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**Connecting people? Understanding media's role as democratic resources for people in  
digitally advanced local environments**

Digital Journalism

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## Abstract

Communication abundance in the digital sphere has raised concern over audience fragmentation and the declining capacity of general news media to shape common experiences and promote shared discourses required by a well-functioning local democracy. Based on the concept of mediated public connection this paper offers an analytical framework to investigate how people orient themselves to a local public world through media in high choice, digitally advanced information environments. Two analytical dimensions of people's media use -- *practice* and *perception* -- are tested on survey data from Norway ( $N=1692$ ) using a network analysis approach combined with media experience data. The study finds substantial convergence in use of different online and offline media with the largest audience overlap occurring between online local and regional newspapers and Facebook. These digital players represent the backbone of the local media environment under study. Overall, citizens' experiences with different media as democratic resources for their local public life are not very strong and weaker for online media than for their offline editions.

*Keywords:* Mediated public connection, Local media, Convergence, Fragmentation, Audiences, Digital journalism, Local democracy, Network analysis

## **Connecting people? Understanding media's role as democratic resources for people in digitally advanced local environments**

Information and Communication technologies (ICTs) have provided local citizens with an unprecedented variety of choices in terms of news suppliers, platforms and content as well as opportunities for participation in production and distribution of local digital journalism. This changes the supply and demand dynamics between local news media and their audiences and, thus, processes of knowledge dissemination and acquisition in post-industrial democracies (Van Aelst et al. 2017). Influential scholars have raised concerns that a high-choice, information abundant environment will increase audience fragmentation, stimulate the emergence of media enclaves and weaken the role of journalism and general news media as common arenas for public discourse and civic integration (e.g. Gitlin 2002, Sunstein 2009). Several studies of audience fragmentation in online and offline media environments have concluded that media use patterns are connected, rather than partisan and enclave-oriented, and that fear of polarization is exaggerated (e.g. Webster and Ksiazek 2012, Weeks, Ksiazek, and Holbert 2016, Fletcher and Nielsen 2017). However, the more profound question of the media's democratic functions for citizens in complex, information abundant environments has received little attention in these studies. Subsequently, it remains unclear if, and in what way, the media available to citizens really provide them with resources for public life and stimulate their orientation towards a public world. Such questions are particularly pertinent to the local context where general news media, such as the local newspapers, have played important democratic roles but are experiencing a decrease in readership in the transition from print to digital (e.g. Wadbring and Bergstrom 2017). Furthermore, research suggests that local digital journalism provides weaker democratic experiences than print journalism (Skogerbø and Winsvold 2011). Simultaneously, the range of sources for local news has expanded beyond the boundaries of traditional online and off-line news media, often

referred to as legacy news media, to encompass a multitude of digital players (e.g. Gulyas, O'Hara, and Eilenberg 2018) making the local news environment complex and potentially difficult to navigate (McCollough, Crowell, and Napoli 2017).

Drawing on the concept of mediated public connection (Couldry, Livingstone, and Markham 2016), this paper addresses these questions regarding media's role as resources for citizens' public orientation by proposing two distinct dimensions of the supply-demand interplay between local news sources and their audiences: The *practice dimension* captures convergence in news consumption across legacy news media and digital-born media including social media platforms, blogs and online information sites. The *perception dimension* captures people's experiences with the democratic role of these media. This provides a framework for a more comprehensive analysis of the media's democratic function as "local community glue" than studies of audience fragmentation in isolation allow for and connects audience fragmentation research with the broader literature on mediated public connection as well as studies of people's experiences with local online and offline journalism. The paper applies a normative perspective on local media and democracy emphasizing the benefit of socially responsible journalism and general news media as common public sphere sites. The proposed analytical prism is tested empirically using survey data from Norway ( $N=1692$ ) which represents a local media pluralism "laboratory" due to the country's rich local media structure (Østbye 2019). The aim is to explore use and experiences with different media as resources for people's public connection to local communities in a high choice, digitally advanced local context; particularly how pre-digital ideals of local journalism's democratic role correspond with the increasingly digital local news consumption. The paper makes a methodological and empirical contribution by presenting a democracy functions score based on media experiences among local citizens and combining this with network analysis of convergence in use across different media types.

The article proceeds with a literature review bridging theoretical perspectives on mediated public connection, audience fragmentation and the democratic role of local journalism. Based on this and previous empirical findings, I introduce my research questions and a hypothesis in the subsequent section of the paper. After outlining the method and its limitations, I present the empirical results and discuss them in relation to the literature, which brings us to the conclusion of the paper.

