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2017-05-19

Backholm, K H, Ausserhofer, J, Frey, E, Grøndahl Larsen, A, Hornmoen, H, Högväg, J & Reimerth, G 2017, 'Crises, Rumours and Reposts: Journalists' Social Media Content Gathering and Verification Practices in Breaking News Situations', Media and Communication, vol. 5, no. 2, pp. 67-76. <https://doi.org/10.17645/mac.v5i2.878>

<http://hdl.handle.net/10138/185910>

<https://doi.org/10.17645/mac.v5i2.878>

publishedVersion

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Article

Crises, Rumours and Reposts: Journalists' Social Media Content Gathering and Verification Practices in Breaking News Situations

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Submitted: 31 January 2017 | Accepted: 28 April 2017 | Published: 19 May 2017

Abstract

Social media (SoMe) platforms provide potentially important information for news journalists during everyday work and in crisis-related contexts. The aims of this study were (a) to map central journalistic challenges and emerging practices related to using SoMe for collecting and validating newsworthy content; and (b) to investigate how practices may contribute to a user-friendly design of a web-based SoMe content validation toolset. Interviews were carried out with 22 journalists from three European countries. Information about journalistic work tasks was also collected during a crisis training scenario ($N = 5$). Results showed that participants experienced challenges with filtering and estimating trustworthiness of SoMe content. These challenges were especially due to the vast overall amount of information, and the need to monitor several platforms simultaneously. To support improved situational awareness in journalistic work during crises, a user-friendly tool should provide content search results representing several media formats and gathered from a diversity of platforms, presented in easy-to-approach visualizations. The final decision-making about content and source trustworthiness should, however, remain as a manual journalistic task, as the sample would not trust an automated estimation based on tool algorithms.

Keywords

crisis; journalism; situational awareness; social media; usability; user-centred design; verification

Issue

This article is part of a multidisciplinary issue of *Media and Communication*, edited by Epp Lauk (University of Jyväskylä, Finland) and Raul Reis (Emerson College, USA).

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1. Introduction

Journalists use the same social media (SoMe) channels as the public to gather information about breaking news situations. Due to the vast amount of available information,

filtering and validation is time-consuming and demanding (Diakopoulos, De Choudhury, & Naaman 2012; Schiffores et al., 2014; Silverman, 2014). A central challenge for crisis journalism is to find ways to simplify this process. As suggested by e.g. Brandtzæg, Luders, Spangen-

berg, Rath-Wiggins and Folstad (2016), part of the solution may be to introduce new technical innovations that support journalistic filtering and validation processes.

The general aim of this study is to add to current knowledge about how existing journalistic verification practices and needs can be applied to a changing information environment, and to map how practices could be adjusted. A second aim is to apply this knowledge to a product development framework, to provide valuable information for scholars and product developers aiming to design new technical innovations supporting verification processes. We employ two approaches: First, we map practical challenges news journalists currently face in their SoMe usage, and thus identify the main needs and emerging new practices. Second, we investigate how the needs may contribute to a user-friendly design of a content validation toolset for journalistic work in everyday and crisis-specific contexts. We aim to expand current knowledge by illustrating how journalistic needs could be implemented in a validation toolset, and by explaining why designing the tool in the suggested way will improve situational awareness (SA) when working in a high-stress environment.

In the literature review, we first elaborate on the challenges journalists face when gathering information from SoMe platforms, and on whether journalists use tools that can support their work. We then introduce two concepts that are relevant when designing innovations for journalistic work in emergencies—usability and SA.

1.1. Journalistic Challenges with Gathering and Verifying SoMe Information

Sourcing is an integral part of the journalistic news production process. For decades, journalists have tended to rely heavily on official and elite sources, such as government representatives, in their reporting (Hallin, Manoff, & Weddle, 1993), and have developed different methods to verify sources (Shapiro, Brin, Bédard-Brûlé, & Mychajlowycz, 2013). Journalists can apply established practices to social media content, but the structure and usage of the Internet and SoMe complicate journalistic information gathering and verification processes. First, online, users communicate “through complex networks that are bottom-up, top-down, as well as side-to-side” (Ito, 2008, p. 3). For journalists, these communication traces can be difficult to follow. Second, costs as a barrier to disseminating information have practically been eliminated (Benkler, 2006), leading to a situation of journalists online being confronted with an increasing number of sources. While greatly expanding the range of available sources, the digital environment thus confronts journalists with challenges related to filtering and assessing the authority, trustworthiness and veracity of sources. These challenges are accentuated during emergencies where the production pace is faster, SoMe activity increases, and trustworthy information is crucial (Diakopoulos et al., 2012).

