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Qualitative and Mixed Methods Social Media Research: A Review of the Literature

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Abstract

Social media technologies have attracted substantial attention among many types of users including researchers who have published studies for several years. This article presents an overview of trends in qualitative and mixed methods social media research literature published from 2007 through 2013. A collection of 229 qualitative studies were identified through a systematic literature review process. A subset of 55 of these articles report studies involving a combination of qualitative and quantitative methods. Articles were reviewed, analyzed, and coded through a qualitative content analysis approach. Overall trends are presented with respect to the entire collection of articles followed by an analysis of mixed methods research approaches identified in the subset of 55 studies. The most commonly used research approaches involved collecting data from people through interview, focus group, and survey methodologies. Content analysis was the second most commonly used approach whereby researchers use Facebook posts, Tweets (Twitter posts), YouTube videos, or other social media content as a data source. Many of the studies involving combinations of quantitative and qualitative data followed a design resembling Creswell and Plano Clark's basic mixed methods typology (e.g., convergent parallel, explanatory sequential, and exploratory sequential).

Keywords

social media research, Web 2.0, Facebook, Twitter, YouTube, mixed methods, qualitative

This article presents a descriptive methodological analysis of qualitative and mixed methods approaches for social media research. It is based on a systematic review of 229 qualitative or mixed methods research articles published from 2007 through 2013 where social media played a central role. Publication trends are presented for the entire set of articles followed by analysis of a subset of 55 studies that combined qualitative and quantitative approaches consistent with an established mixed methods typology (Creswell, 2014; Creswell & Plano Clark, 2011). The literature analysis is first contextualized by presenting a brief overview of related scholarly activity in the emerging field of social media research. This is followed by a discussion of publication trends and methodologies applied in this systematic literature review.

Kaplan and Haenlein (2010) defined social media as “. . . a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (p. 61). The emergence of social media technologies has been embraced by a growing number of users who post text messages, pictures, and videos online (Duggan, 2013; Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Reports of worldwide social networking activity suggest that there were 1.96

billion users in 2015 with predictions of 2.44 billion users by 2018 (Statista, 2015). Of all the social networking sites, Facebook, Twitter, and YouTube are among the most popular ranking within the top 10 of a list of most heavily visited sites on the web (Alexa, 2015). The combination of prolific user activity and production of user-generated content has captured the attention of scholars and researchers who seek to understand social media and its role in contemporary society.

Considerable attention has been given to social media research as evidenced by the expanding literature base and growing number of comprehensive literature reviews, which have been conducted to explore various facets of social media research and scholarship. A matrix summary of 20 social media literature reviews published from 2011 through early 2014 is provided in Table 1. Although not a comprehensive list, each of

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Table 1. Systematic Literature Reviews on Social Media Topics.

Author(s)	Emphasis of Review	Field(s) of Study ^a	Articles/Papers Reviewed
Best, Manktelow, and Taylor (2014)	Research on the effects of social networking on adolescent well-being	Sociology, social work, and social studies	43
Błachnio, Przepiórka, and Rudnicka (2013)	Research focusing on the role of psychological traits in explaining Facebook use	Psychology	59
Caers et al. (2013)	Peer-reviewed articles and papers on Facebook published between 2006 and 2012 that focus on personality of users	Psychology and economics	114
Dhir, Buragga, and Boreqqah (2013)	Empirical, conceptual, and theoretical studies on Twitter and its use in education	Education	43
Gholami-Kordkheili, Wild, and Strech (2013)	Research, commentaries, editorials, and opinion papers on medical professionalism and social media	Health care and medical	108
Hamm et al. (2013)	Research on social media use by health-care professionals or trainees published between 2000 and 2012	Health care and medical	96
Hew (2011)	Research focusing on the use of Facebook by students and teachers	Education	36
Jones, Sinclair, Holt, and Barnard (2013)	Research on the use of social networking to discuss the risks of Type 1 diabetes mellitus	Health care and medical	6
Kalampokis, Tambouris, and Tarabanis (2013)	Research where social media data were used to predict real-world phenomena	Information systems	52
Khan (2012)	Research on social media systems published 2003 to 2011	Information systems	274
Khang, Ki, and Ye (2012)	Social media research trends in four disciplines (advertising, communication, marketing, and public relations) published 1997–2010	Advertising, communication, marketing, and public relations	436
Leung, Law, van Hoof, and Buhalis (2013)	Social media–related research articles in tourism and hospitality published between 2007 and 2010	Tourism and hospitality	44
Manca and Ranieri (2013)	Research with a focus on Facebook as a learning environment	Education	23
Nadkarni and Hofmann (2012)	Research on the psychological factors contributing to Facebook use	Psychology	42
Park and Calamaro (2013)	Studies where social network sites are used for recruitment, intervention, or measurement in health research of adolescents and young adults	Health care, medical, and nursing	17
Snelson (2011)	Trends in academic literature about YouTube published between 2006 and 2009	Interdisciplinary	188
Van Osch and Coursaris (2014)	Social media research productivity based on journal articles and conference proceedings from October 2004 to 2011	Interdisciplinary	610
Williams, Terras, and Warwick (2013)	Twitter and microblogging research published from 2007 to 2011	Interdisciplinary	575
Wilson, Gosling, and Graham (2012)	Trends in research on Facebook	Social science	412
Zhang and Leung (2014)	Social networking research published in six high-ranking communication journals from 2006 to 2011	Communication	84

^aInformation in the Field(s) of Study column is based primarily on statement of purpose and content focus of each literature review article.

the articles in Table 1 represents a systematic literature review with the methodology for sampling and analysis clearly described by the author(s). The range of topics covered across the collection of literature review works reveals some of the diversity in emphasis and fields of study from which the works emerge. Some authors have focused on categorization of trends in academic literature related to specific social media platforms such as Facebook (Błachnio, Przepiórka, & Rudnicka, 2013; Caers et al., 2013; Hew, 2011; Manca & Ranieri, 2013; Nadkarni & Hofmann, 2012; Wilson, Gosling, & Graham, 2012), Twitter (Dhir, Buragga, & Boreqqah, 2013; Williams, Terras, & Warwick, 2013), or YouTube (Snelson, 2011). Other studies are grounded within a particular subject or field of study to

examine social media as it relates to topics such as adolescent well-being (Best, Manktelow, & Taylor, 2014), health-care professionals (Hamm et al., 2013), type 1 diabetes (Jones, Sinclair, Holt, & Barnard, 2013), tourism and hospitality (Leung, Law, van Hoof, & Buhalis, 2013), or prediction of real-world events (Kalampokis, Tambouris, & Tarabanis, 2013).

