaupunki.fi". 75% of the participants (15/20) reported to be using the website Omakaupunki.fi at least on weekly basis (see Figure 8).

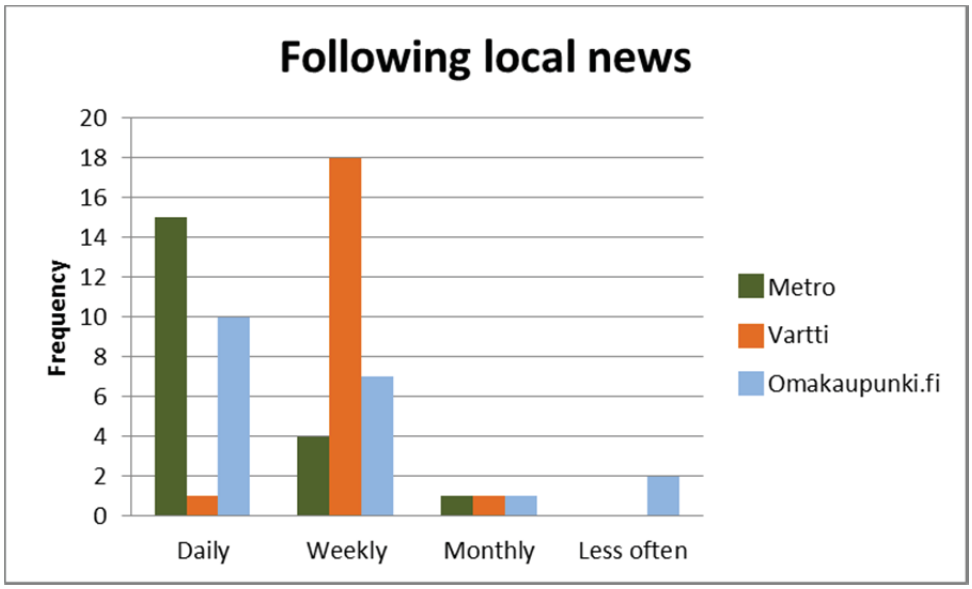

Figure 8. *Participants' habits of following local news publications. Multiple choice: "How often have you followed the following media during the last 3 months?"*

The participants were active in contributing photos, stories, and tip-offs to news-rooms. All but one of the participants reported that they have sent at least some material to a newsroom, and half of the participants had sent photos at least weekly during the last three months (see Figure 9).

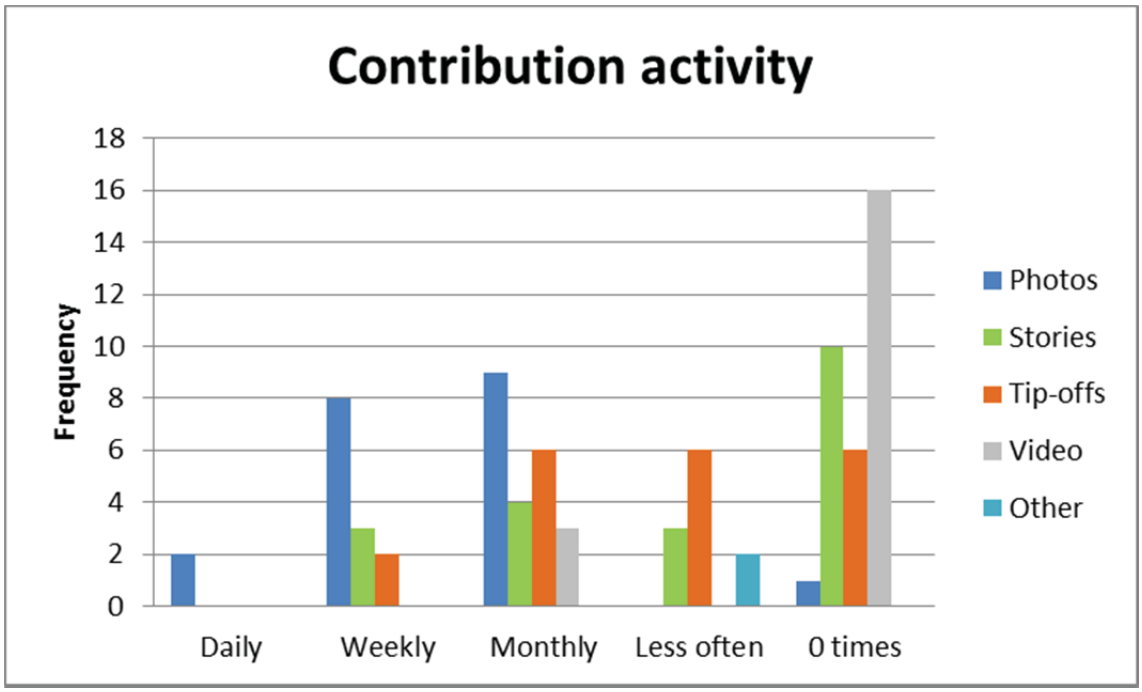

Figure 9. *Contribution activity of the participants. Multiple choice: "How often have you sent material to newspapers or to other news media during the last 3 months?"*

Usage habits of social media were somewhat bipolar. Ten of the participants reported to have been using Facebook on a daily basis and six of the participants reported they have not used it at all. Five of the six non-Facebook users also reported that they have not used YouTube during the past three months. Twitter is not widely popular in Finland, and only four of the participants reported that they had used it during the last three months. The distribution of the answers is illustrated in Figure 10.

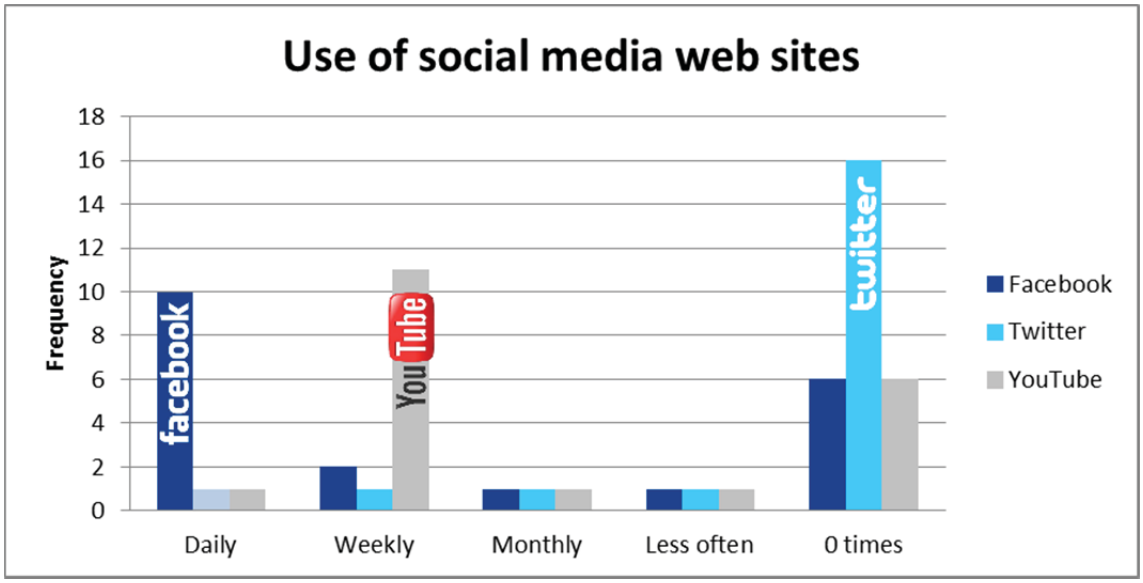

Figure 10. *Participants' usage of social media. Multiple choice: "How often have you used the following social web services during the last 3 months?"*

Interviews on feedback preferences

In the first part of the sessions, a semi-structured interview was used to find out the participants' habits of using a local newspaper's website (Omakaupunki.fi) and other social websites that include user-generated content, such as Facebook, Twitter, YouTube, and Flickr. A semi-structured interview method was selected for finding out new information and ideas with open-ended questions. The participants were asked about the preferences and needs for receiving feedback, as well as how they are used to give feedback to others.

The themes and the main questions used are listed in Table 19. In addition to the main questions, aiding questions were used, such as "Could you describe more…", "What was it like?", "From who and how did you receive the feedback?"

Table 19. *Interview themes and main questions*

Theme	Main questions
Habits of using local newspaper's website (www.omakaupunki.fi)	Could you describe how you use the website Omakaupunki.fi?
Receiving and giving feedback in online communities.	Could you describe your most memorable experience when you received some feedback after contributing to local newspaper?
	Could you describe what kind of feedback is the most important for you when participating to news journalism?
	In what kind of situations do you participate by commenting or sharing material that other readers have contributed?
	What kind of other ways could you give feedback to other readers who have contributed a photo or a story to Omakaupunki.fi?

Evaluation of feedback mechanisms

Different practices of evaluating online content were identified in the site review described in chapter 6. Six of the identified mechanisms were selected to a comparison: 1) Share buttons for Facebook, Twitter and email displaying the number of shares in each medium, see Figure 11. 2) Descriptive classifying buttons with the number of clicks on each button, as in Figure 12. 3) A "like" button displaying the number of likes, see Figure 13. 4) A commentary textbox with the number of comments, see Figure 14. 5) The number of views, see Figure 15. 6) 5-star rating with the total number of ratings, as in Figure 16. The terms used in the descriptive classifying prototype were selected from the study on user-generated content quality attributes.

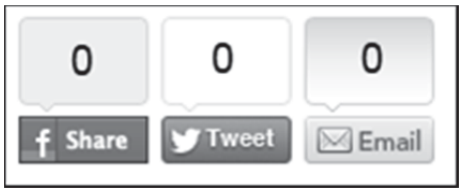

Figure 11. *Shares*

Figure 12. *Classifying*

Figure 13. *Likes*

Figure 14. *Comments*

Figure 15. *Views*

Figure 16. *Stars*

The second part of each interview session included rating of six alternative content evaluation and feedback mechanisms for photos. The participants were shown a sample photo of a common topic, traffic and parking violations, printed on a paper. They were instructed with a scenario (see Table 20), that the photo was taken by them and sent to the local newspaper's website Omakaupunki.fi. Next, the same photo appeared on six separate papers, each of them having an evaluation or feedback mechanism attached under the photograph, as seen in Figure 17. The papers with distinct evaluation mechanisms were displayed to the participant all at once laying them down in two rows on the table in an uncontrolled random order.

Table 20. *The scenario that was presented to the participants.*

A scenario of sending a photo to a newsroom
[A sample photo is displayed on a paper.] 1. "Here you see a photo. Let's imagine it is taken by you, and you send it to the local newspaper's site omakaupunki.fi" 2. "Now your photo is uploaded to the website. In the following, you will see six alternative designs, how the photo could be displayed on the site." [Six papers with the same photo but different feedback mechanism are shown.] 3. "Put the feedback mechanisms in an order, based on your preferences how would you like to receive feedback on the photo you just sent."

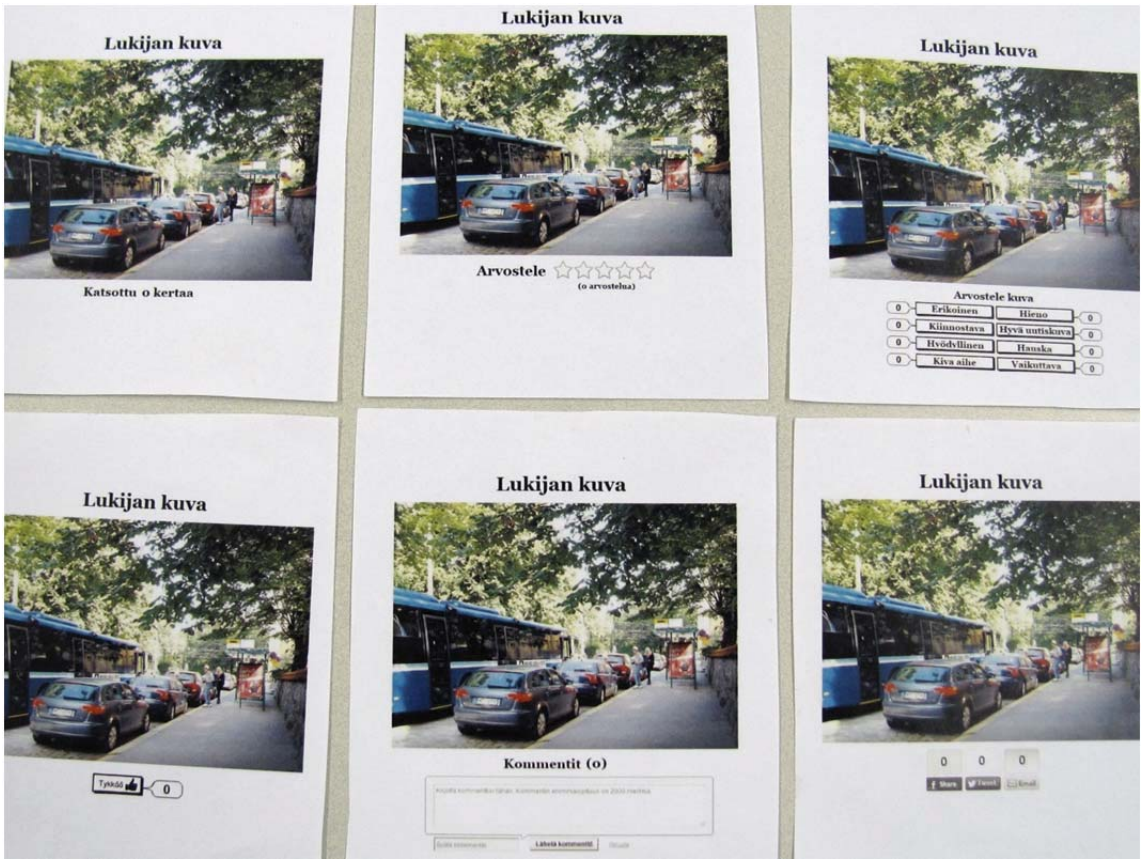

Figure 17. *Feedback mechanisms attached to a sample photo.*

The participants were asked to put the evaluation and feedback mechanisms in order according to their preference from the feedback receiver's point of view. After arranging the papers, reasoning for the order was asked. The participants were asked to describe each mechanism, starting from the one that was selected as the most preferred. The participants were allowed to reorder if they changed their mind while describing.

