FACULTY OF POLITICAL AND SOCIAL SCIENCES

ONLINE NEIGHBORHOOD NETWORKS

A multi-perspective inquiry into emergent community construction

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DANKWOORD

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ENGLISH SUMMARY

Local social interactions and relations, the networks they form, the communities they underpin, the resources they contain and the cohesion they bring about are key concepts in understanding the well-being of neighborhood residents as well as the capacity of neighborhoods to deal with collective challenges and issues. Media, digital media in particular, are often associated with the presumed erosion of neighborhood life. However, earlier studies have found substantial evidence that digital media use can and does intertwine with and contribute to neighborhood life. For instance, increases in number of local ties, strengthened neighborhood attachment, higher community and civic participation and local exchanges of social support have all been observed in local digital media contexts. The latest materialization of this local digital media use are self-organized online neighborhood networks, sprouting everywhere in Belgium and beyond as neighborhood residents opportunistically appropriate the social media platform Facebook to create local groups. Named in the style of "you are from X if you are ...", they appeal to local residents to engage in conversations with each other, share information pertaining the neighborhood, town or city, and ask for neighborly help. Although different manifestations of localized digital media use have been studied in the past and recent studies present tentative evidence of how online neighborhood networks relate to the individual and neighborhood related outcomes, there is little known about their internal dynamics or social ramifications.

Therefore, the aim of this doctoral dissertation is to investigate how these online neighborhood networks can be conceptualized and its different uses measured, how it relates to the development of local social relations and how local social support exchanges are made possible, and who is using these and how prevalent its uses are. This was studied using a multi-method approach, including (i) a content analysis of online neighborhood networks, (ii) in-depth interviews with online neighborhood network users, (iii) a survey among Flemish online neighborhood network users, and (iv) a survey representative for the city of Ghent. To conceptualize and measure online neighborhood network use and propose two theoretical models to tease apart its local social ramifications, this dissertation integrates different bodies of literature, including literature on social media, social support, social capital, community psychology and sociology, and Communication Infrastructure Theory.

The results indicate that online neighborhood networks are collaboratively created digital neighborhood storytelling devices, providing the means for local social interaction and to express opinions and judgements regarding neighborhood related issues, which are predominantly used by older, socially integrated neighborhood residents with a lower socio-economic status. As emergent properties, online neighborhood networks function as local social news streams that provide community awareness and as parochial spaces governing local social interactions, including local social support exchange. A pivotal role in these processes is attributed to a psychological sense of community. Sharing content to the network and engaging in supportive communication is instrumental in developing a sense of community, both online and offline. In turn, both online and offline sense of community directly and indirectly bring about the expectation of local social support access and enable the activation of neighborly help. In conclusion, online neighborhood networks allow neighborhood residents to develop an affective relation with a network of neighborhood residents which in turn provides access to neighborly help. Based on these findings, we argue for a cooperation between private platform owners and public institutions in maintaining these online semi-public environments, whereby skill, knowledge and other resources should be allocated to producing socially desirable outcomes.

NEDERLANDSTALIGE SAMENVATTING

Lokale sociale interacties en relaties, de netwerken die ze vormen, de gemeenschappen die ze ondersteunen, de middelen die ze bevatten en de samenhang die ze teweeg brengen, zijn sleutelbegrippen om enerzijds het welzijn van buurtbewoners te begrijpen, en anderzijds de competenties en kwaliteiten van een buurt om collectieve uitdagingen en kwesties het hoofd te kunnen bieden te kunnen vatten. Niettegenstaande media, in het bijzonder digitale media, vaak geassocieerd worden met de veronderstelde erosie van de buurt als sociale entiteit, hebben eerdere studies uitgebreid aangetoond dat digitale media kunnen en ook effectief bijdragen aan het alledaagse leven in buurten. Zo werd onder meer een toename in het aantal lokale sociale relaties aangetoond, net als een versterking van de gehechtheid aan de buurt, hogere mate van gemeenschaps- en burgerparticipatie, terwijl er tevens voorbeelden van nabuurschap en uitwisseling van steun en middelen geobserveerd werden. Eén van de meest recente verschijningen van lokaal digitale media gebruik omvat de zelforganiserende online buurtnetwerken, die overal in België en daarbuiten opduiken, waarbij buurtbewoners op een opportunistische manier zich sociale media platformen toe-eigenen om lokale groepen te creëren. Genaamd in de stijl van "je bent van X als je ..." spreken ze buurtbewoners aan om deel te nemen aan conversaties met andere buurtbewoners, om buurt gerelateerde informatie te delen, of om hulp te vragen aan buren. Hoewel meerdere manifestaties van dergelijk lokaal digitale media gebruik al eerder bestudeerd zijn, en er een aantal recente studies zijn die tentatief bewijs aanleveren over hoe gelijkaardige online buurtnetwerken geassocieerd zijn aan individuele en buurt gerelateerde uitkomsten, is er weinig geweten over de interne dynamiek van deze buurtnetwerken, noch over de sociale consequenties ervan.

Dit doctoraat stelde zichzelf daarom tot doel om te onderzoeken hoe deze online buurtnetwerken geconceptualiseerd en haar gebruik gemeten kunnen worden, hoe deze online buurtnetwerken zich vervolgens verhouden tot het ontwikkelen van lokale sociale relaties en de lokale uitwisseling van sociale steun mogelijk gemaakt wordt, en ten slotte, hoe prevalent het gebruik is van online buurtnetwerken en hoe de gebruikersbasis ervan is samengesteld. Dit werd op een multi-methodische manier onderzocht, daarbij gebruik makend van (i) een kwantitatieve

inhoudsanalyse van online buurtnetwerken, (ii) diepte interviews met gebruikers, (iii) een survey onder Vlaamse online buurtnetwerk gebruikers, en (iv) een survey representatief voor de Gentse bevolking. Conceptueel en theoretisch werd er een beroep gedaan op diverse literatuur, namelijk over sociale media, sociale steun, sociaal kapitaal, gemeenschapspsychologie en -sociologie, en Communication Infrastructure Theory.

De resultaten tonen aan dat online buurtnetwerken voornamelijk gebruikt worden door oudere, sociaal geïntegreerde buurtbewoners met een lagere socio-economische status, die hierin een middel vinden voor lokale sociale interactie en het uiten van opinies en oordelen over buurt gerelateerde zaken. Uit deze sociale interacties en expressies ontstaat tegelijk, door de eigenschappen van het platform, een lokale sociale nieuwsstroom die leidt tot een verhoogd gemeenschapsbewustzijn, en een digitale parochiale ruimte die deze lokale sociale interacties reguleren, inclusief de uitwisseling van lokale sociale steun. Een centrale rol in deze processen is weggelegd voor een psychologisch gemeenschapsgevoel. Het delen van informatie met het netwerk en op een ondersteunende manier communiceren is instrumenteel in de ontwikkeling van een lokaal gemeenschapsgevoel, zowel online als offline. Vervolgens draagt dit gemeenschapsgevoel, zowel online als offline, op directe en indirecte wijze bij aan de verwachting dat lokale sociale steun toegankelijk is, en aan de intentie om deze steun effectief te activeren via het online buurtnetwerk. Concluderend kunnen we stellen dat online buurtnetwerken buurtbewoners toelaten een affectieve relatie te ontwikkelen met een netwerk van buurtbewoners die op haar beurt toegang biedt tot hulp van deze buurtbewoners. Gebaseerd op deze bevindingen pleiten we voor een samenwerking tussen private platformbeheerders en publieke instellingen ten aanzien van het onderhouden van deze semipublieke omgevingen, waarbij vaardigheden, kennis en andere middelen gealloceerd worden aan de productie van sociaal wenselijke uitkomsten.

CHAPTER 1

INTRODUCTION

Local social interactions and relations, the networks they form, the communities they underpin, the resources they contain and the cohesion they bring about are key concepts with respect to neighborhood residents' well-being (Cattell, 2001; Cohen & Wills, 1985; Farrell, Aubry, & Coulomb, 2004; Mahmoudi Farahani, 2016; McMillan & Chavis, 1986). In addition, they are instrumental with respect to the neighborhood's capacity to deal with collective challenges and issues (Bandura, 2000; Buchan, Croson, & Dawes, 2002; Chavis & Wandersman, 1990; Lawler & Yoon, 1996; Sampson, Raudenbush, & Earls, 1997; Uehara, 1990). As such, they have been the subject of many local policy objectives and initiatives in the last two decades (Chinman et al., 2005; Craig, 2007; Forrest & Kearns, 2001; Villanueva, Broad, Gonzalez, Ball-Rokeach, & Murphy, 2016; Decruyenaere, 2013).

Media, digital media most recently, are often associated with the presumed erosion of neighborhood life (McPherson, Smith-Lovin, & Brashears, 2006; Putnam, 2000). Social Network Sites (SNS) allow individuals to develop and maintain geographically dispersed relationships. People can affiliate themselves with various interest groups (Bennett & Segerberg, 2012; Bruns, Highfield, & Burgess, 2013) while maintaining contact with geographically dispersed family and friends (Boase, 2008; Madianou & Miller, 2011). With that, the dominance of place-based relations decreases (Rainie & Wellman, 2012), which is sometimes understood as evidence for declines in community life (Putnam, 2000) or neighborly behavior (McPherson et al., 2006). Still, the geographical dispersion of personal networks does not mean that place-based relations become irrelevant (Chaskin, 1997; Henning & Lieberg, 1996). There is a growing consensus that digital media can support both global as well as local relationship development and maintenance (Kim et al., 2015). People using digital media often do so around place-based foci of activity, such as resident associations

(Johnson & Halegoua, 2015), or local civic and community engagement (Gregory, 2015; Nah & Yamamoto, 2017; Tosoni & Tarantino, 2013). Moreover, SNS use can contribute to various aspects of neighborhood life. Early studies on place-based internet communication found that integrating digital media in local activities helps people in extending their local social network (Hampton & Wellman, 2003) and increasing their number of local weak ties (Hampton, 2007). In addition, neighborhood belonging (Ognyanova et al., 2013), community engagement (Kim et al., 2015), community participation (Capece & Costa, 2013; Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005), and civic participation (Nah & Yamamoto, 2017) have all been positively associated to SNS use in general.

Recently, local digital media use materialized as self-organized online neighborhood networks, sprouting everywhere in Belgium (Bouko & Calabrese, 2017; De Standaard, 2016; De Kock, 2018; Het Nieuwsblad, 2019) and beyond (Bingham-Hall & Law, 2015; Gregory, 2015; Gulyas, O'Hara, & Eilenberg; 2019; Konsti-Laakso, 2017; Nygren, Leckner, & Tenor, 2018; Rufas & Hines, 2018; Turner, 2015) as neighborhood residents opportunistically appropriate the social media platform Facebook to create local groups. Named in the style of "you are from X if you are ...", they appeal to local residents to engage in conversations with each other, share information pertaining the neighborhood, town or city, and ask for neighborly help. These recent studies illustrate the diversity in how social media platforms have been adopted in local contexts and are understood by its users. In addition, they present tentative evidence that these online neighborhood networks foster a sense of community and stimulate neighborhood attachment (Bouko & Calabrese, 2017; Bingham-Hall & Law, 2015; Gregory, 2015; Turner, 2015), allow to develop local social relations and exchange social support (Rufas & Hine, 2018), and build social capital (Gregory, 2015).

However, these claims regarding the social ramifications of the contemporary online neighborhood networks are often under theorized and surmised rather than actually investigated, while little is known to whom these outcomes might pertain or what types of engagement with online neighborhood networks are necessary to bring them about. Earlier studies on localized digital media use did investigate how they can bring about beneficial consequences for neighborhood life (Hampton, 2007; Hampton & Wellman, 2003; Kavanaugh et al., 2005). Yet, the present-day self-organized online

neighborhood networks are considerably different from the digital media that were the subject of the studies dating back 10, 15 or even 20 years. First, the socio-technical context has changed considerably. The number and diversity in internet applications have exploded, while its uses and its user base have changed dramatically. More particularly, users back then were predominantly young, male, and higher educated (Perrin, 2015; Perrin & Duggan, 2015), whereas now we see a more diverse user base in terms of socio-demographic and socio-economic characteristics (Perrin & Anderson, 2019; Van Haelewyn & De Marez, 2019). At the same time, the means for digital communication and their uses have pervaded more strongly into our everyday practices (Couldry, 2012; Livingstone, 2009; Krotz, 2014). Second, the local digital communication means in the earlier studies were typically experimental online platforms, for instance the Blacksburg Electronic Village (Carroll & Rosson, 1996), e-Neighbors (Gad, Ramakrishnan, Hampton, & Kavanaugh; 2012; Hampton, 2007), or e-Democracy (López, 2015), which originated in existing offline initiatives. This stands in contrast to the self-organized online neighborhood networks, forming on general social media platforms, that are the subject of this doctoral dissertation. Accordingly, it begs the question how these changes in the socio-technological context – as in the assemblage of internet applications, technological means of accessing the internet, uses, and user base – pertains to the association of local digital media use and neighborhood interactions and relations.

Therefore, the aim of this doctoral dissertation is to investigate how these self-organized and bottom-up online neighborhood networks function and relate to the neighborhoods they are anchored in. Specifically, by means of a content analysis of online neighborhood networks and a series of in-depth interviews with their users we (i) explored to what extent these self-organized online neighborhood networks are used to exchange local information and support and how they are understood by its user base. Subsequently, a survey was administered among Flemish online neighborhood network users to investigate (ii) how online neighborhood network uses relate to the development of local social relations, and (iii) how local social support exchanges are made possible. In addition, this survey, together with the earlier content analysis and in-depth interviews, and complemented by a series of additional research steps, allowed us (iv) to develop and test a quantitative instrument to measure online neighborhood uses. Finally, a random a-select survey representative for the city of

Ghent allowed to (v) examine the user base and use prevalence of online neighborhood networks.

This doctoral dissertation integrates different bodies of literature, including literature on social media, social support and social capital, community psychology and sociology, and Communication Infrastructure Theory. These form the conceptual and theoretical ground for conceptualizing online neighborhood networks and its uses, to propose and test two theoretical models to investigate its association with local sense of community and local social support exchange, and inferring how the developed local social networks are a means to local community development and building social capital.

Below, I will first briefly discuss the literature on localized digital media use, thereby providing the anchor points for the motivation of this doctoral research project. After outlining the objectives of this dissertation, I concisely discuss how these were tackled conceptually, theoretically, and methodologically. This introductory chapter ends with a short outline of this dissertation.

LOCALIZED DIGITAL MEDIA: STATE OF THE ART

Roughly three waves of research on localized digital media use can be discerned in the literature, each situated in a specific socio-technological context and furnished with its proper academic debates. Below I will discuss them, thereby highlighting their main research focus, the socio-technological context and sketch the academic debate it is situated in. This allows to identify the gaps in the literature I aim to tackle in this dissertation.

Grass-roots community networks

From the mid-1990s onwards, a first wave of studies on local digital media investigated the uses, the use antecedents, and its individual and neighborhood level consequences of dedicated and often experimental local online community platforms and communication means operating on the internet. Propelled by a technological and

societal optimism, several community networking platforms, services and infrastructures were developed, originating in existing offline grass-roots civic associations. There was a hope to harness the potential of internet communication and to bring about both community and civic participation, which would yield both neighborhood and individual level beneficial outcomes. Examples of these platforms are the Well, dating back to 1985, before the birth of the World Wide Web (Rheingold, 1993), the Blacksburg Electronic Village established in 1993 (Carroll & Rosson, 1996), or the e-democracy platform that went life in 1994 (López, 2015). At the same time, a real estate project resulted in a wired suburb in the outskirts of Toronto, called Netville, which provided always-on internet and several local online communication means, including an actively used local e-mail list (Hampton, 2002; Hampton, 2003; Hampton & Wellman, 2003).

The academic debate then centered on an online optimism vs an online pessimism. More elaborate discussions of this debate can be found in Hampton & Wellman (2003, 2018), yet the gist of it centers on the basic sociological question of community saved, lost or liberated. Optimists emphasized the liberating freedom from virtual communities, away from spatio-temporal constraints, disembodying individuals from associated inequalities, and allowing them to develop new meaningful relations based on interest and commonality. For example, it was argued that virtual communities held the promise that gender, racial, or sexual qualities would become irrelevant with respect to individuals' aspirations and life course (Hampton & Wellman, 2003), freeing them from the normative environments of close-knit communities (Rainie & Wellman, 2012). In contrast, proponents of the pessimist camp argued that online relations and interactions are per definition less salient and meaningful, weakening community bonds and the solidarity that was supported by it. Interestingly, both sides of the debate tended to maintain a discourse in which online and offline lives were firmly separated, while offline relations would be replaced by online relations.

The studies on the aforementioned community networking technologies showed, however, that these new technologies particularly found an entrance in peoples' everyday lives and existing community practices (Kavanaugh & Patterson, 2001; Kavanaugh et al., 2005; Hampton & Wellman, 2003), active use of the platforms brought about new social relations and stronger attachment rather than distracting

from offline local social relations or reducing feelings of community (Hampton, 2002; Hampton, 2007; Hampton & Wellman, 2003; Kavanaugh & Patterson, 2001; Kavanaugh et al., 2005), while at the same time also higher rates of community and civic participation were observed (Capece & Costa, 2013). At the same time, it should be stated that beneficial outcomes accrued to those already socially embedded in the local community and showing higher rates of civic participation before using community networking technologies (Kavanaugh & Patterson, 2001; Hampton, 2007). In sum, the take away message of these studies is that the impact of digital media is limited and that is used to perpetuate existing practices and engagements. In addition, new relations are indeed developed, and they are indeed weak, yet they do not substitute the existing relations (Hampton & Wellman, 2003; Hampton, 2007). Moreover, weak ties can be meaningful in very different ways from strong ties, providing access to new information, resources and life chances (Granovetter, 1973; Burt, 2005; Wellman & Wortley, 1990).

Web 2.0 and general SNS platforms

Once the dust settled after the burst of the dotcom bubble and a Web 2.0 emerged, a whole range of for profit neighborhood and local community centered platforms were developed (López, 2015), aiming to capitalize on the popularity of SNS platforms. While a new research front opened with respect to platform development, user experience and related human computer interaction topics (Foth, 2006; Foth & Hearn, 2007; López, 2015), a second wave of studies on the social ramifications of localized digital media use emerged. Compared to the first wave, attention shifted from the grassroots community computer networks (cf. supra) to the role of using general SNS platforms, such as Facebook or Twitter, pertaining local community outcomes (Ellison, Steinfield, & Lampe, 2007; Kim et al., 2015; Kim & Shin, 2016; Nah & Yamamoto, 2017), thereby not specifying whether SNS use took place in an ego-centered or a local group-centered online context.

A common thread in this wave is the consensus on the role of digital media with respect to local communities. Elaborating on the findings of the first wave, digital media do not inherently entail an increase or decrease in individual's community participation. Rather, both pull and push effects are possible (Kim et al., 2015). SNS do

indeed allow to develop and maintain geographically dispersed social relations, pulling away from local interaction. However, rather than doing so in the context of virtual communities with online-only ties, this mostly happens within existing offline relations of kin, friends, and acquaintances (Hampton et al., 2011). As earlier studies on people's personal social networks had indicated only a minority of it consists of neighborhood relations (Mollenhorst, 2015). Moreover, local relations are typically weak ties while relations with friend and kin rarely exist within neighborhood contexts (Wellman & Wortley, 1990). At the same time, SNS do provide the opportunity for local social interactions and SNS use has repeatedly been found to be contributing to various community related outcomes, including engagement (Kim et al., 2015) and participation (Nah & Yamamoto, 2017). The extent to which beneficial local community outcomes are produced is contingent upon the local connectedness of digital media use. That is, appropriated within the local communication infrastructure social media can be a facilitator for neighborhood outcomes. If not, SNS use will detract rather than contribute (Kim et al., 2015).

Self-organized and bottom-up local online networks

Most recently, a third wave of studies emerged, investigating how users appropriated specific SNS features, specifically Facebook groups and pages, in their local communication patterns. Studies explored how groups were created to provide help in crisis situations (Silver & Matthews, 2016) or to share information and to mobilize people in the fight for the preservation of heritage (Gregory, 2015). But also more mundane local use practices were highlighted. Turner (2015) showed how Facebook pages were ran as a kind of bottom-up hyperlocal news medium, while Gulyas et al. (2019) found that local community pages and groups on Facebook are emerging as key sources for local community news. Bouko & Calabrese (2017) investigated the use of Facebook groups as used by elder town residents to share local information and reminisce about times past, and Rufas and Hines (2018) studied how pragmatic and instrumental local online give-and-sell-groups could bring about local sociability and foster a sense of community. Lastly, focusing on Twitter instead of Facebook, Bingham-Hall and Law (2015) found that this localized use leads to a hyperlocal

broadcast medium rather than a peer-to-peer neighborhood network, indirectly adding to an experienced sense of community.

What is new is that the local online networks investigated in this third wave developed bottom-up and are self-organized, with no pre-existing local offline associations acting as a referent (Bouko & Calabrese, 2017; Gregory, 2015; Silver & Matthews, 2016). Hence, the users found each other online in what Foth (2006, p. 46) would call a "community of interest about place". This clearly distinguishes them from the community networks investigated in the first wave, as well as the general and undefined online context in which the SNS uses for local purposes took place in the second wave. Related to this observation, more attention is given in these recent studies to how the online network, group or platform should be understood and conceptualized. The used infrastructure is provided by a social media platform, yet what individual users cooperatively do with other users with this infrastructure is creating something that is conceptualized as either a hyperlocal online broadcast medium and informational commons (Bingham-Hall & Law, 2015), an emotional community and a social curation site (Gregory, 2015), a hyperlocal news medium operating in a collaborative third place (Turner, 2015) or an intergenerational affinity space (Bouko & Calabrese, 2017).

Regardless of the idiosyncrasies in each of these proposed conceptualizations is that each of these emphasize the highly personalized and affective way users engage with the online platform, thereby challenging the notion that uses and outcomes of uses are a priori determined by the qualities of the technological infrastructure (Rufas & Hines, 2018). In addition, pertinent in these conceptualizations is that they consider the outcome, in the form of the online medium, to be emergent from the online behaviors of the users. In that respect, it taps into a research tradition that emphasizes banal and everyday behaviors and aspects of the social as being the lens through which social reality and the meaning that is given to it should be analyzed. This is a second way in how these third wave studies distinguish themselves from the previous two.

