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Emerging journalistic verification practices concerning social media

by Brandtzæg, P.B., Lüders, M., Spangenberg, J., Rath-Wiggins, L., & Følstad, A.

Abstract

The verification of social media content and sources are increasingly critical to journalists and news organisations. In this study we report on findings from qualitative interviews conducted with 24 journalists working with social media in major news organizations in Europe. Our findings contribute to new knowledge on journalists' social media working practices. We find that social media content often are used as the primary news source, and journalists use several different verification strategies to verify social media content and sources. Journalists are also found to have various competences in verifying social media content, in particular visual content. Moreover, our study suggests user requirements for future innovations in tools to support the verification of social media content. To avoid trade-offs between verification and fast-paced publishing, journalists will need efficient and easy-to-use support both in the verification process and in structuring and organising an overwhelming amount of social media content.

Key words: social media, verification, journalism, user requirements

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Emerging journalistic verification practices concerning social media –

Traditional journalism practices are changing due to the disruption in information and communication patterns caused by social media (e.g. YouTube, Facebook, Twitter, etc.), that is, a group of Internet-based applications "that allow for the creation and exchange of user generated content" (Kaplan & Haenlein, 2010, p. 61). Journalists increasingly turn to social media (Knight & Cook, 2013), especially for researching topics, curating information and analysing stories (Hermida, 2012). Furthermore, journalists use social media to share their experiences, their thoughts and opinions, and to engage in dialogue with their readers (Spangenberg & Heise, 2014). Social media may also be used for online identification of sources and for interviewing eyewitnesses (Wardle, 2014).

Journalistic norms and ideals, such as impartiality, objectivity and accuracy (Golding & Elliott, 1979; Shapiro, et al., 2013), highlight the need for effective verification of social media sources and content (Schifferes & Newman, 2013). The credibility and trustworthiness of news organisations, which in part depends on adequate verification practices (Knight & Cook, 2013; Silverman, 2014), cannot be taken for granted. Over the past two decades, the public's overall trust in the press has declined (Project for Excellence in Journalism, 2006); some even consider journalists among the least credible professionals in the world (Hanitzsch, 2013). It is therefore of importance to keep journalistic standards high and to take into consideration new strategies of how to verify content, esp. in regards to social media content.

Verification of social media sources and content is challenging. It is often difficult to determine the truth, accuracy, or validity, both of sources providing textual content and content presented through other modalities (video, images, or audio). In situations of controversy, social media may be particularly prone to being used for propaganda and the spread of disinformation. The Social Media Today report suggests that 49 percent of people in the US have heard breaking news via social media that turned out to be false (Morejon, 2012). During the Arab Spring in 2011, for example, several actors flooded Twitter and YouTube with false information (Swedish Radio, 2013). There have also been a number of well-documented cases in which manipulated photos and untrue stories, spread via social media, have been picked up and distributed by news agencies (Schifferes & Newman, 2013). Thus, this paper explores journalists' experiences and their emerging working and verification practices concerning social media.

Verification is important in all journalism, but what makes verification practices concerning social media different? Social media are characterized by user generated content; such content can be changed, manipulated or removed out of context from the original. The amount of potentially false or manipulated user generated content makes it harder to filter and assess the accuracy of the different content and sources. Successful verification of social media content and sources, therefore results from effective use and knowledge about new technology, as well as from commitment to timeless standards of accuracy (Buttry, 2014, p. 16). Hence, the characteristics related to social media, might change the journalists' strategies towards verification, relying more on technology, and knowledge about social media effects. Furthermore, the acceleration of the news cycle and proliferation of news and information within social media has raised concerns about the erosion of the discipline of verification among journalists (Hermida, 2012). It is argued that 'if speed is the currency of the modern information era, misinformation is the increasingly high cost' (Wood, 2013). According to Hylland Eriksen (2001), limitless access to information might lead to confusion rather than

enlightenment, and a ‘tyranny of the moment’, which is also relevant for journalists who are expected to disseminate news nearly in real-time. The fast-paced 24/7 news cycle in combination with social media requires journalists to make swift decisions about whether information is sufficiently verified (Buttry, 2014).

At present, there are multiple online tools, such as SocialMention, Storyful, Politifact, Fastfact, Topsy, Sulia, TinEye, FotoForensics, and Trackur, to name but a few that journalists may apply for social media research and verification. However, the extent to which journalists actually use such tools is unknown, and no commonly shared practices exist. At present, there is also no single tool to track and verify all social media sources (Schifferes & Newman, 2013), satisfying the totality of journalistic verification needs.

The verification process in social media is arguably rather complex, due to large amounts of user generated content, real time information flow and various forms of sources and content modalities, such as video and images. Many news organisations have published guidelines that outline how content from social media should be handled. In some news organisations, specialised journalists have particular roles, such as social media “journalists” or “social media editors”. In other models, groups of people deal with social media organised around social media desks, as is the case with the BBC’s User Generated Content and Social Media Hub (Turner, 2012; Schifferes & Newman, 2013).