After putting in order and describing, each feedback mechanism was rated by the participant, filling in an evaluation form presented in Figure 18. The form included four items on 11-point unlabelled ordinal scale from 0 to 10: "Fascinating" ("Kiehtova"), "Rewarding" ("Palkitseva"), "Fun" ("Hauska"), and "Motivating" ("Motivoiva"). The items "Fascinating" and "Entertaining" were adapted and modified from Hartmann et al. (2008) who measured the engagement of a user interface. "Fun" and "Motivating" were chosen to measure the stimulation effect of each feedback mechanism. In addition to the four item ordinal scale, the form included two binary questions "I would like to receive feedback with this mechanism" and "I would give feedback with this mechanism" with answer options "Yes" and "No".

Figure 18. *Feedback mechanism evaluation form.*

Filling in the evaluation forms was made in the participants' preference order, starting from the most preferred feedback mechanism. The preference order was noted down by the facilitator during the rating. After rating each feedback mechanism, the participants were asked if they had any additional comments regarding the feedback and evaluation mechanisms, before moving on to the last part of the interview session.

Paper prototype brainstorming

The third part of the interview session consisted of selecting preferred elements for a reader reporter community website and brainstorming with a low fidelity paper prototype. Snyder (2003, pp. 3; 12) defined that "paper prototyping can be considered a method of brainstorming, designing, creating, testing, and communicating user interfaces." According to Snyder, the benefits of paper prototyping are 1) getting user feedback early in the development process, 2) a possibility to experiment many ideas, 3) help in communicating ideas within the development team and between the developers and the customers, 4) it does not require technical skills, and 5) it supports creativity in the development process. For these reasons, the method was seen suitable for testing the feasibility of gamification elements in an online community and gathering ideas for design from the potential users.

The participants were shown a paper prototype of a website titled "Reader reporter community" ("Lukijareportteriyhteisö") (Figure 19; Appendix C). The prototype was hand drawn to emphasize that it does not represent a fully working website, but is a mock-up open for ideas. The mock-up was based on a website www.teejuttu.fi that Sanoma Kaupunkilehdet had just released for their reader reporters. The idea of the website was to provide a simple channel for sending material to the newsroom. Two out of the twenty participants had seen and used the actual website before attending to the interview.

Figure 19. *A mock-up of a reader reporter online community.*

The mock-up of the site included basic functionalities for contributing material to the newsroom, such as buttons for sending photos, stories, and tip-offs to the editors. In addition, signing in with a user account and displaying the content sent earlier by the user was illustrated. Displaying assignments for reader reporters was also illustrated in the mock-up. The principles of the visible features were described to the participant.

After being informed about the purpose of the elements in the mock-up, the participants were shown 16 hand drawn site elements. The elements were first shown one by one, in a controlled random order based on Latin Square randomizing (see Appendix D). 16 predefined orders were used to minimize the effect of an item appearing among the first ones or the last ones to the participants' preferences.

The site elements formed four groups, presented in Table 21 and Figure 20 as follows. 1) Top user photos (Best, rated with stars; most viewed; most discussed; most shared). 2) Top user stories (Best, rated with stars; most read; most discussed, most shared). 3) User statistics (most followed reader reporters; most rewarded reader reporters in this moth; most contributed reader reporters; TOP-5 reader reporters) 4) Honoured users (reader reporter of the month; photographer of the month – editors' selection; reader reporter of the month – readers' selection; latest achievement).

Table 21. *Four groups of site elements used in the paper prototype brainstorming.*

Group	Elements in the group			
Top user photos	Best	Most viewed	Most discussed	Most shared
Top user stories	Best	Most read	Most discussed	Most shared
User statistics	Most followed	Most rewarded	Most contributed	TOP-5 reporters
Honoured users	Reader reporter of the month	Photographer of the month – editors' selection	Photographer of the month – readers' selection	Latest achievement

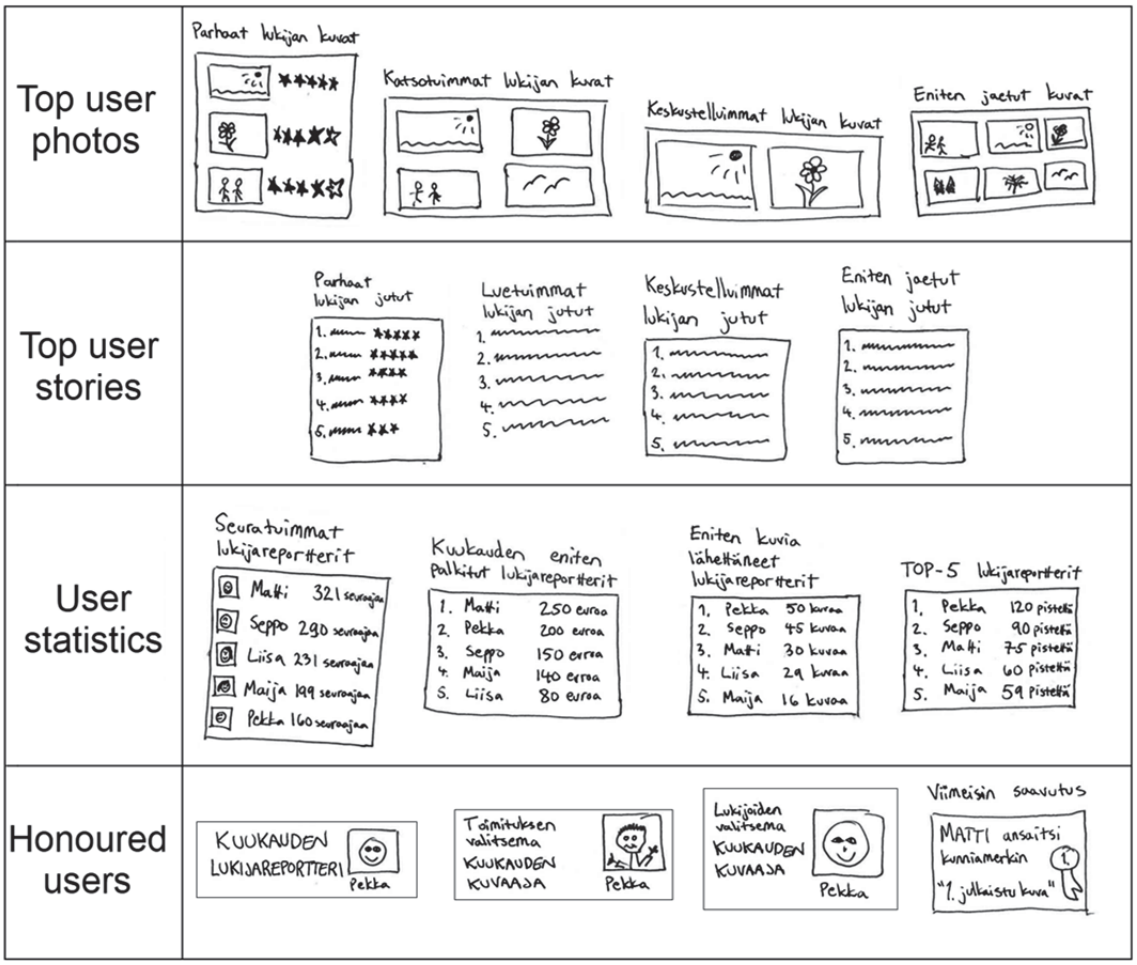

Figure 20. *The site elements used with the mock-up formed four categories.*

The participants were asked to select four items they would like to include in a reader reporters' online community. After the participants had selected four items they preferred the most, they were asked reasoning for their selections.

In the end of the interviewing session, ideas about interaction between the community members and between reader reporters and editors were asked. Ideas for other features for a reader reporter online community were requested as well. The participants were also encouraged to bring up comments and wishes regarding the reader reporter activity in general. In the end of the interviewing sessions, the participants were compensated with two movie tickets for attending the meeting.

Qualitative data analysis

Using the transcriptions of the interviews, the data was coded looking for statements fitting in the seven pre-defined categories presented in Table 22. Then, similar statements and ideas were grouped. The frequency of statements from distinct participants in each category was counted.

Table 22. *Predefined categories used for coding the interviews.*

#	Category for coding the interviews
1	Internet activity
2	Experiences on feedback
3	Wishes for feedback in participatory journalism
4	Descriptions of the presented feedback mechanisms
5	Descriptions of the presented site elements
6	Feature ideas for a reader reporter online community
7	Other wishes regarding the reader reporter activity

Quantitative data analysis

Quantitative data was collected from the evaluations of the six different feedback mechanisms with forms (see Figure 17; Appendix B). All of the twenty participants filled in six answer sheets, resulting to a data set of 480 evaluations and 240 bipolar answers.

The quantitative data from evaluations was analysed with SPSS Statistics, version 20. Box plots and histograms revealed the answers were not normally distributed. Therefore, the data set from the ratings with ordinal scale was analysed with nonparametric Friedman's and Wilcoxon tests. To test the difference between dependent conditions on ordinal scale, Friedman's Test is applicable with two or more samples and Wilcoxon matched pairs signed ranks test with two samples (Coolican 2004).

In cases where significant differences were found with Friedman's test, the pairwise comparison output was used. When no significant differences were found with Friedman's Test, Wilcoxon tests were run to each sample pair. Two of the questions in the evaluation sheet produced binary data. Cochran's Q Test and McNemar Change Test, the binary equivalents for Friedman's and Wilcoxon tests, were applied to the binary data.

8.2 Results

Reader reporters' preferences on feedback

Traditional means for receiving the feedback, such as email or text message were mentioned by five participants, and real time feedback on the Internet was mentioned by three participants. As many of the participants were not smartphone users, a dedicated reader reporter mobile application was mentioned only twice. Two of the participants mentioned they would not like to receive any notifications to their mobile phone. One of the participants mentioned the best way to deliver feedback is to use the same channel where the material has been contributed. If the material was sent by email, the feedback response would be delivered to email, and sending from mobile phone would result in getting a response on the phone.

"With the same channel that it has been sent, that's the simplest way. If you send by email, you receive [the feedback] to the same [email] address. There shouldn't be anything difficult in that. If it comes from a mobile phone, you receive [the feedback] to the mobile phone." [5] *–Man, 67*

Feedback from the newsroom was desired, because it would enable the reader reporters to learn more about the content selection criteria of the newsroom. Half of the participants shared this kind of thoughts. Personal feedback was appreciated, but the participants were aware that the newsroom's resources are limited. Two of the participants stated they did not need feedback from the editors, reasoning that the reader reporter activity is based on voluntariness and there is no commitment expected on either side.

"The editor side, the newsroom, a more professional feedback would come from there. And [they would indicate] how they would like to the material to be developed. What would be in their desire." [6] *–Woman, 62*

Four of the participants stated that the feedback from other readers was the most important and motivating for them. That way they see if their contribution has been important for someone else. Also feedback from the system was mentioned. Two of the participants saw statistical data as an interesting measure of success. Finding out how large audience a contribution has had would indicate about desired content and engage reader reporters in continuing participation.

"…it would be interesting to know, how many readers click the story, how many [readers] have been interested in the story. It would be, because the aim is to draw attention, so that as many people as possible would be interested and read the story." [7] *–Man, 60*

Online comments from readers were seen as an important way of receiving feedback for contributions; eight of the participants mentioned about a commenting feature in a website where the photos are published. One participant mentioned leaving comments without registration was a good feature allowing spontaneous feedback from anyone. One idea was that comments could also be personal, hidden from other users.