However, another thing that several of these conceptualizations have in common is a lack of a fleshed out theoretical framework about how neighborhood level outcomes are brought about. Even if there is a theoretical grounding, for instance in Gregory (2015) or Rufas and Hines (2018), outcomes are often surmised rather than actually

investigated. Moreover, there is little bibliographic overlap between these papers while hardly any of the studies of the previous waves are mentioned.

RESEARCH OBJECTIVES

This short literature review allows me to situate the studies reported on in this doctoral dissertation and to indicate where they will contribute to the current state of the art. In this section I formulate the five research goals that are tackled in this dissertation.

First, focus is on bottom-up and self-organized online neighborhood networks, which aligns this doctoral dissertation with the third wave of studies on localized digital media use. Similar to these studies in wave three, we subscribed to the theoretical stance that the online behaviors and infrastructures should not have a meaning or interpretation a priori ascribed to, but that this should depart from the users' interpretations and behaviors. While we aim to continue this research endeavor from wave three, we will also continue the line of research on the local social ramifications of localized digital media use that started with wave one. As such, we aim to provide a stronger theoretical explanation and grounding for the claims made with respect to self-organized local online networks, and to reconcile the diverging lines of research on localized digital media use. Accordingly:

> **The first objective** is to come to a conceptualization of online neighborhood networks which is theoretically informed in order to theorize its neighborhood related outcomes while also being empirically grounded in the experiences of online neighborhood network users and the content they produce.

The second and third objectives tackle these neighborhood related outcomes, being individual residents' subjective connection to the neighborhood network and the local exchange of social support. Prevailing questions in the literature on localized digital media use are if and how they relate to local social relationship development. As argued above, the debate regarding the if-question is largely being settled, yet several theoretical explanations regarding the how-question are implicitly being forwarded in the third wave studies. Specifically, there appears to be a convergence towards understanding the content on online neighborhood networks as a narrative that

develops out of individual public expressions and emotional comments (Bouko & Calabrese, 2017; Gregory, 2015), allowing to identify with that narrative (Bouko & Calabrese, 2017), develop an everyday understanding of their neighborhood (Turner, 2015), imagining the area as a community rather than developing specific ties (Bingham-Hall & Law, 2015), and establish a sense of collective memory (Gregory, 2015), which contribute to a sense of community or neighborhood belonging. A similar reasoning was earlier found in Hampton and Wellman (2003), who argued that a local e-mail list allows developing knowledge on other neighborhood residents, providing cues that can form the basis for neighborhood ties, and functioning as a common conversational reference among neighbors. Therefore, drawing upon these speculative theorizations:

> **The second objective** is to develop and test a theoretical model that explicates how the use of online neighborhood networks is associated to a local sense of community.

At the same time, the observations of López and Farzan (2015) and Rufas and Hine's (2018) study on instrumental interactions via online neighborhood networks point towards a different understanding of local social relationship formation, reminding of social exchange theory (Buchan et al., 2002; Lawler & Yoon, 1996; Uehara, 1990) and the role of neighboring behaviors in community psychology (Long & Perkins, 2007; Unger & Wandersman, 1985). The contention here is that through repeated interactions, relationships form, which are maintained by a normative set of behaviors and expectations (cf. infra). Accordingly, the everyday interactions in the context of social resource exchanges are the reason through which a sense of community is developed (Rufas & Hines, 2018), rather than the general narrative produced in the online neighborhood network. In these studies, focus is typically on dyadic relations while the norm of reciprocity underpinning the continued existence of these relations is emphasized. However, this norm requires the exchange partners to have sufficient information about each other's prior behaviors in order to trust each other that the exchange will be reciprocated in the future (Rand & Nowak, 2013). As most neighborhood residents are likely to be strangers to each other (Völker & Flap, 2007) and online neighborhood networks often contain hundreds if not thousands of members (Bouko & Calabrese, 2017; Capece & Costa, 2013; López & Farzan, 2015), the

social norm of direct reciprocity is an unlikely explanation for the social support exchanges we are witnessing in online neighborhood networks. Therefore:

> **The third objective** pertains to the development and testing of a theoretical model that explicates how online neighborhood networks facilitate the exchange of local social support.

Consequential to the limited theorizing of the self-organized online neighborhood networks in the current literature is that an operationalization of its uses is lacking. In addition, the measures used in the previous waves pertaining localized digital media use provide little help. Studies in the first wave tended to use binary variables such as being a user or non-user (Matei & Ball-Rokeach, 2003), or use internet to communicate with a range of possible social ties (Kavanaugh & Patterson, 2001). Hampton (2007) used a single continuous variable measuring the amount of time the e-Neighbors platform was used, which equally lacks theoretical grounding. Near the end of this first wave, Kavanaugh et al. (2005) developed a number of constructs, including "social internet use", which allowed them to get a more diversified view on individuals' internet use. Still, this social internet use construct remained rather generalist and differed little in terms of content from the one they had used earlier (cf. Kavanaugh & Patterson, 2001). A different approach was followed by Capece and Costa (2013), who operationalized the use of a local online network in terms of active or passive use of the platforms features. Although tailored to the platform, it equally lacks a theoretical ground.

The studies in the second wave adopted or developed scales to measure general SNS use for local purposes (Ognyanova et al., 2013; Nah & Yamamoto, 2017) or to investigate the importance of SNS in someone's everyday life (Kim et al. 2015; Kim & Jung, 2017). Although a stronger theoretical base is present for the measures, especially the one developed by Kim & Jung (2017), they do not measure the uses of online neighborhood networks. As Bessiére et al. (2008) argued, different conceptualizations and operationalization bring about differences in strength and nature of the associations detected. Therefore, it is better to be as close as possible to the phenomenon of interest in order to ascertain its outcomes, while still maintain a theoretical focus (Matei & Ball-Rokeach, 2003; Kim & Jung, 2017; Ognyanonva et al., 2013).

> Therefore, **the fourth objective** of this doctoral research project is to develop a measurement instrument that is theoretically grounded, thereby taking into account the conceptualization and theorization of online neighborhood networks and their uses.

Lastly, there is little to no evidence with respect to the prevalence of online neighborhood networks, nor do we know who is using them. First, the studies in the first wave provide little comparable evidence. The Blacksburg Electronic Village may have had a penetration of up to 45% of the population in 1996 (Carroll & Rosson, 1996), it was very different internet environment in which it operated, while the town itself was a college town with 75% of its population being in some capacity affiliated to the local Virginia Tech university. Moreover, 85% of the BEV user base was affiliated to Virginia Tech. Similarly, the Netville experiment entailed a broadband connection to virtually every house in the newly developed neighborhood, with almost every household automatically connected to the local e-mail-list which formed the core of the local online environment (Hampton & Wellman, 2003). The online neighborhood network studied by Capece and Costa (2013) saw, however, only a penetration rate of .3% (300 users on a population of 10.000). Meaning, online neighborhood networks can be popular, yet widespread adoption is by no means a given.

More recent data on adoption rates in US and South-Korea for using digital media for local purposes might give an indication for adoption rates in Belgium, or by extension, Western-Europe. Smith (2010) reported that only 4% of the US population indicated to have joined a local group via SNS. Adoption rates of local blogs (11%) or e-mail lists (5%) were slightly higher, yet still rather marginal. Johnson and Halegoua's (2014) survey showed that around 20% of the population of small US town indicated to be interested in using social media for local purposes. Lastly, a recent survey in Seoul, South-Korea, (Kim & Shin, 2016) indicated that around 32% of the population had used local websites, 22% local online cafés, 15% local mobile group chats, and 13% local Facebook-pages or groups. Based on these figures, we must not expect an overwhelmingly high adoption rate, nor consider it as a marginal phenomenon. Nevertheless, these figures are either outdated or collected in social and technological environments that are very different from the context the studies reported on in this doctoral dissertation takes place. For instance, none report about self-organized online

neighborhood networks. Moreover, there is little evidence regarding who is using them and in what way.

> Therefore, in order to get a more contextualized view on these online neighborhood networks and their uses, **the fifth objective** is to investigate the use prevalence of online neighborhood networks and to explore its user base.

THEORETICAL AND CONCEPTUAL FRAMEWORK

Several concepts and theoretical frameworks have been touched upon and mentioned in passing in the previous sections of this introductory chapter. I will take the opportunity of this section to succinctly sketch out some of these concepts and theories. More specifically, it is my intention here to delineate the theoretical and conceptual boundaries of this dissertation, rather than providing a fully fleshed out theoretical framework. Throughout this dissertation, the theories and concepts introduced here are either discussed more in depth, related more explicitly to the studies they pertain to, or both.

Conceptualizing *the neighborhood*

Neighborhoods set the context for the studies in this doctoral dissertation. The *neighborhood* as a concept is implicitly or explicitly understood as a site for social interaction and relations, communities, and developing a social identity (Ball-Rokeach, Kim, & Matei, 2001; Chaskin, 1997; Forrest & Kearns, 2001; Henning & Lieberg, 1996), while its spatial delineation is typically based on individual residents' (or other stakeholders') perceptions (Chaskin, 1997; Galster, 2001; Kusenbach, 2008). In addition, the neighborhood as context for individuals' behaviors and relations consists of a range spatially bundled attributes (Galster, 2001), including its socio-demographic, socio-economic and ethnic composition, its residential stability, its level of social disorder, and its wider political and economic position among other variables, and exercises an effect on those behaviors and relations (Chaskin, 1997; Massey, 1994; Sampson, 2012), albeit not as much on everyone (Guest & Wiersbicki, 1999).

Two things are accentuated here on how *neighborhood* is understood in this dissertation. First, the social reality of neighborhood interactions and relations is captured by the phrase parochial realm (Hampton, 2007; Humphreys, 2010; Kusenbach, 2006; Lofland, 1998; Mahmoudi Farahani, 2018). Second, the spatial delineation of the neighborhood does indeed depart from individuals' perceptions, yet distinctions can be made between a range of spatial neighborhood levels (Galster, 2001) or zones of place-based communities (Kusenbach, 2008).

First, Lofland (1998) distinguishes between three rudimentary social realms or interaction spaces in which individuals behave, being the private, public and the parochial realm. Each of these realms is characterized by specific modes of conduct and relational forms. The private space consists of strong ties with whom one has intimate relations and modes of conduct. Conversely, the public realm consists of a variety of strangers with whom one behaves categorically. Finally, in the parochial realm, relations are based on communality. The parochial realm sits between private and public in that the ties are weak and lack intimacy, yet with whom one is on a basis of friendly recognition, small talk, and are likely to be mobilized for small forms of help (Kusenbach, 2006; Mahmoudi Farahani, 2016). All three of these realms materialize in neighborhood contexts. There is the private realm of the household, the parochial context of the familiar neighborhood places and faces, and the connection to the public realm in which all are embedded and connected to (Hampton, 2007).

Realms and physical spaces may overlap, but should not be equated. Depending on the observer, a particular space can either be a public or a parochial realm. For instance, a neighborhood can be part of the public realm to a stranger while for the neighborhood residents, that space can support a parochial realm (Lofland, 1998). This dynamic interpretation of these social realms, and their contingency on the nature of the relations and behaviors taking place within them also imply that the interpretation of a physical space can change. That is, public realms can be parochialized (Humphreys, 2010) when individuals engage in and are being drawn into the relations and interactions that constitute it (Kusenbach, 2006).

Second, in line with a reasoning that stems from a Chicago School understanding of cities and neighborhoods (Hubbard, 2006), yet departing from an individual's perception and corresponding to his/her local social networks, neighborhoods can be

spatially delineated in a more or less concentric model with a series of spheres extending outwards from an individual resident (cf. Galster (2001) and Kusenbach (2008) for a more elaborate discussion). Specifically, Kusenbach (2008) identified four hierarchically nested place-based communities: micro settings, street blocks, walking distance neighborhood, and enclaves. Each of these levels corresponds to a particular spatial use, felt sentiments, forms of neighborly interactions and relations, and collective events and representations. For instance, in micro settings, which basically consist of the immediate visible area around someone's house, the practical use pertains to the mutual visibility of someone's private and semi-private routines, providing residents with a sense of trust and dependency. The neighborly interactions and relationships can take the form of passive contacts, proactive neighboring behaviors and even friendships, while the residents come together in informal gatherings and use nicknames for each other. Conversely, on the level of walking distance neighborhood, place use is expressed in terms of daily needs and recreation, while the felt sentiment centers on a sense of familiarity. The relations and interactions take the form of simply recognizing familiar faces and perhaps acknowledge the relationship by nodding. Formal organizations and events can exist facilitate interactions while newsletters exist to spread neighborhood related information.

Interestingly, Kusenbach (2008) found that the engagement in neighborly relations on one level comes at the expense of engagements on the other levels. This shows, she argues, that someone's "interest in local community is a depletable resource" (p. 244), yet this also reminds of how personal social networks are composed and extend geographically. This will be discussed in the next section. First, however, the takeaway from this discussion on neighborhood for this doctoral dissertation is that neighborhoods are socially constructed in the form of parochial realms by the type of social interactions and relations that define it, are spatially delineated in terms of the interpretation of the individual resident, thereby taking into account the distinctions in spatial and community levels in the physical neighborhood. Accordingly, primacy is given to the micro level in which the everyday reality is played out while the aggregated macro level that forms the neighborhood context is given less attention to.

Two perspectives on local community development

As is evident from the discussion on neighborhoods, they are a site in which neighborhood relations can develop, neighborhood networks emerge, and neighborhood residents can develop a sense of community with aforementioned networks. Drawing on McMillan and Chavis (1986) definition and Wellman's (2001) network perspective on communities, we understand sense of community as the affective relation an individual develops with respect to a network he or she interacts with and perceives to have something in common with, which in turn brings about a range of expectations regarding the community (cf. Chapter 5). In this doctoral dissertation, we have adopted two perspectives on how a sense of community is developed, being a community psychology perspective and the one put forward by Communication Infrastructure Theory.

From a community psychology perspective, sense of community is associated to a range of neighboring behaviors (Buckner, 1988; Farrell et al., 2004; Long & Perkins, 2007; McMillan & Chavis, 1986; Prezza, Amici, Roberti, & Tedeschi, 2001; Unger & Wandersman, 1985) and their theoretical relation can be summarized as follows: by engaging in neighboring behaviors, consisting of a range pro-social behaviors performed as neighbor and directed towards others who are perceived as neighbors, social relations are formed. As more neighborly interactions take place and with more neighbors, a network develops to which individuals can develop an affective relation to it, which is captured in the concept sense of community. In contrast, from a Communication Infrastructure Theory (CIT) perspective, emphasis lies on developing a sense of neighborhood belonging. The central argument in CIT is that neighborhood residents develop a sense of community by engaging in neighborhood storytelling and connecting to the local storytelling network (Ball-Rokeach et al., 2001; Kim & Ball-Rokeach, 2006). By telling stories about the local community, a shared discourse develops as people converge to each other regarding how they see themselves and understand the world around them (Kim & Ball-Rokeach, 2006). For local communities, this implies the development of a local community identity, including an understanding of what such community membership entails.

Both theoretical frameworks are more extensively discussed in chapters two, four and five of this doctoral dissertation, yet never in relation to each other. Therefore, what

we want to point out in the remainder of this section is how these perspectives are compatible. Their compatibility primarily centers on how they highlight different aspects from a similar bottom-up community development process. The neighboring behaviors in the community psychology perspective cannot take place without social interactions. When people interact, they talk and talk is hardly ever about merely exchanging information, but includes emotion, opinions and other affective qualifiers by which individuals express themselves. Accordingly, neighboring behaviors include a discursive component, which can be regarded as neighborhood storytelling from a CIT perspective. The storytelling in neighborhood storytelling is closely related to Habermas' (1984) notion of communicative action yet moves beyond Habermas' narrow rationalist view on talk by understanding storytelling as "an act of constructing an identity through narrative discourse" (Ball-Rokeach et al., 2001, p. 394). In a neighborhood context, this means constructing an identity as a neighborhood resident. It is theorized that this happens through virtually every form of talk that pertains to the neighborhood (Kim & Ball-Rokeach, 2006).

In addition, little attention is given to contextual effects in the community psychology perspective, which contrasts with the CIT framework. A communication infrastructure is a storytelling system set in a communication action context (Ball-Rokeach et al., 2001; Kim & Ball-Rokeach, 2006). This communication action context entails the preconditions for discourse and includes physical, psychological, socio-cultural, economic, and technological neighborhood dimensions. And these vary along a continuum between being either an open context, or encouraging people to engage with each other, or a closed context, or discouraging people to engage. A storytelling system includes storytelling agents who are active on three levels, being macro, meso and micro, and form the nodes through which neighborhood stories are told and circulated. In that regard, CIT provides the contextual explanations missing in community psychology literature.

Community, social support and social capital

The process of social integration and community development on a neighborhood level relates to the concept of social capital, specifically social capital as a neighborhood feature. Neighborhoods with higher social capital are perceived as supporting and

engendering civic behaviors and participation, and better equipped to solve issues and dilemmas by means of collective action (Kearns & Forrest, 2000). In that capacity, social capital conceptually entails the extent and intensity of social relations and interactions taking place within a geographically bounded network, as well as the trust and norms of reciprocity that govern those interactions and relations (Baum & Ziersch, 2003; Putnam, 2000).

Notwithstanding the importance of said concepts with respect to social capital, I do not consider them as dimensions of social capital in this dissertation. Rather, trust and reciprocity are characteristics of social relations, which in turn form the structural base on which social capital can be developed. Specifically, I consider social capital as an individual level attribute, indicative of someone's structural social position that is derived from having access to particular resources in the possession of those individuals one has developed a relation with (Lin, 1999). Similar to other resources, like financial capital or human capital, social capital is a measure of someone's advantage over someone else (Burt, 2005).

In this dissertation, I zoom in on the role of online neighborhood networks in the development of local social relations. More specifically, the exchange of social support as one feature of these relations is investigated. Synthesizing the literature, social support can be conceptualized as the perceived access to resources, including emotional, informational, and instrumental forms of aid, that are or can be provided by an individual's social network and does or may help them to deal with either everyday hassles, acute and discrete stressors, and or chronic stressors (Barrera, Sandler, & Ramsey, 1981; Lin et al., 1986; Lin, Ye, & Ensel 1999; Sherbourne & Stewart, 1991; Song & Lin, 2009; Wellman & Wortley, 1989, 1990). The provision and reception of these forms of aid is instrumental in social relationship development (Buchan et al., 2002; Lawler & Yoon, 1996; Uehara, 1990).

Next, the central contention is that once the relations are established, they can be turned into something productive. Besides the continued exchange of social support as part of maintaining the relation (McMillan & Chavis, 1986; Lin, 2004; Prezza et al., 2001; Unger & Wandersman, 1985) and its outcomes with respect to quality of life and mental and physical well-being (Cohen & Wills, 1985; Lin et al., 1986; McKenzie, Whitley, & Weich, 2002; Thoits, 2011; Uchino, Bowen, Carlisle, & Birmingham, 2012),

the developed relations can be instrumental in that they motivate community and civic engagement and participation on an individual level (Taló, Mannarini, & Rochira, 2013), while providing the neighborhood capacity (i.e. collective efficacy) to deal with internal (e.g. crime, poverty, ...) and external challenges (e.g. processes of marginalization, political decisions,...) (Craig, 2007; Forrest & Kearns, 2001; Haynes, 2016; Sampson, McAdam, MacIndoe, & Weffer-Elizondo, 2005; Sampson et al., 1997). Circling back to social capital: being able to develop relations with individuals with higher social capital will be beneficial for attaining such individual and collective goals.

Social network sites as networked publics

Conceptualizing and studying the social ramification of localized digital media use is essentially a question of how media (use) affect(s) the domains they are appropriated in, or to paraphrase Hjarvard (2014, p. 127), "the structuring influence of a mediation process on situated social interaction". Here, these social interactions are situated in a neighborhood context and take place among users assuming the role of neighbors.

The self-organized online neighborhood networks under investigation in this dissertation emerge in neighborhood contexts, where neighborhood residents opportunistically make use of the infrastructure provided by social media platforms. Accordingly, we particularly focus on the agency side of social media use, thereby accentuating social media as an opportunity structure, affording users to engage in particular communication, interaction and sharing behaviors, while taking into account, to some extent, how the online infrastructure shapes the flow of information.

The understanding of the mediation processes on social media adopted in this dissertation is largely informed by boyd's (2011) interpretation of social network sites as *networked publics*. Relying on Livingstone (2005), boyd (2011) argues that a public is a group of people who are bounded to each other by a shared text, being a media product, shared identity or shared worldview. Through publics, networked or not, people can enlarge their social world, beyond kin and friendship networks, and gather information for social, cultural or civic purposes. Networked publics are different from non-networked publics because of the intermediary role of SNS and its technological

affordances that reorganize the flow of information and change the conditions of how members of the public interact with that information as well as with each other.

These affordances are persistence, replicability, scalability, and searchability (boyd, 2011). What is being said and discussed is recorded and stored (persistence), can transgress the perceived boundaries of the conversation and as such be accessible by unforeseen audiences (scalability), now and in the future (searchability), while many copies can be made and shared (replicability), potentially having its original meaning removed and replaced by a new one. Together these affordances create an environment in which the audiences cannot entirely be known, behavior guiding contexts can collapse into each other, and the notions of public and private are being renegotiated. Although these affordances and processes may have adversarial consequences in terms of privacy invasiveness or social and institutional surveillance, they may also produce novel ways of social bonding and cultural exchange (Langlois, Elmer, McKelvey, & Devereaux, 2009; boyd, 2011; Renniger, 2015). Here, these networked publics form the context for neighborhood residents to convene, interact and share neighborhood related information.

METHODOLOGICAL FRAMEWORK

The research objectives of this doctoral dissertation were tackled by means of a multi method research design. Empirically, this dissertation draws on four main bodies of data, while additional data were collected in the context of the scale development phase. The purpose of this section is to provide a brief overview of the applied methodologies and used data sets, and more importantly, link the specific data sets to the different research goals and discuss the rationale of the research design. A more in-depth discussion on each data set, the sampling strategies and procedures, and analytical techniques can be found in the respective chapters. Before outlining the research design, we provide a discussion of the broader socio-geographical context in which the data used in this dissertation were collected.

Research context

The short literature review above indicated that localized digital media use is a global phenomenon. Nevertheless, how media are used, or specifically, how SNSs are appropriated as online neighborhood networks, is contingent upon a series of contextual factors that may vary across different countries, regions, or cities.. Hence, there is the need to describe the context of the study sites in which the data this dissertation is based on are collected. This contextualization is by no means exhaustive, but tries to sketch the contemporary socio-geographical situation in a historical perspective, with a specific focus on neighborhood life and their social compositions. Specifically, the data of this doctoral dissertation have been collected in two overlapping geographical contexts, being Flanders (datasets 3, 5 and 6) and the city of Ghent (datasets 1, 2 and 4), Flanders' second largest municipality.