Globally, not all journalists use social media as a news source. According to the Global Digital Journalism Study (2013), only 51 per cent of journalists worldwide use social media. The situation in Europe and the U.S. is different: there, the vast majority of journalists use social media. For example, 96 per cent of UK journalists turn to social media every day. The same study also found that journalists' reliance on social media content is very low if the sources are not known to the respective journalists dealing with a specific topic, and 42 per cent of journalists use trusted third parties to verify stories; the most important source for validation in social media seeming to be industry insiders or other news organisations, such as AP, Reuters and the BBC (Global Digital Journalism Study, 2013). While some recent studies focus on journalists and their verification practices in general (Shapiro, et al., 2013), few studies explore current journalistic working practices and needs concerning the verification of social media as a news source in particular.

Against this background, new tools and knowledge are needed to help journalists and news organisations benefit from the opportunities offered by social media, as well as help them understand and mitigate key challenges related to such use (Diakopoulos, et al., 2012). Challenges may be practical; for example, a great deal of time can be spent sifting through massive data sources that might be inaccurate and misleading. At the same time, precise judgment of the reliability of social media content is critical for the accuracy of the news story being presented. To develop such tools, we need insights into the social media verification process from the perspective of journalists with first-hand experience using social media as part of their news production practices.

In this paper, we report on a study of journalists' experiences and emerging practices involving social media as a news source. Furthermore, our user-centred approach is suitable to support user requirements engineering (Kauppinen, Savolainen, & Mannisto, 2007). We use our findings to identify and analyse journalists' working practices and user requirements for future work support in social media verification.

Definitions and theoretical considerations

In this study, a *journalist* is defined as a person who is professionally engaged in journalism and working for a news organisation or contributing to a news organisations' output. Journalism is linked to an institutional framework and a social contract geared towards public interest and verification of knowledge (Hanitzsch, 2007; 2013).

Verification, in turn, is understood as a process that is a critical part of the newsgathering and information dissemination process. Verification requires skilled determination of the accuracy or validity of both the source and the content itself. Hence, there are two key elements that need to be verified: the source of a piece of content, and the content itself. These two elements should be independently verified, and compared against each other, to see if they tell a consistent story (Posetti, 2014). A verification process may rely on online tools as well as traditional journalistic techniques. It is argued that no technology can automatically verify social media content with 100 per cent accuracy (Wardle, 2014). Fact and truth in general are difficult topics to deal with as they are always linked to interpretations and subjective aspects (Hanitzsch, 2007). Brennen (2009, p. 301) suggests that 'facts are messy, difficult to determine and they are often dependent on interpretation'. According to Wardle (2014, p. 26) there are four main elements in verifying social media content: *provenance* (is this the original piece of content?), *source* (who uploaded the content?), *date* (when was the content created?), and *location* (where was the content created?). However, journalists arguably lack some standard rules or unified method in how to verify information and sources (Shapiro et al., 2013).

To better understand journalism practices and the verification of social media content, we use Hanitzsch's (2007) theoretical framework of 'journalism culture', referring to the values, attitudes, beliefs, practices and artefacts (cultural products, tools and texts) that are present in the work of news professionals. The current study uses this approach to investigate different journalistic practices and beliefs adopted in the process of verifying social media content. Hence, our focus is on the 'culture of news production', focusing on contextual factors that shape practices of journalism and the construction of news (Steensen and Ahva, 2015), with a focus on verification strategies. Following Hanitzsch (2007), we explore journalistic attitudes and beliefs towards verification in the news production process and, more specifically, investigate how different artefacts (tools and platforms) in social media are used in and how they are shaping the journalistic practice. The journalists' personal (and not the institutional) roles and needs are therefore central to this study and refer to the ways journalists perceive and experience their daily work and their current and future needs for delivering trustworthy news content to their audiences.

Research question

To reveal emerging journalistic values, practices, challenges and needs concerning the verification of social media content and sources, the following research question was explicated:

What characterizes emerging journalistic values, needs and practices concerning the verification process of social media content and sources?

The answers to this question will generate the knowledge required to better understand how journalists manage information gathering and verification in social media. Such knowledge will form the basis for the development of innovative tools to support journalists' social media work and verification practices.

Method

To answer our research question, we chose a user-centred approach. Since not all journalists are equally engaged in social media for professional use (Hedman & Djerf-Pierre, 2013), we targeted only journalists that already had experience with social media in journalism and investigated their experiences and perspectives. This methodological choice was motivated by our assumption that insight in emerging practices concerning verification in social media required the respondents to hold substantial practical experience.

Interviews

We conducted 24 semi-structured interviews with journalists between January and February 2014. To increase the breadth of the data collection, the interviewees were based in different European countries: Germany (14), Norway (7), France (1), Denmark (1), and the UK (1). The sample included 18 men and 6 women. Two interviewees were between the ages of 21 and 30 years, 11 were between the ages of 31 and 40 years, and 11 were between the ages of 41 and 50 years. Seventeen interviewees were news journalists, while seven were programme editors or responsible for social media activities of various kinds. Most of the interviewees had extensive experience in news production practices. All used social media almost daily or continuously throughout the day. All the interviews were conducted as part of the research project Reveal (<http://revealproject.eu/>). All participants used Twitter, and all except three used Facebook. More details on the sample are provided in Tables A1 and A2 of the Appendix.