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[5] *"Samaa kanavaa millä se on lähetetty, sillähän se on, sehän on kaikista yksinkertaisin. Et jos sä lähetät sähköpostilla niin se tulee sähköpostiin joka siin on. Ei siinä pitäis olla mitään erityisempää vaikeutta. Jos se tulee kännykästä niin kännykkään sit vaan tulee." –TJ10*

[6] *"…se toimittajapuoli, toimituspuoli, sieltä tulis sitten semmonen asiantuntevampi palaute. Ja just se että mihin suuntaan ne haluais, että niitä kehitettäis niitä kuvia. Mikä ois se heidän toive." –TJ11*

[7] *"…olis tietysti kiinnostavaa tietää, et kuinka moni sit klikkaa sitä, kuinka montaa se on kiinnostanut se juttu. Se olis, koska kiinnostusta on tarkotus herättää ja just sitä, että siten mahdollisimman moni olis siitä kiinnostunut ja tutustuis ja lukis." –TJ04*

"Well, in my opinion it was good that the comments were below the photo." [8] *–Man, 38*

Half of the twenty participants brought up in their statements that there is certainly a room for constructive criticism. If inappropriate spamming could be avoided, apart from positive compliments also critical comments would be valuable for the contributors to be able to learn and develop their skills. Many of the participants were photography enthusiasts, but they were still eager to gain even 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.' " [9] *–Woman, 62*

Monetary rewards – money or movie tickets – were seen as a good motivator and feedback for successful contributions. The theme of monetary rewards came up with eight of the twenty participants. Even if typically the participants enjoyed the activity itself, monetary rewards were seen as an important part of the operation. Five of the participants wished even more monetary rewards, because within the current practice the contributor was rewarded only if the material was published in the print. Three of the participants mentioned they prefer movie tickets over money, because after the taxes and possible deductions of social benefits, the movie tickets benefit them more.

"I don't need encouraging words or tapping to the back, like 'very good photo' or something else. I don't know. Maybe it's the reward every now and then that is enough for me." [10] *–Man, 28*

Four of the participants stated that getting a photo published is the best feedback they can get, even the only response they need. Two participants mentioned that displaying the name of the photographer in the print is a desired practice. In contrast, one participant liked more if the photos were published anonymously. One participant also stated that seeing a contribution invoking discussion is nice, giving a feeling of success.

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[8] *"No mun mielestä se oli hyvä, että se tuli ne kommentit sinne kuvan alapuolelle." –TJ03*

[9] *"…voishan sit tulla kritiikkiäkin, että 'Hei, sä lähetät nyt täntyyppisiä, että nää ei välttämättä ole semmosia, mitä me julkastaan, että siirrypä nyt vaikka toisenlaisentyyppisiin kuviin.' " –TJ11*

[10] *"No emmä ainakaa ite mitää semmosia rohkasevia sanoja tai selkääntaputteluu kaipaa, et 'tosi hyvä kuva' tai muuta. Emmä tiedä. Kai itelle riittää se palkkio sillon tällön." –TJ20*

“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.” [11] *–Man, 50*

Five of the participants mentioned they would like to hear more about their contributions after sending them to the newsroom. Information on the suitability and publishing schedule of the material would motivate the reader reporters to continue with the activity. In the current practice they are unaware if the contributed material is useful or not 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.

“It would be nice to hear, even before the publication, if it will be published or something related to that, to know if it’s worthwhile to continue contributing those tip-offs.” [12] *–Woman 40*

While three of the participants commented that any kind of feedback would be welcome, six of the participants told they are not anticipating any feedback from their contributions. They saw the reader reporter activity as voluntary participation, and did not expect the newsroom to focus on them personally. They were used to the current condition where the primary feedback a reader reporter normally received was seeing their material published and/or getting a monetary reward.

“I don’t expect anything, no, I don’t expect any feedback. I’m satisfied. I just go and if somebody mentions something, then we discuss about it. And I’ve been thinking that there shouldn’t always be my name on the top of the photos, everyone recognizes their own photos.” [13] *–Woman, 73*

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[11] *”Sehän on eräänlainen palkinto kun sä näet siinä painetussa lehdessä tai verkkopalvelussa sitten oman tuotokses ja siellä on sun nimi mainittu, niin sehän nyt on jo semmonen asia, mikä tietysti lämmittää. Ja näkisin, että tää on tämmöstä vapaaehtoistoimintaa, niin en mä tästä mitään tulolähdettä itselleni hae, vaan enemmän sitä mielihyvää.” –TJ01*

[12] *”Siitä ois ehkä mukava kuulla ennenkin sitä ilmestymistä, että aiotaanko sitä julkasta tai jotakin siihen liittyvää kuitenkin että tietää, että kannattaako niitä sitten laittaa niitä vinkkejä.” –TJ17*

[13] *”En mä odota mitään, ei en mä odota mitään palautteita. Mä oon tyytyväinen. Mä vaan meen ja sit, jos joku jotain mainitsee ni sitten jutellaan siitä. Ja oon mä miettiny sitäkin, ettei se oo aina tarttis olla mun nimeäni siellä kuvien yläpuolella, et jokainen tunnistaa omat kuvansa kyllä.” –TJ06*

Evaluation of feedback mechanisms

The participants arranged the six feedback mechanisms (see Figures 10–15) in a preference order, one being the most preferred and six the least preferred. Then the participants rated each method on four items ("fascinating", "rewarding", "fun", "motivating") in an ordinal scale from zero to ten. The order and rating means and standard deviations are presented in Table 23. The best results are bolded and the worst are bolded and in italic. For a reference on how the feedback mechanisms were rated in average on all four items, a mean was calculated from all four ratings, see column "Mean (ratings)".

Commenting was rated highest with each of the four items (M_{all}=7.40), and it was ordered in the top two ten times, while no one put it last in the order. Classifying was ordered in top two 15 times, and it was put last in the order once. The mechanism of "Views" was rated lowest on all four items (M_{all}=5.14).

Statistical analysis showed significant differences ($p < 0.05$) only between the verbal (comments and classifying) and nonverbal (shares, stars, likes, views) feedback mechanisms. All pairwise comparisons are listed in Appendix G.

Table 23. *Preference order and rating averages for feedback mechanisms, ordered by the average of all four ratings:*

A) "Order the feedback mechanisms from the most likeable to the least likeable based on your preferences to receive feedback" (most likeable = 1, least likeable = 6)

B) "Evaluate the feedback mechanism from the photographer's point of view." (Scale 0–10).

	A)	B)				
Mechanism	**Order, mean (SD)**	**Fascinating "Kiehtova" (SD)**	**Rewarding "Palkitseva" (SD)**	**Fun "Hauska" (SD)**	**Motivating "Motivoiva" (SD)**	**Mean (ratings)**
Comments	2.50 (1.40)	**6.50 (2.60)**	**8.15 (1.35)**	**6.80 (2.01)**	**8.15 (1.90)**	**7.40**
Classifying	**2.30 (1.49)**	5.95 (2.85)	7.85 (1.98)	6.50 (2.44)	7.35 (2.37)	6.91
Shares	4.05 (1.53)	5.40 (2.52)	6.55 (2.69)	5.40 (2.33)	6.40 (2.97)	5.94
Stars	3.70 (1.45)	5.00 (2.74)	6.75 (2.45)	5.15 (2.39)	5.95 (2.73)	5.71
Like	***4.35 (1.46)***	5.50 (2.71)	***5.90 (2.75)***	4.95 (2.75)	6.30 (2.88)	5.66
Views	4.10 (1.70)	***4.50 (3.19)***	***5.90 (3.46)***	***4.25 (2.91)***	***5.90 (3.35)***	***5.14***

The distribution of the ratings is illustrated in Figure 21. The error bars show the standard deviations that varied between 1.35 and 3.46.

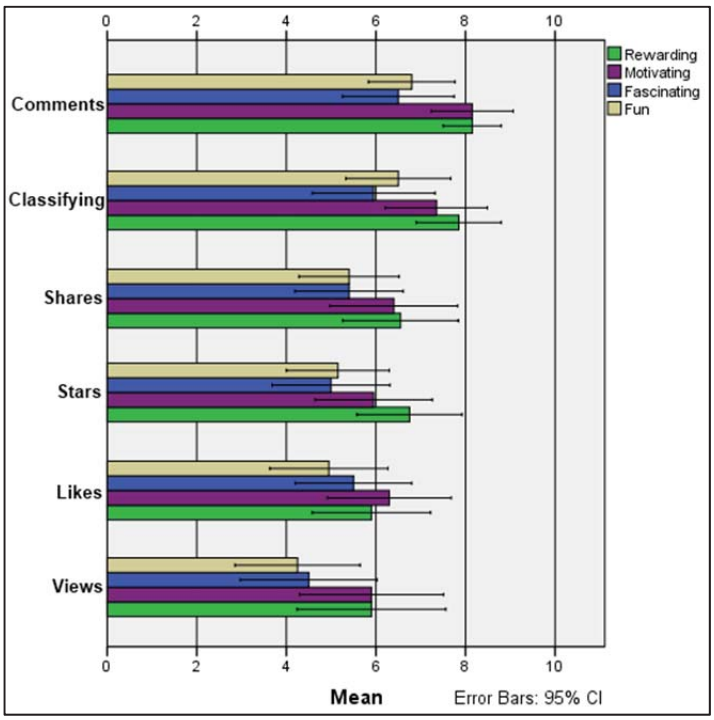

Figure 21. *Average ratings of the six feedback mechanisms.*

In Figure 22, the participants' answers on their preference of receiving and giving feedback with different mechanisms are illustrated. Comments and classifying were the most preferred mechanisms for both receiving and giving feedback (~90% of acceptance), while only eleven of the twenty participants reported they would like to receive or give feedback with a "Like" mechanism. Preference on giving feedback with view count was not asked, as it was considered as a feature that internet users cannot control.

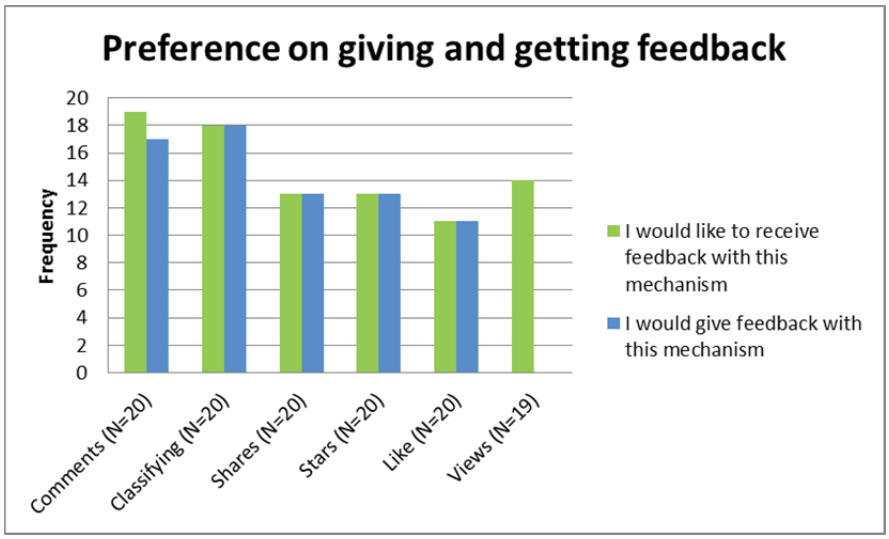

Figure 22. *Preference on receiving and giving feedback with different mechanisms.*

Descriptions for the feedback mechanisms

The participants described the feedback mechanisms while reasoning their preference order. They were asked to describe each mechanism, but some of the participants did not have anything to say about each of them. The properties that the participants associated to the verbal feedback mechanisms are presented in Table 24.

The verbal feedback mechanisms were seen as the most informative mechanism (9/20) and enabling a diverse feedback (5/20). Seven participants recognized that contributing feedback by commenting require more effort from the user than the nonverbal mechanisms. The possibility for spamming and abusive comments was also noted by five participants. The mechanism of classifying was perceived as novel and diverse (5/20). The example implementation of classifying included only positive alternatives. Seven of the twenty participants proposed to include also critical options in it.

Table 24. *Descriptions of the verbal feedback mechanisms.*

Mechanism	+ / -	Properties	Frequency	Quote
Comments	+	The most informative mechanism	9 / 20	*"It is the verbal feedback that is best. So that if there is really something to say about the photo or the situation, at least I personally wish that it would be expressed verbally. It is most rewarding for everybody."* [14] –Man, 28
	+	Enables diverse feedback	5 / 20	
	-	Requires effort	7 / 20	
	-	Possibility to inappropriate comments	5 / 20	
Classifying	+	Not as exact than comments, but richer information than with other mechanisms	11 / 20	*"It is more approximate but tells what [is the point] there. This would indicate, most likely, if the people have understood the idea of the photo."* [15] –Man, 62
	+	Novel and diverse	5 / 20	
	-	Should have options also for criticism	7 / 20	
	-	Maybe too complicated to use	6 / 20	

Seven of the participants told they were not interested in the share feature, because they do not use the social media services actively. Rating with stars was seen as nice and easy mechanism by six of the twenty participants. In contrast, the star rating was also stated to be uninformative and unreliable. Like feature was seen as familiar and easy by six participants. Nine participants also mentioned the like feature to lack information on the reasons why the people had liked the content. The information on the

[14] *"Kyl se tommone sanalline palaute on kuitenkin parasta. Et jos on jotain oikeesti sanottavaa siitä kuvasta tai tilanteesta, ni sit ite ainaki toivoo sillai, että sanallisesti kerrottas se. Se antaa eniten itse kullekki." –TJ20*

[15] *"Se on ylimalkaisempi mutta kuitenkin kertoo että mikä siinä. Onko ihmiset ymmärtänyt sen kuvan ajatuksen niin ehkä sen näkis tästä todennäköisesti." –TJ16*

number of views of a piece of content was seen as meaningful by eleven of the participants. Descriptions for the nonverbal mechanisms are presented in Table 25.