Flanders

Located in the north of Belgium, Flanders is a densely populated region, inhabiting a population of more than 6 million. Interestingly, just 36% of the Flemings live in the main and regional cities, while another 48% lives in the immediate suburban surroundings of these cities. This makes Flanders a region of small, highly interconnected centers, while at the same time, rural areas are largely suburbanized, resulting in the so-called 'nevelstad' (Van Herck, Vanthillo, & De Rynck, 2019). More broadly, only 27.4% of the Belgian population lives in cities with a population higher than 50.000 (Van Herck et al., 2019).

These figures provide the context for the *boutade* that Flanders is at the same time one of the most urbanized regions in the world, yet one with a strong anti-urban sentiment (De Decker, Kesteloot, De Maesschalck, & Vranken 2005; Kesteloot & De Maesschalck, 2001; Schuermans, Meeuws, & De Decker, 2015). Fueled by several social and economic policies in the last century and a half, the Flemish population is historically stimulated to work in the cities and to live in the suburban periphery. Due to a general lack of spatial planning, in combination with significant investments in first railway and later road infrastructures, and policies that actively stimulated home ownership (Kesteloot & De Maesschalk, 2001), Flanders became a region with suburban sprawl, with single and detached houses stretching out in ribbons along the main roads or scattered in the landscape (Bervoets & Heynen, 2013; Kesteloot & De Maesschalk, 2001;

Schuermans et al., 2015). Hence, suburban Flanders is characterized by car-oriented and low density residential neighborhoods, mainly mono-functional and "at a distance from the employment, commercial and entertainment centers" (Bervoets & Heynen, 2013, p. 368). Moreover, there is a strong and persistent ideal among its inhabitants to preserve this (Bervoets & Heynen, 2013; Schuermans et al., 2015).

This present day suburban layout of Flanders is not just physical but also very social. The aforementioned policies were implemented in order to improve the poor living conditions of the work force in urban centers of the 19th century, but equally to protect the lower classes from the corrupting influences of the city, including general moral degradation, promiscuity, and socialism among others (Adriaenssen, 1970). As such, the idea was installed that the urban environment became a place to work, but certainly not a place to live (Kesteloot & De Maesschalk, 2001). This lead to a social segregation with those households who were able to afford it, moving to the suburbs to buy a house, effectively leading to impoverished neighborhoods in the urban centers (Bervoets & Heynen, 2013; De Decker et al., 2005; Heughebaert, 2006). This social segregation was further effectuated after the second world war as the economy shifted from industrial to more service-oriented, pushing the lowly educated underclass into unemployment status. Around the same time, international migrants moved into the poor neighborhoods and houses where the middle-class families had moved out (Schuermans et al., 2015). Thus, the settling of these migrant populations in the urban centers brought about a second spatial segregation: with the suburbs being predominantly populated by white middle-class households, the impoverished urban neighborhoods became the homes of migrant populations. At first mainly Turkish and Moroccan labor migrants, but more recently also migrants from new EU member states pursuing socio-economic mobility (Verhaeghe, 2013).

Although there is arguably an urban revival in Flanders (Debruyne, Oosterlynck, & De Block, 2008), with cities actively investing in their city centers and cities again being more attractive to young people wanting to live close to work and the amenities and services cities have to offer, the overall dream and ideal of owning a single detached house in the (suburban) countryside remains very persistent in the minds of Flanders, exemplified in the positive discourses about the calm and homogeneous villages

which contrast to the negative discourses about the diverse, poor, dirty and busy cities (Schuermans et al., 2015).

Ghent

The second geographical context is constituted by the city of Ghent. Ghent is a densely populated city with a diverse, dynamic and growing population, rising above 260.000 today ("Met hoeveel in stad Gent", n.d.). Developed from a medieval commercial and religious center, Ghent was one of the first cities on the European continent to industrialize. The initial textile industry, located in the center of the city, has largely been replaced by a broad scale of industrial activities in its seaport, while the city center became oriented towards a service economy. Its university, the second largest in the country, has been a second source of prosperity for the city (Boussauw, 2014).

Similar to other European cities that industrialized in the 19th century, Ghent became a gray and dilapidated city after the second world war as the industrial activity moved further away from the city center, its population started to decline in an urban flight, and the suburban sprawl in the city's vicinity described above took off (Boussauw, 2014; Cleppe & Uyttenhove, 2016; Oosterlynck & De Bruyne, 2010). Due to a series of urban renewal projects on city, regional and national levels, the urban flight has today been countered, with a population growth of 22% since the start of the 21st century ("Met hoeveel in stad Gent", n.d.). Surfing on the wider trend of urban renaissance, Ghent has invested significantly in the commercial and touristic center of the city, making it an attractive place for tourists as well as young middle-class households who can afford the steeply rising house prices (Debruyne, Oosterlynck, & Block, 2008).

The recent growth of the city's population is particularly attributable to migration. Although most inward migration is accounted for by national migration, 35% of population's growth is due to international migration. Today, one in three Ghentians have a history of international migration, finding their roots in a 150 different nationalities, with Turks, Bulgarians and Moroccans being the largest minority populations. This diversity of Ghent's contemporary population as well as its socio-spatial structuring have to be situated in the historical contexts described above, both of the city and the Flemish region. The industrial developments of the 19th century attracted a labor force that was housed in sharply delineated neighborhoods, developed around the factories they worked in. This resulted in the so-called 19th

century belt, a series of neighborhoods that circle as a crescent around the city center (Verhaeghe, 2013), which is still morphologically and socially tangible today. At the same time, the bourgeoisie moved to the southern neighborhoods of the city, away from the industrial north with its dirty and narrow streets (Cleppe & Uyttenhove, 2016), or cleared out entire slums in the city center in favor of new boulevards and city mansions in Haussmann-like sanitation projects (Adriaenssen, 1970; Boussauw, 2014). Aided by the aforementioned national and regional anti-urban policies, those among the work force able to afford it, left for the suburbs (cf. supra), while their former neighborhoods became the home for the mainly Turkish economic migrants from the 1960's onward (Boussauw, 2014; Verhaeghe, 2013) and in more recent years for the migrants from new EU-member states (Verhaeghe, 2013). Although recent gentrification processes are noticeable, these neighborhoods still have a lower socio-economic profile, house large and diverse migrant populations, while population densities are among the highest in the city ("Met hoeveel in stad Gent", n.d.).

These neighborhoods' compositions are, however, by no means stable. Administrative data of the city ("Met hoeveel in stad Gent", n.d.) shows that the number of relocations within, to and from the city is rising, up to almost 54.000 relocation movements in 2018. 36% of the current population has migrated to the city in the last ten years, while only 47% still lives at the same place as ten years ago. Looking at neighborhood differences, we see that in some inner-city neighborhoods, only 25% to 39% still lives at the same address as ten years ago, meaning that these neighborhoods have seen drastic changes in its population. This contrasts starkly to the much higher residential stability in the suburban neighborhoods at the outskirts of the city. The administrative data also show, however, that these migration patterns align with people's life cycle. While young people in their twenties move towards the city, they are forced to the outer, suburban neighborhoods or adjacent municipalities in their pursuit of finding a spacious yet affordable family home within reasonable distance of work and the amenities the city center provides. At the same time, there is currently also a relocation trend among Turkish Ghentians towards the well-off suburban neighborhoods, while new Bulgarian migrants are moving to the neighborhoods they have left (Verhaeghe, 2013).

Notwithstanding the arguably valid criticism that much of the city's investments have been channeled towards polishing its touristic center (Debruyne & Oosterlynck, 2009), envisioning mainly economic rather than social outcomes, Ghent does have a neighborhood centered focus in many of their urban renewal projects. "Zuurstof voor de Brugse Poort", "Ledeberg Leeft" or "Bruggen naar het Rabot" are but a few examples of how the local government aims to tackle the historical problems in the 19th century neighborhoods, thereby employing an integrated approach in which spatial and social interventions are coupled (Debruyne & Oosterlynck, 2009). Together with the historical investment by employing social workers at a neighborhood level, and more recently, by providing financial means to neighborhood associations in the context of the events they organize, the neighborhood is a very present spatial and social level in the city 's administration and policy.

Neighborhood context and the individual online neighborhood network user

In conclusion, this short discussion is obviously limited and does not account for all possible contextual influences that might be at play in online neighborhood network uses and its neighborhood related consequences. Still, it allows the reader to familiarize with the contexts in which the this dissertation's data collection has taken place, and may thus help in interpreting the findings presented in this dissertation.

Taking the research objectives into account, focus is on how online neighborhood networks function, how individuals use and perceive online neighborhood networks, and how this use affect their perceived connection to their neighborhood. Stated differently, we are mainly interested in how online neighborhood networks pertain to bottom up neighborhood outcomes, rather than how neighborhood contexts affect the outcomes of online neighborhood network uses. Analytically this means that the contextual level is second to the individual level in this dissertation. Still, this does not mean that neighborhood contexts are entirely absent. In chapter six we explicitly tackle the role of neighborhood contexts with respect to online neighborhood membership and use, while the data chapter two is based on reflect the diversity of Ghent neighborhoods and their online neighborhood networks.

Accordingly, the contextual level is not necessarily ignored in this dissertation, but the analytical lenses used to study the phenomenon of online neighborhood networks

favor the individual online neighborhood network user over his or her neighborhood context.

Research design

The applied research design consists of four phases: (i) exploration, (ii) scale development, (iii) hypothesis testing, and (iv) contextualizing. The rational of the research design was to first inquire use practices in a diverse sample of neighborhoods and with a diverse sample of online neighborhood networks and online neighborhood network users. Subsequently, the information derived from this first research phase was used to develop the measurement instrument in a second phase and formulate and test hypotheses regarding these uses and their neighborhood related outcomes in the third phase. This was done across a wide range of online neighborhood networks and neighborhoods, taking into account individual differences, yet minimizing the contextual information of both neighborhoods and online neighborhood networks. These use practices were contextualized in the fourth and last phase by means of an exploratory quantitative study.

The first research objective, **conceptualizing the online neighborhood networks** (**RO1**), was predominantly tackled by means of the exploratory quantitative content analysis and a series of in-depth interviews in the first research phase. The content analysis allowed us to get a grasp of the nature of the content circulating in online neighborhood networks, while the in-depth interviews complemented these insights by providing an understanding of how online neighborhood networks are perceived and used. The conceptualization of online neighborhood networks based on this research phase was further refined in the subsequent research phases.

The second and third research objectives, being **the relation between self-organized online neighborhood networks and local community development** (**RO2**) and **the local exchange of social resources** (**RO3**), were addressed in the third research phase. To this end, we conducted a survey among a population of Flemish online neighborhood network users.

The fourth objective, **comprised the development of an instrument to measure the online neighborhood network uses** (**RO4**) we observed during the first research

phase, corroborated by means of a literature review. To this end, several data collection techniques and samples were used, including expert interviews, cognitive interviews, pilot study in the context of item evaluation, reliability testing, and validity testing (De Grove, Cauberghe, & Van Looy, 2016; DeVellis, 2003; Khazaee-Pool et al., 2016). Specifically, measures were developed for two types of online neighborhood network use, expressive and instrumental uses. These measures were used in the third and fourth research phase.

Table 1 Overview of the different data sets used in this dissertation.

Data set	Method	Year	*N*	Age (Mean / SD)	Gender (Male / Female)	Research Objectives	Chapter
1	Content analysis	2016	6	*N/A*	*N/A*	1	2
2	In-depth interviews	2017	14	49.4 /11.8	57/43	1	2
3	Survey	2018	595	44/15.6	28/72	1, 2, 3, 4	3, 4, 5
4	Survey	2018	1821	46.6/18.9	50/50	4, 5	3, 6
5	Cognitive interviews	2017	28	35.2/15.1	50/50	4	3
6	Survey	2018	52	40 /22.4	42/58	4	3

Lastly, the fifth research objective, **investigating the use prevalence and user base of online neighborhood networks** (**R05**), was attained in the fourth research phase by drawing on a random a-select survey of the population of the city of Ghent, Belgium, which was collected in the context of the interuniversity Social CApital in Neighborhoods (SCAN) project.

OUTLINE OF THE DOCTORAL DISSERTATION

The following five chapters of this dissertation report on the empirical studies conducted within the scope of this doctoral research project. Each of these has been accepted, is or will be submitted as individual papers to journals or book projects.

Chapter two. *Bottom-up hyperlocal media in Belgium: Facebook-groups as collaborative neighborhood awareness systems,*

This chapter explores how bottom-up and self-organized online neighborhood networks fit into the local communication infrastructure by focusing on its role as a hyper-local news medium. This study combined a content analysis and in-depth interviews and was theoretically and conceptually informed by Communication Infrastructure Theory and the concepts ambient and affective social news stream. We found that these Facebook-groups unintentionally emulate hyperlocal media in terms of circulating local information, engendering local attachment and civic engagement, yet without conforming to journalistic norms nor its members considering themselves as local journalists.

Table 2 Chapter overview.

Chapter	Title	Research Objective	Data Sets
2	Bottom-up hyperlocal media: Facebook-groups as collaborative neighborhood awareness systems	1. Conceptualization	1 & 2
3	The development and psychometric testing of the expressive and instrumental online neighborhood network uses scale (ONNUS)	4. Measurement instrument	1, 2, 3, 5 & 6
4	Neighborhood hotspots and community awareness media: The double role of Social Network Sites in local communities	2. Local community development	3
5	Disentangling local social support mobilization via online neighborhood networks	3. Local exchange of social support	3
6	Exploring the user base of online neighborhood networks: determinants of online neighborhood network membership and uses	5. Use prevalence and user base	4

Chapter three. *The development and psychometric testing of the expressive and instrumental online neighborhood network uses scale (ONNUS),*

This chapter reports on the construction and testing of a quantitative instrument to measure online neighborhood network uses. Informed by existing research on online

social relationship maintenance behavior, resource mobilization and embedded in the social capital framework of Nan Lin (2004), we conceptualized local social media use as consisting of two distinct use types, being expressive uses (network maintenance) on the one hand and instrumental use intention (network mobilization) on the other hand. Expressive uses is a two-dimensional construct, consisting of the constructs *shared interests* and *supportive communication*. Likewise, instrumental use intention is a two-dimensional construct, including *tangible* and *informational social support mobilization*. The measures for both constructs were developed in different phases, including generating an item pool, refining and reducing the item pool through a series of steps, and testing them on different samples and populations. The psychometric properties suggest both measures are valid and reliable across samples and populations.

Chapter four. *Neighborhood hotspots and community awareness: The double dole of Social Network Sites in local communities,*

This chapter reports on a study in which we tested to what extent expressively using online neighborhood networks, considered as digital neighborhood storytelling, brought about a local sense of community. Drawing on Communication Infrastructure Theory, complemented with insights from social psychology and social media literature, we hypothesized three pathways for this association. A survey was administered to Belgian online neighborhood network users (n = 590) and analyzed using structural equation modelling. The results indicate that expressive local SNS use contributes to a stronger psychological sense of local community albeit only indirectly via increased community awareness and higher levels of online sense of community. These findings allow us to tease apart the role of local SNS use pertaining neighborhood outcomes, thus contributing to the understanding of local communication processes.

Chapter five. *Disentangling local social support mobilization via online neighborhood networks,*

This chapter delves into the mediated processes of local social support exchange. A theoretical model that draws on community psychology, social support and social capital, and social media literature, is proposed and tested using a survey conducted

in the Dutch-speaking part of Belgium among 587 online neighborhood network users. We found that engaging in online neighboring behaviors underpins the development of both an online and neighborhood sense of community, which in turn provide access to perceived local social support and the intention to mobilize local social support via the online neighborhood network. The intention to mobilize local social support online was predominantly explained via the path along online sense of community, suggesting that online neighborhood networks facilitate local bridging behavior, connecting otherwise distinct local networks and ties. At the same time, online neighboring behaviors provide the normative context that supports the exchange process.

Chapter six. *Exploring the user base of online neighborhood networks: determinants of online neighborhood network membership and uses,*

This chapter provides more context to the findings in the previous chapters by exploring how widespread online neighborhood networks are adopted, who is using them and in what way. Drawing on a random a-select sample (Ghent, Belgium), we found that over a third of the population is online neighborhood network member, that membership was mainly predicted by socio-demographic characteristics while SES was an important predictor of both uses. In contrast to prior research, our results show that online neighborhood networks are the local online territory of residents with lower SES, to whom these online neighborhood networks are a means to connect with and capitalize on neighborhood connections.

In **the seventh and final chapter** we discuss the findings of these different papers, thereby providing answers to the different research aims, discuss their theoretical and societal implications, discuss the limitations and provide suggestions for future research.

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BOTTOM-UP HYPERLOCAL MEDIA IN BELGIUM: FACEBOOK-GROUPS AS COLLABORATIVE NEIGHBORHOOD AWARENESS SYSTEMS

Hyperlocal media are typically considered as organized entities, deliberately set up with a journalistic purpose. However, recently we see the emergence of bottom-up, unstructured, loosely organized and little monitored Facebook-groups that bring together residents and information concerning a specific locality. In these groups, people share information and news related to the neighborhood, announce and promote events, or report neighborhood problems. Notwithstanding the obvious organizational differences between hyperlocal media and local Facebook-groups, this observation raises the question to what extent these bottom-up online environments show characteristics and have consequences that are similar to hyperlocal media operations. Using a mixed method design and informed by Communication Infrastructure Theory and the concepts ambient and affective social news stream, we studied six Facebook-groups situated in Ghent, a densely populated city in the northern part of Belgium. We found that the Facebook-groups are similar to hyperlocal media in terms of circulating local information, engendering local attachment and civic engagement, yet without conforming to journalistic norms nor its members considering themselves as local journalists.

De Meulenaere, J., Courtois, C., & Ponnet, K. (in press). Bottom-up hyperlocal media in Belgium: Facebook-groups as collaborative neighborhood awareness systems. In A. Gulyas & D. Baines (Red.), *Routledge Companion to Local News and Journalism*. Oxford, UK: Routledge.

INTRODUCTION

There is largely a consensus in literature on what hyperlocal media (HLM) are and are supposed to do to the local communities they operate in (Barnett and Townend, 2015; Metzgar, Kurpius & Rowley, 2011; Paulussen & D'heer, 2013; Williams, Harte & Turner, 2015). First, HLM are often opposed to 'local media'. Local media are considered something from the past, that have suffered greatly from dwindling advertisement revenues and related financial cuts on the production side, which were especially hard for local offices. This void left in local reporting is nowadays being filled by various new initiatives, called hyperlocal media. Second, these recent initiatives find in contemporary network technologies both the means to disseminate their local news stories to specific local news audience and the opportunity to engage that audience in various types of participation. Summarized, HLM are

> *"geographically-based, community-oriented, original-news-reporting operations, indigenous to the web and intended to fill perceived news gaps in coverage of an issue or region and to promote civic engagement" (Metzgar et al., 2011, p. 774).*

Interestingly, there are two underlying themes in the literature on HLM. First, there is a normative discourse, prescribing HLM to provide accurate and reliable information, be a watchdog, represent the local community and be an advocate of the public (McNair, 2009, in Williams et al., 2015, 681). Secondly, HLM are regarded as organized entities, intentionally set up to produce local news, typically in the form of a project of professional journalists, individuals or a collective of individuals assuming the role of (citizen) journalists, finding in those initiatives the means to practice authentic journalism. Sticking to such normative standards of what news and journalism ought to be may bias the appreciation of new audience practices in the context of news production and circulation (Hermida, 2010; Hess & Waller, 2016). In that sense, we have recently seen the emergence of bottom-up, unstructured, loosely organized and little monitored Facebook-groups that bring together residents and information concerning a specific locality such as an urban neighborhood (Bouko & Calabrese, 2017; Gregory, 2015; Silver & Matthews, 2017; Turner, 2015). In these groups, people share information and news related to the neighborhood, announce and promote events, and often report neighborhood related problems. Moreover, notwithstanding

the organizational differences between such groups and HLM, outcomes typically attributed to HLM news consumption (e.g. increased civic participation, community engagement and sense of neighborhood belonging) have also been positively associated to the use of digital media and SNS, on the precondition that this use is locally situated (Kim et al., 2015; Ognyanova et al., 2013; Nah & Yamamoto, 2017).

These observations raise the question to what extent these bottom-up online environments can adopt the role of HLM. That is, to what extent are these local online groups geographically-based and community-oriented? To what extent do they engage in original-news-reporting and are they perceived as a local news source? And to what extent do they produce beneficial neighborhood related outcomes such as the promotion of civic engagement? To study this, we applied a mixed method design consisting of a content analysis and in-depth interviews with local online group users. The study was theoretically informed by Communication Infrastructure Theory (Ball-Rokeach, Kim & Matei, 2001), complemented by the conceptual framework of ambient journalism (Hermida, 2010) and affective news (Papacharissi & de Fatima Oliveira, 2012). We elaborate on these concepts below.

METHOD

In order to study to what extent local online Facebook groups show characteristics and have consequences that are similar to hyperlocal media, we considered their contents as well as their audience perceptions and uses. A mixed method design was used, comprising a descriptive quantitative content analysis and a series of in-depth interviews. The content analysis allowed us to get a grasp of the nature of the content circulating in the online groups, while the in-depth interviews complemented these insights by providing an understanding of how the local online groups' users perceive and use these groups. Before discussing the procedures of the content analysis and the in-depth interviews respectively, we first elaborate on the population, sample and sampling strategy.

This study took place in Ghent, Belgium. The content analysis was performed on six hyperlocal Facebook-groups that were oriented to and anchored in six different

neighborhoods in the city of Ghent (Table 3). First, in order to attain variety in the sample we relied on information derived from the municipal registry (https://gent.buurtmonitor.be/). The neighborhoods differed in terms of socio-economic status, ethnic diversity, and level of urbanism. Second, to be included in the sample, the groups had to have a clear reference in their name to the selected neighborhood and have at least 100 posts by the time of the data collection (June 2016). As a result, the sample includes two suburbs, two neighborhoods with lower SES and multi-ethnic populations, one central residential neighborhood with a higher SES and one mixed neighborhood with a suburban periphery but a center that has a lower SES and multi-ethnic population. The local Facebook-groups also differ along a number of structural characteristics: number of members, number of total posts and comments, year the group was created, and number of posts per day.

Table 3 Selected hyperlocal Facebook-groups.