The seven journalists from Norway (Table A1) were recruited from four major news organizations in Oslo. Each news organisation was contacted by sending emails to their news editor, asking them to appoint their most relevant news journalists with regard to social media experiences for face-to-face, semi-structured interviews.

The other journalists were recruited through the networks of the involved research team of international media organisation Deutsche Welle (Table A2), which also explains why German based journalists are overrepresented in the sample. Interviews took place either face-to-face or via telephone.

The focus of all the interviews was to explore how journalists currently include social media in their working practices, with a special focus on verification. This included the following guiding questions:

- How is social media used for professional purposes?
- How do journalists identify contributors and how do they use social media content?
- How do journalists verify social media content (workflows, processes, aids, etc.)?
- Which tools are used for verification (e.g. external tools, internal tools and customized tools)?
- What obstacles are there to using social media content (in terms of reliability, difficulties, shortcomings, etc.)?
- What would make social media content verification less difficult for journalists?

As the purpose of the interviews was to explore the participants' own perceptions, experiences and opinions, the researchers frequently departed from the interview protocol to probe for more information and follow up on the participants' answers. The interviewers also interpreted the interviewees' reports during the interview ('on-the-line interpretation') and

presented these to the participants for immediate verification (Kvale, 1996). This was done to strengthen the credibility of the interpretations and analysis.

The interviews with the seven Norwegian journalists lasted 40 to 60 minutes and were audio-recorded and transcribed. The interviews, conducted by the Deutsche Welle researchers, with journalists, editors, and social media coordinators, lasted 50 to 70 minutes but were not recorded due to time constraints. Instead, extensive notes were taken during the interviews (following the interview guidelines) and subsequently entered into an online form developed and piloted for this purpose. The translation of all the interview data into English took place by two of the researchers involved in the interviews.

Analysis

The interview data were analysed to formulate a descriptive base for journalistic working practices concerning verification of social media sources and content. This base was then employed for developing user requirements that reflect journalists' needs concerning such verification in information gathering through social media.

The interview data were organised and coded according to categories related to working practices and verification issues, in line with our theoretical approach, focusing on contextual factors (social media) that shape practices of journalism (Hanitzsch, 2007). The Norwegian material was coded using the computer software NVivo. The Deutsche Welle material was organised after a review of the notes by two researchers with the same categories in mind. User requirements were developed as a User Needs Analysis (Shackel, 1991), which focused on three main themes: 1) user characteristics, 2) user context and tools, and 3) obstacles to verification. These main themes had different sub-categories that were developed based on the analysis.

In total, four researchers were involved in the analysis. They discussed and reviewed each other's coding and interpretations throughout the entire process.

Results and discussion

We find that journalists apply several different verification strategies, which is similar to findings reported by Shapiro and colleagues (2013). In more detail, our analysis revealed that the social media work and verification practices among journalists could be divided into the following five main categories:

1. Trusted sources
2. Access to eyewitnesses and authenticating sources
3. Traditional journalistic methods
4. Multimodal verification and verification tools
5. Workaround methods

(1) Trusted sources

The interviewees nearly unanimously reported social media to be a significant source of potential news stories. This finding emphasises how, to some extent, parts of the news production process has been reversed due to social media. As described by one journalist:

Before, we often called people, to find out whether anything had happened. Not many years ago, you took the initiative. But now, the opposite is the case because you often get information from Twitter or other places. I work a lot with the police and the justice system,

and it has changed; social media is now the place where you first get access to information. (...) The foundation for what you produce news stories on is really from social media.

In particular, our participants reported following trusted national and international news agencies and news providers, such as TV2, NRK, AFP, CBC, Reuters, ABC, the BBC, as well as celebrities, politicians, and other opinion leaders. Police and fire departments were also considered important to follow as they disseminate real-time updates about emergency situations, and importantly for providing accurate and reliable content.

Twitter was the most commonly used social network site among our participants (see Table A1 and A2). The participants reported monitoring Twitter for breaking news and news sources, often with the help of tools such as Tame.it or TweetDeck, for organising and structuring timelines, keeping track of lists, searches, activities and more. This is in line with previous reports which have found that Twitter is regarded as the most important social media service for journalists (Holton & Lewis, 2011; The Global Digital Journalism Study, 2013). The participants also reported using other social media services, such as Facebook, YouTube, LinkedIn, Google+, Tumblr, blogs, and Instagram. Blog aggregators, such as Rivva, and news aggregators, such as Newswhip, Google News and Virato, were also mentioned.

The prevalence of Twitter use was reported to be mainly due to its open nature and the fact that it provides easy access to both breaking news and trusted sources. The latter has been easier since Twitter started operating with verified accounts, indicated by a blue badge in the profile. These badges are used to establish authenticity and trust in the identities of key individuals and brands on Twitter (although manipulations can occur and the 'verified' sign is no guarantee of the accuracy of content or the respective source).