The prior literature reviews listed in Table 1 indicate that much has already been covered on the subject of trends in social media literature. Yet, there is little information about trends in qualitative and mixed methods approaches to social media research. Prior literature reviews have included discussions of trends in research approaches but have provided a more global classification of general trends (e.g., Best et al.,

2014; Hamm et al., 2013; Jones et al., 2013; Williams et al., 2013). This literature review serves to expand the knowledge base regarding how qualitative and mixed methods have been applied to social media research. There are several reasons why this might be important. Social media research is a relatively new field of study that has emerged in conjunction with the development of social media technologies and the upsurge in their use (Duggan et al., 2015). Little is known about how many qualitative and mixed methods social media studies have been published, where they originate, or which academic journals publish them. Furthermore, trends in the selection of research design, data collection techniques, and analytic approaches are not well known.

The potential value of examining trends in the use of qualitative research approaches (e.g., interview, focus group, and qualitative content analysis) lies in uncovering how researchers design studies to gain insights into how and why people engage with social media as well as the meaning that is attached to experiences with social media. For example, Fox, Warber, and Makstaller (2013) collected data from mixed-sex focus groups to help them answer questions about the role of Facebook in romantic relationship development. In another study, Greene, Choudhry, Kilabuk, and Shrank (2011) conducted a qualitative evaluation of posts from Facebook communities dedicated to diabetes to reveal how patients, family members, and friends share information and receive emotional support.

Mixed methods research approaches “in which the researcher gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two and then draws interpretations based on the combined strengths of both sets of data to understand research problems” (Creswell, 2014, p. 2) also have potential value in social media research. For example, Morgan, Snelson, and Elison-Bowers (2010) used qualitative analysis of social media content together with a survey to uncover patterns of behavior and attitudes regarding depictions of alcohol and marijuana use by young adults on social media websites. As another example, Vyas, Landry, Schnider, Rojas, and Wood (2012) combined a survey with follow-up interviews to examine short message services and social media use among Latino youth and the potential role of these services as methods of communication in public health programs. These examples illustrate the potential of qualitative and mixed methods research approaches to uncover new insights through the complimentary combination of methods. Yet, the question of how researchers have been applying these approaches in social media studies has not been explored in depth.

What this literature review contributes is a summary of general trends in qualitative research studies together with a more in-depth analysis of mixed methods approaches for social media research. The overarching research questions guiding this systematic literature review study were:

- What are the overall trends in qualitative and mixed methods social media research?
- To what extent does the design of mixed methods social media studies align to an established typology for mixed methods research?

Method

The central aim of this literature review was to identify trends in qualitative and mixed methods approaches used in the emergent field of social media research. The review is descriptive and follows an integrative synthesis approach, which “attempts to summarize the contents of multiple studies and minimizes any interpretation on the part of the reviewer” (Harden & Thomas, 2010, p. 752). The unit of analysis was a peer-reviewed journal article reporting the results of a qualitative or mixed methods research study where social media played a central role. The scope of the literature review was limited to articles published from 2007 through 2013. The reason for the initial cutoff was that literature in the years before 2007 was scant, given that social media is a relatively new phenomenon. According to company websites, Facebook was invented in 2004 (Facebook, 2015), YouTube in 2005 (YouTube, 2015), and Twitter in 2006 (Twitter, 2015). A previous literature review on YouTube scholarship indicated that publications began to appear in 2006, but no research studies were published prior to 2007 (Snelson, 2011). Williams, Terras, and Warwick (2013) selected 2007 as a starting point for their literature review of Twitter and microblogging research because that is when the first papers began to appear. Facebook research was published as early as 2005 (Wilson et al., 2012) but seems to have started building momentum in 2007. Therefore, the decision was made to set the initial cutoff at 2007 with a final cutoff of 2013, which was the last full year before the review was conducted in 2014.

Peer-reviewed journal articles were selected and analyzed through a systematic process consistent with the prior literature review studies listed in Table 1. Selection and analysis of articles proceeded through a series of the four stages illustrated in Figure 1.

Stage 1: Presearch

During the presearch phase, key words and databases were selected based on a combination of (a) strategies used in prior literature reviews and (b) test searches with candidate key words, filters, and databases. Some of the prior literature reviews focused on specific social media platforms (e.g., Facebook, Twitter, and YouTube), whereas others investigated certain aspects of social media usage or content regardless of platform. The present study integrates a combination of both platform-specific and general search phrases to explore an array of studies involving single or multiple types of social media. The key words used were *Facebook*, *Twitter*, *YouTube*, *social media*, and *social networking*. Each of these search phrases has been used in at least one prior literature review.

Many of the prior social media literature reviews were grounded in a particular field of study. Searches were conducted in combinations of databases, which sometimes included databases indexing literature specific to the field (e.g., PubMed for medical-related literature reviews). The present literature review is interdisciplinary with a focus on

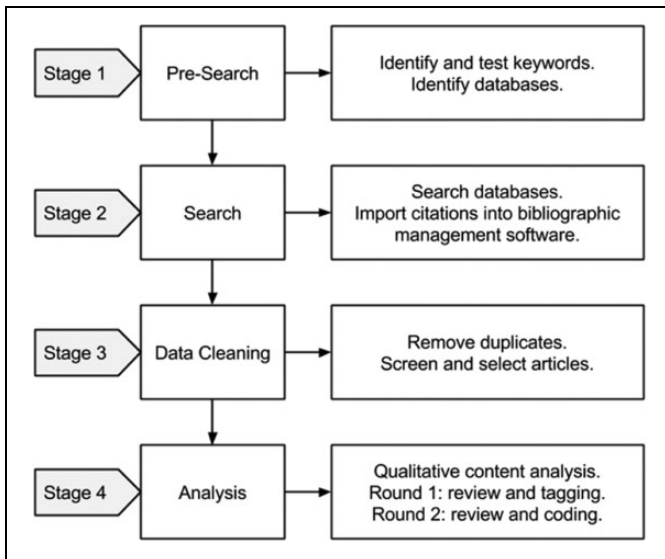


Figure 1. Stages in the literature review process.

trends in research methodology regardless of discipline. Therefore, searches were conducted exclusively in the following multidisciplinary databases, which have all been used in prior literature reviews: *Academic Search Premier*, *Web of Science*, and *Google Scholar*. Together, they offer substantial and complementary access to the academic literature from multiple disciplines.

Stage 2: Search

The search was conducted in January 2014 for articles published from 2007 through 2013 that had bibliographic entries available in the selected databases. The specific strategy for searching each of the databases (*Academic Search Premier*, *Web of Science*, and *Google Scholar*) is outlined here in detail to make them replicable for other researchers.