### **The concept of mediated public connection and the provision of local news**

In most theories of democracy people are expected to be oriented towards a public world where matters of common concern are addressed (e.g. Baker 2001, Christians et al. 2010) and journalism is expected to help people in this respect. To capture this precondition of democratic engagement Couldry, Livingstone and Markham (2016) have introduced the concept of “public connection”. They describe how this connection is principally mediated and sustained by a convergence in what media people consume, i.e. by overlapping media consumption. Mediated public connection concerns a medium’s ability to satisfy an individual’s “need to both equip himself for the role of citizen-member of the democratic order, and for the role of belonging as a community-member in the broadest possible sense” (Schrøder and Steeg Larsen 2010, 527). Public connection then refers not only to the political or civic aspect of citizenship, but to a broader understanding described by Dahlgren (2009) which includes cultural dimensions as well as social aspects related to the general life circumstances of individuals. In the present context, I apply this understanding of what it means to be a citizen and interpret audiences as citizens who use media.

According to Kaun (2013), public connection is civic experiences involving orientation or involvement that can be translated into direct civic participation at certain times, e.g. during elections. In a distinct, but related area of research, Kim and Ball-Rokeach (2006) have

described how “connectedness” between individuals and media in local communication infrastructures affects both information levels, engagement and sense of belonging in a community. In a digital context, the term community in relation to local news media, people and geographic areas becomes increasingly complex, as media consumption is less bound in time and space and communities may be virtual as well as physical (Hess and Waller 2016). Without ignoring this complexity, this paper is concerned with people’s mediated connection to public matters related to the area where they reside. Such connection can take place through a multitude of content forms, media types and platforms and news is only one avenue for people’s orientation to matters of public concern (Couldry, Livingstone, and Markham 2016, Nærland 2018). ICTs such as social media have enhanced the opportunities for citizen’s involvement in local public matters and extended the ways public issues are defined and expressed even if the optimistic view that social media serve as a valuable extension of the public sphere is increasingly challenged by empirical evidence of the opposite such as the dissemination of hateful messages and misinformation (Valenzuela et al. 2019, Lewis and Molyneux 2018) and other “dark participation” on social media platforms (Quandt 2018).

News remain central for people’s public connection “as a communicative flow” that facilitates forms of sociocultural and political attachment to society (Swart, Peters, and Broersma 2017, 904). However, the boundaries that people draw between local news and other information is shifting and local news consumption is frequently taking place on social media platforms (Gulyas, O’Hara, and Eilenberg 2018). In the hybrid media environment (Chadwick 2017) where a plethora of actors produce, comment and share content on social media platforms and legacy news media have become increasingly dependent on social media to publish, distribute and create engagement around their news (e.g. Ekström and Westlund 2019, Nielsen and Ganter 2018, Sehl, Cornia, and Nielsen 2018) the distinction between different news sources and their relative importance for people’s public connection is more complex to discern.

Moreover, social media characteristics such as the lack of content production, the layered sourcing of content and the distributed control over content visibility between user preferences, friends, professional content providers, and algorithms make them fundamentally different from traditional news media (e.g. Oeldorf-Hirsch and DeVoss 2019). Thus, social media platforms and legacy news media are arguably incommensurable in terms of mediating public connection. On the other hand, people describe social media as if they were news media in and of themselves (Schmidt et al. 2019) and the content shared in social media communities may bear strong resemblance to traditional journalistic conceptualizations of news (Swart, Peters, and Broersma 2019). The extent to which these platforms provide current affair knowledge is contested and variable (e.g. Boukes 2019). The growing reliance on social media for local news thus begs the question: could they be equal to legacy news media, vis à vis enlightenment of citizens? (Bergström and Jervelycke Belfrage 2018). To address this, I align with previous research on the importance of social media as sources of news relative to legacy media (Nielsen and Schroder 2014, Nygren and Leckner 2016). In the present context, the comparison concerns the local public connection function of legacy news media, social media platforms, blogs and other digital information services (e.g. municipal webpages and local organizations' webpages).