Social media are said to expand the range of actors and sources involved in the construction of the news (Hermida, Lewis and Zamith, 2014). This notion was supported by our findings, though authenticating content from non-elite sources is not always straightforward. Whereas direct access to a broader spectre of sources has improved, journalists claim they do not uncritically trust content and sources from social media. When potential sources multiply, verification challenges become more prevalent. To address these challenges, content from social media is for example corroborated with information and practices from trusted sources:

If it's from a militant or terrorist group, like if someone from Al-Shabab posts a photo, then probably BBC or some of the other big media companies have already used it. And if they have, I consider the content to be reliable.

Such vicarious forms of verification have limitations, and might also explain inaccurate and false stories going viral. As the below analysis will demonstrate, our interviewees also point to additional means for verifying content and sources.

(2) Access to eyewitnesses and authenticating sources

Besides Twitter, the journalists in this study also reported frequently using Facebook as an important news source, for authenticity assessment, for contacting eyewitnesses or for accessing profiles of people involved in crime cases. As described by one journalist, opportunities to contact people affected by major news events have improved:

The first time I can remember to have used social media very actively in a big incident was the Virginia Tech massacre in 2007. I looked at different student profiles (Facebook) at the school and sent requests to those students who seemed to have been there when it happened. We had several eyewitnesses, via Facebook. We were directly in touch with eyewitnesses.

The journalists describe how social media such as Twitter and Facebook shorten the distance to breaking news events, and how global news events require special efforts when assessing news sources, their authenticity, and their role in a conflict, for example.

Journalists have become better at looking beyond their own neighbourhoods. The distance to a village in Pakistan is shorter than it was five years ago. But now I talk particularly about breaking news, which is still where the Internet has its main competitive edge. (...) So we use social media to pick up on news as early as possible. You can set your own feeds, and AP (Associated Press) is usually very quick. And when something happens, we fine tune our feeds much closer, and you look at who else from AP follows this person. And if there are private citizens who get retweeted a lot by people you trust, you put them in the feed to get closer and closer. The goal is to get so close that you would have accessed the person who witnessed the raid on bin Laden.

This practice is complicated when those involved have vested interests in a conflict. In such cases, assessing the authenticity of the source is only part of the task. For example, during the demonstrations in Kiev/Ukraine in early 2014, an interviewed journalist who was covering the events stressed the need for knowledge on whether sources were supporting the opposition or whether they were critical towards the ruling system. Another journalist pointed towards the importance of assessing whether claims made by the involved actors were accurate or rather attempts to belittle one side or the other. The tension between the need to report breaking news as it happens and the need to verify sources and identify their roles in a conflict is profound. The interviewees describe how they cross-check information with Google searches, look up Facebook and Twitter accounts, and again consider it strengthening the trustworthiness of a social media source if, for example, a credible and reputational outlet such as AP, the New York Times and/or the BBC include the same or similar voices in their news stories. The journalistic practices of using elite sources are also found in other research (Hermida, et al., 2014). Reich (2011) suggested that journalists depend almost exclusively on a particular set of sources that had proved their trustworthiness in the past.

Several of the interviewees also emphasised the need to combine old and new journalistic methods; they monitor social media to discover whom to contact for further information in order to evaluate and assess what is found on social media. This often aids in the construction of news stories.

(3) Traditional journalistic methods

Regular journalistic criteria are still working, right. Like if there is a tweet about a plane having crashed in Bergen, we don't report it; we call the rescue coordination centre and the police, right. Social media content is managed the same way as regular news tips that are called in to us. Everything has to be checked and confirmed.

Journalists need to find the essential data, sources and contacts related to their content for verification, ideally without time-consuming and difficult search activities to identify sources, dates and locations. Hence, information gathering and verification of news sources can also benefit from interactive dialogue with readers in social media (Holton & Lewis, 2011). This is the key to successful verification processes that meet the fast-paced working requirements of journalists. These needs are in line with Wardle's (2014) four elements (provenance, source, date and location) for checking and confirming social media content. However, most of the interviewed journalists use traditional verification methods that are slow and rigid: looking up contacts and calling them directly. To do this, they reported to regularly use a multi-contact approach, including email, Google, checking profiles (followers,

tweets and lists), other social networking sites' accounts, and platforms such as Namechecker, Google, LinkedIn, and Xing. They used several different verification strategies, and the practices differed in regard to different types of social media content and sources, as illustrated in Table 1.

Table 1. *Verification tools and strategies used by social media journalists (N=24)*

Content			Source
<u>Texts</u>	<u>Photos</u>	<u>Videos</u>	
Google text search, phrase search in social media,, manually contacting them (e.g. phone).	Google Image Search, Tin Eye, Exif, Topsy, Tungstene	Google Maps, Streetview, cross checking YouTube videos, Storyful	Phone call, e-mail, Google, checking profiles (followers, tweets, lists), other social media accounts?, Namechecker, Google, Xing etc, People directories (to get contact details and check on contributors) such as peekyou and pipl

The journalists were found to still prefer face-to-face contact or phone contact when verifying sources, which is also illustrated in the quote above and Table 1. Another journalist refers to 'journalistic common sense' in this context:

My journalistic common sense. Not so much a tool, but to have a really close look at the contributor [...] Of course, it would be great to have a tool that assists with all these checks.