Academic Search Premier and *Web of Science* involved a key word search conducted in a similar manner. Each of the search phrases, YouTube, Facebook, Twitter, “social media,” and “social networking,” were entered one at a time in a series of searches. Filters were applied with each round of searches to retrieve peer-reviewed articles where the search phrase was contained in the title. For example, the search for Facebook articles was set to retrieve peer-reviewed articles with Facebook in the title. Search results were exported directly from each database in batches to the online version of EndNote (Thompson Reuters, 2014a). At the time of searching, *Academic Search Premier* permitted export of 100 citations per batch and *Web of Science* permitted export of 500 citations per batch. All citations from each round of searches were exported in batches until all of the results were copied into EndNote online.

Google Scholar was included as one of the databases searched for during this literature review due to its broad reach across interdisciplinary academic scholarship indexed on the

Internet and its use in prior literature review studies (see Błachnio et al., 2013; Dhir et al., 2013; Kalampokis et al., 2013; Williams et al., 2013; Wilson et al., 2012). Unfortunately, *Google Scholar* has certain limitations. Williams et al. (2013) searched *Google Scholar* for their literature review of academic work related to Twitter but acknowledged the lack of control over search fields and results containing many works unrelated to the purpose of their research. An additional issue is the sheer volume of results that might appear in a *Google Scholar* search. Researchers might not have the time or resources to sort through thousands of results to find articles matching inclusion criteria for articles. Furthermore, *Google* limits access to the first 1,000 search results (see *Google*, 2015), thereby making it impossible to access all of the results. This limitation can be verified by clicking through to the last page of a large set of search results.

The limitations with *Google Scholar* necessitated a modified search strategy to obtain a manageable set of results that yielded relevant articles not found through searches of *Academic Search Premier* and *Web of Science*. The lack of control over search fields acknowledged by Williams et al. (2013) was addressed by appending additional key words to restrict results to relevant articles. As previously explained, the unit of analysis was a peer-reviewed journal article reporting the results of a qualitative or mixed methods research study where social media played a central role. Therefore, the search phrases were adjusted to target both the type of social media and the type of design in each round of searches. For example, the search for Facebook literature was conducted in two rounds, with the search phrase *Facebook qualitative* used in the first round followed by *Facebook mixed method* in the second round. A similar approach was used to search for literature on Twitter, YouTube, social media, and social networking articles. This targeted search produced a manageable results list but produced only eight relevant articles that were not already found in the *Academic Search Premier* and *Web of Science* databases. *Google Scholar* ultimately served as an ancillary search tool that produced a few additional articles, but, in this particular case, it created the problematic decision of whether to choose (a) too many results that were labor-intensive to review and could not be fully accessed or (b) a restrictive search that might have limited the results to a narrower scope than desired. The restrictive search option, although not ideal, was selected due to its feasibility. Other researchers are encouraged to consider the limitations of *Google Scholar* prior to using it to obtain literature for a systematic review.

The process of removing duplicate citations was conducted after the searches were complete and citations had been imported into the online version of EndNote (Thompson Reuters, 2014a). First, the duplicate removal tool was used to identify as many duplicates as possible that had been imported from the different databases. This was followed by manual inspection of the citations to remove additional duplicates that had not been entered into the databases in the same way. For example, the author name or title might have been entered differently in one database as compared to the others. The citations were

combined into a single group (minus duplicates), leaving a total of 3,322 unique article citations.

Stage 3: Data Cleaning

Abstracts and full-text copies of the articles were reviewed to determine eligibility for analysis. Articles were selected if they met the following criteria: (a) the study applied qualitative research methodology or mixed methods research with a qualitative research component, (b) the study emphasized online social media, (c) the article was published in a peer-reviewed journal, and (d) a full-text English copy of the article was available. A total of 229 studies met the criteria with a subset of 55 of these studies involving both qualitative and quantitative (i.e., mixed) methods.

Stage 4: Analysis

A qualitative content analysis methodology, based on Schreier's (2012) approach, was used to structure the review and analysis of the literature. Qualitative content analysis is a descriptive research method involving development of a coding frame and qualitative coding of data. The coding frame was both concept driven (defined in advance) and data driven (derived from data during coding) as described by Schreier. Essentially, the concept-driven part of the coding frame was designed to classify studies according to research design (qualitative and mixed methods) and social media emphasized in the research. The data-driven portion of the coding frame came primarily from tagging and coding articles based on research approaches used in the study, as will be discussed momentarily.

A single researcher conducted the present study; therefore, a multiphase approach was taken to review the content at different points in time and to cross-check results for consistency. The articles had all been reviewed for eligibility for the study during the data-cleaning stage, but the actual analysis of content began with a round of review and tagging using the Mendeley's (2014) reference management software. Full-text copies of the articles were obtained and imported into Mendeley where they were reviewed, bibliographic information was verified, and tags were applied to each article to indicate type of social media emphasized and research approaches used in the studies. The tagging process served as a first round of classification and coding.

To conduct the second round of coding, bibliographic information first was exported from Mendeley in the Research Information Systems file format. This text file was imported into the NVivo (Version 10) qualitative analysis software program (QSR International, 2014). This process accomplished two goals: (a) it imported full-text copies of the articles into NVivo and (b) it simultaneously created an internal classification sheet (similar to a spreadsheet), which contained bibliographic information that was linked to each imported article. The classification sheet was created for the purpose of running queries within NVivo and for export to Excel (Microsoft, 2014) where further analysis of overall trends could be conducted.

Additional attributes (similar to spreadsheet columns) were added to the classification sheet so that each article could be categorized based on the social media emphasized in the study. The labeled categories comprised "Facebook," "Twitter," or "YouTube" for studies that focused on those specific social media platforms alone. A "Combination" category was used to label studies involving more than one type of social media that included Facebook, Twitter, YouTube, or some combination of these platforms. A category for "Other Social Media" was used to label studies involving other named social media platforms such as MySpace. An "Unspecified" category was used for studies that emphasized more general social media topics where there was no specific mention of any particular social media platform.

In addition to the categorization within the classification sheet, each entire article was coded as a case node in NVivo based on author names to facilitate the process of running matrix queries of authors versus content. Next, content within each article was coded based on the research approach applied to conduct the social media study. A set of top-level nodes, set at the highest point of a hierarchical node structure, was created prior to analysis to serve as the concept-driven coding frame, as discussed earlier. Nodes were created for qualitative and mixed methods research studies. In addition, child nodes were created under the mixed methods node for each of the mixed methods research design types described by Creswell and Plano Clark (2011). Nodes for specific approaches such as interviews, focus groups, surveys, or content analysis were generated later when they were identified during analysis and coding of the individual articles. Research approaches had already been tagged on the articles in Mendeley during the first round of review, so the NVivo coding was cross-checked with the Mendeley tags to verify consistency. When discrepancies were observed, articles were reviewed again to resolve these differences.

Trends across the set of tagged and coded literature were identified through analysis of coded article text, matrix queries of articles and codes, and information in the article classification sheet. The classification sheet was exported from NVivo as a spreadsheet for analysis in Excel where pivot tables were created to generate charts and frequencies of publication trends.