Table 25. *Descriptions of the nonverbal feedback mechanisms.*

Mechanism	+ / -	Properties	Frequency	Quote
Shares	+	Indicates discussion on the topic	4 / 20	*"Well, I do not [care about] them, [I] do not want to get involved with neither Facebook nor Twitter."* [16] –Man, 72
	+	Modern	2 / 20	
	+	Easy	2 / 20	
	-	Not interested, because not using social media actively	7 / 20	
	-	The reason for sharing not visible	3 / 20	
	-	Boring	1 / 20	
Stars	+	Nice mechanism	6 / 20	*"At least when I see movie ratings with stars, I do not trust them at all, because it is so subjective."* [17] –Woman, 62
	+	Easy and clear	6 / 20	
	+	Familiar	4 / 20	
	-	Unreliable	6 / 20	
	-	Uninformative	6 / 20	
	-	Outdated	2 / 20	
Like	+	Easy	6 / 20	*"…this is the most restricted way to express good or bad. There is no outcome from bad."* [18] –Man, 60
	+	Gentle, nice, fair	2 / 20	
	+-	Familiar and boring	6 / 20	
	-	Uninformative	9 / 20	
	-	Not suitable for all situations	4 / 20	
Views	+	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."* [19] –Woman, 65

[16] *"No, mä en niistä, halua sotkeutua Facebookiin sen enempää ku Twitteriinkään, että." –TJ12*
[17] *"Ainakin kun elokuvissa kattoo arvostelua tähdistä, niin mä en luota niihin koskaan, kun se on niin henkilökohtasta." –TJ11*
[18] *"…tää on kaikkein suppein tapa kertoa, että hyvä tai huono. Huonosta ei tuu mitään." –TJ04*
[19] *"No tää oikeastaan kertoo sit et paljonko se on herättänyt huomiota yleensä, et se on vanginnut lukijoitten huomion. Et jos on joku tosi tylsä ja vähemmän kiinnostanut niin tuskin sitä. Sit siitä tietää heti ettei se oo niin kun, oikein osunut nappiin." –TJ08*

Brainstorming an online community with a paper prototype

The twenty participants were presented a set of 16 site elements for an online community (see Figure 19). The elements represented top lists and other features highlighting the content and the users of an online community. Each participant selected four items of the presented set of 16 features. The selected features by the four major categories are presented in Figure 23. The data show that a typical participant selected three items from the categories of photos and stories (M=2.8, Md=3), and one item from the category of honours or statistics (M=1.2, Md=1).

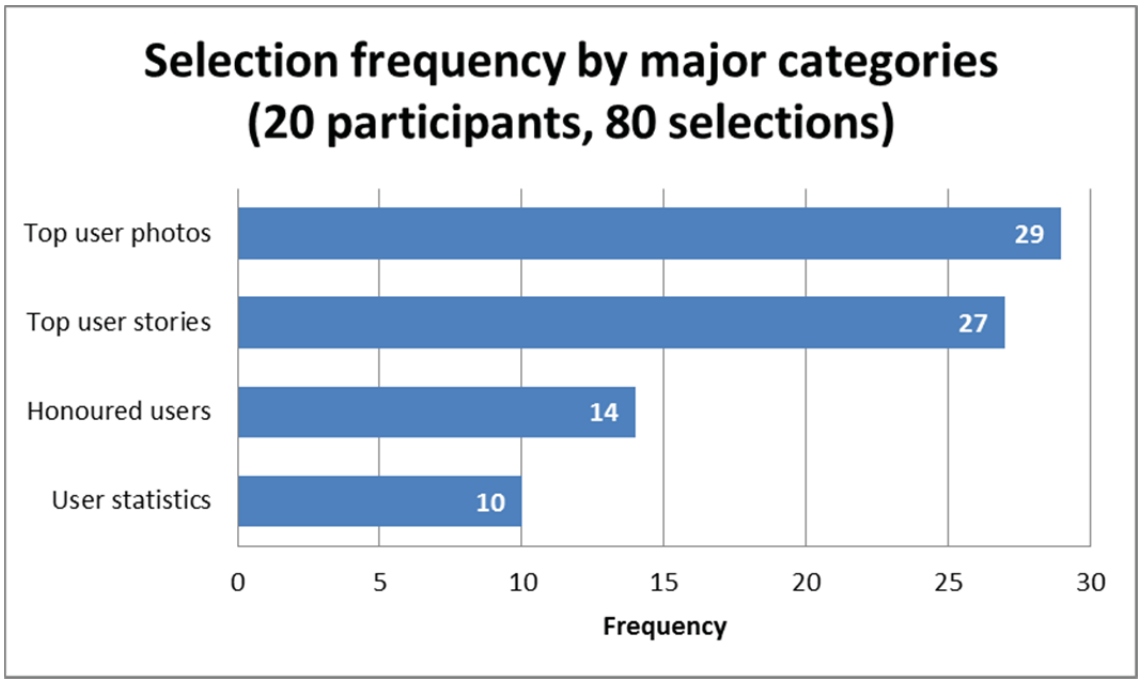

Figure 23. *Selection frequency by major categories.*

From the categories of photos and stories (Figures 24–25), the elements of *most viewed/read* (21.3%, 17/80 selections), *best* (20.0%, 16/80), and *most discussed* (20.0%, 16/80) were selected most, while *most shared* was not so popular with seven selections (8.8%).

From honours (Figure 26), *Photographer of the month – editors' selection* was the most popular element (8.8%, 7/80 selections), while *Latest achievement* was selected only once. In the category of user statistics (Figure 27), *Most followed users* was the most popular and it was selected five times (6.3%), and *Reader reporters with most contributed photos* and *Most rewarded reader reporters* were selected only once.

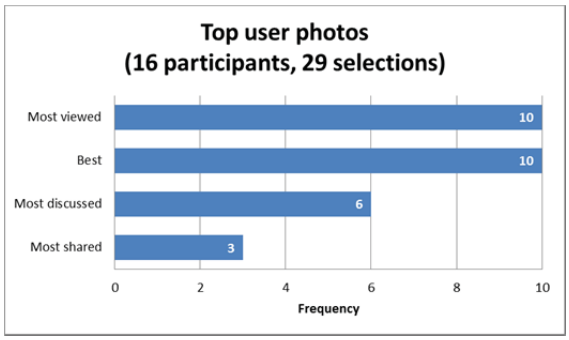

Figure 24. *Selection frequency in the category "Top user photos".*

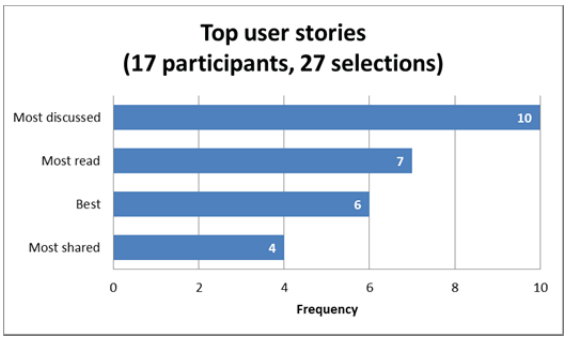

Figure 25. *Selection frequency in the category "Top user stories".*

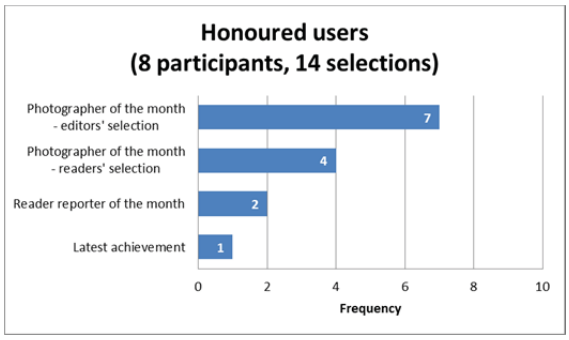

Figure 26. *Selection frequency in the category "Honoured users".*

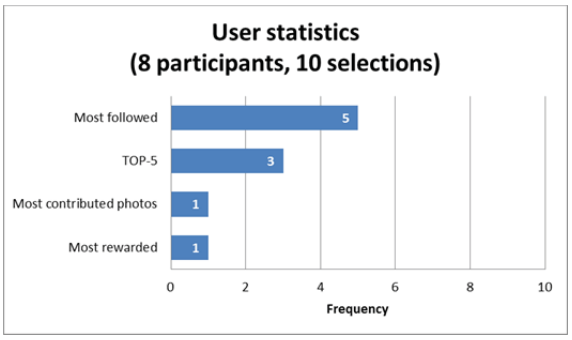

Figure 27. *Selection frequency in the category "User statistics".*

Participants' descriptions of the site elements

Many of the participants commented spontaneously both the elements they preferred and the elements they did not like during the selection process. The participants were also asked to describe the ones they had selected. However, every description was not possible to be connected to a certain element afterwards, and the participants did not answer accurately when asked to describe the elements they had chosen. Therefore, the number of selections and the number of descriptions for an element are not correlated. In the Tables 26–29 the descriptions for each site element are listed with a sign indicating about positive, negative or neutral description, and the number of participants who described the element similarly.

The site elements highlighting user photos were seen as good indicators of people's interests. Some challenges in these elements were identified (4 mentions), such as defining the criteria for selecting the best photos, but overall attitude was positive. Three of the participants mentioned the photo features to be interesting because they contribute mostly photos themselves.

Table 26. *"Top user photo" features described by the participants (+ = positive, - = negative, n = neutral).*

Photo feature	+ / - / n	Descriptions and properties	Frequency
Photo features in general	+	Photo features interest, because the participant contributes mostly photos	3 / 20
Best photos	+	Common, simple	3 / 20
	-	Challenging, because news photos have different criteria than other photos	2 / 20
	+	Interesting	1 / 20
Most viewed	+	Indicates interestingness, enables learning	3 / 20
	n	Must require active watching to be reliable	1 / 20
	-	Nothing more than the click count	1 / 20
Most discussed	+	**Indicates interestingness**	**4 / 20**
	+	Can mislead, does not indicate quality	2 / 20
Most shared	+	Not interesting, because not using the services	2 / 20

User story elements were described (Table 27) similarly to offer a good indicator of possibly interesting content, and to give good feedback about the qualities of a good story. One participant emphasized that unpopular stories can also be valuable for some group of users, and therefore amount of views or clicks cannot be taken as a direct indicator of high quality. Elements displaying the most shared content (photos or stories) were the least commented by the participants, as they were not selected as often as the other elements of photos and stories (see Figures 23 and 24).

Table 27. *"Top user story" features described by the participants (+ = positive, - = negative).*

Story feature	+ / -	Descriptions and properties	Frequency
Best stories	+	**Offers feedback and baseline for comparison**	3 / 20
	-	Can be misleading, depending on who judges	1 / 20
Most viewed	+	**Indicates interestingness**	**5/ 20**
	-	Stories with small amount of views can also be interesting for somebody	1/ 20
	-	Not sure if the story has really been read	1/ 20
Most discussed	+	**Indicates possibly interesting stories, not guaranteed**	**4/ 20**
Most shared	+	Indicates wide distribution of the story	2/ 20
	+	Sharing is modern	1/ 20
	-	Does not tell about the contents of the story	1/ 20

Honour feature descriptions (Table 28) reveal the following aspects. 1) If the criteria for the honours were visible to all users, honours would allow learning. 2) Honours rewarded by the newsroom would be the most preferred, reliable, and motivating. 3) It

would be nice to see the faces of other reader reporters. 4) It would be hard to attain the honours as they are only single reader reporters. 5) The honour features are childish and meaningless for some of the participants in this user group. Even if some mentioned the honours to work as motivators, overall interest towards other elements than "Photographer of the month - editors' selection" was low.

Table 28. *"Honoured users" features described by the participants (+ = positive, - = negative).*

Honour feature	+ / -	Descriptions and properties	Frequency
Honour features in general	+	Funny and motivating for those who like competition	3 / 20
	-	Content should be evaluated rather than the users	3 / 20
	-	Only one user highlighted, uninformative, disappointing if never selected	2 / 20
	-	Honours are childish	1 / 20
Reporter of the month	-	The same users would be often highlighted, hard to get there	3 / 20
	+	With reasoning, could make learning possible	2 / 20
	-	Childish	1 / 20
	+	Would be nice to see the other reporters	1 / 20
Editors' choice	+	**Enables learning what the newsroom wants. Reliable, being selected by professionals. Selection criteria should be visible.**	**7 / 20**
	+	Would be nice to see other reporters	1 / 20
Readers' choice	+	Readers are an important part, rewarding	2 / 20
	+	Interesting to see if the readers and the editors pick the same user	2 / 20
	-	Depends on the networks the users have, so the editors' pick is better	1 / 20
Latest achievement	-	Childish	2 / 20
	-	Meaningless	2 / 20
	+	Reasoning would be interesting to see	1 / 20
	-	Hard to understand	1 / 20

In the group of statistics features (Table 29), top-lists highlighting the reader reporters with most contributions, most rewards, or most points ("Top-5 reporters") received negative comments because of the competitive setting. Even though two participants were interested especially in the amount of money the others are earning and two participants mentioned top-lists to be better than honours highlighting more users than just one, overall attitude towards these statistics features was negative. List of the most followed reader reporters gained some positive comments; four participants mentioned it would help in finding interesting content and learn from the contributions of the most popular reporters. The bottom line in the comments describing the statistics features consisted of the following: 1) Competition is not a preference of this reader reporter

group. 2) Quantity of contributions does not indicate quality. 3) Reader reporters are interested in good content, not in evaluating other reporters.