Still, journalists expressed a desire for a tool to support them, as they struggle with a flood of information and increasing time pressures on the job. Support in the initial filtering and verifying of information, linked with easy contact information to sources came across as the main point. Relatedly, the interviewees emphasised that a well-crafted news story requires more than merely re-publishing content from social media:

It definitely does not suffice to just extract something from Facebook or Twitter. You need to talk to people.

Hence, journalists in our sample rely on traditional journalistic methods to construct news stories with an added value compared to what anyone could access via social media. In short, social media do not provide ready-made news stories. As explained by one journalist: *[With social media] you get an unfiltered and uncritical newsfeed. But what we provide is an edited and controlled stream of news. That's completely different. The challenge for us is to be able to maintain the required quality on what we report, right?*

The flood of information in social media is also increasingly video- and image-based, which leads us to multimodal verification.

(4) *Multimodal verification and verification tools*

The participants in our interviews reported that videos and photos were the most challenging modalities to verify. For example, on YouTube, the interviewed journalists reported deploying the following techniques: to check if they can identify the contributor, to check more in detail who the contributor is, cross-check which other videos the contributor has previously uploaded, and checking components of the video (e.g. thumbnails). Identifying the source is often difficult. As with other types of content, many of the journalists reported to regard it as a type of verification if news organisations they trust have already re-published photos and videos from social media in their news stories (this, however, does not yet say anything about the ‘right to publish’). Most interviewees reported that verifying photos and videos requires particular knowledge about available tools and how they can assist in the verification process.

At present, a fair number of the journalists whom we talked to do not have the skills and knowledge to perform an independent and timely assessment of photos and videos posted in social media. Many are either not familiar with the online tools that currently exist for such purpose, or have no access to them (e.g. as some of the tools require a commercial license, or internal restrictions such as network security simply do not allow for the use of third party tools in respective corporate environments). However, the more advanced social media journalists reported using Google Image Search, Tin Eye, Exif Viewers, Topsy, and Tungstene for photo verification. For video verification a combination of tools was reported: for example, the location in a video could be cross-checked with the street view in Google maps to see if landscapes match. Also, some of the previously mentioned tools are used, e.g. checking of thumbnails (extracts of a video). Additionally, Storyful, a commercial service for verification of content from social media, was also reported to be used for the verification of images and videos. Whereas photos and videos are regarded as challenging to verify, the interviewees also argue that it is particularly important to fact-check them:

With text, you can always include disclaimers. But when you use a photo or video, they need to be absolutely confirmed. (...) You can always write "unconfirmed sources", this is not confirmed by any news agencies yet. If you publish a photo of a large explosion, you need to be sure this is the right place.

This quote points to the final ‘method’ journalists rely on when they have not been able or have not had the time to verify newsworthy content—they make a disclaimer in the published news story.

(5) *Workaround methods*

Our findings presented so far might suggest that the interviewed journalists always, in some way or another, verify information from social media before including it in a news story. However, with the pressure to publish stories from events as they unfold, verification is not always regarded as feasible. A distinction needs to be made between investigative journalism on the one hand and covering breaking news on the other. As lamented by one journalist:

I think it's important to discuss these issues according to type of news stories. When I have responsibility to follow breaking news, I'll try to monitor different sources, you follow up

certain messages (...) and then things can pick up really quickly. But with verifying, like with today's online journalism, what kind of verification is actually being done?

Hence, the experiences of the interviewees are largely in line with Hermida's (2010, p. 300) claim that 'journalism norms are bending as professional practices adapt to social media tools'. Yet, norms are not collapsing, and the interviewees emphasised the importance of being transparent about the status of claims and information. They bring with them previous journalistic practices, explaining that when information cannot be verified, they instead include disclaimers such as 'according to unverified sources' or similar phrases.

But we take reservations. For example, we write that they supposedly claimed this and that, or that it is supposedly the account of the Kyiv Post. You can always include disclaimers. We do that often.

Such workarounds are easily identified in published news stories, yet whether journalists are always transparent about the status of unverified sources is more appropriately studied using content analysis. However, given the status of credibility and trustworthiness as central assets in journalism and to counter the decline in the public's trust in journalism, journalists need to report accurately, also when sources come from social media. When sources cannot be verified, or when conflicts are ridden by conflicting messages, disclaimers might be the easiest way out:

At least it's better than pretending you have verified something. You have to be honest. And similarly, we often use "conflicting reports". Because there's a lot more insecurity now than before, since there are so many different messages being reported. Thus, we include that often, there are conflicting reports about what has happened.

User group characteristics, contexts and requirements for future verification support

So far, we have identified five main practices for the verification of social media content and sources. Social media are now integrated into the working lives of most of the journalists we talked to, but the verification strategies among them vary (see also Shapiro et al., 2013). Hence, not all the journalists in our sample engaged in all practices, and many combine different strategies. There may, however, be large differences in various news organizations and between journalists concerning whether and how they use social media as a news-source and how they verify content and sources. Our next step in the analysis is to use our data on user group characteristics and contexts to identify requirements for future tools to support journalists' in their social media verification practices.