Existing research on content gathering and validation strategies suggests that when journalists find interesting information via SoMe channels, the majority still turn to traditional verification methods, such as phone, e-mail or face-to-face contact (Brandtzæg et al., 2016). A small number of journalists make use of manual crowdsourcing techniques in social media (Hermida, Lewis, & Zamith, 2014). However, journalists are not dismissing new innovations, such as content validation tools, as long as functionality and design reflect established journalistic verification procedures and needs (Brandtzæg et al., 2016; Silverman, 2014).

There have been several examples of so-called hybrid techniques, i.e. trial-and-error attempts to combine new tools with well-established journalistic verification strategies (Schifferes et al., 2014). Guidelines and tip sheets such as the European Journalism Centre’s “Verification Handbook” (Silverman, 2014) and the “Social Media Reporting Tools” by the Dart Center for Journalism and Trauma (Jenkins, 2013) include case examples of how hybrid techniques have been developed and tried out. These descriptions currently form a basis for what may become established practices. When scholars have previously mapped journalists’ experiences and needs relating to the possible use of a tool, responses about identifying new content have usually overlapped with answers about verifying the trustworthiness of the information.

The importance of the following factors have commonly been emphasized. Tools should:

- be able to monitor SoMe content and identify newsworthy information, such as emerging events or trends, sudden turns during ongoing events, and key influencers affecting SoMe opinions about the event (Brandtzæg et al., 2016; Schwartz, Naaman, & Teodoro, 2015; Schifferes et al., 2014);
- be able to handle verification of varying forms of content, such as text or videos, and integrate content from several SoMe platforms into verification processes (Brandtzæg et al., 2016; Schifferes et al., 2014);
- offer the journalist a high level of control over, and possibilities to filter, what type of content is tracked or presented, e.g. being able to address both content and source verification in order to answer to individual journalistic needs (Diakopoulos et al., 2012; Schifferes et al., 2014);
- be able to identify the geographical location of a source (Diakopoulos et al., 2012);
- have an easy-to-use design and visualization of content to answer to the rapid content production requirement (Brandtzæg et al., 2016; Schwartz et al., 2015);
- have a user-friendly design regardless of the technical equipment used (Brandtzæg et al., 2016).

In addition to needs explicitly related to the tool, most studies have highlighted the importance of understand-

ing how the tool has carried out included tasks and algorithm transparency, e.g. whether the tool uses crowd-sourcing as a part of the validation process (Schwartz et al., 2015). If journalists do not understand how results reported by a tool are produced, it will be difficult to make a final journalistic decision regarding the trustworthiness of the content (Diakopoulos, 2014; Park, Sachar, Diakopoulos, & Elmqvist, 2016).

While previous works have produced several relevant findings, their results are also limited. Studies have co-operated with legacy newsrooms situated mainly in the United States and the UK (Diakopoulos et al., 2012; Schifferes et al., 2014; Schwartz et al., 2015). Their research has focused on experienced social media editors, e.g. “some of the best, most prominent, and leading-edge users of social media in journalism today” (Diakopoulos et al., 2012, p. 6), drawing from a male-dominated sample (Brandtzæg et al., 2016; Diakopoulos et al., 2012). Brandtzæg et al. (2016) suggest future research that better considers the perspective of young and female practitioners. Our study seeks to fill the research gaps outlined above by integrating the perspectives of young journalists of both sexes, with varying SoMe experience, and working in mid-sized media organizations in different European countries.

1.2. Usability and Situational Awareness

One of the aims with this study is to investigate how a SoMe validation tool should be designed to reach good usability and contribute to SA. Usability is the extent to which a product can be used by a specified user group to achieve goals with effectiveness, efficiency and satisfaction in a specified context of use (ISO 9241, 2010). Usability-focused developers try to optimize a product according to how users can, want, or need to use it, not to force users to change their behaviour according to the product’s requirements (Hertzum & Clemmensen, 2012; Wallach & Scholz, 2012).