	Type of neighborhood	Year started	Total number of members (autumn 2018)	Total number of posts / comments	Number of posts per day during data collection
1	Suburb	2009	6347	4716 / 36398	11.11
2	Suburb	2014	1615	982 / 4702	.63
3	Lower SES / multi-ethnic	2007	4546	4140 / 32214	4.00
4	Lower SES / multi-ethnic	2008	993	1120 / 1886	1.03
5	Mixed	2014	4511	2924 / 19010	2.38
6	Central residential	2009	1248	1328 / 3890	1.82

The data for the content analysis were collected using NCapture, a browser plug-in of NVivo for capturing social media data, and processed using NVivo 11 and Excel. Of these six groups, the last 100 posts (on June, 2016) were analyzed. The posts were coded in terms of type of post (Table 5), news topic (Table 6), and post authorship (Table 7). The operationalization was informed by Williams et al. (2015). Next, a series of 14 in-depth interviews were conducted with a variety of local online group users,

distributed over the six selected neighborhoods. In order to attain a diverse sample, we selected users that varied in terms of their role regarding the particular Facebook-group (Table 4). All respondents actively contributed to the local online group.

Table 4 Overview respondents.

	Gender	Age	Type of neighborhood	Role Facebook group
P1	M	39	Low SES	Admin
P2	M	48	Low SES	Member
P3	F	51	Low SES	Member
P4	F	55	Suburb	Admin
P5	M	47	Suburb	Member
P6	M	51	Central	Admin
P7	M	37	Central	Admin
P8	F	33	Low SES	Admin
P9	F	40	Low SES	Admin
P10	M	40	Low SES	Admin
P11	M	71	Mixed	Member
P12	F	66	Mixed	Member
P13	M	67	Mixed	Member
P14	F	46	Suburb	Member

Both Facebook-group administrators and ordinary members were contacted directly via Facebook-messenger. Ordinary members were identified either through referrals by previous interviewees or via a preliminary network analysis of the local online groups. Pertaining the latter, by considering *interaction networks* in the online groups we contacted users with high betweenness centrality (Rieder, 2013). Interviews were guided by semi-structured questions. First, we inquired about the interviewee's experiences of living in their neighborhood, and their activities and personal network(s) therein. Next, we asked them how they met and communicated with other neighborhood residents and how they acquired information about their neighborhood. This primed the residents to talk about their perceptions and use of the local Facebook-group, both in terms of content, relationship with other Facebook-group members as well as its perceived role in the neighborhood. The interviews were fully transcribed and processed using NVivo 11.

RESULTS

The local online group as a local social news stream

We considered the content circulating in the local online groups in terms of *type of post*, *type of news*, and the *post authorship*. The content circulating on these online groups varied considerably (Table 5) as local online groups are predominantly used to (1) ask questions to and favors from other users (*mobilization requests*) (cf. Ellison et al., 2014; López & Farzan, 2015) and (2) share news and information about the neighborhood at large (*news stories*) (cf. Williams et al., 2015). Together, these two types make out more than 80 per cent of the posts on the online groups. The remaining 20 per cent contain advertising from local shopkeepers (*sales and advertising*), discussions on particular neighborhood issues or activities (*opinions and critiques*), jokes or entertaining content (*humor, entertainment and diversion*), and finally, posts in which the rules of the group are explained, discussed or contested (*about page or group*). This content diversity is also noticed by our interviewees, who describe these groups as 'informative', consisting of 'local news items', 'human interests', but also as 'helpful' and 'a means for local social interaction'.

Table 5 Types of posts (n = 600).

Type of Post	Relative frequency
Mobilization requests	46.67%
News stories	33.67%
Sales and advertising	12.33%
Opinions and critiques	4.00%
Humor, entertainment and diversion	1.33%
About page or group	1.33%
Other	.67%

Informed by the operationalization of news topics used by Williams et al. (2015) we were able to discern the various topics covered in the posts categorized as *news stories* (Table 6). We found that the news stories mainly related to local community events and groups, including updates on the local annual fair, or announcements of events

organized by resident associations. Another popular topic included posts containing information on road works or local construction works of public buildings. These are supplemented by posts in which the neighborhoods' past is reminisced by sharing old pictures, local traffic issues are discussed, and local instances of criminality and vandalism are reported. Table 5 shows the rest of the identified topics.

Table 6 Types of news (n = 202).

Type of news	Relative frequency
Community events - groups	32.67%
Urban planning - building - infrastructure	14.85%
History - nostalgia	10.89%
Traffic - transportation	9.41%
Criminality - vandalism (specific)	8.91%
Local people or families	6.93%
Nature - environment	4.95%
Nice places in the neighborhood	4.95%
Local business - industry	2.48%
Consumer	.99%
Artists	.99%
Sports	.50%
Criminality - vandalism (general)	.50%
Politics (government)	.50%
Other	.50%

In contrast to the observations by Williams et al. (2015) on HLM content, hard news (Reinemann et al., 2012) such as information on local councils and policy decisions was absent in our study. Studying user-generated contributions to a newspaper, Paulussen & D'heer (2013) found that citizen journalists (1) predominantly covered soft news such as community events and everyday community life, (2) selected issues and events informed by their personal interests and experiences, and (3) tended to be the sole source for the stories they delivered. Similarly, we noticed that content shared to the online groups often included first hand experiences, appeared to be motivated by a personal interest, and tended to relate to everyday life issues. Nevertheless, an

observation made by our interviewees is that the local online group allowed them to get a sense of what is happening in their neighborhood:

> *"You are much more aware of the other, what they are doing, where the problems are… […] I believe we know this better now." (P6)*

This high prevalence of soft news topics provides evidence of the strong community orientation of these local online groups. This is also reflected in the online groups' content authorship. We found that most posts are authored by either individual residents or by local community associations (Table 7).

HLM are also expected to provide original news content (Metzgar et al., 2011). With social media platforms making it easy to share content and posts from other online locations, it can be expected that original content in these local online groups is sparse. Still, we found that about half (50.72 %) of the posts identified as news were first made public via the specific local online group. This finding, together with the high number of individual residents authoring posts might suggest an active community engaging in practices of citizen journalism. However, in contrast to typical instances of citizen journalism, our respondents did not identify themselves as journalists, nor what they did to be journalistic in nature.

> *"No, I am not a journalist, because I don't make news. I disseminate information. A journalist searches for stories and then writes an article on that. But that's not me. Nor is it my goal to be one." (P1)*

In addition, although the local online groups are identified as informative, our interviewees find it difficult to define the content as *news*. Rather, they regarded it as 'little facts' or 'human interest', lacking the proper journalistic rigor of fact finding and checking as well as the capacity to transcend the private interest of the author. Admittedly, a post about a stolen bicycle, local construction works or traffic infringements are in themselves hardly news, but rather accounts of banal, idiosyncratic events. However, news stories are hardly ever connected to a single particular event, but tend to encompass a series of mini-events within a larger story, on particular issues, trends or speculations (Harcup & O'Neill, 2001). In that sense, the posts in the local online groups are snippets of larger news stories, distributed over

multiple posts and comments, with the story unfolding gradually. For example, the introduction of regulations limiting the use of cars in certain streets triggered many to express their opinions about it, motivating others with similar or different opinions to react, often providing facts and figures. Discussions like these are not limited to a particular day, but stretch over multiple weeks, gaining prominence one day, while being less so on other days. This applies to the particular issue of new governmental policies, but may equally apply to issues of illegal dumping or recent burglaries.

Table 7 Types of authors (n = 600).

Post authorship	Relative frequency
Resident	56.50%
Resident association	10.50%
Legacy news media	6.83%
Local commercial entity	6.67%
Civil society organization	5.50%
Government	4.33%
Sport or cultural association	3.33%
Other hyperlocal media	1.83%
Educational organization	1.00%
Other / unclear	3.50%

Our findings mimic the notions of ambient journalism (Hermida, 2010) and affective news (Papacharissi & de Fatima Oliveira, 2012), suggesting that social media allow citizens to participate in the production of news, albeit according to social media specific logics and related news values. News audiences create a storytelling environment when using the technological affordances of social media to create, disclose, share, comment and annotate news content. These networked environments function as awareness systems, allowing audiences to "collect, communicate, share and display" content (Hermida, 2010, p. 301). This can be organized in the personal news feed on a social platform like Twitter or Facebook, or around a particular hashtag (Papacharissi & de Fatima Oliveira, 2012). Either way, all posts together form an ambient (Hermida, 2010) and affective (Papacharissi & de Fatima Oliveira, 2012) social news stream. Ambient because it requires little attention or effort from the user;

affective because the shared content involve the blending of "emotion with opinion, and drama with fact" (Papacharissi & de Fatima Oliveira, 2012, p. 277). Accordingly, it makes more sense to understand the local online groups as social news streams, built on a series of small and insignificant events by themselves, and infused by the authors' subjective experiences, opinions and emotions. As a whole, these social news streams bring about an awareness about the neighborhood, neighborhood events, neighborhood residents, and how residents think about their own neighborhood.

Functioning of the local online group in the neighborhood's communication infrastructure

In order to know how content circulating on local online groups might lead to particular neighborhood outcomes, we have to understand how these local online groups relate to the neighborhoods they are situated in. Communication Infrastructure Theory (CIT) is a framework that considers the wider communicative environment of urban neighborhoods and argues that neighborhood storytelling, understood as everyday talk and communication about the neighborhood, is instrumental in the creation of a sense of belonging (Ball-Rokeach et al., 2001), and contributes to civic (Nah & Yamamoto, 2017; Ognyanova et al., 2013) and community (Kim et al., 2015) participation. Central to CIT is that every neighborhood has a storytelling system. This system involves storytelling agents, located on three storytelling levels: macro, meso and micro. These agents include ordinary citizens talking to each other (micro), legacy news media that have regional or national readership (macro) or can be situated in-between (meso), such as civil society organizations. HLM are also considered meso level agents, connecting micro-level agents such as residents to other residents, to local events, to local community associations, as well as to macro-level agents, being local governments or legacy news media (Ball-Rokeach et al., 2001). In this section, we argue that local online groups fulfill a similar role.

Our interviews indicate that local online groups were considered as one of the main sources of neighborhood information. Through Facebook-notifications or posts appearing in the individual user's newsfeed, local online group members are being kept up to date about local events, issues and other neighborhood information.

Interestingly, our respondents also indicated to actively consult the local group when confronted with an unusual observation in the neighborhood:

> *"The other day […] we heard firetruck sirens close by […] and then we saw on the local Facebook-group that there was a fire at a local printing house, with a picture of personnel standing in the parking lot [...]" (P14).*

This indicates how the local online group connects micro level agents, even if they are just part of the audience. This wide availability of local information shared online may engender discussion online, but also enables offline conversations:

> *"The first conversation I had with my neighbor started by him asking me if I also had seen something on the local Facebook-group. So yeah, it forms the base for having conversations. Now we say hello and…. he also helped us fix our car when it broke down" (P8).*

The local online group does not just connect residents with each other, but also to other types of storytelling agents (Table 7). Articles about the neighborhood appearing in regional and national newspapers or other legacy news media are often actively shared in the local groups. The same applies to information disseminated from local governments or other local stakeholders such as local industry or emergency services. Interestingly, an administrator of a local group in a neighborhood bordering the local port indicates that he shares as much information as possible to inform the neighborhood:

> *"Recently there was a fire in the port. Windows and doors had to be closed immediately. We make sure to share this kind of information immediately on the Facebook-group. And mostly we are faster than the press" (P1).*

This illustrates how local online group users take on an active role in circulating local information. Interestingly, the local online group also operates as an intermediary for stories from micro to macro level and back. For instance, a violent incident in one of the neighborhoods, reported on in a national newspaper, appeared to be largely based on rumors and speculations posted in the local online groups, as one interviewee found out when she was making a plea for a rectification:

> *"I explicitly asked that journalist whether his source was that Facebook-group. He admitted it was and that he had read it on that group. I then asked him whether he had checked his sources. Apparently, he had indeed called to the police, but they had only confirmed that this indeed happened on that particular location, not what the cause was. That he had fabricated himself" (P9).*

This account indicates how local online groups are used by legacy news media as a means to 'crowdsource the news' (Hermida, 2010, p. 300). This, along with the arguments above, shows how local online groups can function as a central hub in the local storytelling network.

Moreover, by doing so, they can function as a broker for local social relationships, while also provide the means for residents to engage in civic and community participation. First, the circulation of local information through various storytelling levels enables conversations among residents. This among residents that already have an established relation, yet also among those for whom the online group is hitherto the sole connection. The following quote illustrates that local online groups allow for the development of a shared history, which has been found to be instrumental in community development and creating a sense of belonging (McMillan & Chavis, 1986):

> *"... if someone posts something, you can see it, you can read other people's reactions… even if you don't know them. After a while… those names become familiar and… if you're having an [offline] event and you get to know those others, then there's already a history… It's not like 'who's that?' but more like 'that's that guy who posted this and that…'" (P7).*

Second, posts can generate discussions that touch upon political issues. Graham (2010) has shown how political discussions can occur everywhere, including spaces that do not intend to incubate political talk. Similarly, our interviewees mentioned that local online groups facilitate local discussions and allows them to learn about different perspectives on particular issues in their neighborhood. However, this does not mean that discussions are necessarily perceived as productive, intellectually fair or showing the qualities of rational discussion:

> *"The question is whether these are truly 'discussions'. In my opinion they aren't... there are no intellectual considerations such as 'on the one hand ... on the other hand', nuanced, 'before, now, in the future'... No, I don't recall seeing that kind of discussions in that group" (P13).*

Still, local residents can find an outlet to express their opinions on particular subject matters in these online groups. Their opinions might or might not resonate with other members, but by expressing them, they effectively participate in local political discussions. Although its productivity might be questioned by our interviewees, there are examples of how online discussions motivate some users to translate these issues into concrete action. For instance, motivated by reports about burglaries and thefts on the local online group, a local neighborhood surveillance group via WhatsApp was developed in one neighborhood. Similarly, a local clean up group emerged in another neighborhood after many reports on littering and illegal dumping. These examples stand alongside a myriad of individual mobilization requests for informational and tangible support, showing how the online group enables residents to access local social support.

CONCLUSION

Our study shows how active audiences largely unintentionally can create something that functions to some extent in similar ways as journalistic HLM initiatives. Specifically, we found that these local Facebook-groups contain a variety of neighborhood related and community-oriented stories, which are dispersed throughout the numerous posts and comments. Through these, a social news stream emerges, that functions as a neighborhood awareness system which subsequently becomes a prominent gateway to neighborhood information and news. In the appearance of a collaboratively created neighborhood social news stream, hyperlocal Facebook-groups can function as a central hub in the communication infrastructure of a neighborhood, thus playing a crucial role in the circulation of local information, providing opportunities for citizens to be heard as well as reflexively engage in news consumption and production. As such, these groups seem to parallel HLM in terms of

circulating local information, engendering local attachment and civic engagement and providing the preconditions for local community building, yet without complying to journalistic norms or its members even considering themselves as local journalists. Accordingly, local online groups should ideally not be regarded as a replacement of proper journalistic initiatives, but rather as supplemental. Still, as audience practices are changing and social media are used, to produce, circulate and consume *news* of all kinds, social media platforms should behave accordingly and take up their responsibility as a media company with proper editorial policies that guide these developments.

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CHAPTER 3

THE DEVELOPMENT AND PSYCHOMETRIC TESTING OF THE EXPRESSIVE AND INSTRUMENTAL ONLINE NEIGHBORHOOD NETWORK USES SCALE (ONNUS)

The current study presents an instrument to measure online neighborhood network (ONN) uses from a social capital perspective. Prior studies have provided tentative evidence that neighborhood networks, developed on social media platforms such as Facebook, can be a means for residents to develop social capital. However, to investigate these claims, a quantitative measurement instrument tailored to group instead of ego-centered networks, is necessary yet currently lacking. A multi-phase method was applied to develop and test the psychometric properties of our instrument. Drawing upon existing literature, we conceptualized two types of ONN uses: expressive and instrumental uses. Both constructs were subsequently operationalized in a series of research steps. The construct validity (both exploratory and confirmatory), criterion validity, and internal consistency of the instrument were tested on a sample of Flemish ONN users (n = 668). The findings showed that the designed instrument is valid and reliable for assessing ONN uses. As such, the means are provided for investigating the role of ONNs in neighborhood relationship and social capital development, discern between different type of ONN users, and to assess the quality of ONNs with respect to the neighborhoods social life from a policy perspective.

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INTRODUCTION

The goal of the present study is to develop an instrument to measure social media use in a neighborhood context. A fairly recent phenomenon is the appropriation of social media platforms, such as Facebook, in neighborhood contexts by residents, emerging as self-organized online neighborhood networks (ONNs). These ONNs allow neighborhood residents to organize themselves around particular interests (Bouko & Calabrese, 2017; Gregory, 2005), facilitate the exchange of goods (Rufas & Hines, 2018), and the circulation of neighborhood related information and news (De Meulenaere, Courtois, & Ponnet, in press; Gulyas, O'Hara, & Eilenberg, 2019; Turner, 2015) or neighborly support (De Meulenaere et al., in press; López & Farzan, 2015; Silver & Matthews, 2016). These studies explored the variety in ONN uses, the subjective experiences of its users, and suggest that these ONNs foster a sense of community and stimulate neighborhood attachment, thereby allowing to develop local social relations and build social capital. Still, these claims are often under theorized and surmised rather than actually investigated, while little is known to whom these outcomes might pertain or what types of engagement with ONNs are necessary to bring them about.

To date, a theoretically grounded conceptualization and operationalization of observed ONN uses is lacking. However, understanding which types of behaviors within these ONNs are more likely to produce favorable neighborhood and individual level outcomes allows to gain a better understanding of how social media play a role in the social life of neighborhoods. Several scales have been proposed and used to measure social media use (Sigerson & Cheng, 2018). Yet, often these scales measure motivations for use rather than use (Gil de Zúñinga, Jung, & Valenzuela, 2012; Kim & Jung, 2017), are tailored to ego-centered personal social networks rather than group-centered networks (Ellison, Steinfield, & Lampe, 2007; Vitak, 2014), or have been developed and used among adolescents and young adults (Sigerson & Cheng, 2018), which is not the expected population of ONNs (Albanesi, Cicognani, & Zani, 2007; Hampton, 2007). In addition, earlier studies on local digital community networks have used a time-based measure (Hampton, 2007) or reduced the scale to the use of a selection of platform features (Capece & Costa, 2013). Therefore, the aim of the present study is to develop a quantitative instrument to measure individual-level ONN uses that can be used in self-report surveys, thereby focusing on neighborhood centered

social relationship development and the capitalization on these relations. To do so, we draw on the social capital framework of Lin (2004), while taking into account the neighborhood setting (Wellman & Wortley, 1990) as well as the social media context (Ellison, Gray, Lampe, & Fiore, 2014; Ellison, Vitak, Gray, & Lampe, 2014; Vitak, 2014).

THEORETICAL FRAMEWORK

A social capital perspective on social relationship maintenance

Prior studies indicated that a significant portion of the content posted to ONNs contains requests for help or assistance from neighbors, ranging from 47% (De Meulenaere et al., in press) to 83% of all posts (López & Farzan's, 2015). Besides sending requests, ONN users have been observed to share and discuss neighborhood related information and issues (De Meulenaere et al., in press; Turner, 2015), and to express opinions and judgements (Gregory, 2015). A useful starting point to conceptualize these ONN uses from a social capital perspective is Lin's (2004) theorizing on the behavioral component of social capital. According to Lin (2004, p. 41), "social capital is rooted in social networks and social relations and is conceived as resources embedded in a social structure that are accessed and/or mobilized in purposive actions." Lin emphasizes expressive actions as the actions through which the relations and the network as a whole are maintained. These expressive actions involve acts of communication such as small talk, sharing information, and reacting to the shared information, whereby the interaction partners acknowledge the relation that exists between them. As such, both interaction partners aim to safeguard the relation and the resources contained within the relation. Accessing those resources, in turn, is considered as capitalizing on earlier made investments in the form of resource mobilization (Lin, 2004). In the context of ONNs, the requests users pose to their fellow neighbors can be considered as resource mobilization, while the sharing of information, expressing opinions and online social interactions can be regarded as acts of communication that constitute the expressive actions.

Conceptualizing online neighborhood network uses

Drawing on prior studies on online social relationship maintenance (Ellison, Vitak, et al., 2014; Vitak, 2014) and online resource mobilization behavior (Ellison, Gray et al., 2014) we conceptualize the social capital behaviors discussed above as *expressive* and *instrumental uses* respectively. The first type entails those active communicative behaviors that are aimed at maintaining the existing social network. The second type pertains to the mobilization of the resources contained within the network maintained through expressive actions.

Expressive uses

Online social relationship maintenance behaviors in the context of personal online social networks have been investigated in relation to sense of belonging and relational closeness and are coined as Facebook Relational Maintenance Strategies (FRMSs) (Ellison, Vitak, et al., 2014; Vitak, 2014). Taking into account how individuals make use of social media's affordances, it is argued that these FRMSs involve a combination of active and passive online behaviors directed at specific contacts. This includes sharing content, commenting in a supportive manner, but also passively browsing the profiles of those contacts or specifically looking up personal information. To study such relationship maintenance behaviors in an ONN context, we focus on the active behaviors because those are the behaviors through which the relationship is affirmed and made visible and which effectively produce the network (De Meulenaere et al., in press). More specifically, by adopting the active online behavior dimensions from the FRMSs scale we can discern two dimensions in the expressive uses construct, being *shared interests* and *supportive communication*.

First, *shared interests* refer to the extent to which ONN users proactively share content with the ONN and interact about communal interests (Vitak, 2014). Social relations often form around particular foci, in this case the neighborhood or neighborhood related events or issues. By sharing content about the neighborhood, the common ground of the relationship is expressed and reaffirmed. Second, s*upportive communication* pertains to those behaviors that users engage in through the ONN to either implicitly or explicitly signal support by reacting to other's activities within the network in a supportive manner (Vitak, 2014). The provision of social support is a central pillar in maintaining social relations (Lawler & Yoon, 1996; Uehara, 1990),

which is not different in a neighborhood context (Kusenbach, 2006). In online personal social networks, this materializes in sending birthday wishes or liking what others have posted (Donath, 2007; Wohn, Carr, & Hayes, 2016). In addition, it is key that these acts of supportive communication have a positive tone (Vitak, 2014). In a neighborhood context, this might emerge in the form of responding to mobilization requests, or reacting in a positive way to posts made to the ONN. Earlier research has indicated that there appears to be a strong imperative among neighbors to help each other, while being helped should be reciprocated by gratitude and / or similar favors (Kusenbach, 2006).