Understanding user group characteristics and their working context is critical to develop work support that actually serves its purpose. Furthermore, the transformations currently occurring in the nature of social media practices and verification among journalists cannot be properly understood without considering journalists' characteristics as a social media user group, as well as their context of work and journalism culture (Orlikowski & Barley, 2001).

In the following sections we summarise general characteristics of journalists as users of social media and future social media verification tools, as well as their context of use. On the basis of these summarizations we suggest user requirements for future innovations (Kauppinen, et al., 2007) supporting the verification of social media content and sources. First we summarize findings and requirements concerning user group characteristics in Table 2.

Table 2. *User group characteristics and related user requirements*

Characteristics	Potential user requirements	Ref. quotes
<p>Experience with verification tools: Experience with verification tools differs among journalists. Many journalists do this manually using e.g. the Google toolset, which can be a time-consuming and difficult process. Tools that are known to some journalists are Storyful and TinyEye, to name a few.</p> <p>Social media experience: The journalists reported to use social media, mainly Twitter, frequently. Yet, most journalists are not tech savvy. Usability and accessibility is important.</p> <p>Knowledge of verification: Knowledge of verification is or should be part of a journalist's education. Yet, fast-paced journalism and tight deadlines put verification under pressure and require new skillsets, tools and workflows.</p> <p>Motivation to use additional (third-party) tools: Many journalists are motivated to use additional tools for verification if this improves their performance.</p> <p>Likely concerns: They were not sure if they could rely on algorithms for the purpose of verification.</p>	<p>Efficient way to verify social media content. Knowledge of available tools and the possibilities they offer. Build customised solutions or add-ons.</p> <p>Easy-to-use tool that is integrated with tools journalists are already using (e.g. Twitter)</p> <p>Easy and efficient to use to support high-speed publication processes</p> <p>Tools that are relevant aid in the verification process. Provide journalists with direct contact to information sources.</p> <p>A clear understanding of how the verification is taking place (what is behind the algorithm). Humanization of the tool.</p>	<p><i>'Social media content is managed the same way as regular news tips that are reported to us. Everything has to be checked and confirmed'.</i></p> <p><i>'Most journalists are not really technical experts'.</i> See Tables A1 and A2 describing the tools the journalists are using. Most use Twitter.</p> <p><i>'The most important thing is to produce results as quickly as possible, and to hope for the best. For breaking news that is'.</i></p> <p><i>'Of course, it would be great to have a tool that assists with all these checks.'</i> <i>'I'd really like some easy way to contact people/profiles for verification'.</i> <i>'Such as Klout, but where the algorithm is clear to me'.</i></p>

In Table 3 we report findings and requirements concerning the context of use. The journalists in our sample were typically 'always on', mainly via PC or smartphones. Many of them used TweetDeck to organise and structure content and feeds from Twitter. They typically reported to work in an increasingly fast-paced, multi-media environment with a constant demand for fast and efficient publishing of content. This is taking place in an increasingly market-driven context, in which the number of clicks and the number of likes and re-tweets play a growing role, but so are factors such as trust and reliability. This kind of market-driven journalism has also been identified in other studies (Lee & Lewis, 2012). It is of course a good thought to give journalists better guidance, practice and tools on verification, but in the culture of today's high-pressure newsrooms with diminished resources and constant deadlines, guidelines of accuracy may not be enough. A key challenge is finding an easy and efficient as well as a reliable way for journalists to verify social media data (e.g. a verification tool), which can be well incorporated in their ongoing working practices and culture.

Table 3. *The user context and related user requirements*

Characteristics	Potential user requirements	Ref. quotes
Devices: The journalists reported using social media on both PCs and smartphones.	Access to the tool from multiple devices: desktop and mobile	<i>'I use my mobile phone and PC continuously to keep myself updated'.</i>
Software: All the journalists reported using apps and browsers. Several use TweetDeck to organise Twitter content and sources.	Make sense of a huge amount of content and quickly identify relevant and important sources and news.	<i>'We are not actually exploiting the full potential from social media (...) the biggest challenge is to keep track and identify potentially interesting cases in the flood of tweets'.</i>
Fast pace: Many journalists have tight deadlines, work in fast-paced environments, and need to respond and evaluate sources within a very short timeframe.	Create a simple and fast way to verify social media content, supporting fast-paced journalism	<i>'You always have a desire to be the fastest in publishing the big breaking news'.</i>
Different modalities: The journalists reported working increasingly in multimedia environments with different modalities (video, photos, text and audio). Photos and videos are often difficult to verify.	Video and photos, in particular, need to be easier to verify. Therefore, they need to verify the authenticity of images and video, by using tools such as Google reverse image search and the image-checking tool TinEye, but even more integrated in existing working tools and processes.	<i>'When you choose to publish a photo or video you need to be totally sure about the veracity of that photo or video, and that is hard'.</i>

In addition to user needs concerning verification, some journalists in this study also reported a need to gain an overview and support in structuring social media content in the news process to reap the benefits of underexploited news and data sources. One of the greatest challenges, reported by many in the interviews, is to keep track of and identify potentially interesting cases in the flood of incoming tweets. This is a challenge also reported by others (e.g. Swedish Radio, 2013). For example, one of the participants in our study stated that he would like to have a tool that would help him identify the most important events of the last few hours in his own Twitter feed. Many of the interviewed journalists described a concrete need for more knowledge and better analytical tools to take advantage of the benefits of data on social media and create more data-driven journalism (see Gray, Chambers, & Bounegru, 2012). Hence, the importance for support in this area is not only in the information gathering phase, but also in how journalists can process and make sense of all the information or data available to them.