Table 29. *"User statistics" features described by the participants (+ = positive, - = negative, n = neutral).*

Statistics feature	+ / - / n	Descriptions and properties	Frequency
Statistics features in general	-	Competition and statistics are not interesting	3 / 20
	n	Statistics do not interest outside the community	1 / 20
TOP-5 reporters	-	Competition does not interest	3 / 20
	+	More informative than single user selections, would motivate others	2 / 20
Most followed	+	**Would help to find good content and learn**	**4 / 20**
	+	Better than Top-5 or most contributed	2 / 20
	n	Evaluate rather content than users	1 / 20
	-	Competitive, does not interest	1 / 20
	n	Twitter-like	1 / 20
Most rewarded	-	**Competitive, not good**	**5 / 20**
	+	Money interests	2 / 20
	+	Indicates how many contributions have been published	1 / 20
Most contributed	-	**Quantity is not everything**	**6 / 20**
	-	Would lead to wrong habits in contribution	2 / 20
	-	Stressful, unpleasant	2 / 20
	+	Interesting	1 / 20

Ideas for an online community

The participants were asked what kind of collaboration there could be between the reader reporters or between reader reporters and the newsroom. In addition, they were encouraged to bring up other ideas and needs for an online community website. The following questions were asked.

"What kind of collaboration there could be among the community members?"
"How the community site could be utilized for the cooperation?"
"Do you have additional thoughts, wishes or ideas regarding the online community or the reader reporter activity in general?"

The categorized answers are listed in Table 30, containing both feature suggestions and themes related to an online community.

Discussion among reader reporters and communication between reader reporters and newsroom were the most common topics, both were mentioned by eleven of the twenty participants. Eight participants mentioned assignments as an important part of a community, and more variation was wished to them. Good user generated content was wished to be promoted more (7 mentions) and six of the participants wished for a possibility to enlarge photos sent by readers. Other aspects raised also thoughts in the participants, such as privacy issues.

Table 30. *Participant's ideas and wishes for the online community.*

Theme	Description	Frequency
Communication	Discussion forum for reader reporters	11 / 20
	Direct communication with the newsroom.	11 / 20
	A Facebook group for reader reporters.	4 / 20
	Personal messages between reader reporters.	4 / 20
Assignments	Assignments for reader reporters to keep the community alive. More personal assignments and assignment distribution between reporters.	8 / 20
Content promotion	Promoting hot topics of the day and good user-generated content, such as excellent readers' photos and comments provoking discussion.	7 / 20
Simplicity	The simpler the better.	6 / 20
Feature idea	Possibility to enlarge photos.	6 / 20
	Lost and found – bulletin board, as there is no such service.	1 / 20
Collaboration	No need for collaboration between reader reporters.	5 / 20
Linking and sharing	Linking and sharing should be easy. Integration of other photo services to the community.	4 / 20
Privacy	Public or private community?	4 / 20
	Anonymous participation preferred.	3 / 20
Instructions	Links to instructional content, such as photography tutorials.	3 / 20
Content categorization	Space for other than news photos (landscapes).	2 / 20
	Content categorization by theme and locality.	2 / 20
Advertising	Relevant advertising, e.g. photography retailers.	2 / 20
Type of content	Should include richer user-generated content than just clicks.	2 / 20
Accessibility	Compatibility with different devices: Computers, tablets, mobile phones.	2 / 20
Moderation	Moderation by administrators or trusted users.	2 / 20
Timeliness	Real time information about news, assignments etc.	1 / 20
Statistics	Usage and participation statistics visible to users.	1 / 20
Activity idea	Live meetings with reader reporters.	2 / 20
	Contests in creating popular content.	1 / 20

8.3 Discussion

In the interviews and paper prototyping it was notable that the reader reporter participants expressed their appreciation for feedback from the newsroom. There are hundreds of active reader reporters and thousands of photos contributed every month. Due to the limited resources of a local newsroom, it is challenging to focus on the reader reporters personally.

Diakopoulos and Naaman (2011) discovered that readers would like the news reporters to answer their comments in online news articles. This kind of interaction would

engage the readers more to the community. The same atmosphere was noted in the reader reporters' statements in this study. Getting more interaction between the reader reporters and the newsroom would motivate the reader reporters to continue contributing. This would apply even if every contribution was not useful enough to be published by the news agency.

Because the newsroom's viewpoint is so valuable for the reader reporters, a mechanism that allows editors to send feedback easily for the reporters should be designed. One approach could be the mechanism of descriptive classifying with tags (see Figure 10). It could offer the editors a fast, simple means to express their thoughts about a piece of user-generated content. The evaluation could be made for example with a single click while browsing through a set of user contributions.

The interview results propose that the suggested mechanism of classifying should include several alternative tags to the ones presented in the example implementation used in this study. The tags should enable delivering constructive feedback. Even if Tausczik and Pennebaker (2012) pointed out somewhat mixed results about constructive feedback as an incentive, they summed up that the most disagreeing comments motivated the most. In their case, critical comments indicated the contributors that their material had been taken seriously, even if it was not helpful for the reader. In the context of participatory journalism, an equal situation would be the one when contributed content is not good enough to be published in a print.

In the case of Sanoma Kaupunkilehdet, feedback could be delivered to the reader reporters in the website www.teejuttu.fi. The reader reporters are already encouraged to sign up and submit their material through that website. Adding a phone number to their profile, the photos sent from their mobile phones by multimedia messages could be related to their user profiles, and the newsroom's feedback would be available similarly for those photos.

Verbal feedback mechanisms and anonymous participation

Evaluation of the distinct feedback mechanisms indicated that verbal mechanisms are preferred over non-verbal mechanisms. Verbal mechanisms offered the most informational feedback, a possibility to express various opinions, and enabled learning and self-development. The participants also reported they would most likely give feedback to others with the verbal mechanisms.

Anonymity of the participation (3/20) and openness of an online community (4/20) were important topics for some of the participants in this study (see Table 28). In an earlier study on news comments by Diakopoulos and Naaman (2011) around 40% of the participants indicated they would cease commenting if it was not enabled anonymously. This suggests the current policy in Sanoma Kaupunkilehdet website Omakaupunki.fi is the one encouraging a wide audience to participate the discourse.

Despite the benefits of comments, Diakopoulos and Naaman (2011) also confirmed in their study that a commenting possibility is demanding to manage and have disadvantages, such as a risk of offensive comments, false flags, and so forth. To qualify with

these challenges, alternative mechanisms such as classifying could be implemented in positions where active moderation is not conceivable.

Online community for reader reporters

The third part of the study focused on ways to expose user-generated content in an online community to motivate and engage reader reporters. Based on the selections of the participants, a set of features a reader reporter online community could implement is presented in Figure 28. The mock-up includes four elements for highlighting content and two elements for displaying active users, respecting the proportions of the preferences of the reader reporter participants in this study.

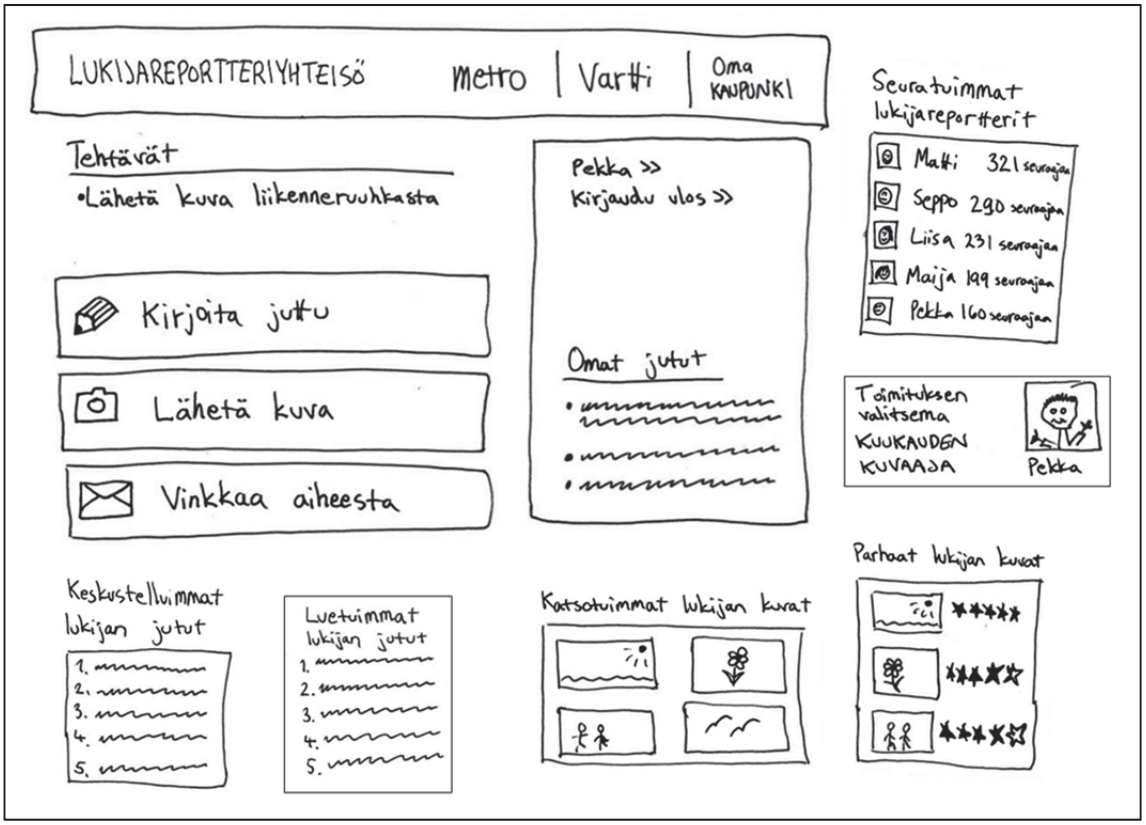

Figure 28. *A proposal of the elements for an online community exposing user-generated content and active community members.*

Even if the majority of the participants in this study did not prefer the existing social media plugins and highlighting the most shared content, an earlier study by Kim and Sundar (2011) proposes that displaying the number of shares of a content (a discussion thread) affects an individual's intentions to contribute. Four of the twenty participants in this study also explicitly proposed that easy sharing should be possible in an online community. Therefore, linking familiar social services, such as Facebook, to a reader reporter community is recommended, providing also a wider exposure for the content and the community itself.

Some of the existing participatory journalism websites focus on ranking the members based on their activities. Examples of member rankings are found in www.iwitness24.co.uk and www.newsvine.com. In this study, competitive features, such as badges or top lists about the most active members were not popular. Some of the participants described those as meaningless or childish. The outcome is interpreted to be affected by the high age of the participants, but it may not be the only factor.

Nicholson (2012) defined meaningless gamification as adding a scoring system to a non-competitive setting, which represents well the situation in this study setup. The scoring system was added on top of an existing activity, and the participants did not perceive it congruent with their mindset. Instead, making the activity itself more playful is an approach of meaningful gamification where the goal is not to compete but enjoy the pleasurable experience with the activity, as Nicholson argued.

Jones and Altadonna (2012) found that a significant part of the most active news commenters on a social news site Huffington Post had, most likely, opted out from the social badge system. This supports the results of this study, indicating many of the active news consumers are intrinsically motivated. Therefore, implementing a scoring system or otherwise generating a highly competitive setting is not a recommended action when creating or modifying an existing reader reporter community.

Over a half of the participants mentioned a desire for discussion between the reader reporters through a bulletin board (11/20) or private messages (4/20) when asked about a possible collaboration between reader reporters. There was also a need for a direct channel to communicate with the newsroom (11/20).

Assignments were mentioned by eight participants (8/20). They described that assignments would keep the community alive. A support for this was found in previous work by Beenen et al. (2004) who studied activity and assignments in a movie recommender online community. Beenen et al. found that specific goals motivated to contribute more than non-specific goals and, unexpectedly, individual goals were less effective than group goals. There can be contrast in reader reporter community to the latter, as five of the participants (5/20) mentioned they do not see a need for collaboration between reader reporters.

9 SUMMARY OF THE RESULTS

In this chapter, the results of the three conducted studies are summarized. In Study 1, a site review on content evaluation mechanisms was made on 31 websites. In Study 2, quality attributes for user-generated content were explored in interview and questionnaire data. In Study 3, reader reporters were interviewed on feedback preferences and ideas for an online community were gathered.

9.1 Study 1 – Current evaluation mechanisms

Thirteen different content evaluation mechanisms were found. Flagging was the most common mechanism to evaluate content online, being used in 74% of the reviewed websites. Flagging was commonly used in commentary sections. Displaying the count of page shares in social media was implemented in 89% reviewed news sites. Various share buttons were often present and the number of shares was in an important role.

Positive rating and positive-negative rating were commonly used for evaluating comments. The mechanisms are easy to understand and use, as they need only a single click and the effect is immediately visible. Registration was required for these features in more than half of the cases. Evaluation by classifying content with descriptive tags was an uncommon feature and it appeared in 13% of the websites.

Users were evaluated by a badge system in approximately 70% of the non-news sites and 40% of the news sites. 48% of the reviewed websites displayed usage statistics. Points and leaderboards were used in 19% of the websites.

9.2 Study 2 – Quality attributes for user-generated content

Readers' photos

A good reader's photo was perceived to be photographically advanced, include newsworthy information, and be useful for the newsroom. A good photo was expected to make an impression on the viewer and be of a relevant and interesting topic. Photo metadata was seen to add the value of the user-generated photos for news purposes. Technical qualities of the photos were referred often especially by the reader reporters, but in the current conditions it was not a critical property for the newsroom. The newsroom desired photos of "hard" topics, such as events and urban phenomena. The reader reporters instead preferred "softer" topics, such as animals, nature, and landscapes.