### **Mediated public connection, fragmentation and convergence**

Massive increases in media sources and content offerings described as inter- and intra-media fragmentation (Napoli 2011) may intensify people's public connection, as their opportunities to engage with journalism and to connect with, and form socially mediated publics increase. However, there is considerable concern in the research literature of the opposite effect, suggesting that ultimate fragmentation will deprive citizens of a common point of reference on important political and social issues and stimulate media enclaves or



“echo chambers” (e.g. Sunstein 2009) as well as partial information blindness - so-called “filter bubbles” - resulting from filtering algorithms in search and social media (Pariser 2011). Such “pathologies of pluralism” imply that information abundance particularly in the digital realm encourages people to abandon general interest news media in favor of special interest sources and individual newsfeeds, thus narrowing their exposure to different viewpoints as well as issues of general interest (Karppinen 2012). The extent to which fragmentation in media use represents a democratic problem depends largely on one’s normative outlook on media and society (Althaus 2012). A fragmented media system, growing audience segmentation and lack of sustained popular attention to general news bode poorly for republican democracy ideals of a public realm dedicated to people’s formulation and pursuit of a common good through popular deliberation (Baker 2001, Christians et al. 2010). The same developments have few consequences for elite democracy models where politics are left to experts and popular participation is limited; and for liberal pluralism democracy models, media fragmentation and polarization are potentially desirable as they stimulate competition between different interests in society (Althaus 2012). A nexus of connected phenomena portrayed as media fragmentation problems or threats in the research literature align mainly with republican ideals of commonality and fears of disintegration: On the audience level – the increasing gaps and polarization between selective media users (e.g. Sunstein 2009); on the media level - the weakening influence of news media as societal watchdogs (Mancini 2013), providers of shared agendas and arenas for public debate (e.g. Karppinen 2012); and on a broader societal level - the atomization of the public sphere into sphericules (Gitlin 2002) challenging the mobilization of public opinion as a political force. The idea of mediated public connection with its emphasis on “convergence in the media people consume” (Couldry, Livingstone, and Markham 2016, 3) resonates with republican democracy ideals but is less

demanding in terms of citizen deliberation as it presupposes an orientation toward public discourse rather than direct participation.

The empirical foundation for audience fragmentation is contested. Against predictions that ultimate media choice will lead to ultimate fragmentation of audiences (Anderson 2006) others have argued that despite infinite media supply, people remain omnivores who self-select media in ways that produce high levels of audience overlap between media as well as concentration around popular media (Webster 2014). Axel Bruns (2019) describes how human agency has been sidelined in the scholarly concern of audience fragmentation, echo chambers and filter bubbles: Even if media supply is characterized by massive segmentation, “on the information demand side considerably more overlap remains” (100).

Patterns of fragmentation versus convergence, i.e. overlap in people’s media use can be defined as a *practice dimension* of mediated public connection that can help us determine on an aggregate level to what extent people have common points of reference in terms of local news and information.

Ksiazek (2011) and Webster and Ksiazek (2012) have introduced an approach to gauge such media use patterns by means of network analysis, whereby media are defined as nodes and user overlap (audience duplication) between media nodes indicates a link between them. This way of aggregating cross-media use patterns provides a macro level alternative to studies of individuals’ cross-media repertoires (Picone 2016) which are generally designed to describe user types rather than addressing the larger issues of how the public in sum allocates its attention across media (Webster and Ksiazek 2012). As the links and nodes display dynamics of fragmentation and convergence in media use - both to what extent people congregate around certain media types, and if and how they combine different media types - this approach is well suited to capture the proposed practice dimension of mediated public connection as it plays out in a digitally advanced, high-choice local media context.

## **Mediated public connection and local journalism's democratic roles**

People's ways of connecting to a public world through media concern both use patterns and the quality of media use (Couldry, Livingstone, and Markham 2016). The latter refers to the role that different media play for citizens in their everyday life, including their centrality as information sources, as a world of collective involvement and a space for debate on public issues (Ibid). These roles represent the core of what journalism, including local journalism (Hess and Waller 2016), is expected to do for democracy according to social responsibility ideals of journalism (Baker 2001). It is also central to people's idea of what media should be doing for democracy and for them as citizens (Couldry, Livingstone, and Markham 2016, Kaun 2013). In the research literature, local news media are described as connectors between people and their communities due to their role as information sources about local events and issues, as community integrators that mediate local cultural identities and as arenas for social and political discourse (Hess and Waller 2016, Skogerbø and Winsvold 2011, Nielsen 2015). Kösters and Jandura (2017) argue that "by providing audiences with a common basis of issues and knowledge local media form the foundation of the citizenry's self-perception as one collective for identity-building and for citizens' political participation" (p. 41). Local media are described as mediators of spatial, temporal and emotional closeness (Cicarova 2017) that offer people a sense of local identity and belonging by providing news in a journalistic sense as well as information tidbits regarding births, deaths, marriages and the like (Skogerbø and Winsvold 2011). According to Engan (2015), local media provide certain sociocultural values by delivering journalism that contribute to identity-building, economic development and promoting general vitality and optimism. This contrasts the critical and revealing role that local journalism is also expected to perform. Both roles are central to social responsibility ideals of journalism: It is expected to serve as