Instrumental uses

Online mobilization requests are defined as "posts that request some type of assistance from one's network, which might take the form of an informational question, a request for advice, or help with a physical need" (Ellison, Gray et al., 2014, p. 1106). Similar to the expressive uses construct, we can discern two dimensions of instrumental ONN uses, being *informational* and *tangible support mobilization requests*, thereby drawing on earlier studies on online resource mobilization requests (Ellison, Gray et al., 2014; López & Farzan, 2015), and the nature of neighbors as support providers (Wellman & Wortley, 1990).

The first dimension of instrumental ONN uses are *tangible support mobilization requests* and refers to users' intentions to activate the ONN to obtain tangible support and physical assistance, such as neighborly domestic help, help with small problems, or borrowing tools. Although neighbors tend to be less likely to provide support in comparison to kin or friends (Wellman & Wortley, 1990; Plickert, Coté, & Wellman, 2007) they can emerge as supportive ties, aided by their physical proximity, and have been found to provide tangible support such as lending household items or performing small household jobs (Wellman & Wortley, 1990). Moreover, earlier studies have observed neighbors requesting such types of help from each other (De Meulenaere et al, in press; López & Farzan 2015). The second dimension entails *informational support mobilization requests* and refers to users' intentions to activate the ONN to obtain neighborhood related information and advice. Even though less frequently observed in offline neighborhood relations (Wellman & Wortley, 1990; Plickert, Coté, & Wellman, 2007) ONNs are arguably well suited to facilitate

informational support exchange. Informational support, or the exchange of advice and the provision of useful information, guidance or feedback to deal and cope with routine or more stressful situations (Sherbourne & Stewart, 1991; Thoits, 2011; Wellman & Wortley, 1990), can easily be provided online, without much effort for the support provider. Moreover, requests for recommendations, opinions and factual knowledge constitute a significant part of the content on ONNs (López & Farzan 2015).

Although both types of instrumental uses have been frequently observed, it remains difficult to estimate the amount of people that have engaged in such mobilization requests. As such, it is opportune to investigate whether respondents are inclined to engage in such behavior, rather than asking to what extent the respondents have engaged in social resource mobilizing behavior using a local social media network.

To summarize, two two-dimensional constructs are conceptualized, being expressive (shared interest and informational support) and instrumental uses (tangible and informational support mobilization). The first construct refers to a set of active communicative behaviors aimed at maintaining the online neighborhood network, while the second construct measures the intention of ONN users to activate the resources contained within that network. We discuss the procedure through which these constructs are operationalized and psychometrically tested below.

Before doing that, we first discuss the expected relations of the scale under development and related measures, to assess its criterion validity (DeVellis, 2003; Harrington, 2009). Both expressive and instrumental uses are measures of specific online behaviors and interactions with the social media platform. Shared interest predominantly requires individuals to post and share information, while supportive communication presupposes that the like button and commenting functions are frequently used. To engage in instrumental uses, users will need to post a message, while the like button and commenting functions are less important, as is the sharing of information. Hence, we expect that shared interests will correlate strongly with sharing and posting behavior, supportive communication with posting and reacting to messages, and both tangible and information support mobilization intention with posting, but not with sharing, commenting or liking behavior.

METHOD

The study was conducted in two phases. The first exploratory phase entailed the generation of an item pool and the development of the constructs. For this we relied on a literature review, in-depth interviews (n = 14), a series of cognitive interviews (n = 28) and an expert review (n = 3). In the second phase, we first tested the reliability and item evaluation among a small sample (n = 52), and thereafter tested the validity and internal consistency of the developed constructs on a cross-sectional sample of Flemish ONN users (n = 668). Table 8 provides an overview of the different research steps taken in each phase, the used samples and their socio-demographic characteristics.

Table 8 Overview of the conducted studies and sample characteristics.

Purpose	*N*	Age		Gender	
		Mean	*SD*	Male	Female
Phase one: item generation and scale development					
Item generation *(In-depth interviews)*	14	49.36	11.82	8	6
Content validity *(Cognitive interviews)*	28	35.15	15.1	50%	50%
Expert review	3	*N/A*	*N/A*	*N/A*	*N/A*
Phase two: psychometric testing					
Preliminary reliability test and Item evaluation	52	40.04	22.43	40.4%	57.7%
EFA, CFA, criterion validity, and reliability	668	44	15.6	27.5%	72.5%

Note. N/A = Not Applicable

Phase one: item generation and scale development

Item generation

First, an item pool was generated based on the findings from a literature review (cf. De Meulenaere et al., in press; López & Farzan 2015; Vitak, 2014) and a secondary analysis on a series of in-depth interviews with ONN users, in which they were asked about their uses, interpretations, and perceived outcomes of the ONN(s) in their neighborhood. This resulted in a preliminary item pool of 37 items.

Content validity

Second, the 37 items were presented to a convenience sample of ONN users (n = 28) to assess the content validity of the items in structured face-to-face interviews. Respondents were members of different ONNs on Facebook and were contacted via direct messages on Facebook. They were asked to respond to the items as they would normally do when completing a questionnaire. In addition, for each item, they were asked if they experienced any difficulties or ambiguities, and if so, to indicate what part of the item was difficult and how they would adjust it. In addition, respondents were asked to indicate those items that most closely described their use of ONNs and whether there were some issues not addressed by the current item pool. Several items were rephrased or omitted based on the results of these interviews, resulting in a reduced item pool of 31 items. Next, a panel of experts, familiar with either scale development and psychometric testing, social media use, or both, reviewed the items' content validity. Taking into account the wording, scaling and item allocation based on the construct definitions. Based on their opinions, some of the items were rephrased, and the item pool was further reduced to 25 items. In addition, the decision was made to use a 7-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*, to allow respondents to provide for more nuance in their responses. Sample items for expressive use are: "I share information about my neighborhood with the online group" (shared interest) and "I react in a supportive manner to bad news about the neighborhood" (supportive communication). Sample items for instrumental use are "I would consider to ask for a babysit via the online group" (tangible support mobilization) and "When confronted with an unusual traffic situation in my neighbourhood I would ask the online group for more information" (informational support mobilization).

Phase two: testing the psychometric properties

The psychometric properties of the developed constructs were tested in several ways. First a preliminary reliability and item evaluation test was conducted on a convenience sample of Flemish ONN users (n = 52). Second, we tested the factor structures and construct validity on a sample of Flemish ONN users (n = 668) by means of both exploratory (EFA) and confirmatory factor analyses (CFA). Third, we tested the

criterion validity of the two two-dimensional constructs, and finally, we assessed the reliability.

Preliminary reliability and item evaluation test

First, a preliminary reliability and item evaluation test was conducted on a small convenience sample of Flemish ONN users (n = 52) in order to further reduce the number of items per construct. Similar to the cognitive interviewers, respondents were members of different ONNs on Facebook and were directly contacted via Facebook. Consistent with De Grove, Cauberghe, and Van Looy (2016) and in line with the recommendations of DeVellis (2003) and Spector (1992), we first inspected the individual items for extreme means (< 2.8 or > 5.6), low variation (< 1.26), and their contribution to the total variance explained of the constructs in order to determine which items could be removed. In addition, we also considered the reliability statistics in terms of Cronbach's alpha (> .7), corrected item total correlations (> .4), and squared multiple correlations (> .4) to decide whether to remove an item or not (De Grove et al., 2016; Worthington & Whittaker, 2006). Still, theoretical considerations prevailed over data driven decisions, meaning items were only removed as long as the conceptual merit of the construct was not jeopardized. Based on the findings, four additional items were removed, reducing the total number of items to 21.

Factor structure and construct validity test

Both exploratory (EFA) and confirmatory factor analyses (CFA) were applied to test the intended factor structure and construct validity. A questionnaire was administered to a sample of Flemish ONN users (n = 668) by posting an invitation on 95 different ONNs, after asking permission from the administrator(s). In order to avoid over-representation of one or a few ONNs, we developed a recruitment matrix, taking into account both neighborhood characteristics in terms of size, geographical location, and level of urbanism as well as ONN characteristics in terms of size.

EFA was done using principal axis factoring (PAF) with Oblimin Rotation in SPSS 25. We opted for an oblique rotation technique because of the expected correlations among the dimensions of the expressive and instrumental use intentions constructs respectively. In addition, the number of factors was fixed at two for both constructs because of their conceptualization. Factor loadings of .40 or higher were considered acceptable (Khazaee-Pool et al., 2016). However, any data driven adaptations with

respect to further item pool reduction suggested by the EFA were considered conceptually before applying them (DeVellis, 2003). The expressive and instrumental uses constructs were analyzed separately because of their conceptualization.

CFA were performed in Mplus, testing the model fit of the factor structure obtained from the EFA. Model fit was evaluated using multiple fit indices, including relative χ^2, CFI / TLI, RMSEA, and SRMR. Values above .90 for CFI / TLI are considered as indicators of good model fit, while RMSEA values between .10 and .08 are considered an average fit and below .08 a good fit. Likewise, SRMR values below .05 indicate a good fit (Byrne, 1991; Ponnet, 2014). Relative χ^2 values are ideally below 2 (Byrne, 1991), yet with larger sample sized, χ^2 tests of model fit are almost always significant (Brown 2006; Kline 2005).

Criterion validity

Criterion validity of both the expressive and instrumental uses constructs was tested by means of the following binary questions pertaining the uses of Facebook groups: I post messages; I share content; I like posts; I react to messages.

Construct reliability

Finally, we tested the construct reliability by assessing the internal consistency of the developed measures. Consistent with other studies (DeVellis, 2003; Spector, 1992), alpha's equal to or higher than .7 were considered to be acceptable.

RESULTS

Construct validity

Exploratory factor analysis

We ran an EFA for the nine items of the expressive uses constructs while the number of factors was fixed to two, in line with our conceptualization. The Kaiser-Meyer-Olkin (KMO) index (.856) and Bartlett's test of sphericity ($\chi^2 = 3281.79$, $p < .001$) indicated excellent sampling adequacy and the factor structure explained 65.2% of the variance. However, the factor structure was not the one we theoretically expected. Two items of the shared interests construct were considered a different factor, while the remaining

items of the shared interests construct were grouped together with the supportive communication items. Upon further inspection, these two items had a higher mean and lower variance than the other items in the shared interest construct. In addition, the content of these two items referred to two similar yet normative behaviors (sharing information with respect to lost properties), whereas the other items in the intended construct refer to a more general information sharing behavior. Accordingly, we decided to remove both items and reran the EFA with seven items. The sampling adequacy was excellent (KMO = .874; $\chi^2 = 2601.77$, $p < .001$), and 72.10% of the variance was explained. The expected two factor solution emerged, all items showed high factor loadings (> .5) on either the shared interests or the supportive communication dimension while cross-loadings were minimal (see Table 9 for an overview).

Table 9 Factor loadings of exploratory factor analyses on expressive and instrumental uses (n = 668).

Expressive uses			Instrumental use intention		
	Factor 1	Factor 2		Factor 1	Factor 2
EU_SI1	**-0.768**	0.074	IU_I2	**0.534**	0.290
EU_SI2	**-0.777**	0.057	IU_I3	**0.541**	0.196
EU_SI3	**-0.872**	-0.060	IU_I4	**0.755**	-0.036
EU_SC2	-0.128	**0.511**	IU_I6	**0.875**	-0.083
EU_SC3	-0.247	**0.518**	IU_T2	-0.051	**0.895**
EU_SC4	0.073	**0.898**	IU_T3	0.008	**0.782**
EU_SC5	0.052	**0.886**	IU_T4	0.044	**0.610**
			IU_T5	0.036	**0.836**

Note. Principal axis factoring, Direct Oblimin rotation, Pattern matrix. Fixed to four factors, factor loadings >.4 are printed in bold. EU_SI = Expressive Uses - Shared Interests; EU_ SC = Expressive Uses – Supportive Communication; IU_I = Instrumental Uses – Informational support mobilization; IU_T = Instrumental Uses – Tangible support mobilization.

Similarly, we conducted an EFA on the theorized instrumental uses constructs with 12 items, with the number of factors fixed to two, in line with our conceptualization. Sampling adequacy was considered excellent (KMO = .916; $\chi^2 = 4321.06$, $p < .001$). The

two factor structure explained 61.5% of the variance but did not align with the two conceptualized factors. Inspection of the factor structure indicated that one item of the informational and two items of the tangible support mobilization constructs were grouped together in a first factor, while the remaining items constituted a second factor. Item level inspection indicated that the means of these three items in the first factor were significantly higher than those in the other factor, while their corrected item-total correlation was lower. The content of these three items aligned in that they all pertained to a hypothetical situation in which someone would have a need of high importance (i.e. having lost something important or faced a serious issue in the neighborhood). In contrast, the other items in both constructs relate to needs with lower importance or urgency. Accordingly, omitting the former three items will lead to more narrowly defined constructs.

EFA with the nine items resulted in the expected two factor solution, explaining 67.6% of the variance, while sampling adequacy was excellent (KMO = .910; $\chi^2 = 3175.94$, $p < .001$). All factor loadings were above .5 and all items uniquely loaded on one of the extracted factors, except one (.36), which showed cross loadings on the other construct and was therefore removed. We ran a final EFA on eight items with factors fixed to two. Sampling adequacy was still excellent (KMO = .892; $\chi^2 = 2692.32$, $p < .001$) while 69.29% of the variance was explained. The returned factor structure showed (Table 9) that all factors loaded highly and uniquely on one of the two conceptualized dimensions. Table 10 presents the 15 items in the final model.

Confirmatory factor analysis

We conducted a CFA with two second order constructs, *expressive* and *instrumental uses* to test whether a second order factor structure fits the data and to further refine the factor structure. Our results indicate that this factor structure fits the data (Relative $\chi^2 = 4.11$, $p < .001$, CFI = .950; TLI = .940; RMSEA = .068 [CI 90% .061 - .076]; SRMR = .060) thereby confirming the theorized factor structure. After inspection of the modification indices, we attained an improved model fit by connecting the error terms of two similarly worded items (IU_SC3 and 4) of the supportive communication construct (Relative $\chi^2 = 3.50$, $p < .001$, CFI = .960; TLI = .951; RMSEA = .061 [CI 90% .054 - .069]; SRMR = .058). The second order factor structure is presented in Figure 1.

Table 10 Final items.

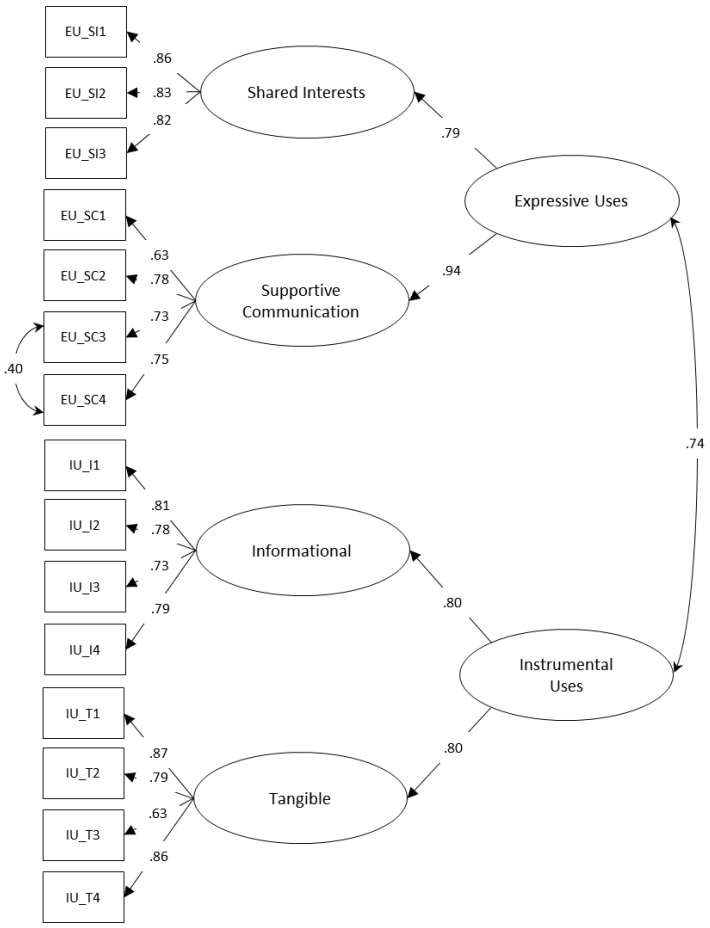
Construct	Items
Shared interests	
EU_SI1	I share information about my neighbourhood with the online group.
EU_SI2	When I see something online that I think the online group would find interesting, I'll share it with them.
EU_SI3	When I enjoyed something in the neighbourhood (an event, a nice spot, a funny happening…) I share it with the online group.
Supportive Communication	
EU_SC1	I react positively with a comment or a like when I see someone posting positive news about the neighbourhood.
EU_SC2	I react in a supportive manner to bad news about the neighbourhood.
EU_SC3	I respond to questions asked via the online group.
EU_SC4	I give others advise when they ask for it via the online group.
Tangible support mobilization intention	
IU_T1	In case I needed physical assistance (for instance with lifting heavy things), I would consider asking my neighbours via the local online group to help me.
IU_T2	If I would urgently need something, I would consider asking the help from my neighbours via the online group.
IU_T3	I would consider to ask for a babysit via the online group.
IU_T4	If I needed help with the repair of my bike, car or other object, I would consider to ask for it via the online group.
Informational support mobilization intention	
IU_I1	When looking for a good local bakery, butcher, bike shop, car dealer or similar commercial service, I would consider asking the local group for advice.
IU_I2	If I needed to know opening hours of a local shop or service, I would consider asking the local online group.
IU_I3	If I noticed an unusual noise or other unexpected event in the neighbourhood, I would ask the local online group for more information.
IU_I4	When confronted with an unusual traffic situation in my neighbourhood I would ask the online group for more information.

Criterion Validity

The criterion validity of the instrument was tested by correlating the developed constructs to four Facebook group feature use measures. As shown in Table 11, we found significant correlations between both expressive uses constructs and the four criterion variables. As expected, shared interests correlates strongly with posting (r = .50) and sharing behavior (r = .55), while supportive communication correlates strongly with liking (r = .42) and commenting behavior (r = .53). The instrumental uses constructs also correlated significantly to the four criterion variables, albeit to a lesser

extent. This is especially the case for the tangible support mobilization intention, showing low (< .2) correlations with liking and sharing behaviors.

Figure 1 Second order factor model obtained from CFA (n = 668).



Note. All coefficients are standardized. EU_SI = Expressive Uses - Shared Interests; EU_ SC = Expressive Uses – Supportive Communication; IU_I = Instrumental Uses – Informational support mobilization; IU_T = Instrumental Uses – Tangible support mobilization.

Table 11 Spearman correlations with Facebook group feature use.

	Liking		Commenting		Posting		Sharing	
	r	*n*	*r*	*n*	*r*	*n*	*r*	*n*
Supportive Communication	.422**	726	.530**	726	.436**	726	.348**	726
Shared Interests	.300**	758	.469**	758	.504**	758	.545**	758
Informational support mobilization intention	.232**	692	.366**	692	.319**	692	.221**	692
Tangible support mobilization intention	.164**	668	.251**	668	.269**	668	.138**	668

Note: The criterion variables were measured on a binary scale (0 = no; 1 = yes); ** $p < .001$.

Reliability

Lastly, we checked the reliability of the ONNUS, both the expressive uses and instrumental use intention constructs, as well as for the four sub-dimensions separately, using Cronbach's Alpha. The internal reliability of the ONNUS was good (α = .91), as was the reliability of both the expressive uses (α = .88) and instrumental use intention (α = .89) constructs. Equally satisfying results were obtained for each of the four sub-dimensions, with alpha's ranging from .83 (supportive communication) to .86 (shared interests) for the expressive uses constructs and from .83 (informational) to .86 (tangible) for the instrumental use intention constructs.

DISCUSSION

The aim of this study was to develop an instrument to measure online neighborhood network uses that is embedded in a social capital framework, while taking the neighborhood setting and social media context into account. Specifically, we focused on how ONNs are used to maintain local social relations and capitalize on those relations by asking for help from other neighborhood residents, thus taking the previously observed ONN practices into account (De Meulenaere et al., in press; López & Farzan, 2015). This resulted in the conceptualization and operationalization of two

two-dimensional constructs. First, expressive uses consist of the sub-dimensions supportive communication and shared interest, and their items reflect the active maintenance of existing relations, or in this case, the network as a whole. Second, the instrumental uses consist of informational and tangible support mobilization intention, and the items in the instrumental use intention constructs reflect the mobilization of the potential resources within the ONN.

After operationalizing the conceptualized constructs through a series of research steps in which an initial item pool was gradually refined and reduced, we tested their validity and reliability, obtaining satisfying psychometric results for the developed scale and its sub-dimensions. The items loaded highly and uniquely on the intended factors in the exploratory factor analyses, with 72.10% of the variance explained by the expressive uses construct and 69.29% by the instrumental uses construct. In addition, the confirmatory factor analysis showed good fit indices, indicating that the theorized model fits the data. Criterion validity was good. Although correlation coefficients of the different sub-dimensions with the criterion variables tended to be lower than a threshold that is often maintained, the found correlations can still be regarded as substantial as lower correlations are not uncommon when the criterion variables are measured as binary variables (DeVellis, 2003). Accordingly, we can interpret these results as evidence for criterion validity of the developed constructs. Lastly, internal consistency was deemed good, with all constructs showing Cronbach's alpha coefficients well above the .7 threshold.

This is not the first study that provides an instrument to measure digital media use in neighborhood contexts (Capece & Costa, 2013; Kavanaugh et al., 2005; Kim et al., 2015), nor is it the first to provide an instrument to measure social media use in a social capital framework (Appel et al., 2014; Ellison et al., 2007; Vitak, 2014; Williams, 2006). However, the ONNUS is the first instrument to measure social media use with respect to social relationship development and capitalization in a neighborhood context, thereby extending beyond ego-centered personal social networks. As such, this study also surpasses the simple yet highly reductive approaches of using dichotomous (Matei & Ball-Rokeach, 2003) or time based measures (Hampton, 2007) to examine individuals' engagement with this type of online environments. Moreover, it provides the means to directly tap the uses of ONNs into a social capital framework. Because of

its focus on uses, it can also be investigated in relation to the motivation based measures that exist pertaining social media use (Gil de Zúñinga et al., 2012; Kim & Jung, 2017), allowing to examine which motivations align with which uses.