Readers' stories and videos

Readers' stories were expected to be newsworthy, useful and relevant to the readers. Short, compact and visualized reading experience was expected. Concluding the views

on non-editorial stories, readers want them to be personal, from a reader's point of view, and they can be subjective and opinionative, in contrast to editorial news articles.

In contrast, based on how the reader reporters described readers' videos, it was discovered that technical quality and the entertainment value of the video is seen as an important role.

9.3 Study 3 – Feedback mechanisms and online community

Feedback preferences and mechanisms

In the interviews and paper prototyping it was notable that the reader reporter participants expressed their appreciation for feedback from the newsroom. Getting more interaction between the reader reporters and the newsroom would motivate to continue contributing, even if every contribution was not useful enough to be published by the news agency. Feedback should consist of information from various sources, such as user ratings and statistics gathered by the information system. Whatever feedback mechanism is used, a possibility to criticism and constructive feedback should be enabled. In other words, using mechanisms that enable delivering only positive feedback without further specifications is not suggested.

The means for delivering feedback should be suitable for the users. All participants in the reader reporter activity are not fluent internet users or using smartphones. That should be taken in account when designing channels for participation and feedback.

Allowing online participation anonymously is a suggested approach. In many websites, most of the traffic is generated by users that are not signed in. Even though, anonymous participation requires resources for the content moderation.

An online community for reader reporters

Making use of the existing social web services is recommended, but it should be taken in account that all reader reporters are not using the services actively or at all. Therefore, the use of other web services should not be a requirement for participation.

The participants were among the most active reader reporters of the local newspaper. Self-development was one of the dominating motivations the participants had. Thus, competitive features were not preferred. A reason for the low acceptance of competition and gamification may be the high age of the participants. Meaningful gamification was introduced as a suggested approach for participatory journalism. In that concept no competition is set up by scoring systems, but the activities are designed to be more playful.

There was no extensive need for networking within the reader reporters, but a possibility for discussion would be a positive addition to the current situation. More interaction with newsroom was also desired. A community would benefit from assignments that are proven to raise the level of participation and motivation.

10 GUIDELINES FOR UGC QUALITY MANAGEMENT

The following guidelines for managing content quality in online communities were constructed based on literature and the results of this study. Some of the guidelines are targeted specifically for the context of participatory journalism, but many of them apply also in other online communities.

Enable verbal feedback

In addition to ratings, a user-generated content oriented community should have a verbal feedback feature, such as commenting. Verbal feedback mechanisms were highly preferred among the reader reporters over clickable or implicit mechanisms. For use cases where no resources for moderating the comments are available, enabling the users to add predefined tags to content could substitute the commentary section. User approval of the proposed tagging feature in this context is a subject for further research.

Enable constructive feedback

If content is classified with tags, there should be both positive and critical categories available. The reader reporters expressed a need for self-development. Positive tags would express what is good in the content, while other descriptive tags would indicate what could be done differently, supporting self-development and learning.

Prefer bipolar positive-negative rating over other scales

Prefer a rating mechanism with a simple bipolar positive-negative scale, such as thumbs up – thumbs 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. Users are most likely giving either five stars or only one star. That is why five star rating mechanisms do not provide extra value comparing to bipolar positive-negative rating systems.

Let the users give feedback on content without registration

Let the users comment and rate content without registration and signing in. In the interviews of this study various reader reporters hoped for an easy way to give feedback. Anonymous commenting was also 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 and Naaman (2011) found that 40% of the users of a community website would cease commenting if registration was needed.

Enable providing additional information with flags

When users flag inappropriate content, they should be able to provide extra information on the reason they are flagging for. For example tags can be used for this purpose. Diakopoulos and Naaman (2011) argued that informational tagging would make the moderators more aware on the delicate issues that appear in the comments. Presenting tags would also reveal the policies of the website to the users of the flagging system.

Design recognizable feedback mechanisms

Design feedback mechanisms that are easily recognizable as such to attract more users to use them. The most polished and modern implementation may not be the one attracting the users best. Differences and changes in habits and concepts between the user groups and over time should be taken in account. The influence of feedback mechanism design to its usage was demonstrated by Dooms et al. (2011).

Use redundant evaluation mechanisms, also other than user feedback

Many of the reader reporters in this study 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 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

When rewards or honours are delivered based on the content contributions, the rewarding criteria should be published when possible. Reader reporters' descriptions on honour features for an online community revealed the need to know the rewarding criteria. That would facilitate self-development and learning about the needs of the newsroom.

Promote high-quality user-generated content

It was found that the reader reporter activity was focused on the content, and little social connections existed. Highlighting the content was preferred over highlighting the contributors. The reader reporters proposed good content to be visible for longer time period than currently on the web page Omakaupunki.fi, where only the latest user-generated photos gained visibility for a short period of time.

Organize user-generated content and offer sorting

In the current website Omakaupunki.fi 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 and Naaman (2011) suggested filtering tools for comments. Effective sorting would enable users to find the content fitting in their individual needs, and therefore increase the perceived content quality. Same approach should be used with all types of user-generated content.

Make use of existing social media services, but do not force their use

Half of the twenty reader reporters in this study were active users of social media, namely Facebook. Six of the participants did not use Facebook at all. A proposal was made by four participants, that the possible future social interaction between the reader reporters could be performed within the existing social platforms. One participant mentioned the contrary, that a Facebook account should not be a requirement for participation. A need for easy sharing to existing services was also mentioned. Based on these results, making use of existing social media services is recommended, but forcing the use of them could be detrimental for a community with this type of users.

Provide instructions and tools for self-development

A need for basic instructions on photography was mentioned by the reader reporters. Many of the participants had expertise on photography. They had a perception that the quality of the user-generated photos could be improved significantly with few simple instructions on photography. Providing links to external web pages containing instructional material could serve as a cost-effective solution.

Participatory journalism involves the reader reporters in situations where additional legitimate information would be helpful. There was unawareness among the participants on privacy related issues when taking photos for news purposes. This type of domain specific information should also be available for the users of a reader reporter community. A best practice of providing clear community guidelines and expectations was also referred by Diakopoulos and Naaman (2011).

Use understandable and meaningful measures of quality

Instead of rating the content on multiple and complex dimensions, put together understandable definitions 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) argued that the umbrella term “helpfulness” represents various dimensions of the quality of a textual message.

Use meaningful gamification

Gamification features, such as top lists or achievements, were not preferred by the reader reporters in this study. A competitive setting did not motivate many of the older reader reporters, but was seen as childish. Nicholson (2012) argued that attaching a scoring system to a non-game context can be even harmful to the motivation of the users. Instead, the users should be provided only with information on the activity, allowing them to create their own games and objectives. According to Nicholson, another meaningful goal is to make the activity itself more playful, but without a scoring system. It was mentioned also by the reader reporters that a scoring system could lead to wrong participation habits. In a competitive situation, it is hard for an individual to become a top contributor, and the feeling of the obtained intrinsic satisfaction could also diminish.

11 DISCUSSION AND CONCLUSION

The starting point for this study was based on three research questions. The first research question aimed at exploring what is user-generated content quality in news journalism. The second question focused on what mechanisms are currently used to evaluate online content quality and how suitable the mechanisms are to be used in participatory journalism. Finally, the study aimed to investigate how to motivate a crowd to generate content of desired quality and promote participation in an online community.

11.1 Discussion

User-generated content websites have been reviewed before for the types and roles of UGC in news sites (Thurman 2008; Tomaiuolo 2009). The website review that was carried out in this study gave a recent view on online content evaluation mechanisms. Compared to the earlier reviews, the evolvement of the web services in the past years was noted in the forms of participation. The influence of the social web services was noted in the reviewed sites. Sociability is an important viewpoint of today's online news services, and it was reflected also in the content evaluation mechanisms. Even if the integration to the existing social services is important, these features may also raise issues with the users who are not active users of those services. For them, an extensive use of social plugins may lead to a diminishing interest and worse user experience. Besides the observation on the popularity of the social features, hints for design were obtained from the implementations of the classifying feature. Due to the possible complexity of use, the designs of the tagging and classifying mechanisms should be investigated more, and the possible designs should be tested.

In the earlier studies on user-generated content quality, especially question asking sites have been in focus (for example Agichtein et al. 2008; Shah & Pomerantz 2010; John et al. 2011). In this study, definitions of quality were examined in the context of user-generated news content. The viewpoints of the newsroom and the reader reporters were taken in account. The found definitions were consistent with the existing criteria for what makes news (Burns 2002; Potter 2006; Sissons 2006; Itule & Anderson 2007). In the case of user-generated news photos, the exploration revealed that even if the reader reporters emphasize the importance of the technical quality, it is not an issue for the newsroom. Technical quality not being a barrier for the newsroom is an important result to be realized for the future operations. The emphasis in the quality management should be put on informing the reader reporters about the wanted news material and make them focus more on the contents of their material. This insight gives a clear aim

for the operations with reader reporters: to communicate the types of topics that are valuable and desired by the newsroom.

Gathering ideas for design with a paper prototype revealed new information on reader reporters' preferences on game elements and competition between the reader reporters. The research method was suitable for the purpose, and the data was collected successfully as planned. The participants understood the procedure well, and many of them were enthusiastic to be able to take part to the evaluation and design. The results can guide the development of the reader reporter activity in the future, suggesting not to rely only on a competitive setting. The reader reporters had other motivations to participate than competing against each other. It is easy to make a hypothesis that gamification could even decrease the existing motivations. The results supported to the concept of meaningful gamification versus meaningless gamification presented by Nicholson (2012). Nicholson argued that introducing a scoring system on top of a non-game activity generates only short term benefits. With user-centered game design and game elements that are meaningful to the users, a positive experience affecting the users' mindset can be offered, achieving long term benefits. Combining the results with the earlier studies on motivations to participate (for example Väätäjä 2012) leads to a more comprehensive understanding on participatory journalism in practice.

The results of this study can be used by Sanoma Kaupunkilehdet, a publisher of a local newspaper in the Helsinki area. Even though the consisted guidelines for quality management of user-generated content should still be validated, they are seen as a valuable contribution. While building online communities, local newspaper publishers can improve their services and feedback delivery for their reader reporters taking in account the guidelines that were contributed in this study.

11.2 Evaluation of the study

The research method for exploring the quality attributes from the interview data was experimental. A questionnaire on the reader reporters' views on content quality was used as a secondary data gathering method. The results from the questionnaire were consistent with the results from the interview analysis, thus it indicated that the exploratory method was reliable.

The sample group consisted of older reader reporters; the median age was 60.5 years. Six of the twenty participants reported they are not using social media services (Facebook or Twitter) at all and had a negative attitude towards Facebook. In addition, many of the participants were not smartphone users. The results with this sample may not reflect the habits and needs of the younger generation. For example the details about content sharing did not interest this group, but could be more significant for active social media users. The "Like" feature did not get acceptance, as it was seen similar to the Facebook's like feature and thus seen as boring or insignificant.

The evaluation of feedback mechanisms on an ordinal scale was made on four items, "fascinating" ("kiehtova"), motivating ("motivoiva"), rewarding ("palkitseva"), and

"fun" ("hauska"). The results showed correlation between the evaluations on "motivating" and "rewarding", and between "fascinating" and "fun". Friedman's Test revealed no consistency in the distribution of the evaluations on the item "fascinating". In addition, three of the participants mentioned that it was hard to judge with the word "fascinating". In other words, the results could have been attained using only two items, for example "rewarding" and "fun".

What is more, the participants' perception of the numerical evaluation scale may have resulted in higher evaluations than expected. A common scale that is used in many schools in Finland is from four to ten. In that scale, seven is the middle answer between the two extremes. In the scale from zero to ten, the middle answer would have been five. Still, one participant explicitly mentioned marking seven every time she was unsure of what she should mark. Other participants may have had similar perceptions on the rating scale affecting their evaluations. This kind of perceptions on the rating scale could have made the differences in the results seem smaller than they actually were.

11.3 Summary and future work

The motivation behind this study was a need to improve the quality of user-generated content in participatory journalism. A literature review on definitions of quality and motivation theories was made. A state-of-the-art review on evaluation mechanisms was carried out on 31 websites. A user study on online feedback mechanisms and preferences was conducted with twenty active reader reporters. Interviews, evaluation of example feedback mechanisms, and paper prototype brainstorming were used to find out reader reporters' preferences and needs for feedback when participating in the news creation process.

Interviews revealed that the current feedback the reader reporters receive is based on the published material and monetary rewards. Detailed information on the usage of the contributed content is not delivered to the reader reporters, even if they were interested to know more about the usefulness of their contributions. The results point out the significance of feedback from the newsroom, reader reporters' need for constructive feedback, and the superiority of verbal feedback mechanisms compared to numerical mechanisms. No significant differences were found between the non-verbal feedback mechanisms with this sample, pointing out an interesting topic for further research. Investigating the effect of age on the feedback mechanism and online community preferences is also a subject for more research.