society's watchdog while simultaneously promoting societal integration (Baker 2001). Local news media are in this respect "sites of discourse struggle with the potential to both challenge and reinforce existing hegemonies" (Kaun 2013, 25). With regard to the arena function, Skogerbø and Winsvold (2011) describe local media as a common ground for exchange of opinions and communication between citizens and their representatives; a scene where politicians can be seen and heard, and a forum "where people get together and talk about issues relevant to their locality" (p. 217). The idea of local media as facilitators of active citizen involvement has become more influential due to the interactional affordances of ICTs (Hess and Waller 2016). As the public connection concept does not presuppose such deliberation, it encourages an interpretation of local media as arenas for public debate where citizen may or may not participate.

The way people relate to the information, integration and arena functions of local journalism can be conceptualized as specific media experiences associated with public connection. Drawing on Kaun's definition (2013), experiences are understood as both a stream of media encounters and as distinct episodes that shape people's perceptions of local media. Based on this, people's experience of media's democratic roles as information sources, community integrators and arenas for public discourse can be defined as a *perception dimension* of mediated public connection that contributes to their orientation towards a local public world. A summary of people's experiences of media's information, integration and arena roles provides a means for assessing local media's performance in terms of stimulating public connection among citizens. Without ignoring alternative conceptualizations which depart from normativity and identify public connection based on the users' perceived value of "connecting through news" (Swart, Peters, and Broersma 2017) the present approach aims to capture the realization of these long-standing normative ideals of local journalism in the interplay between media and audiences. These ideals, rooted in democracy theory and

developed in the pre-internet era, do not necessarily capture emerging configurations of mediated public connection afforded by digital technology and exceeding a late modernity mindset. Instead, the study presented here focus on how these pre-internet ideals of journalism's democratic roles hold up against the realities of present day media experiences.

### **Research questions and hypothesis**

The theoretical foundation of the practice and perception dimensions of citizens' relationship to local media laid out in the previous sections serves as a starting point for an empirical investigation of people's mediated public connection as this unfolds in high choice, digitally advanced local media contexts. With regard to the practice dimension, the research literature provides ample evidence of substantial audience duplication among media (e.g. Kösters and Jandura 2017, Weeks, Ksiazek, and Holbert 2016, Webster and Ksiazek 2012, Trilling and Schoenbach 2013, Fletcher and Nielsen 2017) described as a "massive overlapping culture" in media use (Webster 2014). What is less explored, is the characteristics of such patterns of convergence in information abundant local media environments where the transition from offline to online news consumption (e.g. Pew Research Center 2019) as well as the implementation of paywalls in local news sites (Olsen, Kammer, and Solvoll 2019) are likely to affect how people congregate around and combine different media types. Shifts in social media platforms' strategies, such as Facebook's decreasing provision of referral traffic to general news publishers (Ekström and Westlund 2019) and increasing emphasis on promoting local publishers' content (Hardiman and Brown 2018) may also affect user overlap between social media and local legacy media. In line with the underlying assumption of mediated public connection, this study asks what patterns of convergence in use of different media types can be identified in the local media environment (RQ1).

Turning to the perception dimension of mediated public connection and people's experiences of local media's democratic roles, previous research provides a complex picture. Findings from the US demonstrate how digital media have become almost as popular as TV for local news but TV is more strongly associated with qualities like accuracy, thoroughness and keeping local politicians accountable (Pew Research Center 2019). A Swedish study found both local TV, radio and the printed newspaper to be experienced as more important for local information than local online newspapers (Nygren and Leckner 2016). Research from Norway comparing perceptions of print and online local newspapers identified the printed version as a more important information source on local politics, more strongly associated with community attachment and the preferred platform for public discourse (Skogerbø and Winsvold 2011). With regard to comparisons between legacy media and social media, another Norwegian study found local newspapers to be experienced as more important than Facebook for community integration (Lie 2018) whereas research from England found Facebook to play a more important role as community integrator than legacy media for some audiences (Gulyas, O'Hara, and Eilenberg 2018). Findings from Sweden demonstrate how Facebook was perceived as less important than legacy media for local information, even though the social media platform was among the most used sources (Nygren and Leckner 2016). Research on news consumption in eight developed democracies confirm continued primacy of general news media compared to social media both in terms of use and importance (Nielsen and Schroder 2014) and this is corroborated by findings in a more recent study from the US on local news consumption in particular (Pew Research Center 2019). Building on these insights the present study aims to provide a more holistic and consistent comparison of people's experiences with the democratic roles of legacy media, social media and other digital-born information sources by asking to what extent different local news and

information sources serve as resources for people's orientation towards the local public world. (RQ2).