The developed measures also provide the means to distinguish users of self-organized ONNs in terms of how much they contribute to the network and engage in activities that maintain the ONN, and whether resource mobilization and network maintenance is something that is aligned within the same persons or not. Stated differently, do the users that capitalize on the network also perform activities that maintain the network and vice versa. In addition, the instrumental uses construct also provides a proxy for assessing the perceived value and access to the resources contained within the network. Having the intention to ask for help presupposes that the ONN is perceived as potential source for help. The latter also touches upon another possible use of the developed instrument. That is, the ONNUS might be used in an aggregated form, serving as an indicator of the perceived quality of the ONNs. ONNs scoring high on both expressive and instrumental uses might indicate that these are well-functioning neighborhood networks, providing the means for local social interaction and perceived as a means to receive neighborly support when needed. Lastly and more broadly, it might be interesting to test the instrument in different types of online networks. Since Facebook decided to funnel its attention more towards its groups section instead of personal social networks (Haeck, 2019), the ONNUS can help in understanding how individual users engage with these networks, who invests in the online maintenance of those relations, and to what extent online relations are capitalized upon.

Limitations and future research

First, the developed instrument measures online behaviors by means of self-reporting. To further validate the instrument, associations need to be sought between the developed instrument and objective observations of these behaviors, using server level data and a classification of both expressive and instrumental behaviors (cf. Ellison, Gray et al., 2014; Joyce & Kraut, 2006). In addition, finding differences between the subjective and objective measures could be a fertile ground for further exploring the online behaviors and individuals' interpretation of their online behaviors. Second, our

psychometric results indicate that the instrument is valid and reliable, yet further validation is required on different samples in different populations. In addition, our sample was composed through a multi-stage clustering, yet participation was eventually based on self-selection, with only the ONNs they are a member of being selected by us. A consequence of this was that the majority of the respondents in the sample had received higher education (about 60%) Accordingly, further testing using random a-select sampling procedures and in different populations and in different contexts, preferably internationally, is required. An improved model fit in the CFA was attained by connecting the error terms of similarly worded items. An alternative would have been to omit one of these two items to obtain a more parsimonious model. In future studies this can be explored further. Lastly, the developed measures only capture a part of the diverse ways in which ONNs are used (Bouko & Calabrese, 2017; De Meulenaere et al., in press; Gregory, 2005; Gulyas et al., 2019; Turner, 2015; Silver & Matthews, 2016). Hence, there are most likely other uses that are not highlighted by the developed measure that might affect local social relationship development.

Conclusion

The purpose of this study was to develop an instrument to measure online neighborhood network uses from a social capital framework. Prior studies had indicated that the neighborhood networks, developed on social media platforms such as Facebook, could be a means for neighborhood residents to develop access to local social resources, hence develop social capital by engaging with online neighborhood networks. Through a series of research steps, including the conceptualization of the expressive and instrumental uses constructs, generating and trimming down an item pool, and psychometrically testing the developed constructs, we developed an online neighborhood network uses scales, the ONNUS, consisting of two two-dimensional constructs. The results of the validity and reliability tests, show that the proposed operationalizations are sound. Accordingly, an instrument is developed to approach the use of online neighborhood networks from a social capital perspective, providing the means to investigate the role of online neighborhood networks in local social relationship maintenance and capitalization on said relations.

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CHAPTER 4

NEIGHBORHOOD HOTSPOT AND COMMUNITY AWARENESS: THE DOUBLE ROLE OF SOCIAL NETWORK SITES IN LOCAL COMMUNITIES

Social Network Sites are increasingly used in various aspects of everyday life, including the context of neighborhood communication. Using Communication Infrastructure Theory, extended with insights from social psychology and social media literature, we introduce the concept digital neighborhood storytelling and investigate its role of with respect to psychological sense of community while considering the mediating roles of community awareness and online sense of community. A survey was administered to users of online neighborhood networks in Belgium (n = 590) and analyzed using structural equation modelling. The results indicate that digital neighborhood storytelling contributes to a stronger psychological sense of community albeit only indirectly via increased community awareness and higher levels of online sense of community. These findings contribute to a better understanding of local communication processes by teasing apart the role of online neighborhood networks pertaining neighborhood outcomes.

De Meulenaere, J., Baccarne, B., Courtois, C., & Ponnet, K. (in revision). Neighborhood hotspots and community awareness media: The double role of Social Network Sites in local communities. *Communications: The European Journal of Communication Research*.

INTRODUCTION

Social Network Sites (SNS) allow individuals to develop and maintain relationships that extend beyond geographical locales. People can affiliate themselves with various interest groups (Bennett & Segerberg, 2012; Bruns, Highfield, & Burgess, 2013) while maintaining contact with geographically dispersed family and friends (Boase, 2008; Madianou & Miller, 2011). With that, the dominance of place-based relations decreases (Rainie & Wellman, 2012), which is sometimes understood as evidence for declines in community life (Putnam, 2000) or neighborly behavior (McPherson, Smith-Lovin, & Brashears, 2006). Still, the globalization of personal networks does not mean that place-based relations become irrelevant. There is a growing consensus that digital media can support both global as well as local relationship development and maintenance (Kim et al., 2015). People using digital media often do so around place-based foci of activity, such as resident associations (Johnson & Halegoua, 2015), or local civic and community engagement (Gregory, 2015; Nah & Yamamoto, 2017; Tosoni & Tarantino, 2013). Moreover, SNS use can contribute to various aspects of neighborhood life. Early studies on place-based internet communication found that integrating digital media in local activities helps people in extending their local social network (Hampton & Wellman, 2003) and increasing their number of local weak ties (Hampton, 2007). In addition, neighborhood belonging (Ognyanova et al., 2013), community engagement (Kim et al., 2015), community participation (Capece & Costa, 2013; Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005), and civic participation (Nah & Yamamoto, 2017) have all been positively associated to SNS use in general. These studies revealed that these beneficial local community outcomes are contingent upon the local connectedness of digital media use. However, there is limited understanding about how and why SNS use is positively associated to these outcomes. In this paper, we address this issue, thereby arguing for a different conceptualization of local SNS and local SNS use. That is, studies investigating local SNS use tend to reduce SNS to mere tools for local information transmission. Conversely, considering SNS as media, with its own dynamics and logics, will help to understand why and how local SNS use is positively associated to local community outcomes. Hence, the purpose of this study is to investigate how local SNS use contributes to local community building by considering local SNS as both a means for local social interaction and a community

awareness system (Hampton, 2016; Hermida, 2010; Lu & Hampton, 2017; Papacharissi, 2015) while using Communication Infrastructure Theory (Ball-Rokeach, Kim, & Matei, 2001) as overarching theoretical framework. Specifically, we investigate the extent to which local SNS use, conceptualized as digital neighborhood storytelling, is positively associated to psychological sense of community, while considering the mediating roles of community awareness and online sense of community. Before elaborating on the conducted research and discussing the results we describe the theoretical framework in more detail, thereby conceptualizing and integrating local SNS use as digital neighborhood storytelling in the CIT framework.

THEORETICAL FRAMEWORK

Communication infrastructure theory: community through storytelling

The central argument of Communication Infrastructure Theory (CIT) is that engaging in neighborhood storytelling and connecting to the local storytelling network is essential in developing neighborhood belonging and thus becoming a member of a local community (Ball-Rokeach et al., 2001). CIT explains neighborhood belonging by considering the (i) practice of neighborhood storytelling, (ii) the local storytelling network, (iii) an individuals' connection to that storytelling network, and (iv) the Communication Action Context (CAC) (Ball-Rokeach et al., 2001). Before elaborating on these concepts we first discuss the intended outcome of the storytelling process: community.

The notion of community typically entails (i) an identification with a specific geographic area, (ii) common ties through identification by residents with one another and with that area, and (iii) significant social interaction among the residents (Driskell & Lyon, 2002, p. 375). The connection of an individual to a community is often expressed as a Psychological Sense of Community (PSC), which entails a "sense of belonging, fellowship, 'we-ness', identity, etc., experienced in the context of a […] geographically based collective" (Buckner, 1988, p. 773). Experiencing a stronger PSC has positive downstream consequences pertaining community engagement and

participatory behavior, collective efficacy, mutual trust, and solidarity (Prezza, et al., 2001; Talo et al., 2014).

Neighborhood storytelling - essentially *talking* about the neighborhood - is understood as "an act of constructing an identity through narrative discourse" (Ball-Rokeach et al., 2001, p. 394). In a neighborhood context, this means constructing an identity as a neighborhood resident, which happens through virtually every form of talk pertaining to the neighborhood (Ball-Rokeach et al., 2001; Kim & Ball-Rokeach, 2006a). Such neighborhood stories are told on an everyday basis by multiple actors, ranging from individual residents, over local media outlets, resident associations and or local civil society organizations, to regional or national news media and government officials (Ball-Rokeach et al., 2001). Residents discuss news, share information, and gossip among each other about the neighborhood. Local organizations provide the opportunity to connect to new people or work towards a common goal. Regional or national news outlets may break stories about particular localities that feed back into the neighborhood as discussion material. Together, these actors form a storytelling network, respectively situated on a micro, meso or macro level, through which local stories circulate and recirculate. Residents who show a strong connection to multiple storytelling agents at various levels, who engage more in neighborhood storytelling behaviors, and are more exposed to neighborhood stories, are found to show higher rates of neighborhood belonging and community engagement (Ball-Rokeach et al., 2001; Chen, Dong, Ball-Rokeach, Park, & Huang, 2012; Kim & Ball-Rokeach, 2006a; Kim et al., 2015).

All of this is set within a particular neighborhood CAC, which sets the preconditions for residents' interactions and varies along a continuum from encouraging to discouraging residents to interact with each other. Encouraging CACs have hotspots and comfort zones (Wilkin, Stringer, O'Quin, Montgomery, & Hunt, 2011; Zhang, Motta, & Georgiou, 2018). These hotspots can be understood as places were residents can meet and interact, share and find information. Typical examples are local cafés, community centers and public spaces.

Digital neighborhood storytelling

Digital media have been positively associated to various beneficial local community outcomes (Capece & Costa, 2013; Hampton & Wellman, 2003; Kavanaugh et al., 2005). Studies focusing on the role of digital media pertaining from a CIT perspective show that in order to contribute to positive neighborhood outcomes, SNS should be used to connect to local stories and engage in local storytelling practices. For instance, local civic participation is higher among individuals who engage in community-oriented internet participative behavior, including searching for online information pertaining the neighborhood, as well as communicating about the neighborhood with fellow residents (Ognyanova et al., 2013). Similarly, people who heavily rely on SNS in their everyday lives show higher levels of community engagement if they are strongly connected to the local storytelling network (Kim et al., 2015). Lastly, people who are strongly connected to a local storytelling network show higher levels of local civic participation when they use SNS to express opinions on local issues and share local news stories (Nah & Yamamoto, 2017). Hence, SNS use can contribute to beneficial local community-oriented outcomes if its use and users are locally connected.

These studies typically conceptualize SNS as a local tool for either meso level information transmission (Kim et al., 2015; Wilkin, Ball-Rokeach, Matsaganis, & Cheong, 2007) or micro level communication (Chen et al., 2012; Kim et al., 2015). However, this envisioned role for SNS in local storytelling networks reduces SNS communication to a mere transmission process, thereby disregarding the mediation process and SNS affordances such as persistence and scalability (boyd, 2011). Persistence refers to the default setting of recording and archiving in many information systems. Every conversation through online media and every interaction with it is being recorded and archived. Scalability refers to the potential audiences that the persistent content can reach. Often, this involves an audience of which the scale and composition is unknown to the author of the content (Marwick, & boyd, 2014; Hampton, 2016).

Capitalizing on these affordances, a local social news stream is collaboratively created when residents use SNS to engage in digital neighborhood storytelling (DNS) (Burke, Kraut, & Marlow, 2011; Hermida, 2010; Papacharissi, 2015). To clarify, on a micro level, residents use SNS to discuss neighborhood issues, share neighborhood stories and

access stories about the neighborhood within an online neighborhood network (ONN). As such, they essentially participate in micro level neighborhood storytelling, with the ONN being a means to interact. However, because of the aforementioned affordances, these individual behaviors and interpersonal interactions also have an emergent property, being the collaborative creation of a local social news stream. This means that the ONN also becomes a meso level storytelling agent, broadcasting neighborhood stories to a local audience, allowing residents to connect to the stories circulating in the local storytelling network. Hence, we conceptualize DNS as the behavior in online neighborhood networks that involves both micro-level social interaction as well as the collaborative creation of a meso level storytelling agent. Accordingly, in line with CIT, engaging in DNS via the ONN is expected to contribute to PSC.

> H1: Digital neighborhood storytelling is positively associated to a psychological sense of community.

To understand the association between DNS and PSC, we propose a theoretical extension to CIT with two indirect paths. First, a meso level path allowing residents to connect to local stories leading to a raised community awareness and second, a micro level path of interpersonal social interactions allowing for both online and offline community creation. Below we discuss both.

Sense of community through awareness

Social media can be considered as pervasive awareness systems (Hampton, 2016; Hermida, 2010; Lu & Hampton, 2017; Papacharissi, 2015). Hampton (2016, p. 103) defines pervasive awareness as "an affordance of the ambient nature of digital communication technologies that provides knowledge of the interests, location, opinions, and activities embedded in the everyday life events of one's social ties." As such, becoming aware is about collecting, processing, and making sense of information. Specifically, awareness develops from short a-synchronous posts, status updates or comments that are in itself often banal (Burke & Kraut, 2014). However, in the context of a social news stream that emerges out of such SNS interactions, these interactions provides awareness about the other's interests, opinions, whereabouts, life course transitions, and so on (Papacharissi, 2015). For instance, SNS users have been

found to be more aware of smaller and major stressful life events in the life of others (Hampton, Rainie, Lu, Shin, & Purcell, 2014) as well as having a higher awareness of the potential social resources contained within their personal social network (Lu & Hampton, 2017). Moreover, ONN use has previously been associated to higher levels of awareness of being part of a territorial community (Capece & Costa, 2013), while ONNs are experienced as a "window to the neighborhood, bringing awareness to citizen activity, concerns and problems" (Konsti-Laakso, 2017, p. 138). Conversely, not having access to local digital media induces feelings of being uninformed, unaware and even excluded from local affairs (Georgiou, Motta, & Livingstone, 2016). In that sense ONNs allow its users, when they engage in digital storytelling, to connect to the local storytelling network and develop knowledge of neighborhood events and concerns (Ball-Rokeach et al., 2001), hence develop what we call a community awareness (CA) (Han, Shih, & Carroll, 2014; Han, Shih, Rosson, & Carrol, 2014). Specifically, we conceptualize CA as the mental image a neighborhood resident has of the neighborhood, the neighbors, and the dominant issues, stories and corresponding opinions circulating in the neighborhood.

CA can contribute to PSC as it entails awareness about the discourses that exist within and about the neighborhood. As a local social news stream develops through practices of digital neighborhood storytelling, a shared discourse develops pertaining who the neighborhood residents are, what the main issues are and how is thought about these issues, and how these issues should be addressed. Within CIT the construction of such a shared discourse is considered to be instrumental in the development of a local community (Kim & Ball-Rokeach, 2006b). Accordingly, having awareness about these means that one is more likely to develop PSC. Therefore we hypothesize that:

> H2: The association between digital neighborhood storytelling and psychological sense of community is partially mediated by community awareness.

Online and offline sense of community

Engaging in DNS through ONN happens through interacting with and reading the posts and comments of other members in the ONN. Consequentially, not just the construction and awareness of a shared discourse is expected to explain the association

between DNS and PSC, but also the downstream consequences of the online social interactions that underpin DNS behaviors.

Social interaction in itself is a cornerstone in community building. Interactions within established social relations increases tie strength (Burke & Kraut, 2014), while positive interaction with strangers has been found to reduce existing biases such as implicit prejudices or negative nonverbal behaviors (Amichai-Hamburger & McKenna, 2006; Miles & Crisp, 2013). Moreover, repeated positive interactions may lead to the development of interpersonal bonds as people share information about themselves and familiarize with each other (Ren, Kraut & Kiesler, 2007; Ren et al., 2012) as well as into an online sense of community (Mamonov, Koufaris, & Benbunan-Fich, 2016). The positive emotions experienced within interpersonal bonds may transpire to the larger networks these bonds are nested in because of the process of affect generalization (Lawler & Yoon, 1996; Ren et al., 2012). That is, as a liking is developed with a subset of ties within a particular group or network, that liking can generalize to the other members of that group. Applied to ONN, interactions between residents online may result in the development of interpersonal bonds, even among strangers. As these interactions are positive, individual members can attribute these positive emotions to the group these bonds are nested in, in this case the ONN.

The same process of affect generalization may induce a spillover effect to the larger neighborhood community the ONN is nested in. Intuitively, when local SNS users develop a liking to other members of the local SNS, they basically develop a liking to particular local residents. In the case of a place-based online community, this implies that individual users' online sense of community transpires to their offline sense of community. Thus, the social interaction aspect underpinning digital neighborhood storytelling contributes to a local sense of community via the online sense of community. Hence,

> H3: The association between digital neighborhood storytelling and psychological sense of community is partially mediated by online sense of community.

METHOD

Population, sample and sampling strategy

An online survey was administered to adult users of ONNs on SNS platforms in Belgium. An ONN on SNS was identified as a group with a specific reference in the name to a neighborhood, city or village and with references to that geographical entity in the group description. Specifically, a message with a link to the survey was posted in 95 ONNs on Facebook and Hoplr. Hoplr is a Belgian SNS designed for neighborhoods. In terms of functionalities and uses it has many similarities to Facebook-groups, although only people living in a particular neighborhood or village can join the particular online group (www.hoplr.com). After data cleaning our final sample consisted of 590 respondents, with an average of four users per group (SD = 5.27), and with a minimum of one and a maximum of 34 users. Demographically, our sample is predominantly female (73.1%, n = 431) and has a mean age of 44.32 (SD = 15.49), ranging from 18 to 82. In terms of education, 59.1% (n = 349) has either a Bachelor's or Master's degree. In addition, our sample shows rather high residential stability, with a mean time of residence of 21.87 years (SD = 15.27), ranging from *less than one* to 76 years. It should be noted that this distribution was skewed to the right. Finally, our respondents' local social network sizes range from zero to a maximum of 500 neighbors, with a mean of 22.93 (SD = 45.97). Again, this distribution was right-skewed.

Measures

Digital neighborhood storytelling.

Digital Neighborhood Storytelling (DNS) is a multi-dimensional construct that is conceptually inspired by the social relational maintenance construct of Vitak (2014), yet adapted to an ONN context. Two sub-dimensions can be discerned, being engaging in *supportive communication* and *shared interests*. Supportive communication consists of four items and pertains to those behaviors that users engage in through the ONN to either implicitly or explicitly signal support by reacting to other's activities within the network in a supportive manner. A sample item is: "I react in a supportive manner to bad news about the neighborhood". Shared interests is measured by three

items and refers to the extent to which users proactively share content with the local online group and interact about communal interests. A sample item is: "I share information about my neighborhood with the online group". All items were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. All items and their descriptive statistics can be found in Table 12.

Principal component analysis (PCA) revealed acceptable to high factor loadings for the two theorized dimensions (cf. Table 12). Factor loadings for *shared interest* range from .82 to .86 (α = .86), and for *supportive communication* from .67 to .84 (α = .83). Together the two sub dimensions explain R^2 = 72.11% of the variance in the construct digital neighborhood storytelling.

Psychological sense of local community.

The outcome variable, psychological sense of community (PSC), was measured using six items, adapted from Buckner's (1988) 'psychological sense of community' scale. A sample item is "Living in this neighborhood gives me a sense of community". All items can be found in Table 12. The items were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. High factor loadings (PCA) were obtained, ranging from .71 to .87 (cf. Table 12), with a total variance explained of R = 64.93%. As expected the construct proved to be reliable, with α = .89.

Community awareness.

The community awareness (CA) construct measures the respondent's awareness about their neighborhood and the people living therein. This construct was measured using six self-developed items. The items were derived from a qualitative study (in press), cognitive interviews and extensive pre-testing. A sample item is "I am mostly aware of important events in my neighborhood". The items are rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. High factor loadings were obtained (PCA), ranging from .70 to .84 (R^2 = 61.63) (cf. Table 12). The construct showed good reliability (α = .87). The descriptive statistics of the items are presented in Table 12.

Online sense of community.

Online sense of community (OSC) refers to the extent to which users feel a shared emotional connection with the members of the ONN. This construct is an attitudinal

construct, derived and adapted from Hsu & Liao (2014) and measured using four items which were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. A sample items is "What I want is similar to what the other members of this group want". PCA revealed high factor loadings (ranging from .77 to .84, R^2 = 65.18) (cf. Table 12). In addition, the construct can be considered reliable (α = .82). See Table 12 for the descriptive statistics of the items.

Table 12 Overview of the used measures.

Measure	Items	Mean	*SD*	PCA
Digital Neighborhood Storytelling - Shared Interests				
DNS_SI1	I share information about my neighborhood with the online group	3.05	1.83	0.76
DNS_SI2	When I see something online that I think the online group would find interesting, I'll share it with them	4.09	1.83	0.79
DNS_SI3	When I enjoyed something in the neighborhood (an event, a nice spot, a funny happening…) I share it with the online group	3.76	1.83	0.83
Digital Neighborhood Storytelling - Supportive Communication				
DNS_SC1	When I see someone posting positive news about the neighborhood, I react positively with a comment or a like	5.21	1.41	0.68
DNS_SC2	I react in a supportive manner to bad news about the neighborhood	4.29	1.64	0.66
DNS_SC3	I respond to questions asked via the online group	5.15	1.36	0.84
DNS_SC4	I give others advise when they ask for it via the online group	4.77	1.53	0.83
Psychological Sense of Community				
PSC1	I feel like I belong to this neighborhood	4.87	1.37	0.85
PSC2	The friendships and associations I have with other people in my neighborhood mean a lot to me	4.48	1.42	0.84
PSC3	If the people in my neighborhood were planning something, I'd think of it as something "we" were doing rather than "they" were doing	4.04	1.54	0.77
PSC4	I think I agree with most people about what is important in life	4.09	1.27	0.71
PSC5	I would be willing to work together with others on something to improve my neighborhood	4.95	1.32	0.79
PSC6	Living in this neighborhood gives me a sense of community	4.61	1.40	0.87
Community Awareness				
CA1	I am mostly aware of important events in my neighborhood	4.91	1.30	0.80
CA2	I am mostly aware of local issues	4.58	1.31	0.83
CA3	I feel familiar with the history of my neighborhood	4.53	1.59	0.70

CA4	I have a pretty good idea about who lives in my neighborhood	4.34	1.50	0.74
CA5	I have a good idea about the common opinions about local issues in my neighborhood	4.37	1.33	0.80
CA6	I know what matters to the neighborhood residents	4.22	1.33	0.84
Online Sense of Community				
OSC1	I believe the time spent on the online group is worthwhile	4.42	1.22	0.84
OSC2	I value the online group	4.80	1.32	0.84
OSC3	What I want is similar to what the other members of this group want	3.83	1.21	0.79
OSC4	I mostly agree with the opinions that circulate within this group	3.91	1.25	0.77

Note. PCA = Principal Component Analysis.