Limitations and Delimitations

Prior literature reviews of social media research have described limitations that are equally applicable to the current study. Factors attributed to scope restrictions based on specific social media platform, databases, types of literature (e.g., articles and conference papers), languages, publications (e.g., specific journals), or use of specific search phrases have been discussed (e.g., Błachnio et al., 2013; Gholami-Kordkheili, Wild, & Strech, 2013; Khan, 2012; Khang, Ki, & Ye, 2012; Leung et al., 2013; Williams et al., 2013; Wilson et al., 2012; Zhang & Leung, 2014). Restricting the scope of a literature review can be beneficial in making the study feasible and focused. However, it also means that some literature will most likely be left

out of the analysis. The same issue holds true for the present study with its own restrictions on language, publication type, databases, and search phrases. The restrictions and criteria for inclusion should be communicated in literature reviews, as they are here, to ensure that other researchers are made aware of limitations impacting coverage. Furthermore, these details permit replication or comparison among literature review studies. The restrictions and selection criteria have been provided in the method section earlier to ensure that these details are available for interested researchers. In addition, a complete bibliography of all of the studies included in this review, including a categorized list of mixed methods studies identified by the author, is available online at <https://sites.google.com/site/qualmix/bibliography>.

Strategies for describing, defining, or classifying mixed methods research studies have been proposed through the development of various typologies, models, or frameworks (Creswell, 2014; Creswell & Plano Clark, 2011; Guest, 2012; Johnson & Onwuegbuzie, 2004; Nastasi, Hitchcock, & Brown, 2010). The present literature review limits discussion to the typology developed by Creswell and Plano Clark (2011). This typology served as a useful tool for organizing and describing timing and priority of data collection and analysis within social media research.

Results and Discussion

The results of this systematic literature review study are organized in a general-to-specific manner. These results begin by presenting overall trends for the entire combined collection of 229 qualitative and mixed methods research studies. This is followed by an in-depth analysis of the subset of 55 mixed methods research studies and the combination of approaches applied for social media research.

Overall Publication Trends

The first research question was: What are the overall trends in qualitative and mixed method social media research? This question was answered by presenting a series of trend summaries including publication count by year and type of social media, countries that produced the majority of the research, most common journals where the studies were published, and a breakdown of research approaches used across the qualitative and mixed methods research studies included in this review.

Overall trends in publication count and type of social media emphasized are shown in Figure 2 for qualitative and mixed method research studies published from 2007 through 2013. The lines marked Facebook, Twitter, and YouTube represent studies that focused solely on those specific social media platforms. The line marked Combination represents studies involving more than one type of social media that included Facebook, Twitter, YouTube, or some combination of these platforms in the study. The line marked Other Social Media represents studies involving other named social media platforms such as MySpace. The line marked Unspecified represents studies that

did not specify a platform but emphasized more general social media topics.

The publication trends illustrated in Figure 2 show an overall increase in social media research involving either qualitative or mixed methods. Facebook research is the strongest area with more publications than any other social media platform. This trend is consistent with the overall popularity of Facebook, which has been described as the dominant social media platform among adult users (Duggan et al., 2015).

There were 168 (73.4%) total studies originating from the five countries shown in Table 2, as determined by the location of the first (corresponding) author. Essentially, Table 2 provides a summary of the points of origin and areas of emphasis for the most prolific contributors of social media research identified in the literature review. In a similar manner, Hamm et al. (2013) reported continents of origin for corresponding authors when discussing the results of a literature review regarding social media use by health-care professionals and trainees. Although limited by the fact that the literature review included only English texts, there is some indication of relative attention given to social media platforms from the countries that yielded the majority of the research.

The full set of 229 qualitative or mixed methods research articles were published in 158 peer-reviewed academic journals. The 14 journals with a publication count of three or more articles are listed in Table 3 to provide information about the primary outlets for the interdisciplinary qualitative and mixed method social media studies included in this review. Similarly, other literature reviews have included journal information to indicate where literature has been published within the emergent field of social media scholarship (Khan, 2012; Khang et al., 2012; Zhang & Leung, 2014).

Impact factors have played a role in prior literature reviews, such as when researchers used them as part of the justification to limit the scope of their review to specific journals with high rankings (Archibald, Radil, Zhang, & Hanson, 2015; Zhang & Leung, 2014). The present literature review took a different approach to sample articles based on the inclusion criteria described in the methods section and then identified the impact factors of the journals where these studies were published as an indicator of ranking and potential quality. The majority of journals (72%) in Table 3 were listed in the *Journal Citation Reports 2013 Edition* (Thompson Reuters, 2014b). All but one of the articles had an impact factor listed in 2013 and 12 of the journals had both a 2013 and 5-year impact factor.

A matrix of qualitative and mixed methods social media research approaches is shown in Table 4. The information was obtained by identifying how researchers described their studies. Studies identified by the authors as following a *case study*, *ethnography*, *grounded theory*, or *phenomenology* design were labeled as such while coding and classifying the studies. Qualitative studies that were described generically as qualitative without naming a specific design or were described in terms of data collection techniques (e.g., interview and focus group) or analytic techniques (e.g., content analysis and discourse analysis) were placed in the *other qualitative* category, which