Previous studies demonstrating legacy media's democratic roles combined with their popularity (e.g. Nygren and Leckner 2016, Pew Research Center 2019) suggest that people congregate around media, which provide them with resources for local public life. Gentzkow and Shapiro (2011) describe this as a tendency among online audiences to concentrate their consumption on a small number of sites that are considered high quality by most consumers. I anticipate such tendencies to be prevalent among local online and offline news sources too and hypothesize that the sources most strongly associated with democratic experiences are most central in the local media environment (H1).

## **Method**

### **The Norwegian case**

The perception and practice dimensions of mediated public connection were tested in Norway, a digitally advanced media system with 99% internet penetration (Newman et al. 2019) and a digitally oriented and extensive local media business (Østbye 2019). The country ranks above average in income, wealth, education, civic engagement and social connection (OECD 2016). Despite its small population of 5.2 million people, Norway has about 220 newspapers spread all over the country, 95% offering electronic services, typically online news. The majority are small (circulations from 2000 – 5000 copies) and hyperlocal in content. Norway's public service broadcasting company, NRK, operates 48 regional offices offering local radio, TV and online news. The country's media policy is designed to support local and regional media diversity with a subsidy system that has contributed to a remarkably high and stable number of media outlets (Slaatta 2015).

### **Data and variables**

The empirical material for this study consists of survey data ( $N=1692$ ) from an online questionnaire distributed to a national web panel (Norstat) with 81,000 panellists aged 15+. Recruiting from the web universe could potentially restrict generalization of findings as certain population segments may be underrepresented. Due to high internet penetration, the Norwegian internet universe is more representative for the general population than in many other countries, but potential limitations to generalizability should not be ignored. The study's ambition to capture convergence in use across legacy media, social media and other digital-born information sources as well as audience's experience of these media's democratic functions motivated the use of survey data. The study thus aligns with previous survey based audience overlap studies (Weeks, Ksiazek, and Holbert 2016, Fletcher and Nielsen 2017).



Surveys' reliance on recall may not always provide a completely accurate picture of people's news consumption and thus affect reliability negatively (e.g. Prior 2009). However, research by LaCour and Vavrec (2014) nuances this concern by demonstrating that self-reported measures reflect relative levels of media exposure quite well.

Survey questions were developed and tested by the researcher and data collection was conducted by the Norwegian market research company Opinion in Sep-Oct 2017. Results were weighted for gender, age, geography and education according to national census data. The study measured use of 16 media types which were used at least weekly based on the question "Which of the following media do you use to keep updated on what's going on in your local community". This formulation aimed to encompass a broad understanding of what it entails to follow local news among respondents while simultaneously specifying the information purpose of their media consumption. The rationale for the latter was to distinguish targeted local information seeking practices on social media platforms from general use in line with recommendation in other research (Boukes 2019) and thus increase the relevance of comparison between different media types as sources for local news and information. Separating one media type from another is still challenging in the hybrid media system and the way the survey gauges media use on the generic media type level entails some loss of detail in the analysis. For example, one cannot rule out that when respondents say they use Facebook to keep updated on local matters, they may be thinking of news stories shared by their local newspaper on Facebook. To get a better understanding of this layered sourcing (Oeldorf-Hirsch and DeVoss 2019) of local news and information the survey asked respondents if they followed their local newspaper on different social media. A more detailed account of the sourcing of content on social media platforms is beyond the scope of this network study. This limitation should not be ignored in the data interpretation.

Experiences with democratic functions were measured by asking the respondent to assess the media types, which they had previously indicated they used for local news, according to a set of experience attributes developed from the work of Malthouse and Peck (2011) and adjusted to fit a Norwegian, local media context and consumption across media types. Five items were integrated in the analysis referring to the information, integration and arena functions of local media (Table 1).