When investigating usability in a high-stress context, an understanding of factors affecting SA is central. SA addresses the challenges occupational groups face when working with information flows in high-stress surroundings including many actors and other moving parts (Endsley, 2009; Salmon et al., 2008). News work with SoMe content during an emergency is indeed such an event. A high level of SA is a state of experiencing that one is in control and understands what is happening in a situation (Yin, Lampert, Cameron, Robertson, & Power, 2012). Individuals are often a part of a team working in the same environment, and thus, SA includes individual and collaborative decision-making (Salmon et al., 2008).

Underlying cognitive mechanisms that affect the level of SA include information processing—such as collecting relevant information and interpreting it correctly—and decision-making. The cognitive mechanisms interact continuously with external factors and requirements. For instance, physical or psychological fa-

tigue due to vast workloads may affect working memory and decision-making, while technical factors such as tool or system complexity may take away attention from the main functions necessary for carrying out tasks (Endsley, 2009; Salmon et al., 2008; Yin et al., 2012).

According to Brandtzæg et al. (2016), user-centred methods should be emphasized in future research on journalism innovations. Previous studies mapping journalistic validation needs have in some cases provided general suggestions for how to design a tool that could answer to these needs (Schifferes et al., 2014), but rarely included explanations of how the design would enhance SA. Thus, our study provides a valuable contribution to the literature, as we present strategies for turning journalistic needs into features relevant for tool design, and also clarify how such features will support better SA for individual users and teams during high-stress assignments.

2. Methods

Dataset 1 consisted of semi-structured interviews with news journalists ($N = 22$, females $n = 8$) from three European countries (see Table 1 for sample characteristics). Interviews were carried out in 2015, and recorded and transcribed by the authors. The following main themes were included: a) descriptive data related to work description and background; b) SoMe usage strategies in everyday work and during sudden crises; c) the usefulness of a SoMe content validation toolset for news work, and d) factors that would enhance usability when using a toolset. To enable a detailed mapping of points c) and d), a relatively broad sample of journalists was included.

Information for dataset 2 was gathered by shadowing work tasks and conducting subsequent contextual interviews with journalism students ($N = 5$, females $n = 4$; Table 1) during a crisis training scenario in 2015. Students were involved as news journalists covering the crisis. To protect the identity of participants, information about the region of the scenario is excluded. The scenario was a two-day event in a large city setting. Authorities, rescue personnel, hospitals and media workers participated, and the crises included various industrial accidents with casualties and injured. The personnel trained crisis management and how to communicate with mass media and the public. They communicated directly with participating media organizations, and informed via web pages and two SoMe platforms (Table 1). SoMe content included continuous posts from professional communicators, the public, and media organizations.

The authors observed a training scenario instead of an actual crisis due to the practical difficulties related to planning for shadowing newsrooms during ongoing crises. Three authors carried out the job shadowing. The observers followed work routines and developments on the journalist’s computer screen. Observations were followed up with semi-structured interviews within two weeks to verify that the observer had understood developments during the training correctly.

Table 1. Study sample characteristics.

| | Dataset 1. Interviews, news journalists ($N = 22$) | Dataset 2. Job shadowing during crisis scenario, journalism students ($N = 5$) |
|--------------------------|---|--|
| Country | Austria, Finland, and Norway | |
| Types of media | Newspaper, radio, television and web | Newspaper, television and web-based outlets during scenario |
| Types of work tasks | Management tasks, news production, news broadcasting | News production in the field or at a news desk during scenario |
| Number of SoMe platforms | 1–5 used daily for work purposes | Two platforms used during scenario: Twitter and a platform reminiscent of Facebook, created for usage in scenarios |
| Years of work experience | 3–35 | 0–4 |

We used conceptual frameworks as described in the transcendental realism approach (Miles, Huberman, & Saldana, 2014) to design interview/observation schemes and to analyse data. We applied ethical guidelines provided by the Ethics Board at Åbo Akademi University in the study, including e.g. informed consent, guaranteeing participant anonymity, and using secure servers for data storage.