An interesting question is how the role of social media will be integrated into the future of journalism. Journalists' hands-on experience and competence with social media will most likely increase in the future. However, the complexity of social media journalism will undoubtedly increase as well. First, we can expect more visual content with the services like Instagram. Second, we can expect further growth in fast-paced multimedia journalism and real time news publishing (e.g. Reported.ly), which will complicate the verification process due to both the high pressure for speed and multimedia competence. The key question will be how the cost/benefit ratio of speed and verification skills may develop in the coming years (Wood, 2013).

Critics might say that many of the issues here are not new; they are old issues given fresh urgency with the rise of social media. However, for news-journalists to be able to live

up to their values and beliefs (e.g. reporting truthfully and critically), the specific characteristics of the near-real-time multi-modal information-flow through social media, imply traditional verification practices are necessary but insufficient. Verification-practices appear to lag behind the persistent and perhaps increasing importance of verification as a journalistic value and virtue. Based on our analytical cultural approach (Hanitzsch 2007), and empirical findings, we identified in general a significant shift in old journalistic practices with social media having become a crucial source of news, expanding access to alternative and non-elitist sources. With regard to verification of content and sources, our findings suggest that traditional journalistic values and traditional journalistic verification practices apply. Most participants reported relying on traditional verification strategies, while some additionally used advanced online verification tools, combining high digital competence with verifications knowledge. We find that social media require journalists to cope with a digital and high speed, distributed and networked environment "where knowledge and expertise are more fluid, dynamic, and hybrid" (Hermida et al., 2014, p. 495). 'Everyone' has access to potential newsworthy sources and content through social media, yet to curate, authenticate, cross-check and turn unruly and fragmented bits of information into news-stories might very well partly constitute the *raison d'être* of future journalism. A key question for the future is how the increased time and attention spent on verification and other digitally-focused routines reflect changes in journalistic culture at a more profound level, and what effect these will that have upon news production. Hence, the critical size and various modalities of social media content and the challenges related to real-time journalism will demand efficient and effective verification tools to support journalists in the future.

Limitations and further research

Our study has contributed valuable insights into journalists' value and emerging verification practices and needs concerning work support. Yet, the present study has limitations. First we will discuss limitations concerning the study sample. Next we will consider the limitations of this knowledge as a basis for the development of innovative tools for social media verification.

Limitations concerning the study sample: The sample in this study was limited by the inclusion of a preponderance of "older" and male journalists. There might be interesting gender and age differences in the usage of verification tools in social media journalism. The Global Digital Journalism Study (2013) finds that younger professionals use more social media tools, and they do so more often. Our selection of participants included only two journalists under the age of 30. These two journalists indicated a heavy usage of social media and that they had a different focus on verification. They typically viewed the published news more as a living document, where they could edit the text along with an update from new sources and incoming information. Verification and publishing was therefore understood as an interrelated process, where verification was something that could happen after and not necessarily before publishing. Regarding gender differences, the female participants in our study seemed to be more advanced and more knowledgeable with regards to verification than the male journalist we interviewed. However, our study included only 6 females out of 24 participants. Future studies should try to include both more female journalists and younger journalists to compare whether younger versus older professionals and female versus male journalists have different approaches to the verification of social media content. Finally, we could not identify any differences among the various nationalities in this study. However, it

should be noted that a cross-national comparison was not the aim of this explorative study. The sample was not really suitable for such a comparison, rather it was selected on the basis to explore emerging verification practices among journalist using social media. Hence, the study findings are limited to journalists that actually use social media for journalistic purposes, and cannot unconditionally be generalized to journalists with little or no such experience. Future research could therefore benefit from a more representative sample journalist to develop a typology of different practices of verifying sources and information among journalists with different social media habits.

Limitations of our findings as a basis for the innovation of future tool support: Our findings provide a valuable basis for the development of future tools to support journalists' social media verification practices. Nevertheless, it is important to be aware of the limitations of this basis. It is commonly acknowledged that the elicitation of user requirements is difficult, if possible at all; in particular for complex work contexts with high prevalence of tacit knowledge and know-how (Suchman, 1995). Because the context of social media is likely to change rapidly also in the coming years, it is necessary to continuously challenge any knowledge of users' needs and requirements throughout an innovation process leading to improved tool support.