[Table 1 near here]

Experiences were dichotomous variables coded as either present=1 or not present=0 for each media type. After principal component analysis with Varimax rotation showing clear factor loading on one component for the five items, they were combined into a composite variable, labelled “democratic functions”, with a maximum score of 5 (all items present) and a minimum of 0 (no items present). (See supplemental online material for details regarding the respondents’ experience of each distinct function per media type). Audience demographics and interest in local news were also measured and reported as descriptive statistics for each media type (Table 2).

[Table 2 near here]

## **Network Analysis**

Audience overlap networks are the media-level projection of a bipartite network, linking audiences to the media they consume (Mukerjee, Majó-Vázquez, and González-Bailón 2018). As argued by Fletcher and Nielsen (2017) building such networks on survey data calls for a formal significance testing of audience duplication between media. In the

present study the *phi* coefficient, a correlation measure related to the chi-square statistic, was calculated to determine whether the observed audience overlap between two media types was greater than the expected overlap. The statistical significance of the *phi* correlations was determined based on the *t* statistic. For a significance level  $p < .01$ , *t* values need to be  $> 2.58$ . A link between two nodes (media types) was created if the audience overlap between them had *t* values above the probability threshold  $p < .01$ . Audience overlap below this level was removed from the network. (See Mukerjee, Majó-Vázquez, and González-Bailón 2018 for further details regarding method). This resulted in an undirected network with 16 nodes, 78 significant links and a density of 0.65. Density refers to the proportion of possible links between nodes that are actually present in the network (Fletcher and Nielsen 2017). To analyze patterns of convergence further, the study employed a series of network-descriptive statistics using the Gephi (version 0.9.2) open-source software. First, the number of network *components* was identified, referring to the number of subgroups of media nodes that are not linked to other subgroups within the network. The number of components reveal tendencies toward media enclaves that share audiences between themselves but not with other media clusters in the network. Supplementing this, the built in modularity algorithm in Gephi known as the Louvain method was utilized to detect community structures among the nodes. This means partitioning the network into inter-connected sub-units based on modularity which measures the density of links inside communities as compared to links between communities (Blondel et al. 2008). Then a *degree centrality* score for each node was calculated, referring to the number of significant links (audience overlap) that each node (media type) has with other nodes in the network. If people reading the online local newspaper also use many other media types to keep updated on local matters, the online local newspaper will have many links and a high degree score. *Average degree* was calculated by dividing the total number of audience overlap links by the total number of media type nodes. A low average degree score indicates

low levels of audience overlap. Furthermore, a *weighted degree score* was calculated, referring to the sum of the weight of the links of each node. The more users a media type (node) shares with other media types, the higher the weighted degrees score and the more central is the source. These measures were used in combination with reach to capture patterns of convergence in use.

## Results

With regard to RQ1 the patterns of convergence in people's use of different media types are visualized as an audience overlap network in Figure 1 ( $N=1692$ ). The size of the nodes is determined by each media type's audience reach. The thickness of the links between them reflects observed audience overlap. For Twitter and municipal webpages there is a thin line, indicating little observed audience overlap ( $n=40$ ), whereas for local newspapers online and Facebook there is a thick line showing substantial audience overlap ( $n=693$ ). The layout of the networks is determined by the Force Atlas 2-algorithm.

[Figure 1 near here]

The network had one component, i.e. there were no subgroups of nodes (media types) sharing audiences between themselves but not with other subgroups. However, the community analysis identified two distinct communities. The smallest community with 6 nodes was more traditionally oriented with a mix of printed newspapers and online sources but no social media platforms. The largest community with 10 nodes was more hybrid in nature consisting mainly of digital media, both legacy media and social media platforms. The average degree score in the total network was 9.75, meaning that on average the media types shared audiences with 2/3 of the other media. Table 3 reports weighted degree centrality

along with degree centrality and reach for each media type. Taken together these three measures demonstrate local and regional online newspapers' central position in the local news landscape. These online media were sources that a considerable share of the audience turned to for local news and information (reach); they shared audience with almost all the other media under survey (degree centrality) and shared a larger audience with other media (weighted degree centrality). Local and regional online newspapers together with Facebook constituted the most connected media, meaning they were used in conjunction with each other by most people. The printed editions of local and regional newspapers shared audiences with a smaller number of other sources and the size of the audiences shared with other media was smaller, particularly for regional printed newspapers. The public broadcaster NRK's local radio and TV offering reached more than 50% of the population, on par with local online newspapers, but was less central in terms of degree and weighted degree centrality, i.e. it was less used in combination with other media. Facebook had the highest weekly reach. Close to 7 out of 10 respondents consulted this platform for local news and information and its weighted degree score was among the highest in the material. Local bloggers had comparatively low reach and weighted degree score but as many audience overlap ties with other media as Facebook, suggesting that they were not marginalized in the local environment but often used in combination with other media.