3. Results and Discussion

First, we present results related to aim 1, mapping practical challenges news journalists face in their SoMe usage. We then present results focusing on aim 2, investigating factors that may enhance usability of a content validation toolset and user SA. These results are derived from dataset 1 only, as the crisis scenario did not focus on usability.

3.1. Current Challenges: Changing Practices and Lacking Guidelines

Journalists mainly used Facebook, Twitter and Instagram in their everyday information validation work. In the acute phase of an emergency, Twitter usage was accentuated due to the short content format and platform searchability, e.g. hashtags. Participants saw Facebook as not keeping up with developments during the acute phase, but as useful when crises calmed down. Instagram was rarely mentioned.

Participants also described an ongoing change when it comes to SoMe practices. While all organizations had clear strategies about publishing their own media products and monitoring the reach of such content, none had similar guidelines for gathering and verifying information in SoMe platforms. The latter was rather seen as something that a small group of journalists within the organization, often described as young reporters with good computer skills, were good at—while the rest lagged behind:

We don't have a good system to verify social media content. We have several journalists who are really

good at this, but what we manage to get done really depends on who happens to be working. (Social media editor, radio/television/web journalism)

The discrepancy between well-developed SoMe publication strategies and close to non-existent gathering and verification guidelines was explained in several ways. Some participants in the two datasets referred to limited financial resources or lack of interest to develop strategies among e.g. managers in the organization. This finding echoes previous research. Brandtzæg et al. (2016), for instance, point to how the current general newsroom context with financial restraints and a growing workload on journalists will affect the way in which SoMe validation strategies are developed. This context may take different concrete forms, such as managers' reluctance to promote strategies, or the "outsourcing" of validation tasks to a small subgroup of tech-savvy journalists.

Other participants described individualized and hybrid techniques (cf. Schifferes et al., 2014; Silverman, 2014) where, for instance, each journalist continuously modifies individual combinations of verification skills and tasks, but where general journalistic guidelines and golden standards apply. Here, traditional journalistic skills are combined with available technical innovations in order to construct relevant routines for individual journalists' work with SoMe content (Schifferes et al., 2014; Silverman, 2014). From this viewpoint, the need for specific SoMe strategies is limited.

How you do this [SoMe content verification] should really be up to you to decide. Of course, there are general requirements about how to carry out your job that you need to follow, you need to act responsibly and so on. But...I do not see any need for specific regulations about this. (Editor-in-chief, radio/television/web journalism)

The lack of overall SoMe verification strategies was also reflected in the low number of participants who were familiar with and used existing tools designed for SoMe content handling. Figures on how common such tools

are have seldom been provided in previous research (Brandtzæg et al., 2016). In this study, most participants did not use a tool themselves. One fourth of the journalists had heard about someone else at the workplace using a tool. Among these tools, Tweetdeck was the most common. However, while not currently using tools, virtually all participants considered a toolset as something that would be useful.

3.2. Current Challenges: Many Platforms and Vast Amounts of Information

Participants were asked to freely identify challenges with their current SoMe usage in everyday journalistic work as well as during crises. The most common challenge concerned filtering out interesting content and/or rapidly finding the original source among vast amounts of information (see also Brandtzæg et al., 2016; Schifferes et al., 2014). The issue of backtracking to the original source becomes especially relevant during unfolding crises or similar high-priority news events, where the production pace is faster, SoMe activity increases and verified information is crucial (cf. Diakopoulos et al., 2012). In our study, a majority of journalists highlighted challenges concerning information overload as a main problem that an automated validation tool could help to solve.

To be able to quickly find the original source, who started writing about this?...What I see as a problem is the huge amount of information, to try to filter that, so that is the kind of help I need. (News journalist and anchor, radio/television/web journalism)

Journalism students participating in the crisis training scenario experienced similar problems. During the training, social media feeds included information from official communicators as well as from the public. Observed students seldom tried to contact potential eyewitnesses or other non-authority social media users directly to verify posted information. In post-scenario interviews, students explained that they were aware of the need to include eyewitnesses in crisis-related journalism, but they had chosen not to. They based their decisions on insecurity about how to carry out the actual verification process, and on time constraints, i.e. not having enough time to backtrack and verify the content.