Further study could be performed with a younger age group, for example with reader reporters aged from 15 to 30 years. It would be interesting to conduct a similar study and compare the results. Other important aspect of the feedback mechanisms is the context of use. In this study, the feedback mechanisms were represented by paper prototypes, lacking an essential property of interactivity. Studying feedback mechanisms in a more realistic context, within a working website or with a functional prototype, could give more valid results. A suitable method to gather quantitative data could be an inter-

active online questionnaire. In such a questionnaire, the feedback mechanisms could be represented realistically interactive and in a real context on a computer screen, rather than on paper.

When brainstorming an online community with a paper prototype, the reader reporters indicated they would prefer highlighting high-quality user-generated content in the community, but were not excited about competition between reader reporters. There were ideas about discussion and messaging between reader reporters, even if some did not find collaboration necessary at all. The participants also hoped for a direct communication channel to the newsroom.

The design process of an online community for reader reporters could continue by designing the user interface iteratively for selected features. Paper prototype usability tests with the target users would be a feasible manner to iterate and confirm the designs. The reader reporters that participated to this study could be an easy user group to involve in the testing, as they are already familiar with the concept of the service as well as with the testing procedure. Fresh thoughts from other reader reporters would also be valuable. Since the website for sending content to the newsroom already exists (www.teejuttu.fi), the new features with a confirmed design could be gradually implemented and taken into use by the real users.

To conclude, implementing mechanisms enabling qualitative feedback is recommended to improve the motivation and long term learning of the reader reporters. Even if it is hard to focus personally on each member of a large community, channels for distributing direct feedback from the newsroom to the contributors are worth designing.

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APPENDIX A: DEMOGRAPHICAL DATA COLLECTION FORM

Ikä: _____ Sukupuoli: ☐Nainen ☐Mies

Koulutus (valitse korkein aste):

☐ Peruskoulu
☐ Ylioppilas
☐ Ammattitutkinto
☐ Ammattikorkeakoulututkinto
☐ Alempi korkeakoulututkinto (kandidaatti tai vastaava)
☐ Ylempi korkeakoulututkinto (maisteri tai vastaava)
☐ Jatkotutkinto korkeakoulusta (lisensiaatti, tohtori)
☐ Muu koulutus, mikä _____

Ammatti/tehtävä:

_____

Kuinka usein olet lähettänyt materiaalia lehtiin tai muihin uutismedioihin viimeisen 3kk aikana?

	Päivittäin	Viikoittain	Kuukausittain	Harvemmin	En kertaakaan
Valokuvia	☐	☐	☐	☐	☐
Juttuja	☐	☐	☐	☐	☐
Juttuvinkkejä	☐	☐	☐	☐	☐
Videokuvaa	☐	☐	☐	☐	☐
Muuta:_____	☐	☐	☐	☐	☐

☐ Olen osallistunut Metron/Vartin tekstaritehtäväkokeiluun
☐ Olen osallistunut Metron/Vartin Scoopshot-tehtäväkokeiluun

Kuinka usein olet seurannut seuraavia medioita viimeisen 3kk aikana?

	Päivittäin	Viikoittain	Kuukausittain	Harvemmin	En kertaakaan
Metro-lehti	☐	☐	☐	☐	☐
Vartti-lehti	☐	☐	☐	☐	☐
Omakaupunki.fi	☐	☐	☐	☐	☐

Kuinka usein olet käyttänyt seuraavia **yhteisöllisiä** verkkopalveluita viimeisen 3kk aikana?

	Päivittäin	Viikoittain	Kuukausittain	Harvemmin	En kertaakaan
Facebook	☐	☐	☐	☐	☐
Twitter	☐	☐	☐	☐	☐
Flickr	☐	☐	☐	☐	☐
YouTube	☐	☐	☐	☐	☐
Suomi24.fi	☐	☐	☐	☐	☐
Plaza.fi	☐	☐	☐	☐	☐
Muu: _____	☐	☐	☐	☐	☐
Muu: _____	☐	☐	☐	☐	☐

APPENDIX B: FEEDBACK MECHANISM EVALUATION FORMS

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Antaisin palautetta tällä tavalla ☐Kyllä ☐En

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Antaisin palautetta tällä tavalla ☐Kyllä ☐En

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Antaisin palautetta tällä tavalla ☐Kyllä ☐En

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Antaisin palautetta tällä tavalla ☐Kyllä ☐En

Arvioi palautetapaa **kuvan ottajan** näkökulmasta.

	Ei lainkaan										Erittäin paljon
Kiehtova	0	1	2	3	4	5	6	7	8	9	10
Palkitseva	0	1	2	3	4	5	6	7	8	9	10
Hauska	0	1	2	3	4	5	6	7	8	9	10
Motivoiva	0	1	2	3	4	5	6	7	8	9	10

Haluaisin saada palautetta tällä tavalla ☐Kyllä ☐En

Antaisin palautetta tällä tavalla ☐Kyllä ☐En

APPENDIX C: PAPER PROTOTYPE OF A READER REPORTER ONLINE COMMUNITY

Parhaat lukijan kuvat

Parhaat lukijan jutut

1. *****
2. *****
3. ****
4. ****
5. ***

Katsotuimmat lukijan kuvat

Luetuimmat lukijan jutut

1.
2.
3.
4.
5.

Keskustelluimmat lukijan kuvat

Keskustelluimmat lukijan jutut

1.
2.
3.
4.
5.

Eniten jaetut kuvat

Eniten jaetut lukijan jutut

1.
2.
3.
4.
5.

Seuratuimmat lukijareportterit

Matti	321 seuraajaa
Seppo	290 seuraajaa
Liisa	231 seuraajaa
Maija	199 seuraajaa
Pekka	160 seuraajaa

KUUKAUDEN LUKIJAREPORTTERI

Pekka

Kuukauden eniten palkitut lukijareportterit

1.	Matti	250 euroa
2.	Pekka	200 euroa
3.	Seppo	150 euroa
4.	Maija	140 euroa
5.	Liisa	80 euroa

Toimituksen valitsema KUUKAUDEN KUVAAJA

Pekka

Eniten kuvia lähettäneet lukijareportterit

1.	Pekka	50 kuvaa
2.	Seppo	45 kuvaa
3.	Matti	30 kuvaa
4.	Liisa	29 kuvaa
5.	Maija	16 kuvaa

Lukijoiden valitsema KUUKAUDEN KUVAAJA

Pekka

TOP-5 lukijareportterit

1.	Pekka	120 pistettä
2.	Seppo	90 pistettä
3.	Matti	75 pistettä
4.	Liisa	60 pistettä
5.	Maija	59 pistettä

Viimeisin saavutus

MATTI ansaitsi kunniamerkin "1. julkaistu kuva"

APPENDIX D: LATIN SQUARE RANDOMIZING TABLE

Order 1	1 A	2 B	3 C	4 D	2 A	1 B	4 C	3 D	3 A	4 B	1 C	2 D	4 A	3 B	2 C	1 D
Order 2	2 A	1 B	4 C	3 D	3 A	4 B	1 C	2 D	4 A	3 B	2 C	1 D	1 A	2 B	3 C	4 D
Order 3	3 A	4 B	1 C	2 D	4 A	3 B	2 C	1 D	1 A	2 B	3 C	4 D	2 A	1 B	4 C	3 D
Order 4	4 A	3 B	2 C	1 D	1 A	2 B	3 C	4 D	2 A	1 B	4 C	3 D	3 A	4 B	1 C	2 D
Order 5	1 B	2 C	3 D	4 A	2 B	1 C	4 D	3 A	3 B	4 C	1 D	2 A	4 B	3 C	2 D	1 A
Order 6	2 B	1 C	4 D	3 A	3 B	4 C	1 D	2 A	4 B	3 C	2 D	1 A	1 B	2 C	3 D	4 A
Order 7	3 B	4 C	1 D	2 A	4 B	3 C	2 D	1 A	1 B	2 C	3 D	4 A	2 B	1 C	4 D	3 A
Order 8	4 B	3 C	2 D	1 A	1 B	2 C	3 D	4 A	2 B	1 C	4 D	3 A	3 B	4 C	1 D	2 A
Order 9	1 C	2 D	3 A	4 B	2 C	1 D	4 A	3 B	3 C	4 D	1 A	2 B	4 C	3 D	2 A	1 B
Order 10	2 C	1 D	4 A	3 B	3 C	4 D	1 A	2 B	4 C	3 D	2 A	1 B	1 C	2 D	3 A	4 B
Order 11	3 C	4 D	1 A	2 B	4 C	3 D	2 A	1 B	1 C	2 D	3 A	4 B	2 C	1 D	4 A	3 B
Order 12	4 C	3 D	2 A	1 B	1 C	2 D	3 A	4 B	2 C	1 D	4 A	3 B	3 C	4 D	1 A	2 B
Order 13	1 D	2 A	3 B	4 C	2 D	1 A	4 B	3 C	3 D	4 A	1 B	2 C	4 D	3 A	2 B	1 C
Order 14	2 D	1 A	4 B	3 C	3 D	4 A	1 B	2 C	4 D	3 A	2 B	1 C	1 D	2 A	3 B	4 C
Order 15	3 D	4 A	1 B	2 C	4 D	3 A	2 B	1 C	1 D	2 A	3 B	4 C	2 D	1 A	4 B	3 C
Order 16	4 D	3 A	2 B	1 C	1 D	2 A	3 B	4 C	2 D	1 A	4 B	3 C	3 D	4 A	1 B	2 C

1A: Best readers' photos
1B: Most viewed readers' photos
1C: Most discussed readers' photos
1D: Most shared readers' photos

2A: Best readers' stories
2B: Most viewed readers' stories
2C: Most discussed readers' stories
2D: Most shared readers' stories

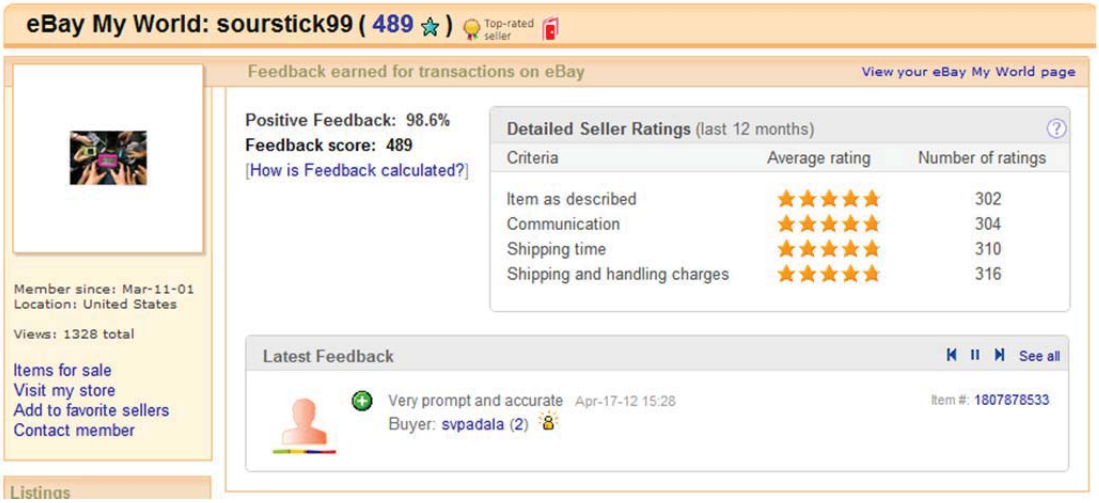
3A: Most followed reader reporters
3B: Most rewarded reader reporters of the month
3C: Most contributed reader reporters
3D: TOP-5 Reader reporters

4A: Reader reporter of the month
4B: Photographer of the month - editors' choice
4C: Photographer of the month - readers' choice
4D: Latest achievement

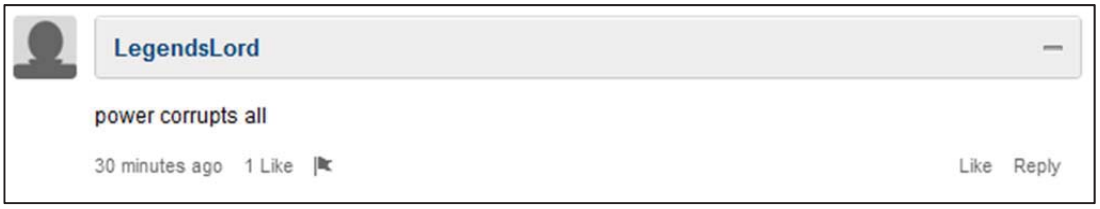
APPENDIX E: EXAMPLE IMAGES OF FEEDBACK MECHANISMS

Descriptive classifying implementation in Huffington Post news site.

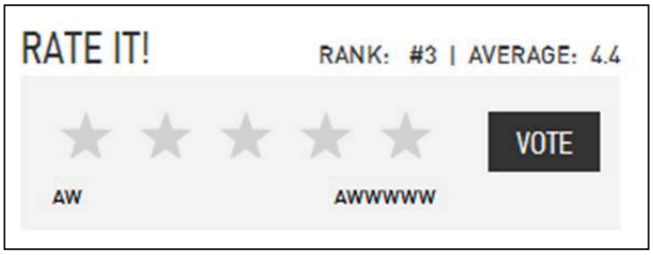
Externally authenticated users with a thumb icon in huuto.net.



Feedback profile in eBay.