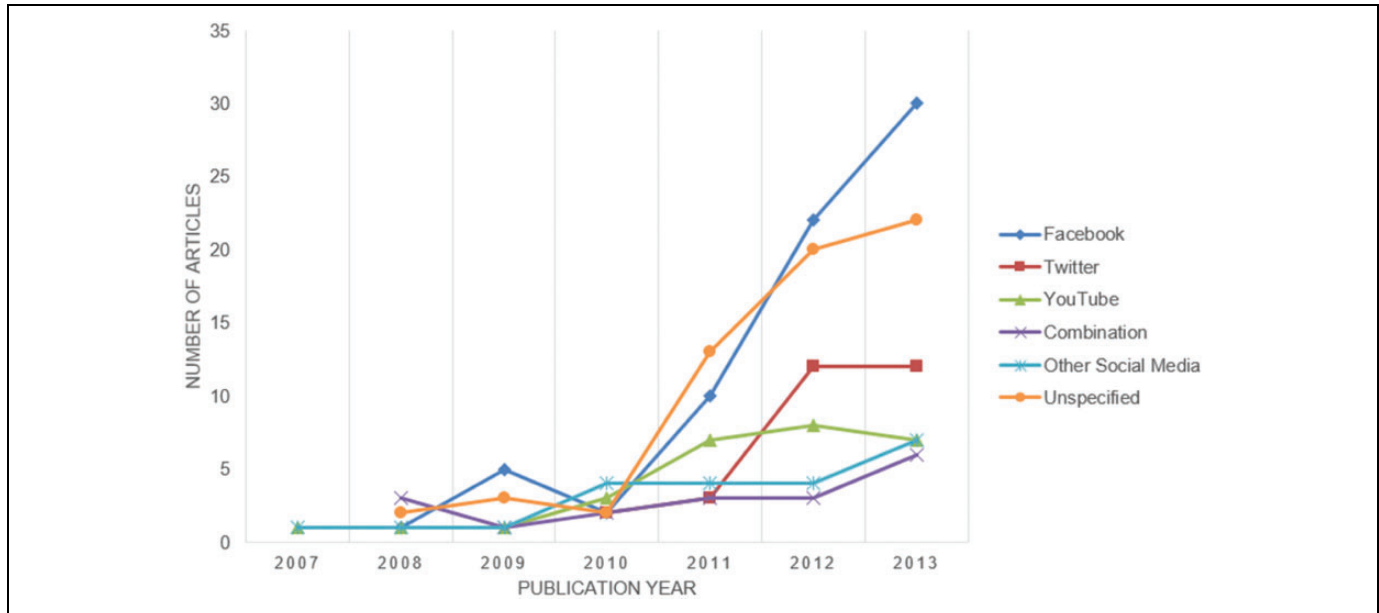


Figure 2. Publication trends by year and type of social media.

Table 2. Countries of Origin and Social Media Emphasis for Most Prolific Contributors.

Countries	Facebook	Twitter	YouTube	Combo	Other	Unspecified	Total
United States	31	16	8	7	9	35	106
United Kingdom	11	3	7	2	2	3	28
Australia	5	2	1	3	1	6	18
Canada	2	2	0	1	1	4	10
Taiwan	4	1	1	0	0	0	6
Total	53	24	17	13	13	48	168

Table 3. Journals With Three or More Social Media Studies.

Journal Titles	Article Count	Impact Factor	
		2013	5 Year
<i>New Media & Society</i>	14	2.052	2.441
<i>Journal of Computer-Mediated Communication</i>	8	2.019	4.346
<i>Public Relations Review</i>	6	0.755	0.984
<i>Computers in Human Behavior</i>	4	2.273	3.047
<i>Australasian Journal of Educational Technology</i>	4	0.875	1.198
<i>British Journal of Educational Technology</i>	4	1.394	1.912
<i>Cyberpsychology, Behavior, and Social Networking</i>	4	2.410	2.535
<i>Information, Communication & Society</i>	4	1.283	None
<i>Journal of Medical Internet Research</i>	4	4.669	5.724
<i>Behaviour & Information Technology</i>	3	0.839	1.261
<i>International Journal of Emerging Technologies & Society</i>	3	None	None
<i>Learning, Media and Technology</i>	3	0.958	1.529
<i>The Information Society</i>	3	0.972	1.195
<i>Internet and Higher Education</i>	3	2.048	2.635

ended up being the case for 115 of the studies. Mixed methods studies were identified based on methodology and the presence of a combination of qualitative and quantitative approaches.

The number of studies falling within each design category is indicated in Table 4. Data collection techniques or analytic approaches under each design category are marked qualitatively (X) to indicate where they were used by the researchers who conducted the studies included in this literature review. Frequency counts were not included for data collection techniques or analytic approaches in Table 4 because individual studies might involve multiple techniques, and the problem of multiple counting makes it difficult to interpret the results. Instead, common trends are discussed to highlight approaches more commonly used by researchers. General trends observed from across the literature review are presented first followed by a discussion of mixed methods research approaches in the next section of this article.

Researchers commonly used interviews, focus groups, and surveys as data collection techniques. These types of studies were typically designed to examine facets of social media users' behaviors, uses, or experiences with social media.

Table 4. Matrix of Qualitative and Mixed Method Social Media Research Approaches.

	Research Designs					
	Case Study	Ethnography	Grounded Theory	Phenomenology	Other Qualitative	Mixed Methods
Number of Studies	18	22	17	2	115	55
Data collection techniques						
Fieldwork and observation	X	X	X		X	X
Focus group			X	X	X	X
Interview	X	X	X	X	X	X
Survey						X
Big data ^a						X
Analytic approaches						
Coding	X	X	X		X	X
Discourse analysis	X	X			X	
Content analysis	X	X	X		X	X
Statistical analysis						X

^aBig Data refers to large data sets of content extracted from social networking sites.

Examples of interview or focus group research included interviews with social media users regarding their experiences with public mourning on Facebook (Brubaker, Hayes, & Dourish, 2013), interviews with American Red Cross employees to learn how they used social media to communicate with key publics (Briones, Kuch, Liu, & Jin, 2011), interviews with adolescents to find out how they use social media to become informed of world events (Marchi, 2012), and a combination of interviews and focus group interviews with women to explore gender stereotypes on Facebook (Bailey, Steeves, Burkell, & Regan, 2013). Surveys were predominantly quantitative with results presented in numerical form, although there was one instance where the survey was qualitatively oriented with open-ended questions (Mihelj, van Zoonen, & Vis, 2011).

Content analysis comprised the most commonly used analytic approach across this group of qualitative and mixed methods research studies. In content analysis studies, researchers used social media content such as Facebook posts, tweets (Twitter posts), and YouTube videos as a data source. For example, C. P. Chen (2013) coded the content of YouTube videos of people who had been interviewed as part of a qualitative research study of personal (self) branding. Cohen and Duchan (2012) conducted a qualitative analysis of the content of Twitter posts submitted by teenage students in their study of the role of Twitter in the teaching and learning process.

Content analysis can be conducted with qualitative or quantitative methods, although combinations of both are possible. Results often take the form of frequency counts or themes identified in the content. Content analysis, regardless of whether it is qualitative or quantitative, has been described as requiring development of a codebook, which is used to guide coding of content (Krippendorff, 2013; Schreier, 2012). Use of a codebook with predefined categories can be found in a content analysis study of user-created videos about Islam on YouTube (Mosemghvdlshvili & Jansz, 2012). However, there are times when social media researchers have conducted content analysis studies inductively or thematically instead of using a codebook. For example, a study of influenza coverage on social media

sites reported that the “. . . content analysis was based on a general inductive approach and conducted by a single coder” (Lehmann, Ruitter, & Kok, 2013, p. 3). Studies where content was coded in an open, inductive, or thematic manner represent an approach to content analysis that resembles the type of open qualitative coding that one might apply to other types of qualitative data such as interview transcripts.