Another challenge that emerged in the study was the need for simpler routines and innovations for information gathering across several SoMe platforms simultaneously. This would provide a better overview of social media activity and diminish the risk of overlooking relevant content. Again, this need becomes even more relevant during crises. For example, during the training scenario, one participant who was assigned to monitor SoMe platforms for a television outlet simultaneously followed over 20 SoMe and web channels on one screen. While this mostly worked well, the participant overlooked several pieces of vital information due to the vast number of

monitored channels. In addition, requirements set by the physical surrounding, e.g. a hectic production pace, also contributed to increasing the risk of missing relevant content. In this specific case, the student disrupted the monitoring when asked to carry out unexpected tasks, such as booking interviews. Similar problems could be observed with other cases during the training, and were also familiar to the journalists interviewed.

Participants also sought for better strategies for identifying possibly interesting content gathered from these platforms. In practical terms, SoMe content should be channelled from several platforms into one, and presented according to the journalist's personal needs. Useful sorting functions mentioned by participants included features familiar from existing SoMe platforms, such as the time of content posting or trending topics in terms of reposts or comments, but also more specific features such as geolocation of sources or lists of most popular sub-trends within a trending story.

These needs reflect attempts at diminishing time pressure and supporting the quick choices required in journalistic work, and are consistent with other studies. For instance, Schifferes et al. (2014) reported that journalists need to monitor information across platforms as well as across content formats, while Diakopoulos et al. (2012) and Schwartz et al. (2015) stated that journalists want support with identifying possible hyperlocal news.

3.3. Usability of a Validation Toolset: The Importance of Insight into Automation

In this section, we shift focus from identifying journalistic challenges to discussing practical factors that should be addressed when designing a user-friendly information validation tool for everyday and crisis journalism. A central challenge related to implementing a tool was the risk of automation taking over. Most journalists were concerned that the level of automation in a tool might affect the quality of their journalistic work. Participants mentioned this in two ways.

Firstly, to be able to use a tool for verifying content trustworthiness, the user needs to be able to verify the tool itself. This includes factors such as understanding how central algorithms are constructed, and being able to follow chains of searches or other tasks carried out automatically by the tool (for more about suggested ways to do this, see below). This design-related risk is familiar from SA literature in general. E.g., Endsley and Jones (2011) refer to the "out-of-the-loop syndrome" as one of the main issues designers need to understand when building complex systems. The European ISO-standard for human-centred design (ISO 9241, 2010) underlines the importance of using a multi-faceted decision process based on several levels of comparisons when choosing which tasks to automate and which ones to assign to human performance.

The second automation risk focused on the possible automation of final decisions about what is labelled as

useful or verified content (see also, Diakopoulos, 2014; Park et al., 2016; Schwartz et al., 2015). This was seen as something that cannot be outsourced or programmed, but rather has to remain a manual choice based on several layers of information, provided e.g. by a validation tool. In other words, the former type of risk related to automation is based on a practical sense of enhancing SA by understanding how the tool works, and thus avoiding the “out of the loop-syndrome”. The latter risk is perhaps a more general reflection of the unique type of work and practical decisions included in day-to-day journalism.

It would be good if something would take care of [verifying content] since this is a job you do not have time to do if you are in the midst of something. But this does not release us from our responsibility. (Social media editor, newspaper/web journalism)

I am not sure that this is an entirely technical issue, I think it involves something of a real journalistic technique to know whether a source is credible or not. (News journalist, newspaper/web journalism)

3.4. Usability of a Validation Toolset: Using Visualizations to Explain Automation

Thus, the functions included in a SoMe validation tool should, according to the sample, be seen as supporting manual verification work rather than taking over work tasks. A crucial issue was the level of insight into tasks and algorithms carried out automatically. This was present in most discussions about the types of practical tasks that should be included in order to enhance usability and SA when designing the tool. Therefore, based on the interviews, we have extracted three main usability-promoting categories (see Table 2). The categories represent automatic features, manual tasks, and visualization of results. However, the reader is advised to bear in mind that listed features were those most commonly mentioned, e.g. a wish list, but not necessarily those that can all be integrated into a well-functioning tool. Listed functions often hovered across functions related to monitoring, filtering, and verifying SoMe content.