Furthermore, it may be noted that as one common criticism of user-centred approaches for the purpose of innovation is users' inability to escape the past while thinking about the future (Benel, 1991). The journalists interviewed in this study thus might have benefitted from more triggers to think and move 'outside the box'. Therefore, when challenging user requirements as part of future innovation processes, it might be beneficial to include user-centred methods that, to a greater degree, stimulate creative thinking – such as the use of sketches for early design feedback (Tohidi, Buxton, Baecker & Sellen, 2006).

Conclusion

Our study contributes to theory and user requirements within journalism studies, by combining multiple levels of analysis, focusing on 1) journalists as users, 2) social media platforms and future verification tools, and 3) their context of use. We argue that the transformations in journalistic values, needs and practices with regard to verifying social media content and sources cannot be understood without considering social media platforms, its users and the context of work in combination.

The results in the present study indicate that verification of social media content is of crucial importance to journalists, particularly those reporting breaking news under severe time constraints. Based on interviews with 24 journalists, we identified five main approaches to the verification of social media content and sources, yet there are no guided or universal strategies for verification. In addition, the interviewed journalists reported a need to gain a better overview and support in structuring social media content in the news process to reap the rewards of underexploited news and data sources. We conclude that the characteristics of social media (e.g. diversity of voices, multimodal content, and speed of information-flow, often un-verified and unknown sources with opaque vested interests) and the increasing importance of social media as a news-source, make verification as a journalistic value increasingly important. Yet, at the same time current verification-practices among our participants are dominated by traditional journalistic methods. Ensuring practices are up to par

with the journalistic value of verification requires advancing journalistic verification knowledge and tools.

Our findings point to the emergence of a new style of real-time networked journalism representing both opportunities and challenges with information overload in an increasingly multimedia oriented social media landscape. Following our analysis and theoretical framework, we believe that social media can shape the journalistic culture, due to not only demands for fast paced publishing and emerging verification strategies, but also how fast rumours and false information cascades through social media. Hence, there might be less time to verify news sources, yet the risk of distributing inaccurate and false information may force journalism into a direction of greater awareness and standardised verification-routines. Based on this, we improved our general understanding of emerging journalistic verification values and practices, and also identified user requirements that hopefully will guide the development of innovations in the area of social media verification.

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APPENDIX**Table A1.** *Sample of journalists working in Norway.*

Gender	Age range	Country of work	Work	Social media platforms used
Male	21-30	NO	News reporter for major newspaper in Oslo	Mainly Twitter, little use of Facebook, some blogs and YouTube
Male	31-40	NO	News reporter for major newspaper in Oslo	Mainly Twitter, some Facebook and Instagram, blogs and YouTube
Male	21-30	NO	Journalism student, but working for a major online newspaper outlet in Oslo	Mainly Twitter and Facebook, some Instagram, blogs and YouTube
Male	41-50	NO	Investigative journalist for major newspaper in Oslo	Mainly Twitter and Facebook
Male	21-30	NO	News reporter for major newspaper in Oslo	Mainly Twitter and Facebook;
Male	31-40	NO	News reporter for major newspaper in Oslo	Twitter and Facebook
Male	31-40	NO	News reporter for major newspaper in Oslo	Twitter and Facebook

Table A2. *Sample of journalists working in Germany, the UK, Denmark, and France.*

Gender	Age range	Country of Work	Work	Social media platforms used
Male	41-50	GER	Social media coordinator at broadcaster	Mainly Facebook and Twitter, YouTube, Google+
Female	31-40	GER	Social media trainer/journalist at broadcaster	Facebook, Twitter, YouTube, blogs
Female	41-50	GER	Journalist at broadcaster agency	Facebook, Twitter, YouTube
Male	41-50	GER	Editor at broadcaster	Facebook, Twitter, YouTube, Google+
Male	41-50	GER	Editor/journalist at broadcaster	Mainly Facebook and Twitter, some YouTube and blogs
Male	31-40	GER	Editor at broadcaster	Mainly Facebook and Twitter
Male	41-50	FRA	Coordinator of new technologies at news agency	Mainly Twitter and some YouTube and LinkedIn
Male	31-40	DK	Social media editor at broadcaster	Mainly Facebook and Twitter
Male	41-50	GER	Editor-in-chief at broadcaster	Mainly Facebook and Twitter, YouTube
Male	31-40	GER	Editor at broadcaster	Facebook, Twitter
Female	41-50	GER	Journalist at broadcaster	Mainly Facebook, Twitter, some YouTube, blogs, Google+
Male	31-40	GER	Journalist/news presenter at broadcaster	Facebook, Twitter, YouTube, Instagram, Google+
Female	31-40	UK	News journalist at broadcaster	Facebook, Twitter, YouTube and some Instagram, Flickr, Tumblr,

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Female	31-40	GER	Journalist/social media editor at broadcaster	blogs, Google+ Twitter
Female	21-30	GER	Journalist for various media outlets	Mainly Facebook, Twitter and blogs
Male	41-50	GER	Journalist at broadcaster	Facebook, Twitter, YouTube
Male	41-50	GER	Journalist/social media coordinator at broadcaster	Facebook, Twitter, blogs, Google+

Note: The given country is the country in which the participants worked, not their country of origin/birth.