Trends in Mixed Methods Designs for Social Media Research

The second research question was: To what extent does the design of mixed methods social media studies align with an established typology for mixed methods research approaches? This question was answered by presenting trends in methodological approaches in the 55 mixed methods research articles. Studies identified as representing mixed methods research for the current analysis were social media studies that integrated qualitative and quantitative research methods in alignment with most definitions of mixed methods research (Creswell, 2014; Creswell & Plano Clark, 2011; Johnson, Onwuegbuzie, & Turner, 2007). Authors of the studies sampled for this literature review did not always label their studies as mixed methods, which is consistent with the noted variability in terminologies used across the landscape of mixed methods research studies (Creswell & Plano Clark, 2011). Therefore, mixed method research studies were first identified by reviewing the abstracts and methods sections for terminology identifying the study as mixed methods, multi method (qualitative and quantitative combinations), or having used a combination of qualitative and quantitative methods. Next, the articles were reviewed to verify the presence of both qualitative and quantitative approaches for data collection or analysis. The mixed methods research studies then were classified based on their resemblance to the basic mixed methods research designs described by Creswell and Plano Clark (2011) and Creswell (2014) (e.g., convergent parallel, explanatory sequential, exploratory sequential). A residual category for other types of mixed methods research

designs was used to categorize those studies that could not be classified due to unclear description of methodology or lack of clear fit to the mixed methods research designs. A brief summary of mixed methods research designs and examples of social media studies of each type are provided in Table 5.

The mixed methods research designs described in Table 5 warrant further discussion of how these designs have manifested within social media research. Although space limitations prohibit discussion of every social media study, each of the basic mixed methods designs is discussed together with representative studies that exemplify how the designs have been applied in social media research. The residual category for other mixed methods research studies will not be discussed further. The emphasis centers on methodological structures regardless of research topic in keeping with the central goal of the present literature review. In-depth analysis of research outcomes, which are highly varied in this multidisciplinary review, is beyond the scope of this article. Prior literature reviews already have covered a great deal of ground in the analysis of research trends and outcomes related to specific disciplines or research questions in social media studies as shown in Table 1.

Convergent Parallel Design

The convergent parallel design has been described as one of the most well-known approaches of mixed methods research (Creswell & Plano Clark, 2011). It has been conceptualized as a triangulation approach whereby qualitative and quantitative results are brought together to explore a research problem from multiple angles to confirm results (Creswell & Plano Clark, 2011). In fact, the word *triangulation* was used in some social media studies that utilized a convergent parallel structure. For example, a study of educational use and privacy issues on Facebook integrated web surveys and interviews in what was called a mixed methods research design using a model of “methodological triangulation” (Bruneel, Wit, Verhoeven, & Elen, 2013, p. 132). Annabi and McGann (2013) also described triangulation of multiple data sources, which were collected in parallel for their study of the use of social media in communities of practice in business.

A convergent parallel structure was identified in the design of 23 of the 55 mixed methods research studies, although none of these studies were explicitly labeled as such by the authors who simply discussed the combination of qualitative and quantitative approaches. Studies were classified as convergent parallel based on author descriptions of data collection and mixing of qualitative and quantitative data, which closely resembled the description of convergent parallel design. The example cited in Table 5 involved analysis of the use of a hallucinogenic plant called *Salvia divinorum* in YouTube videos (Casselman & Heinrich, 2011). Qualitative observations were conducted on 100 YouTube videos that showed people smoking the plant. Quantitative meta-data, collected during the same time frame, were obtained through the use of a web-crawler tool. The data streams were collected in parallel and combined in the analysis

and interpretation of results to discuss trends in use of the plant and patterns of views over time on YouTube.

A notable trend among several studies with a convergent parallel structure was to mix data obtained from people with data from social media sites or content (e.g., Facebook profiles, YouTube videos). Data obtained from people were collected via interviews, surveys, focus groups, surveys, or observations, whereas data from social media content were obtained by harvesting materials such as posts or videos from social media sites. Quantitative and qualitative data were obtained from people as well as social media content. The diagram in Figure 3 illustrates the convergence of streams of quantitative and qualitative data obtained from people and social media content sources. The data typically were combined during the analysis and interpretation stages of the research process.

Examples of the convergent parallel structure, involving data from people and content, illustrate how this combination has been applied in social media research. For example, quantitative and qualitative data from Facebook posts were combined with interview data from students who interacted with social media while in study abroad programs (Back, 2013). Research on the differences in self-presentation on social media sites among ethnoracial groups involved a combination of interviews, focus groups, and quantitative content analysis of Facebook profiles of African American, Latino, Indian, and Vietnamese ancestry students (Grasmuck, Martin, & Zhao, 2009). A study of transparency in social media practice of organizations and public relations professionals integrated data from a survey, interviews, and a content analysis of social media campaigns (DiStaso & Bortree, 2012). These studies are representative of the group of social media research articles classified as convergent parallel.

Explanatory Sequential Design

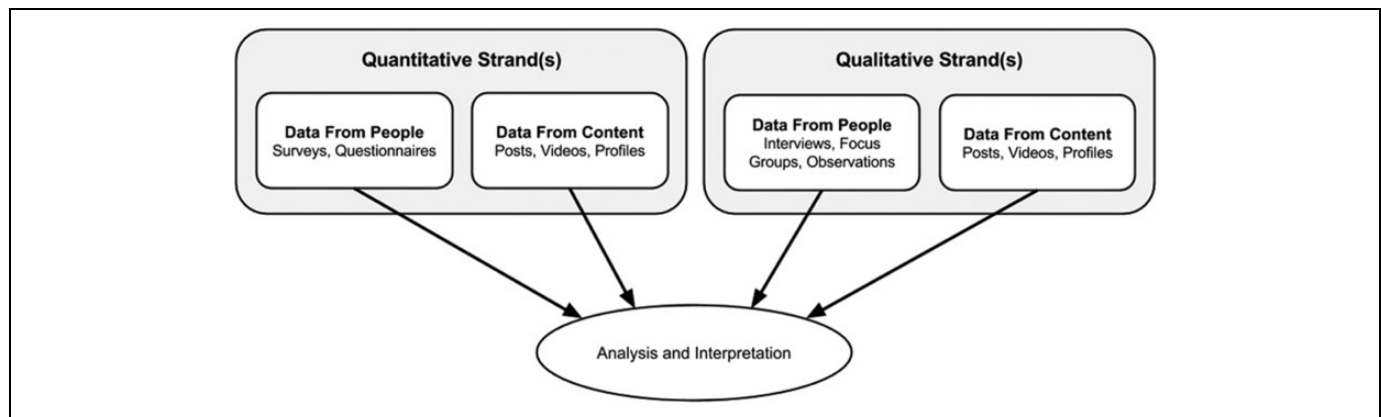
The explanatory sequential design is structured with a quantitative portion first followed by a qualitative portion that further explores something uncovered during the quantitative analysis (Creswell, 2014; Creswell & Plano Clark, 2011). The example social media study in Table 5 is structured in an explanatory sequential style with a quantitative survey on the topic of Facebook privacy followed by focus groups to deepen understanding of survey results (Debatin, Lovejoy, Horn, & Hughes, 2009). The explanatory sequential structure was identified in nine of the social media studies and the majority of them (six studies) involved a survey with follow-up interviews or focus groups. For example, a survey of students regarding their use of Facebook and MySpace was followed up with a focus group of students who used one or both social media sites (Chu & Meulemans, 2008). Cunliffe, Morris, and Prys (2013) adopted a similar research design by administering a survey followed by a series of focus groups in a study of teenage students’ use of Welsh language on Facebook.