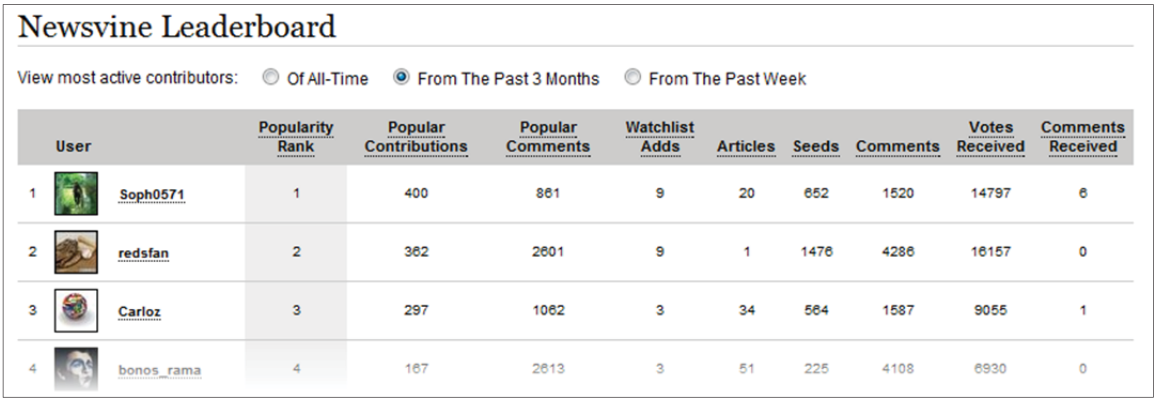
Comment flagging (flag icon) and "Like" feature in cnn.com commentary section.



Star rating in Huffington Post photo gallery.

Like or dislike in YouTube.

Social share count visible as used in theguardian.com (layout modified).



Newsvine Leaderboard

View most active contributors: Of All-Time | From The Past 3 Months | From The Past Week

	User	Popularity Rank	Popular Contributions	Popular Comments	Watchlist Adds	Articles	Seeds	Comments	Votes Received	Comments Received
1	Soph0571	1	400	861	9	20	652	1520	14797	6
2	redsfan	2	362	2601	9	1	1476	4286	16157	0
3	Carloz	3	297	1062	3	34	564	1587	9055	1
4	bonos_rama	4	167	2613	3	51	225	4108	6930	0

Users are ranked based on the statistics of their activities in newsvine.com.

APPENDIX F: BENCHMARKING OF 31 WEBSITES

Website	Flag	Share with count	Badges	Positive rating	Stats	Follow/ subscribe/ favourite	Positive-Negative rating	Other scale rating	Points	Feedback profile	Descriptive classifying	External authentication	Qualifications
Huffington Post	x	x	x	x	x	x		x			x		
Newsvine	x	x	x	x	x	x	x		x				
Yahoo answers	x		x	x	x	x	x	x	x				
Amazon	x		x	x			x			x		x	
Slashdot	x	x	x		x	x		x			x		
Topix	x	x	x	x	x				x		x		
Allvoices	x	x	x			x	x	x					
CNN iReport	x	x	x		x	x		x					
Digital Journal		x	x	x	x	x			x				
eBay	x		x			x		x		x			
Journal Community	x	x	x	x		x							
Reddit	x		x			x	x		x				
Time	x	x		x	x		x						
Digg		x	x		x	x	x						
Huuto.net		x	x					x		x		x	
Vimeo	x	x		x	x	x							
iTowns	x	x		x				x					
OhMyNews Int.		x			x		x	x					
The Guardian	x	x	x	x									
The Sun	x	x		x	x								
Washington Times	x			x	x		x						
Wikipedia			x					x		x	x		
BBC Have Your Say	x	x					x						
Flickr	x					x				x			
Express	x	x			x								
Mail Online	x	x					x						
Now Public				x	x				x				
The Telegraph	x	x		x									
YouTube	x					x	x						
Your Arlington		x						x					
Mechanical Turk													x
Total count	**23 /31**	**21/31**	**16/31**	**15/31**	**15 /31**	**14/31**	**12/31**	**11/31**	**6/31**	**5/31**	**4/31**	**2/31**	**1/31**

APPENDIX G: QUANTITATIVE DATA PAIRWISE COMPARISONS

Order

Friedman's Test - Pairwise comparisons		Test statistic	p
class_order	comm_order	.200	1.000
class_order	stars_order	-1.400	.269
class_order	share_order	-1.750	**.046***
class_order	views_order	-1.800	**.035***
class_order	like_order	-2.050	**.008****
comm_order	stars_order	-1.200	.638
comm_order	share_order	-1.550	.132
comm_order	views_order	-.1.600	.103
comm_order	like_order	-1.850	**.026***
stars_order	share_order	.350	1.000
stars_order	views_order	.400	1.000
stars_order	like_order	-.650	1.000
share_order	views_order	.050	1.000
share_order	like_order	-.300	1.000
views_order	like_order	-.250	1.000

*** P < .05** **** P < .01**

Abbreviations

class:	Classifying
comm:	Comments
stars:	Stars
share:	Social share with count
views:	Views
like:	Like

Motivating

Friedman's Test - Pairwise comparisons		Test statistic	p
views_mot	stars_mot	-.150	1.000
views_mot	like_mot	-.300	1.000
views_mot	share_mot	-.575	1.000
views_mot	class_mot	1.500	.168
views_mot	comm_mot	1.825	**.031***
stars_mot	like_mot	-.150	1.000
stars_mot	share_mot	.425	1.000
stars_mot	class_mot	1.350	.337
stars_mot	comm_mot	1.675	.070
like_mot	share_mot	.275	1.000
like_mot	class_mot	1.200	.638
like_mot	comm_mot	1.525	.149
share_mot	class_mot	.925	1.000
share_mot	comm_mot	1.250	.519
class_mot	comm_mot	.325	1.000

*** P < .05** **** P < .01**

Rewarding

Friedman's Test - Pairwise comparisons		Test statistic	p
like_rew	views_rew	.400	1.000
like_rew	stars_rew	.675	1.000
like_rew	share_rew	1.050	1.000
like_rew	comm_rew	1.850	**.026***
like_rew	class_rew	1.875	**.023***
views_rew	stars_rew	-.275	1.000
views_rew	share_rew	-.650	1.000
views_rew	comm_rew	1.450	.214
views_rew	class_rew	1.475	.190
stars_rew	share_rew	.375	1.000
stars_rew	comm_rew	1.175	.705
stars_rew	class_rew	1.200	.638
share_rew	comm_rew	.800	1.000
share_rew	class_rew	.825	1.000
comm_rew	class_rew	-.025	1.000

*** P < .05** **** P < .01**

Fascinating

Related-Samples Wilcoxon Signed Rank Test		Test statistic	p
comm_fas	class_fas	-.772	.440
comm_fas	views_fas	-2.525	**.012***
comm_fas	share_fas	-1.771	.076
comm_fas	stars_fas	-2.138	**.033***
comm_fas	like_fas	-1.522	.128
class_fas	views_fas	-2.047	**.041***
class_fas	share_fas	-.789	.430
class_fas	stars_fas	-2.432	**.015***
class_fas	like_fas	-.989	.323
views_fas	share_fas	1.604	.109
views_fas	stars_fas	.664	.506
views_fas	like_fas	1.646	.100
share_fas	stars_fas	-1.362	.173
share_fas	like_fas	.-115	.908
stars_fas	like_fas	1.163	.245

*** P < .05** **** P < .01**

Fun

Friedman's Test - Pairwise comparisons		Test statistic	p
views_fun	like_fun	-.650	1.000
views_fun	stars_fun	-.675	1.000
views_fun	share_fun	-1.100	.945
views_fun	comm_fun	2.000	**.011***
views_fun	class_fun	2.025	**.009****
like_fun	stars_fun	.025	1.000
like_fun	share_fun	.450	1.000
like_fun	comm_fun	1.350	.337
like_fun	class_fun	1.375	.302
stars_fun	share_fun	.425	1.000
stars_fun	comm_fun	1.325	.377
stars_fun	class_fun	1.350	.337
share_fun	comm_fun	.900	1.000
share_fun	class_fun	.925	1.000
comm_fun	class_fun	-.025	1.000

*** P < .05** **** P < .01**

Would you like to receive feedback with this method?

Cochran's Q Test - Pairwise comparisons		Test statistic	p
like_receive	share_receive	.158	1.000
like_receive	stars_receive	.158	1.000
like_receive	views_receive	.211	1.000
like_receive	class_receive	.368	.093
like_receive	comm_receive	.474	**.006****
share_receive	stars_receive	.000	1.000
share_receive	views_receive	.053	1.000
share_receive	class_receive	.211	1.000
share_receive	comm_receive	.316	.284
stars_receive	views_receive	.053	1.000
stars_receive	class_receive	.211	1.000
stars_receive	comm_receive	.316	.284
views_receive	class_receive	.158	1.000
views_receive	comm_receive	.263	.757
class_receive	comm_receive	.105	1.000

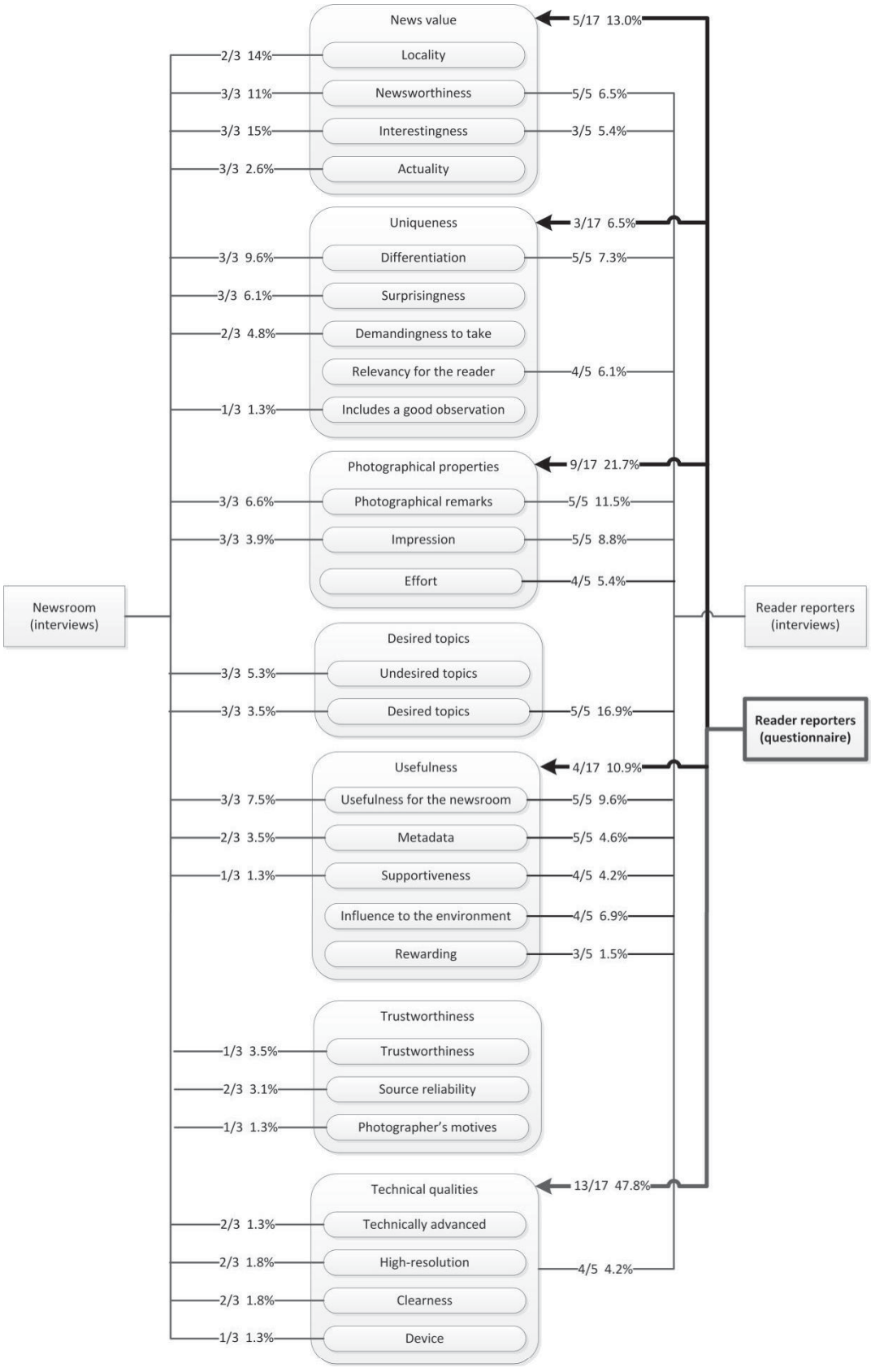
*** P < .05** **** P < .01**

Would you give feedback with this method?

Related Samples McNemar Change Test		Test statistic	p
comm_give	class_give	.000	1.000
comm_give	share_give	1.500	.219
comm_give	stars_give	1.125	.289
comm_give	like_give	2.500	.109
class_give	share_give	2.286	.125
class_give	stars_give	3.200	.062
class_give	like_give	4.000	**.039***
share_give	stars_give	.000	1.000
share_give	like_give	.125	.727
stars_give	like_give	.100	.754

*** P < .05** **** P < .01**

APPENDIX H: QUALITY ATTRIBUTE COMPARISON



First figure: Number of the participants who mentioned the category / all participants, for example 2/3.
Second figure: The percentage of the mentions in the category, related to all mentions in the data set, for example 14%.