Automatic features (Table 2) are tasks that according to the sample should be carried out automatically by the tool, and that would provide solutions to some of the main SoMe challenges related to risk of information overload and fatigue among users. Central automatic features included: (1) identifying the original source who posted a piece of information, by collecting data from several SoMe platforms, using timestamps, and creating chains of posted and reposted content (regardless of content format) within as well as between SoMe platforms; (2) identifying the trustworthiness and quality of a source, by carrying out comparisons of the type, quality and quantity of the source’s previous SoMe activity within and across platforms, and by carrying out comparisons based on geolocation information; and (3)

finding new trending content as well as new developments within already identified content areas, by collecting data from within and across SoMe platforms.

The second subcategory, manual tasks (Table 2), includes settings within the tool that a user or team should be able to modify according to current needs. Commonly mentioned settings included familiar parameters, such as basic search (a Google across SoMe platforms) and sorting functions (fresh; top; trending), combined with more advanced settings. A key element here would be to allow for searches across platforms. Advanced search and sorting parameters should, for example, include geolocation and language of content settings as well as being able to set content publication timeframe limitations and to choose between formats (e.g. video only). The idea with a range of manual tasks was that since journalists have individual needs, a user-friendly tool should allow for a large degree of personalization. In addition, manual tasks enhance SA by allowing for more insight into the automatically carried out algorithms, as the user or team is able to create own parameters.

The third subgroup of features enhancing tool usability—visualization of results—represents factors that would further bridge the gap between functions automatically carried out and journalists’ needs to (a) understand what the tool has done, and to (b) make well-judged manual decisions based on the information provided. By including clear visualizations of interesting content, the tool would enhance the level of SA by, again, addressing the need to understand tool algorithms, and by avoiding user fatigue. In addition to visualizations related to trending content in general, the tool should provide information focusing on areas of interest relevant to the specific assignment the journalist or team is carrying out (Table 2). Such parameters should be set by the user within the tool’s “manual tasks” subcategory. Mentioned visualizations included: summaries of how content has been automatically compared and cross-referenced across SoMe platforms; visual chains of automatically identified steps between reposts and the original source of information; and summaries of content listed according to advanced search parameters, such as geolocated posts placed on a map of e.g. the media organization’s distribution area.

In addition to the automatic/manual/visualization features, journalists mentioned some purely technical requirements to enhance usability. Requirements reflected central practical needs for journalists, as well as the need to be able to integrate a new tool into existing workplace software. The sample stressed the importance of tool functionality across screen sizes and equipment, as well as automatic and frequent updates of content feeds to enable rapid inclusion of the latest information. Moreover, participants wanted an easily accessible content saving function in a format compatible with existing publication formats.

The main features suggested by this sample for each tool subcategory (automatic; manual; visual; technical)

Table 2. Subcategories of features and main factors enhancing usability and SA in a social media information validation tool.

| Automatic features | Manual tasks | Visualization of results |
|---|---|--|
| Include and save content from several SoMe platforms | Set which platforms to include | Overview of content from several SoMe platforms |
| Cross-reference content between platforms | Set content search/cross-referencing parameters | Cross-referenced content overview |
| Create chains of reposts back to original source across platforms | Set content presentation parameters | Chains of reposts back to original source overview |
| Track and gather trending content across platforms | Communicate tasks with colleagues | Trending content overview |
| | | Source geographical location and similar advanced search parameter overviews |
| How the subcategory would enhance individual and team SA | | |
| Avoid fatigue, by taking care of complex and time-consuming monitoring and validation tasks automatically | Diminish information overload and enhance understanding of tool algorithms, by allowing users to set parameters for areas of interest across several platforms in one tool | Diminish information overload and enhance understanding of tool algorithms, by providing visualizations of summarized content of interest |
| Diminish information overload, by compressing information seeking procedures from several platforms into one tool | Enhance team SA, by including communication into the tool and thus allowing team members to avoid repeating monitoring and validation tasks already carried out by other team members | Avoid fatigue and support journalistic choices, by providing summaries of content of interest visualized according to parameters of relevance (e.g. geolocation) |

are roughly similar to functions mentioned in previous research (as listed in the introduction section). However, compared to other studies, factors such as the ability to monitor across several SoMe platforms simultaneously and the risks of automation taking over were more emphasized in this study, while the importance of finding content regardless of format (text; picture; video) was toned down.