[Table 3 near here]

Turning to RQ2, Table 4 provides democracy scores for the surveyed media types. Printed local newspapers had the highest mean score, followed by online local newspapers, demonstrating that these media were associated with more democracy functions by their users than any of the other media types under study. The difference in democracy score favoring the

print edition was also the case for regional newspapers: the printed edition was perceived as performing better than the online edition in terms of fulfilling democratic roles in the local community. However, both for local and regional newspapers, audience reach was higher for online editions.

[Table 4 near here]

Adding to this picture, Facebook was the source that most people turned to for local news and information, but in terms of democracy score, the social networking platform lagged behind both the online and printed local newspapers (see Figure 2). Still, with a mean democracy score of 1.36, 95% CI [1.27, 1.44] Facebook performed considerably better than other social media players did. Due to Facebook's role as a distributor of content from other media, the score may reflect the democratic roles of legacy media such as the local newspaper to some extent. One in three (35%) of all the respondents and half (50%) of those who explicitly used Facebook to keep updated about their community followed their local newspaper on the platform. In comparison, 3% or less followed their local newspaper on Twitter, Instagram or Snapchat. Facebook's democracy score was higher among those who followed their local newspaper on Facebook: 1.77, 95% CI [1.63, 1.90] and lower among those who did not: 1.03, 95% CI [0.93, 1.12]. This suggests that local newspapers' presence on Facebook improves peoples' experience of the platform as a public connection resource. Among the other digital-born media in the material, municipal webpages had the highest democracy score, ahead of local organizations' webpages and local bloggers. Municipal webpages performed on par with or even better than some of the general news sources in the material. However, in terms of audience reach, they played a marginal role, providing local news and information to little more than 1 in 10 of the respondents in the survey (13%).

In sum, the audience reach and democracy score data are evidence of local newspapers' key role as information sources, debate arenas and mediators of local identity in the Norwegian context. When used in tandem, the preferred combination for a third of the survey respondents ( $n=519$ ), the online and printed edition of the local newspapers provided their users with the most pronounced democracy experiences among the media pairs in the network of local sources.

[Figure 2 near here]

The visualization of use patterns and experiences (Figure 2) shows how the most used media types were also among the ones most strongly associated with democratic functions in the audience overlap network, but there were also media types with low democracy score and relatively high reach. The weighted degree centrality which incorporates reach as well as degree centrality was moderately positively correlated with democracy functions scores ( $r = .53, p < .05$ ) in support of H1.

## **Discussion and Conclusion**

Taking the concept of mediated public connection as its point of departure, the present study has introduced two distinct dimensions of the supply-demand interplay between local online and offline news and information sources and their audiences and demonstrated how these theoretically distilled dimensions can aid our understanding of media as public connectors in high choice, digitally advanced local contexts. By exploring the practice dimension of people's media use in Norway the study finds substantial convergence in local news consumption adding some nuance to concerns of fragmentation and disintegration of local life. In this particularly media abundant media system, there were no disconnected

clusters of media without audience overlap to other media, suggesting that the media enclaves, or sphericules, that Sunstein (2009) and Gitlin (2002) envision, have yet to emerge in this local media environment, at least when analyzing media consumption on the aggregate media type level. The results lend support to Bruns' (2019) argument that rather than being trapped in filter bubbles created by algorithms on single digital platforms, people use a variety of media effectively "bursting the bubble". Instead of segregated and specialized local media niches, the study identifies complex convergence patterns where all researched media shared audiences with several other media extending findings by Weeks et al., (2016), Webster and Ksiazek (2012), Fletcher and Nielsen (2017) to the local context.

Such convergence patterns were most salient between online local and regional newspapers and Facebook, suggesting that these digital media together constituted the backbone of the local news and information ecology, used by most people in combination with each other. The communities identified in the network suggest that the local media landscape in Norway consists of two connected but distinct news and information spheres. In one sphere, audiences mainly combine sources that are traditionally associated with general news and information. In the other sphere, more hybrid use patterns emerge as described by Chadwick (2017). Here audiences blend journalistic and social media to keep informed about their locality. In both spheres, local newspapers play a key role. This challenges concern over mass media's erosive capacity to shape common experiences and promote shared discourses required by a well-functioning democracy (Karppinen 2012).