Covariates.

Age, sex, and local social network size were used as covariates in this study. Local social network size was measured by asking the respondents about the number of people living in their neighborhood they had contact on a weekly base (Hardyns, Vyncke, Pauwels, & Willems, 2015).

Analytic strategy

We applied structural equation modelling using Mplus 8 (Muthén & Muthén, 2017) to investigate the association between expressive local SNS use, community awareness, online sense of community and psychological sense of local community. Before fitting the measurement and structural models we tested for any second level variance in the outcome variable PSC. The design effect amounted to 1.16, which is well below the cutoff point of 2 (Heck & Thomas, 2015, p. 37), meaning ONN membership will only account for marginal portion of the variance. Hence, multilevel analyses were not warranted. The analyses were performed in two phases. In a first phase, a measurement model was constructed in which we examined how reliably the observed variables reflected the latent constructs. In a second phase, a structural model was estimated in four steps in line with the formulated hypotheses. That is, we first estimated the direct association between DNS and PSC. Next, we tested the indirect

associations between both constructs via CA and OSC using the INDIRECT command in Mplus 8. Age, sex, and local social network size were included in the structural models as covariates.

To assess the model fit of both measurement and structural models several fit indices were used. Specifically, we used χ^2, Comparative Fit Index (CFI) (Bentler, 1990), the Tucker–Lewis index (TLI) (Tucker & Lewis, 1973), the Root Mean Square Error of Approximation (RMSEA) (Steiger, 1990) and the Standardized Root Mean Square Residual (SRMR) (Kline, 2005). A non-significant χ^2 is normally an indication of good model fit. However, χ^2 is almost always significant (Brown 2006; Kline 2005). CFI and TLI range from 0 to 1.00, with an adequate fit at a cut-off point of .90 (Byrne, 2001; Hu & Bentler, 1999). RMSEA values below .05 indicate a good model fit, while values below .08 indicate an adequate fit (Brown, 2006; Ponnet, 2014). For the SRMR fit statistic, a value lower than .08 indicates adequate model fit (Hu & Bentler, 1999).

RESULTS

Bivariate correlations and measurement model

Table 13 presents the bivariate correlations between the latent constructs of the measurement model. As expected, we found significant positive correlations between the two DNS dimensions and PSC. Similarly, all DNS dimensions are significantly and positively associated to both CA and OSC. In addition, both CA and OSC are significantly and positively associated to PSC.

The measurement model showed a good fit to the data: $\chi^2(220) = 661.859$, $p < .001$; RMSEA = .057 [CI .052 – .062]; CFI = .944; TLI = .936 and SRMR = .045. All factor loadings were statistically significant with loadings above .60 (cf. Table 12).

Structural model

We first tested whether DNS was positively associated to PSC. Our initial model proved to have an adequate fit: χ^2 (95) = 315.776, $p < .001$, RMSEA = .063 [CI .055 - .070], CFI = .950, TLI = .939 and SRMR = .041. As expected, we found that DNS was positively

associated to PSC (β = .56, p < .001), explaining 28.0% of the variance in the outcome variable together with the covariates.

Next, we tested whether CA mediated the association between DNS and PSC. The estimated model proved to fit the data well: χ^2 (195) = 627.414 p < .001, RMSEA = .061 [CI .056 – .067], CFI = .934, TLI = .923 and SRMR = .047. We found that CA partially mediated the association between DNS and PSC, hence confirming our second hypothesis. Specifically, DNS was positively associated to CA (β = .50, p < .001) which in turn was significantly associated with PSC (β = .55, p < .001). The indirect pathway was significant as well (indirect β = .28, p < .001), while the direct association between DNS and PSC remained significant (β = .28, p < .001). This model, adjusted for the covariates, explained 50.0% of the variance in PSC.

Table 13 Zero order correlations among latent constructs.

		1	2	3	4
1	DNS - Shared Interests				
2	DNS - Supportive Communication	0.74***			
3	Community Awareness	0.36***	0.46***		
4	Online sense of community	0.60***	0.65***	0.44***	
5	Psychological sense of community	0.41***	0.48***	0.66***	0.54***

Note. DNS: Digital Neighborhood Storytelling. *** p < .001.

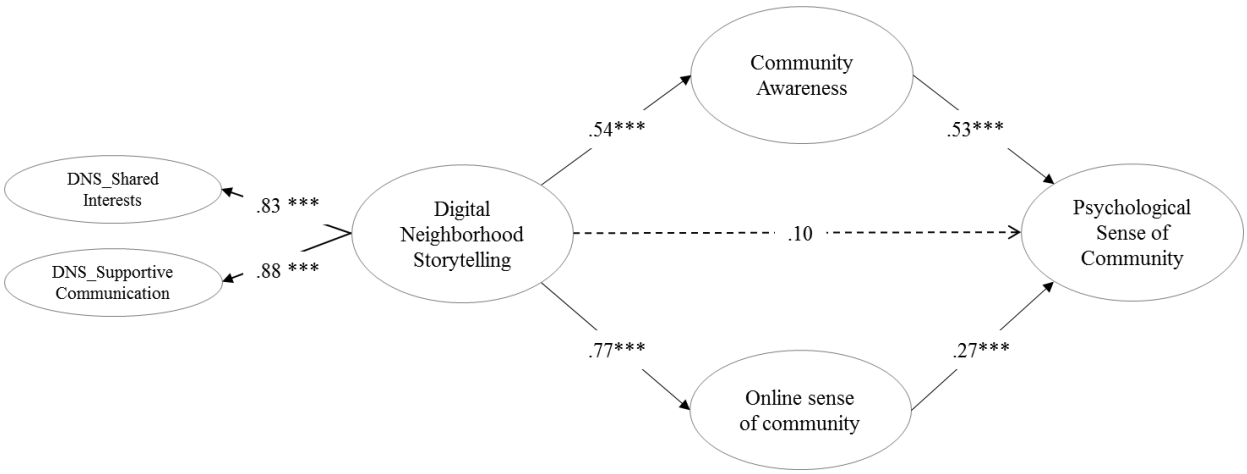
Then, we tested the mediating role of OSC in the association between DNS and PSC. The tested model was found to have an adequate fit to the data: χ^2 (156) = 503.266, p < .001, RMSEA = .061 [CI .055 – .067], CFI = .939, TLI = .927 and SRMR = .042. Consistent with our third hypothesis, we found that online sense of community partially mediated the association between DNS and PSC. Specifically, DNS was positively associated to OSC (β = .75, p <.001), while OSC was positively associated to PSC (β = .35, p < .01). The indirect pathway proved to be significant as well (indirect β = .26, p <

.001), while the direct path was still significant (β = .30, p <.001). Adjusted for the covariates, this model explained 33.9% of the variance in the outcome variable.

Lastly, we tested a full structural model in which both indirect paths were included. The fit statistics showed an acceptable model fit of our structural model: χ^2 (280) = 838.931, p < .001, RMSEA = .058 [CI .054 – .063], CFI = .929, TLI = .918 and SRMR = .047. The results are presented in Figure 1.

In the final model the association between DNS and PSC was fully mediated by CA and OSC (β = .09, p = .243). DNS was significantly associated to CA (β = .54, p < .001) and OSC (β = .77, p < .001). CA and OSC in turn were positively associated to PSC (β = .53, p < .001 and β = .27, p < .001 respectively). We further found that DNS was indirectly associated to PSC via CA (indirect β = .28, p < .001) and OSC (indirect β = .20, p = .001). The full model, adjusted for the covariates, explained 52.6% of the variance in PSC.

Figure 2 Full structural model.



Note. Dashed lines are used for non-significant associations. *** p < .001.

With respect to the covariates we found that sex was not associated to any of the latent constructs, while age was positively associated to DNS (β = .49, p < .001) but negatively to CA (β = -.12, p < .05), suggesting that for older users, ONNs are less important for their awareness about their neighborhood compared to younger users, although they do engage more in DNS. In addition, residents' local social network size was positively

associated to DNS (β = .10, p < .05) and CA (β = .20, p < .001), indicating that having a larger local social network is indicative for the extent to which residents engage in DNS behaviors as well as for residents' awareness of their neighborhood.

DISCUSSION

As SNS are increasingly appropriated in various aspects of everyday life, including in neighborhoods and local communities, this paper investigates its role with respect to a psychological sense of community in neighborhoods. By building on Communication Infrastructure Theory and introducing the concepts digital neighborhood storytelling and community awareness, we studied the association between digital neighborhood storytelling and psychological sense of community, and whether this association was partially mediated by community awareness and online sense of community. We found that digital neighborhood storytelling was positively associated to psychological sense of community (hypothesis 1). However, this association was fully, rather than partially, mediated by the combined effects of community awareness (hypothesis 2) and online sense of community (hypothesis 3), with the former being the most important mediator.

In line with CIT's predictions, using local SNS to engage in DNS allows residents to develop a PSC. However, this direct association could not be maintained when we introduced OSC and CA as mediating variables. In early CIT studies, interpersonal storytelling was considered to happen in person while connecting to local media was considered a predictor to interpersonal storytelling (Ball-Rokeach et al., 2001). In addition, CIT studies that investigate SNS use in relation to neighborhood outcomes such as community engagement or civic participation (Kim et al., 2015; Nay & Yamamoto, 2017; Ognyanova et al., 2013) do not consider any mediating variables. In that sense, our study does not necessarily contradict previous studies, but nuances the role of local SNS use with respect to a local PSC.

With respect to those indirect paths, we were able to confirm hypotheses two and three. We found that engaging in DNS brings about an OSC with the ONN as well as higher rates of CA, which both independently contribute to PSC with respect to the

neighborhood. Accordingly, our study provides evidence that SNS in local communities cannot be reduced to either a means for micro level interpersonal communication or a means to disperse information by a meso level agent (Kim et al., 2015). Rather, because of its very nature, it provides the means for social interaction on a micro level, while, at the same time, acts as a meso level storytelling agent.

Concerning the micro level social interactions that underpin the collaborative creation of the local social news stream, SNS fulfill an enabling role in the local community. ONNs facilitate the maintenance of existing bonds and the creation of new interpersonal bonds as they allow for residents to meet, communicate and exchange information and goods. In that capacity, they can be considered part of the local CAC as a neighborhood hotspot (Wilkin et al., 2011; Zhang et al., 2018). Similar to other hotspots, such as bars or parks, ONNs are places in the neighborhood that are instrumental in the development of storytelling networks. That is, if there are no places to meet and interact, storytelling networks cannot develop let alone become integrated.

With respect to the meso level capacity, our data shows that contributing and connecting to ONNs by means of DNS allows residents to develop knowledge and awareness about their neighborhood, which subsequently translates into higher rates of PSC. Specifically, we found that those who actively engage in DNS tend to be more aware about their local community in terms of the main events, issues, but also the appreciation of these events and the various opinions that residents have about those issues. These findings are in line with other studies using a similar conceptualization of SNS. Hampton (2016), for instance, explicitly states that SNS enable the development of persistent and pervasive awareness, which intensifies the connections among existing ties, both strong and weak. The crux in his argument is that social ties are kept active through a mechanism of short status updates, comments and posts, which in turn are received and processed ambiently, requiring little cognitive effort from the receivers yet allows them to develop an awareness of the others' interests, location, opinions and activities (Hampton, 2016, p. 103). Engaging in digital neighborhood storytelling involves sharing information to the online neighborhood network and reacting to the information shared by others. By doing this, members develop an awareness of the other members and the neighborhood because of the

snippets of information shared in posts and comments. In turn, this helps in developing a sense of community within that neighborhood as members develop a familiarity with the discourse about the neighborhood and its neighbors(Kim & Ball-Rokeach, 2006b) that develops from the short, irregular and a-synchronous posts and comments. As such, our results are in line with the CIT framework.

Taking these findings into account, our study confirms that SNS can support the development of place-based relations (Hampton & Wellman, 2003; Kim et al., 2015; Wellman, 2001) when used for neighborhood communication and connecting to neighborhood stories. In that sense, our study indicates that SNS can have their value in community building efforts. However, in order for ONNs to bring about positive neighborhood consequences, install collective efficacy and stimulate community participation, it is required that they allow for an integrated local storytelling network (Kim & Ball-Rokeach, 2006b). This means that the micro level interactions between residents should be complemented by stories shared by meso level agents such as local media, while stories that develop out of interpersonal conversations can be explored further by such meso level agents.

Study limitations and future research

Despite its strengths, this study also has some limitations. First, this study comes with the downsides of a cross-sectional survey study design. The data used in this study were obtained through a self-selection procedure, which might be a cause of unpredicted biases. It is, for example, likely that more highly engaged users of local SNS will have participated in this study as compared to less engaged users. This is partly suggested by measures of centrality and distribution of the items which tend to be slightly skewed to the left (cf. Table 12). In addition, the survey was administered to a population of local SNS users in Belgium of which the characteristics are unknown. However, apart from being predominantly female, our sample has a wide age distribution, as well as a wide distribution in terms of education level. Lastly, a quasi-experimental or longitudinal design would be required to ascertain whether the directions of the associations in this study will hold. Because of the cross-sectional nature of the data, these directions could only be inferred theoretically.

Second, the instruments to measure digital neighborhood storytelling and community awareness were specifically developed for this study. Their development is theoretically and empirically grounded, they proved to be reliable, and they both showed adequate fit to our data in this study. Still, repeated use in future studies would be desirable to ascertain their reliability and validity in other contexts.

Third, although CIT is essentially an ecological theoretical framework considering various factors to explain neighborhood related outcomes, this study only took digital neighborhood storytelling into account as an exogenous variable. This was partly catered for by taking into account respondents' local social network size as covariate. Still, future research should consider other neighborhood related variables as proposed by other CIT studies. Particularly, a pivotal aspect of CIT is the resident's connectedness to the local storytelling network (Kim & Ball-Rokeach, 2006a), which is typically measured using the Integrated Connectedness to the Storytelling Network (ICSN) construct. Future studies could investigate the association between the ICSN construct and digital neighborhood storytelling and whether residents engaging in digital neighborhood storytelling are stronger connected to the local storytelling network.

Conclusion

Participation in digital neighborhood storytelling contributes to the development of a local sense of community. By means of online neighborhood networks, residents can connect to a variety of local stories, but also engage in the production and circulation of those stories themselves. As such, residents have the opportunity to engage in social interaction with other residents. At the same time, residents also get the opportunity to develop a higher awareness about their neighborhood. These mechanisms facilitate the acquisition of knowledge about current events and issues in the neighborhood, other neighborhood residents, and the opinions of other residents regarding those events and issues. Both social interaction with other residents and the increased community awareness are associated to higher rates of a psychological sense of community. In conclusion, we find support for the thesis that local SNS provide a dual role with respect to place-based communities: (i) they can be considered neighborhood

hotspots facilitating social interaction and (ii) they can also be considered as local media that increases residents' awareness about their neighborhood.

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CHAPTER 5

DISENTANGLING LOCAL SOCIAL SUPPORT MOBILIZATION VIA ONLINE NEIGHBORHOOD NETWORKS

This paper proposes and tests a theoretical model to investigate the mechanism underpinning local social support exchange via online neighborhood networks (ONNs). ONNs are self-organized online networks, formed among neighbors, on a social media platform and have been observed to be a means for local social support exchange. Drawing on a community psychology, social support, and social media literature and using a survey conducted in the Dutch-speaking part of Belgium among 587 local SNS users ($n_{females}$ = 429; 73.08%) between 18 and 82 years old (M_{age} = 44.30; SD_{age} = 15.44), we found that engaging in online neighboring behaviors underpins the development of both an online and neighborhood sense of community. In turn, these provide access to perceived local social support and the intention to mobilize local social support via an online neighborhood network. The intention to mobilize local social support online was predominantly explained via the path along online sense of community, suggesting that online neighborhood networks facilitate local bridging behavior, connecting otherwise distinct local networks and ties. At the same time, online neighboring behaviors provide the normative context that support the exchange process.

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INTRODUCTION

Recently, it has been observed that neighborhood residents are using popular social media platforms to develop online neighborhood networks (ONNs). Prior studies found that these ONNs are used to share neighborhood related information (Bingham-Hall & Law, 2015; Bouko & Calabrese, 2017; De Meulenaere, Courtois, & Ponnet, in press; Turner, 2015), notify each other about community events and neighborhood issues (Afzalan & Evans-Cowley, 2015; López et al., 2014), and ask each other for help and exchange various forms of neighborly support (De Meulenaere et al., in press; López & Farzan, 2015; Rufas & Hine, 2018; Silver & Matthews, 2016). Interestingly, content analyses of these self-organized ONNs have indicated that these exchange of neighborly help appear to be the dominant use of ONNs, with 47% (De Meulenaere et al., in press) to up to 83% (López & Farzan, 2015) of the content posted on ONNs being such requests for help. Accordingly, these ONNs appear to facilitate neighbors to contact and find each other, thereby extending the local social network from which they can ask and receive support from. More generally, social support networks have been found to be a crucial factor in individuals' general well-being (Cohen & Wills, 1985; Lin et al., 1986; McKenzie, Whitley, & Weich, 2002; Thoits, 2011; Uchino, Bowen, Carlisle, & Birmingham, 2012), while well-functioning neighborhood social networks are instrumental in developing neighborhood capacity to face both internal and external challenges (Craig, 2007; Forrest & Kearns, 2001; Haynes, 2016; Sampson, McAdam, MacIndoe, & Weffer-Elizondo, 2005; Sampson et al., 1997). Accordingly, ONNs could be a means that contribute to these beneficial individual and neighborhood level outcomes.

However, how ONNs facilitate these observed local social support exchanges, is little understood. Perceived and received social support in a social media context has mainly been investigated in the context of ego-centered personal social networks (Burke & Kraut, 2016; Hampton, Lee, & Her, 2011; Hampton, 2016; Lu & Hampton, 2017; Rains & Wright, 2016; Zhang, 2017), while studies on self-organized ONNs have predominantly explored how these online environments are used and interpreted by its users (Bingham-Hall & Law, 2015; Bouko & Calabrese, 2017; De Meulenaere et al., in press; Gregory, 2015; Rufas & Hine, 2018; Turner, 2015) rather than investigating its inner workings. Nevertheless, understanding this process could be invaluable for local

governments and community workers. Many policy programs are aimed at developing local social connections, creating communities and building neighborhood capacity (Craig, 2007; Forrest & Kearns, 2001) or aiming to capitalize on that neighborhood capacity to bring about individual or neighborhood level change (Chinman et al., 2005; Villanueva, Broad, Gonzalez, Ball-Rokeach, & Murphy, 2016). Understanding how the exchange of social support is governed via ONNs means understanding how these ONNs can be harnessed to bring about desired outcomes. Therefore, the purpose of the current study is to come to a better understanding of the mechanisms underpinning these local online social support exchanges. Drawing on community psychology, social support and social media literature, we propose and test a theoretical model to tease apart how access is developed to local social support via ONNs. In the following section, we first elaborate on communities of place and sense of community in order to discuss how ONN use can be associated to both concepts. Subsequently, we discuss how sense of community contributes to both perceived social support access and mobilization intention.

THEORETICAL FRAMEWORK

Communities of place and sense of community

Early conceptualizations of communities emphasized the connection to a common location (e.g. Robert Park, 1936, in Driskell & Lyon, 2002), yet with the rise of the network society (Castells, 2010) and the introduction of the networked individualism (Wellman, 2001; Rainie & Wellman, 2012), this defining quality is hard to maintain. As societal processes and technological advances relaxed geographical constraints, individuals became able to develop meaningful relations beyond their immediate neighborhood in which they gained access to social resources or derived a sense of belonging (Hampton & Wellman, 2018). As Mahmoudi Farahani (2016) succinctly described, communities of interest used to develop in small confined locations, thus coinciding with communities of place. Now, communities can exist in any environment in which meaningful relations can develop and individual members can develop an affective relation with that network. In that regard, a distinction is often made between communities of place and communities of interest (Driskell & Lyon,

2002; Mahmoudi Farahani, 2016; McMillan & Chavis, 1986; Nasar & Julian, 1995). Communities of place are connected to a particular territory, whereas communities of interest develop around a common interest, such as religion, lifestyle, sexuality, status among other things. Departing from this observation, Wellman (2001, p. 228) defines communities as "networks of interpersonal ties that provide sociability, support, information, a sense of belonging and social identity".

A key aspect in communities is individual members' sense of community, typically defined as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chavis, 1986, p. 9). McMillan and Chavis (1986) discern four dimensions in the sense of community construct. It contains (i) having a sense of membership, belonging and identification to the group, (ii) a mutual influence from individual members to the community as a whole and vice versa, (iii) an expectation that individual needs will be met by means of community membership, and lastly, (iv) a shared emotional connection with the other members and the community as a whole. Considering communities from a network perspective (cf. Wellman, 2001), a sense of community can thus be regarded as the affective relation an individual develops with respect to a social network he or she interacts with and perceives to have something in common with, which in turn brings about a range of expectations regarding the social network.

Local online sense of community

People have been adopting digital communication and networking means since the early days of the internet to form communities of interest online. Similar to offline communities, individuals can develop a sense of community with respect to the online networks they are part of, allowing them to seek and find support, companionship, belonging, and self-esteem among other things (Attard & Coulson, 2012; Cipoletta, Votardo, & Faccio; 2017; Gibbs, Kim, & Ki, 2019; Rains & Wright, 2016). Accordingly, online sense of community has been found to show many similarities to offline sense of community (Gibbs et al., 2019). Although online communities are often a means to escape from the constraints of everyday life or find access to networks of like-minded others (Rains & Wright, 2016), many online networks are, however, an extension of

offline networks (Hampton et al., 2011; Hampton, 2016). On SNS, we are connected to kin, friends, colleagues, acquaintances, and neighbors among other types of ties. In those contexts, online and offline boundaries are blurred. Hence, the sense of community that is felt with respect to the network most likely transgresses both online and offline manifestations.