The social media studies following an explanatory sequential pattern were predominantly oriented toward obtaining data

Table 5. Mixed Methods Research Designs and Examples of Social Media Studies.

Mixed Methods Research Design	Brief Description	Social Media Research
Convergent parallel design (23 studies)	Quantitative and qualitative portions conducted in parallel strands with results combined or connected to each other at the end of the study	Analysis of the content of YouTube videos together with the meta-data obtained from a separate web crawler program (Casselmann & Heinrich, 2011)
Explanatory sequential design (9 studies)	Quantitative portion first followed by qualitative to help explain quantitative findings	Quantitative survey followed by focus groups to deepen understanding of survey results regarding privacy on Facebook (Debatin, Lovejoy, Horn, & Hughes, 2009)
Exploratory sequential design (11 studies)	Qualitative portion first followed by quantitative to test or to generalize findings	Interviews reveal behaviors related to untagging and deletion of photos on Facebook. A survey was administered to follow up on interview findings (Strano & Queen, 2012)
Other mixed methods (12 studies)	Residual category for those studies not clearly fitting other categories	Qualitative and quantitative analysis of memes in YouTube videos (Shifman, 2011)

Note. A categorized bibliography of all the mixed methods research studies based on type of design is available online at <https://sites.google.com/site/qualmix/mixedmethods>

**Figure 3.** Diagram of convergent parallel strands in social media studies.

from people through surveys and follow-up interviews or focus groups. However, some studies also involved the integration of data from social media content within an explanatory sequential approach. For example, a study of user-created videos about Islam on YouTube began with an analysis of videos and YouTube channel pages. The content analysis involved coding on both quantitative and qualitative variables including video characteristics, producer demographics, valence framing (i.e., very positive to very negative), thematic variables such as topic or country, and a qualitative category to explore the topic of Islam on YouTube in greater depth. The content analysis was followed by interviews with some of the people who created the videos to learn more about their motivations for creating and sharing their videos on YouTube (Mosemghvdlishvili & Jansz, 2012). Another study, based entirely on Twitter content, began with a large-scale analysis of tweets (Twitter posts) using specific tags related to Hugo Chávez. Dominant opinion leaders were identified based on the propagation of their tweets (i.e., retweet, mention, or copy more than 80% of the content). The profiles of top opinion leaders then were analyzed as part of the qualitative research process to examine the

characteristics of these influential tweeters (Deltell, Congosto, Claes, & Osteso, 2013). This study follows the structure of an explanatory sequential design, but it emphasizes results obtained from analysis of social media content.

The diagram in Figure 4 illustrates the structure of explanatory sequential studies to show how the qualitative strand builds from the quantitative strand. Data obtained from people or content can be generated in either or both strands depending on the research goals.

Exploratory Sequential

The exploratory sequential design is structured as a mirror opposite to the explanatory sequential design, with a qualitative portion first followed by a quantitative portion to test or to generalize the qualitative findings (Creswell, 2014; Creswell & Plano Clark, 2011). The example social media study in Table 5 is structured in an exploratory sequential style with qualitative interviews followed by a quantitative survey (Strano & Queen, 2012). The interviews were conducted with Facebook users as part of a study about the use of photos on

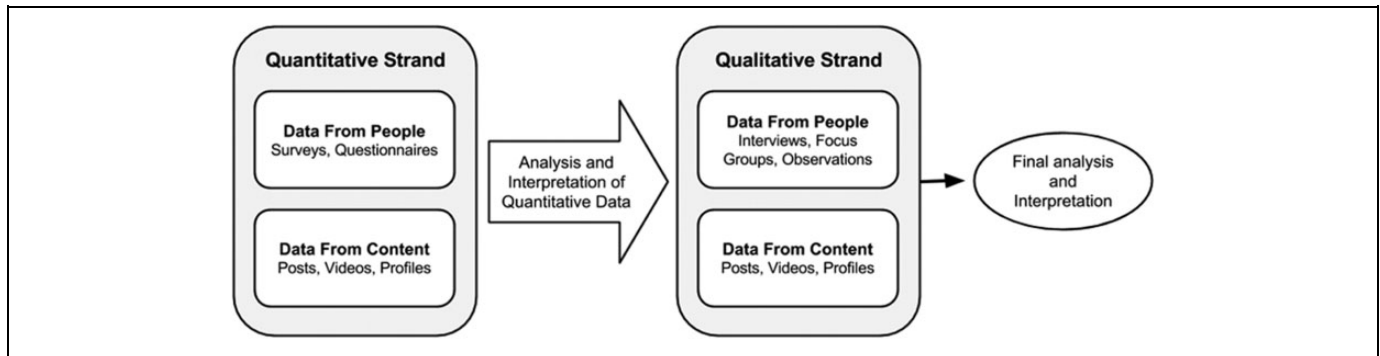


Figure 4. Diagram of explanatory sequential strands in social media studies.

Facebook. During the qualitative portion of the study, the researchers noticed that participants described image suppression practices involving untagging or deletion of images. These findings were further explored with a quantitative follow-up survey designed to learn more about the frequency of untagging or photo deletion to manage identity on Facebook.

The exploratory sequential structure was identified in 11 of the social media studies. Six of them were structured with the sequential combination of interviews or focus groups conducted first with quantitative surveys conducted afterward. For example, K. H. Chen, Shen, and Ma (2012) conducted a study of the appeal of social networking games (i.e., Facebook games) that began with interviews of 11 experts, who were either experienced game players or designers. The experts were asked about their preferences for usability and functionality of 20 games that they had all played. Findings from the interviews were used to develop questions for a follow-up survey completed by 321 gamers to test and to generalize the findings related to game appeal. Another study of user perspectives on construction of a social networking site for the work environment began with focus groups to generate preliminary results for the construction of a follow-up questionnaire (Valdez, Schaar, & Ziefle, 2012).

Like other mixed methods social media studies, those structured in the exploratory sequential pattern obtained data from people as well as from social media content. Church (2010) studied leadership discourse in YouTube video clips of candidates during the 2008 U.S. presidential election. The study began with a grounded theory analysis of the video discourse to develop categories from which candidate leadership traits could be coded in a subsequent content analysis. Frequencies of the appearance of leadership traits in the YouTube videos then were generated during the quantitative content analysis that followed. Along similar lines, Bronstein (2013) conducted a content analysis of the Facebook pages of two presidential candidates in the 2012 U.S. presidential election. A qualitative content analysis was conducted first to identify themes in the types of persuasive language used, the subject of the post, and additional features such as likes or links to websites. A quantitative analysis followed to look for relationships among identified themes, such as style of persuasive language, and number of likes and comments received on the posts.