However, the findings show that the local newspapers' role as "community glue" providing a common local information infrastructure is under pressure in the digital realm. Facebook has taken over as *the* most popular local news and information source in Norway. This supports previous findings on the centrality of Facebook as local news source by Nygren and Leckner (2016) and Gulyas, O'Hara, and Eilenberg (2018). Although Facebook provide



an additional channel for local newspapers to reach their audience, the individualized, algorithmically controlled news feed on this platform represents a content mix that differs substantially from the unified, edited journalistic news provision of local newspapers. On Facebook, local newspapers source only a fraction of the content that users may or may not encounter in their stream of updates, shares, recommendation etc. Thus, rather than strengthening the relationship between local newspapers and the audience, Facebook may weaken local newspapers' position as "community glue" and go-to-place for local news. Even further away from legacy media's traditional news provision is mobile messaging application Snapchat which one third of the population said they used to keep updated on their local community. The use of Snapchat and other social media platforms demonstrates how connecting with the local community through media is a multifaceted digital practice that goes far beyond reading local news in a journalistic sense.

When combining the practice dimension with the perception dimension of people's mediated public connection the study reveals a general preference for local news and information sources that, at least to some extent, fulfill the democratic functions envisioned by the social responsibility ideals of the press (Baker 2001). Still, democracy scores combining the information, integration and arena functions were overall low. The medium with the highest score – the local printed newspaper – is in steep decline (Wadbring and Bergstrom 2017) and had a less central position in the network of local media than its online counterpart did. Supporting previous findings by Skogerbø and Winsvold (2011), this suggests local news organizations are still unable to deliver the same level of democratic experiences through their digital journalism as they are in print. The findings provide little evidence that any of the digital-born players are capable of filling these functions for local audiences, supporting findings by Lie (2018) and Nygren and Leckner (2016). Instead, journalists and editors are challenged to improve the democratic experiences that their digital

journalism provides to audiences. Such efforts are complicated by competitive conditions in the digital sphere stimulating news organizations to soften news and serve click-bait at the expense of quality reporting (Van Aelst et al. 2017) as well as reducing journalistic investment to cut costs (Nielsen 2015). As such, the findings presented here serve as a wake-up call, demonstrating the urgency of improving rather than weakening the democratic role of digital journalism and general news media for the benefit of local democracies.

To the best of my knowledge, this study is the first to conduct network analysis to examine levels of audience overlap across media types in the local context. More importantly, it proposes a theoretical conceptualization that links patterns of convergence in media use to the more profound question of local media's democratic role as resources for people's public connection in local communities. In doing so, the study bridges previous audience fragmentation research with research into people's experiences with local journalism as civic resources both online and offline. Methodologically, the study covers new ground by combining use and experience data within a network analysis framework. The way democratic values traditionally associated with local journalism are experienced in a fast moving, high choice media environment provides input to both media policy formulation processes and strategic decision making in local media companies.

The study has limitations, such as its national outlook. Empirical findings from Norway cannot be generalized to other markets without considering the country's unique characteristics. Future studies are encouraged to explore how the practice and perception dimensions of mediated public connection play out under different structural conditions. One particular challenge is to assess differences between local communities. To further advance the endeavor suggested here, a more detailed comparison between communities could be conducted using the same analytical prism. Such studies could provide more detailed accounts of which media sources people use within specific local contexts. Another challenge is to

expand knowledge of individual factors that can explain patterns of audience overlap, such as age and willingness to pay for news, and its implications for the use of local media.

Furthermore, I call on future research to dig deeper into convergence in use on a content level in order to add more depth to our understanding of what content people encounter. As such, one should be careful not to make simplistic conclusions about media's role as common points of reference for citizens based on which media types they use. Social media platforms like Facebook represent a particular challenge in this respect and further research is required to unpack the complex sourcing of local news and information on this platform. The hybrid, fast changing local news environment calls for a broad examination of media use patterns and to this end, the present study serves as a starting point.

With regard to the democracy perspective and social responsible model of journalism that this research builds on, one should not be blind to the historical, societal and technological context that has shaped them. As digital journalism researchers we are challenged to reflect upon their relevance for our understanding of the relationship between people, media and communities in an increasingly fluid, digital and interactive world. Future research is encouraged to discuss and explore alternative ways of understanding what "good democratic communication" (Althaus 2012) means in local communities and how digital journalism can contribute to such good democratic communication.

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