3.5. Usability of a Validation Toolset: Enhancing Team-Level Usability

While many of the above-mentioned factors can be applied to enhancement of individual as well as team SA, one factor explicitly addressing team level SA also emerged. This factor was part of the manual tasks subcategory (Table 2), and reflected the need to communicate within the toolset with colleagues about e.g. search results/visualizations or tasks being carried out. By including a communication function, team SA would be enhanced as unnecessary repetitions of tasks already carried out by other team members could be avoided. This need has seldom been reported in previous attempts to map journalistic usability of validation tools, perhaps because team-level SA has rarely been overtly mentioned.

However, as stated by Salmon et al. (2008), team level SA should be taken into account when designing user-friendly products, and this area should be integrated into future research about journalistic work, technical innovations, and SoMe.

4. Conclusions and Limitations

The first aim of this study was to map central challenges news journalists currently face and the new practices that are emerging in regard to using SoMe for validation of potentially newsworthy content. The second aim was to investigate how challenges and practices may contribute to a user-friendly design of a content validation toolset for journalistic work in everyday and crisis-specific contexts, and to improved SA. Journalists reported that they are in the midst of a change in applying traditional practices to SoMe content. However, news organizations lack formal guidelines concerning how to gather and validate content.

The most common challenges when carrying out validation of content included problems with simultaneously monitoring and filtering out content across vast amounts of information acquired from several platforms, and with backtracking across platforms and reposts to

identify the original source. In order to approach the challenges and the ongoing redefinition of journalistic practices, journalists underlined the key role of senior managers. A positive attitude towards introducing new strategies and allocating appropriate resources are central contributing factors.

Journalists also saw a tool for SoMe content validation or similar technical innovations as useful means to support their work. To achieve a user-friendly design, a validation tool needs to support, but not fully automate, the journalist's work. The final decision about content trustworthiness has to remain a manual task. By designing the product according to an automatic-manual-visual feature dynamics, where several manual settings and clear visualizations allow the journalist to interpret automated content filtering results, the tool design would provide better SA during assignments, and allow for a high level of insight into automated tasks, but leave more control to the journalist.

This study has some limitations that need to be taken into account. Listed usability factors provide a wish list of possibly useful features for a SoMe information toolset, not features that have to be included for the tool to work. On the contrary, too many functions will affect usability and SA negatively, as the tool will become too complex and offer the user an overload of information. Most journalists in the sample addressed this concern. Also, study results should be interpreted with caution, as the data were gathered from a convenience sample. Results may not reflect all aspects of journalistic needs or represent other work contexts than those included in the study. Students were included in one dataset, and this subsample will naturally have a more limited work experience than seasoned journalists. On the other hand, this subsample may be more tech-savvy and have a better understanding of SoMe usage patterns. Also, the crisis training scenario does not reflect an actual crisis assignment, and comparisons between results gathered from this part with work in real-life crises should be made with caution.

A useful tool can be developed based on knowledge from this study, previous research on the subject, and functions provided by existing tools. However, tool content should be carefully weighed against tool complexity, and practical usability tests of tool prototypes should be carried out with journalists.

Acknowledgments

This work was supported by the Norwegian Research Council under Grant 233975/H20; The Högskestiftelsen i Österbotten Foundation; and The Svensk-Österbottniska Samfundet Foundation.

Conflict of Interests

The authors declare no conflict of interests.

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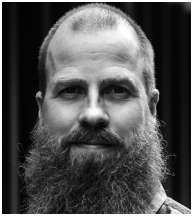
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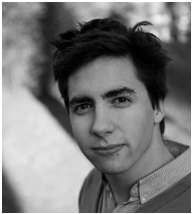
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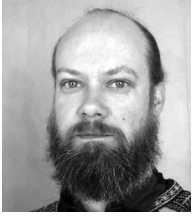
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