The diagram in Figure 5 illustrates the structure of exploratory sequential studies to show how the quantitative strand builds from the qualitative strand. Data obtained from people or content can be generated in either or both strands depending on the research goals.

Summary and Conclusion

This article presented the results of a descriptive qualitative content analysis of 229 social media studies conducted using qualitative or mixed methods research approaches that were published from 2007 through 2013. Overall trends for publication and methodologies were presented followed by an analysis of mixed methods research studies and how their structure aligns to parallel and sequential mixed methods research designs described by Creswell and Plano Clark (2011). The upsurge of social media use has been coupled with increased interest in learning more about human interaction with social media and the type of content posted on social media sites. Prior literature reviews (Table 1) have collectively uncovered much regarding social media research trends and outcomes. The present literature review contributes to the knowledge base by examining trends in qualitative and mixed methods research publications, research designs, data collection techniques, and analytic approaches.

Summary of Main Findings

The analysis of publication trends revealed that social media research has been increasing over time and particularly for studies involving Facebook. The growth in academic interest in social media is evident in both the collection of studies reviewed for this article and the 20 prior literature reviews listed in Table 1. This suggests that social media research is becoming increasingly commonplace and that studies emphasizing Facebook, Twitter, YouTube, social media, and social networking have entered the mainstream of academic literature. One conclusion that can be drawn from this is that social media research is emerging as a field of study in its own right.

The majority of the qualitative and mixed methods social media studies were conducted with established methods such as interviews, surveys, focus groups, or content analysis.

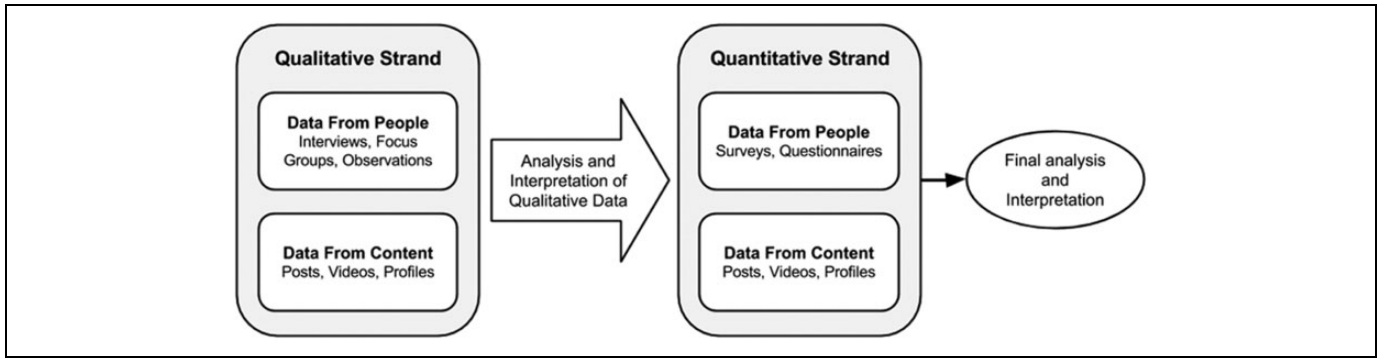


Figure 5. Diagram of exploratory sequential strands in social media studies.

Studies were designed to investigate people and their perceptions or use of social media, themes in social media content, or a combination of both. Interviews and focus groups were common strategies in these types of studies. Content analysis was a dominant analytic approach used within studies that involved social media content such as Facebook posts, tweets (Twitter posts), or YouTube videos. Emergent social media research designs such as those that couple network analysis with qualitative analysis were present but uncommon in the literature sampled for this review (see Deltell et al., 2013). However, mixed methods research approaches involving network analysis are emerging and evolving as researchers grapple with the challenges and benefits for studies involving social networks (Dominguez & Hollstein, 2014).

Analysis of the 55 mixed methods social media studies indicated that nearly one half of them (23 studies) were structured like the convergent parallel design, with the remaining studies structured like the exploratory sequential or explanatory sequential designs described by Creswell and Plano Clark (2011). Regardless of similarities to this established mixed methods typology, the authors did not use terms such as convergent parallel, explanatory sequential, or exploratory sequential in the description of methods used. This indicates that terminologies associated with mixed methods research designs have not yet been widely adopted by researchers conducting mixed methods social media studies.

Directions for Further Research

Social media studies have a central emphasis on technologies such as Facebook, Twitter, and YouTube. However, only 61 of the 229 articles included discussion of the use of software or other technologies to collect or to analyze data. For example, instant messaging, voice, or video tools were used by some researchers for distance interviews (Arnold & Paulus, 2010; Brubaker et al., 2013; Gikas & Grant, 2013; Wesely, 2013). Tools for harvesting social media content were discussed in other studies such as Casselman and Heinrich's (2011) YouTube study or the Twitter study conducted by Deltell et al. (2013). Social media content can be tedious to capture, but tools for harvesting and analysis of online social media content are becoming more readily available and user

friendly. For example, the NCapture tool was designed to work with NVivo to capture social media content from sites including Facebook, Twitter, and YouTube for qualitative analysis. It is beyond the scope of this article to provide an in-depth analysis of technologies for social media research, but information is available online (see Nova Southeastern University, 2015; University of Surrey, 2015). Additional research on the role of technologies for studies of social media content is warranted, given the number of studies that integrate content from social media sites.

It can be valuable to have access to software or other technologies that support qualitative and mixed methods social media research. However, it is equally important to use these tools in well-designed studies conducted with methods appropriate for answering the research questions. The literature review presented in this article provides an overview of recent trends in qualitative and mixed methods social media research designs to uncover prior approaches and how they were applied in this emergent field of study. A complete bibliography is provided along with a categorized list of studies for review by researchers who wish to examine further how others have conducted mixed methods social media studies (see <https://sites.google.com/site/qualmix/>). This literature review provides a summative starting point for researchers who wish to see what has already been undertaken by others who have conducted qualitative or mixed methods social media studies. Yet, there remains a need for a more cohesive framework that clearly identifies best practices in the selection and coupling of appropriate methods and technologies for social media research. Future work in this area could build on alternative mixed methods typologies that integrate interpretive and evaluative approaches that were not included in the descriptive review presented in this article (see Guest, 2012; Johnson & Onwuegbuzie, 2004; Nastasi et al., 2010; O'Cathain, 2010). Additional research promises to advance knowledge of social media methodologies and promote rich discussions of method and technology in this growing field of study.

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