The online neighborhood networks considered in this study are perhaps a special case in that regard. ONNs are for some residents a means to connect to neighbors they already know. However, local digital media have also been found to function as a means to connect to new neighborhood ties, even without face to face contact (De Meulenaere et al., in press; Hampton & Wellman, 2003; Hampton, 2007). Hence, the blurring of online and offline networks is partial at most. Still, ONNs are nested within neighborhoods. ONN members are neighborhood residents, meaning that any (affective) relation developed with respect to ONN members is in fact a relation to neighborhood residents. Even when the ONN is but a subgroup of the neighborhood, the affective relation developed to the online community can generalize to the larger group the subgroup is contained in (Lawler & Yoon, 1996; Ren et al., 2012). Thus, developing a sense of community within the online neighborhood network (online sense of community) is basically also developing a sense of community with respect to the neighborhood (neighborhood sense of community). As shown in Figure 3, we hypothesize (H) the following:

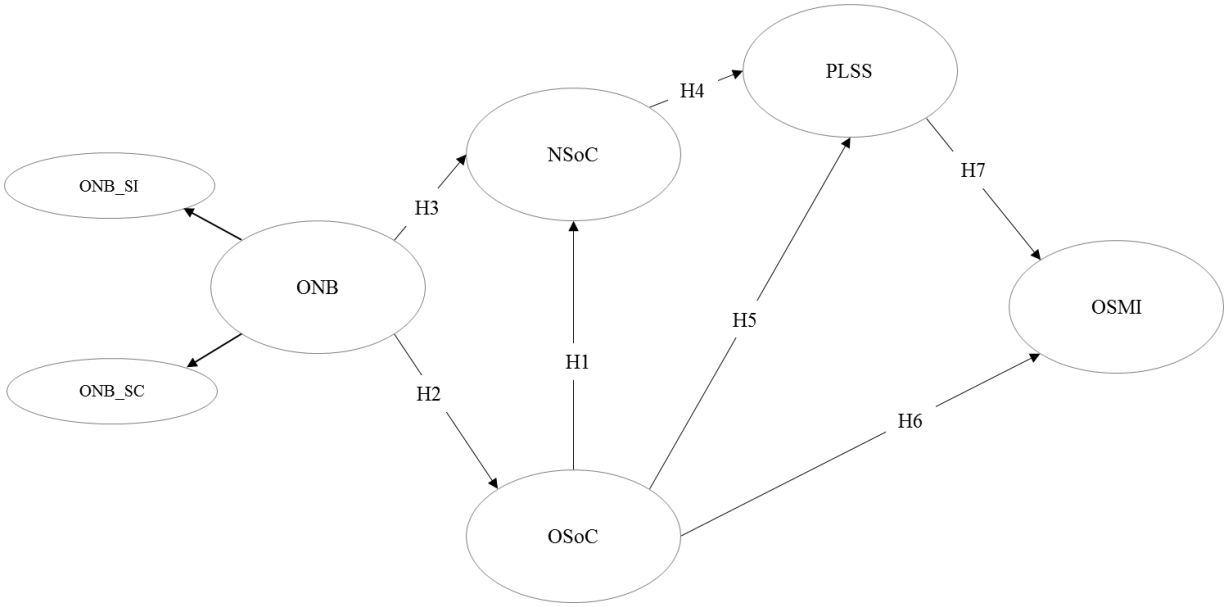
> H1: Online sense of community is positively associated to neighborhood sense of community.

Online neighboring behavior

Sense of community is contingent on the interactions that underpin it. Local interactions are, together with the networks they form and the information and resources that are exchanged within them, considered as neighboring behaviors. Unger and Wandersman (1985) distinguish between a structural component, being the social networks and the connections between neighborhood residents, and the content of the network, being social support or the resources that are available by means of the connections between the members. Drawing on Unger and Wandersman (1985), Long and Perkins (2007, p. 565) defined neighboring behavior as "informal mutual assistance

and information sharing among neighbors". Neighboring can thus be regarded as the behaviors individuals voluntarily perform in their role as neighbor with respect to other neighborhood residents. These behaviors essentially involve the exchange of information and support, yet performing these behaviors also creates the connections and the social networks that allow said exchanges. By that logic, interactions precede relations, relations precede networks, and networks precede individual's affective relation towards those networks. Accordingly, neighboring behaviors can be regarded as antecedents towards sense of community.

Figure 3 Graphical representation of the hypothesized model.



Note. ONB: Online Neighboring Behaviors (_Shared Interests; _Supportive Communication); NSoC: Neighborhood Sense of Community; OSoC: Online Sense of Community; PLSS: Perceived Local Social Support; OSMI: Online Support Mobilization Intention.

This intuitive association between neighboring behaviors and sense of community is reflected in McMillan and Chavis' (1986) sense of community model, which emphasizes the requirement for integration in the group and acting upon that integration, as well as in Buckner's (1988) multidimensional neighborhood cohesion scale, which comprises both sense of community and neighboring behaviors. Moreover, several studies showed that neighboring behavior was predictive of sense

of community (Farrell, Aubry, & Coulomb, 2004; Long & Perkins, 2007; Prezza, Amici, Roberti, & Tedeschi, 2001) while Kusenbach (2006, p. 282) posited it as "a vital ingredient in the development of local community." In an ethnographic study, Kusenbach (2006) observed that neighboring can manifest itself as the friendly recognition during chance encounters in the neighborhood, and helping each other with small favors and gestures. Interestingly, there appears to be a strong obligation to help others who are perceived as neighbors, while at the same time, there is the expectation of showing gratitude and reciprocity when having received neighborly assistance. Hence, neighboring boils down to a set of normative behaviors, directed at individuals that are considered neighbors, which underpin the development of a community.

A conceptual overlap is noticeable between neighboring behaviors and active social relational maintenance behaviors. Moreover, the way the latter are conceptualized in the context of SNS use sheds light on how neighboring can be regarded in the context of online neighborhood networks. SNS allow individuals to maintain a broad range of social relations. It is argued that SNS afford these by means of short status updates, comments and posts (Hampton, 2016), but also through "likes" or similar paralinguistic digital affordances (Wohn, Carr, & Hayes, 2016). This set of "social grooming" behaviors (Donath, 2007) were coined as Facebook Relational Maintenance Strategies (FRMSs) (Vitak, 2014) and defined as a set of behavioral intentions to maintain a connection to the network (Ellison, Vitak et al., 2014). These include active behaviors such as engaging in supportive communication, and shared interests. Supportive communication refers to a set of online behaviors that signal support to a specific network tie, while shared interests pertains to sharing content and interacting about communal interests with said tie. Although aimed at a network of neighbors rather than specific ties in one's personal social network, we argue that these online relational maintenance behaviors can be regarded as a form of online neighboring. Moreover, these FRMSs have been found to be predictive of a sense of belonging (Ellison, Vitak et al., 2014)[1], and the perception of relational closeness between two

[1] In the study of Ellison et al. (2004) FRMSs were significantly associated to online bridging social capital, not sense of belonging. However, as the study of Appel et al. (2014) indicates, the measure of online bridging social capital used in Ellison et al. (2004) is more likely to measure sense of belonging than any form of social capital.

individuals (Vitak, 2014). Likewise, providing support within online networks has been found to be predictive of a sense of virtual community (Blanchard, 2007). Given the aforementioned associations between such online behaviors and a sense of belonging, as well as with a perceived emotional connection and sense of community, we argue that engaging in online neighboring behaviors is predictive of an online sense of community within the ONN as these are the relations these online behaviors are primarily aimed at:

> H2: Online neighboring behaviors are positively associated to online sense of community.

Associations between online behaviors and offline outcomes are typically hard to establish and prone to criticism. For instance, an association between sense of community and active use of the Blacksburg Electronic Village, a community computer network established in the early 1990's, was absent except for those with pre-existing high levels of sense of community. For critics, this was sufficient to argue that neighborhood connections, objective and subjective, are a prerequisite rather than an outcome of local digital media use (Kavanaugh & Patterson, 2001). A similar debate is touched upon by Mahrt (2008), who concluded that media use may not have a direct effect per se, yet its contents provide conversational material for interpersonal interactions, which in turn may contribute to community integration. Hampton and Wellman (2003) observed in their Netville study that the content shared through a local e-mail list functioned as "a common conversational reference" (p. 295). The shared content allowed neighborhood residents to gain awareness on where people live, their family life, opinions, interests and so on, allowing them to identify others with common interests and characteristics. Moreover, online neighboring involves interpersonal interactions in which neighborhood related information is discussed and talked about, which has previously been indicated as instrumental in developing neighborhood belonging (Ball-Rokeach, Kim, & Matei, 2001; Kim & Ball-Rokeach, 2006). Hence, we also expect that these online neighboring behaviors will be positively associated to a neighborhood sense of community.

> H3: Online neighboring behaviors are positively associated to neighborhood sense of community.

Perceived social support access

The integration and fulfillment of the needs dimension in McMillan and Chavis' (1986) sense of community definition (cf. supra) pertains to the expectation that community members' needs will be met by the resources received through their membership to the community. By means of neighboring behaviors, individual community members develop a sense of community and thus also access to a social network and the resources contained therein (Lin, 2004). Evidence for this expectation was found in the longitudinal study of Chavis and Wandersman (1990), which showed that having a sense of community increased the perceived access to neighborly support. In addition, Kusenbach (2006) observed that the perception of someone else as a neighbor is related to the expectation that provided services will be reciprocated in the future. Accordingly, we expect that a higher neighborhood sense of community will be positively associated to perceived local social support access.

> H4: Neighborhood sense of community is positively associated to perceived local social support access.

Likewise, an online sense of community within the ONN will increase the perceived access to local social support. First, as argued earlier, the online neighborhood network is essentially a network of neighbors, meaning that the same reasoning with respect to resource access can also be applied here. However, the association between SNS use and social support access is also sometimes explained by means of an increased resource awareness. The status updates and comments users make on SNS also contain information on the resources that are contained within one's personal social network (Hampton, 2016; Lu & Hampton, 2017). Online neighborhood networks are actively used to exchange neighborly support (López & Farzan, 2015; Silver & Matthews, 2016), such as asking for recommendations, factual knowledge as well as favors. Consequentially, active ONN use implies exposure to these exchanges, and thus higher awareness of local social resource availability. The combination of this resource awareness and the expectations originating in community membership, lead us to hypothesize that:

> H5: Online sense of community is positively associated to perceived local social support access.

Online support mobilization

Asking for help via SNS is in previous studies conceptualized as resource mobilization requests and refers to "posts that request some type of assistance from one's network, which might take the form of an informational question, a request for advice, or help with a physical need" (Ellison, Gray, Lampe, & Fiore, 2014, p. 1106). The concept of resource mobilization and resource mobilization requests is rooted in the network and resource based social capital approach (Lin, 2004). That is, social capital is regarded as the resources contained in a social network. By means of investing in the social relations that make up the network, access to resources is developed, which in turn can be mobilized in purposive actions (i.e. resource requests) as a way of capitalizing on earlier made investments (Lin, 2004). In an ONN context, such social resources are contained within the local online network that is being developed through online neighboring behaviors. Neighborhood residents' relation to the network is expressed in terms of their online sense of community, with a higher online sense of community implies a stronger connection. This also implies that more investments have been made to the network. Thus, it can be expected that mobilizing neighborly help via ONNs will be positively associated to online sense of community.

> H6: Online sense of community is positively associated to the intention to mobilize social support via the ONN

Lastly, following the interpretation of resource mobilization requests as social capital conversion, we expect that the intention to mobilize local social support via the ONN will be mediated by the perceived local social support access. That is, support mobilization requests will only be sent if the sender expects that the request can and will be responded to by the network the request is sent to (Vitak & Ellison, 2013). Accordingly, we expect that:

> H7: Perceived local social support access is positively associated to the intention to mobilize social support via the ONN

METHOD

Population, sample and sampling strategy

An online survey was administered to adult users of ONNs in Belgium. An ONN on SNS is defined as a group with a specific reference in the name to a neighborhood, city or village and with references to that geographical entity in the group description. Specifically, a message with a link to the survey was posted in 95 ONNs on Facebook (i.e., Facebook groups) and Hoplr across Flanders, Belgium, thereby taking into account both neighborhood characteristics in terms of size, geographical location, and level of urbanism as well as ONN characteristics in terms of size. On Facebook ONNs mainly develop via Facebook-groups. Hoplr is a non-commercial SNS specifically designed for neighborhoods. In terms of functionalities and uses it has many similarities to Facebook-groups, although only residents of a particular neighborhood can join and access the particular ONN of that neighborhood (www.hoplr.com).

Our sample consisted of 587 respondents, with an average of four respondents per group (*SD* = 5.3), and with a minimum of one and a maximum of 34 respondents. Our sample is predominantly female (73.1%, *n* = 429) and has a mean age of 44.28 (*SD* = 15.44), ranging from 18 to 82 years old. It appears that our sample was normally distributed in terms of socio-economic status. With regard to education (none; high school; bachelor; master), 59.45% (n = 349) has either a bachelor's or master's degree, while our respondents assessed themselves to be slightly above average (*M* = 5.48, *SD* = 1.23), with a minimum of one and a maximum of eight, in terms of self-rated economic welfare (Ravallion & Lokshin, 2002, p. 1456). With regard to time of residence (measured in years living in the neighborhood), our sample showed rather high residential stability, with a mean time of residence of 21.97 years (*SD* = 15.31), ranging from less than one to 76 years. Finally, our respondents' local social network sizes range from zero to a maximum of 500 neighbors, with a mean of 22.98 (*SD* = 46.08).

Measures

Online neighboring behaviors

Online neighboring behaviors are considered as a multidimensional construct and measured using two subscales which were informed by Vitak's (2014) Facebook Relationship Maintenance Strategy scale. The subscales were adapted to an ONN context. The first dimension, *shared interests* was measured by three items and refers to the extent to which users proactively share content with the online neighborhood network and interact about communal interests. A sample item is: "I share information about my neighborhood with the online group". The second dimension, *supportive communication* consists of four items and pertains to those behaviors that users engage in through the ONN to either implicitly or explicitly signal support by reacting to other's activities within the network in a supportive manner. A sample item is: "I react in a supportive manner to bad news about the neighborhood". All items were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. Principal component analysis (PCA) revealed acceptable to high factor loadings for the two theorized dimensions (cf. Table 14). Factor loadings for *shared interest* ranged from .76 to .83 (α = .86), and for *supportive communication* from .66 to .83 (α = .83). Together the two sub dimensions explained R^2 = 72.11% of the variance in the construct online neighboring behaviors.

Table 14 Descriptive statistics used measures

Measure	Items	Mean	*SD*	PCA
Online Neighboring Behaviors - Shared Interests				
ONB_SI1	I share information about my neighborhood with the online group	4.05	1.83	.76
ONB_SI2	When I see something online that I think the online group would find interesting, I'll share it with them	4.12	1.83	.79
ONB_SI3	When I enjoyed something in the neighborhood (an event, a nice spot, a funny happening…) I share it with the online group	3.78	1.83	.83
Online Neighboring Behaviors – Supportive Communication				
ONB_SC1	When I see someone posting positive news about the neighborhood, I react positively with a comment or a like	5.21	1.41	.68
ONB_SC2	I react in a supportive manner to bad news about the neighborhood	4.30	1.64	.66

ONB_SC3	I respond to questions asked via the online group	5.15	1.35	.83
ONB_SC4	I give others advise when they ask for it via the online group	4.77	1.53	.83
Online Support Mobilization Intention				
OSMI1	In case I needed physical assistance (for instance with lifting heavy things), I would consider asking my neighbors via the local online group to help me	2.68	1.59	.89
OSMI2	If I would urgently need something, I would consider asking the help from my neighbors via the online group	3.34	1.82	.85
OSMI3	I would consider to ask for a babysit via the online group	3.16	1.88	.75
OSMI4	If I needed help with the repair of my bike, car or other object, I would consider to ask for it via the online group	2.83	1.67	.88
Neighborhood Sense of Community				
NSC1	I feel like I belong to this neighborhood	4.87	1.36	.85
NSC2	The friendships and associations I have with other people in my neighborhood mean a lot to me	4.48	1.42	.84
NSC3	If the people in my neighborhood were planning something, I'd think of it as something "we" were doing rather than "they" were doing	4.04	1.53	.77
NSC4	I think I agree with most people about what is important in life	4.10	1.27	.71
NSC5	I would be willing to work together with others on something to improve my neighborhood	4.95	1.32	.79
NSC6	Living in this neighborhood gives me a sense of community	4.60	1.39	.87
Online Sense of Community				
OSC1	I believe the time spent on the online group is worthwhile	4.42	1.21	.84
OSC2	I value the online group	4.98	1.31	.84
OSC3	What I want is similar to what the other members of this group want	3.84	1.20	.79
OSC4	I mostly agree with the opinions that circulate within this group	3.91	1.24	.77
Perceived Local Tangible Social Support				
	"When needed there is someone in my neighborhood who can help me…"			
PTSS1	… when I am confined to my bed	3.87	1.64	.84
PTSS2	… when I need to go to the doctor	3.84	1.64	.81
PTSS3	… with preparing a meal when I am indisposed	3.60	1.58	.82
PTSS4	… with everyday chores	4.06	1.56	.79

Note. PCA = Principal Component Analysis. SD = Standaard Deviation. ONB = Online Neighboring Behavior. SI = Shared Interests. SC = Supportive Communication. OSMI = Online Support Mobilization Intention. NSC = Neighborhood Sense of Community. OSC = Online Sense of Community. PTSS = Perceived Tangible Social Support.

Online support mobilization intentions

Online support mobilization was measured in terms of tangible online mobilization intention using a self-developed scale, drawing on the concept of instrumental action (Lin, 2004), literature on online resource mobilization (Ellison, Gray et al., 2014), while taking into account that neighbors predominantly share tangible support in the form of small tools and minor services (Wellman & Wortley, 1990). OSMI was measured using four items, rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. A sample item is: "If I needed physical assistance with something (for instance lifting a heavy object) I would consider asking my neighbors for help via the online group." High factor loadings (PCA) were obtained, ranging from .75 to .89, with a total variance explained of $R^2 = 70.53\%$. The construct had good reliability, with $\alpha = .85$. All items and their descriptive statistics can be found in Table 14.

Perceived social support

Perceived local social support access was measured using an adapted version of the MOS social support scale (Sherbourne & Stewart, 1991). The phrasing of the original items was altered in order to prime the respondents to think of people in their neighborhood as potential support providers. Four items were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. PCA revealed factor loadings between .79 and .84 ($R^2 = 77.28$) while its reliability was high with alpha being .90.

Neighborhood sense of community

We measured neighborhood sense of local community using six items, adapted from the psychological sense of community component of Buckner's (1988) neighborhood cohesion index. A sample item is "Living in this neighborhood gives me a sense of community". The full scale can be found in the Table 14. The items were rated on a seven-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. High factor loadings (PCA) were obtained, ranging from .71 to .87, with a total explained variance of $R^2 = 65.05\%$. As expected, the construct proved to be reliable, with $\alpha = .89$.

Online sense of community

Online sense of community (OSC) refers to the extent to which users feel a shared emotional connection with the members of the ONN. This construct is an attitudinal construct, derived from Hsu & Liao (2014), measured by four items, rated on a seven-

point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree*. A sample items is "What I want is similar to what the other members of this group want". PCA revealed high factor loadings (ranging from .77 to .84, R^2 = 65.18) (cf. Table 14). The construct can also be considered reliable (α = .82).

Analytic strategy

We applied structural equation modelling using Mplus 8 (Muthén & Muthén, 2017) to investigate the hypothesized associations. Before fitting the measurement and structural models, we tested for any second-level variance in the outcome variable. The design effect amounted to 1.46 for online support mobilization intention, which is well below the cut-off point of two (Heck & Thomas, 2015, p. 37). This implies ONN membership will only account for a marginal portion of the variance in both constructs. Therefore, multilevel analyses were not warranted.

The analyses were performed in two steps. First, a measurement model was constructed to assess how reliably the observed variables reflect the hypothesized latent variables. Next, we estimated a structural model with online neighboring behaviors as exogenous variable, neighborhood and online sense of community, and perceived local support access as mediating variables, and online support mobilization intention as outcome variable. Age, gender, time of residence, local social network size, level of education and self-rated economic welfare were included in the model as control variables.

RESULTS

Measurement model and zero-order correlations

The bivariate correlations between the latent constructs of the measurement model are presented in Table 15. All study variables were significantly associated with each other. The measurement model showed a good fit to the data: $\chi^2(260) = 630.877$ ($p < .001$), RMSEA = .049 [.044 – .053], CFI = .957, TLI = .951, SRMR = .037. All factor loadings were statistically significant with standardized loadings above .66 (cf. Table 14).

Table 15 Zero order correlations between the latent constructs

		1	2	3	4	5
1	ONB Shared Interests					
2	ONB Supportive Communication	0.73***				
3	Online Support Mobilization Intention	0.48***	0.45***			
4	Perceived Local Social Support	0.22***	0.20***	0.24***		
5	Neighborhood Sense of Community	0.40***	0.48***	0.33***	0.48***	
6	Online Sense of Community	0.60***	0.65***	0.41***	0.24***	0.54***

Note. *** p < .001

Structural model

Figure 4 presents the results of the structural model, adjusted for the effects of the control variables. The results of the fit statistics indicated a good model fit: $\chi^2(387) = 967.013$ ($p < .001$), RMSEA = .051 [.047 - .055], CFI = .935, TLI = .924, SRMR = .046. First, we will discuss the direct associations, followed by a discussion of the indirect associations.

In line with our expectations (H1), online sense of community was positively associated to neighborhood sense of community ($\beta = .33$, $p < .001$). In addition, we found that online neighboring positively affected both online ($\beta = .79$, $p < .001$, $R^2 = .58$) and neighborhood sense of community ($\beta = .34$, $p < .001$), thereby confirming hypothesis two and three. Together with online sense of community, online neighboring explained 36% of the variance in neighborhood sense of community. Hence, individual neighborhood residents who actively share information to the ONN and react in a supportive manner to others tend to have a stronger sense of community, both with respect the online group as well as to the neighborhood. Moreover, feeling connected to the ONN transpires to one's connection to the local offline community. Accordingly, the first part of our model with respect to community development was confirmed.

Next, pertaining to the second half of our model, we found that (H4) neighborhood sense of community was positively associated to perceived local social support (β = .48, p < .001, R^2 = .25). Interestingly, (H5) online sense of community was not directly associated to perceived local social support (β = -.01, p = .858). However, we did find that both (H6) online sense of community (β = .44, p < .001) and (H7) perceived local social support (β = .13, p < .01) were both positively associated to online support mobilization intention, together explaining 24% of the variance.

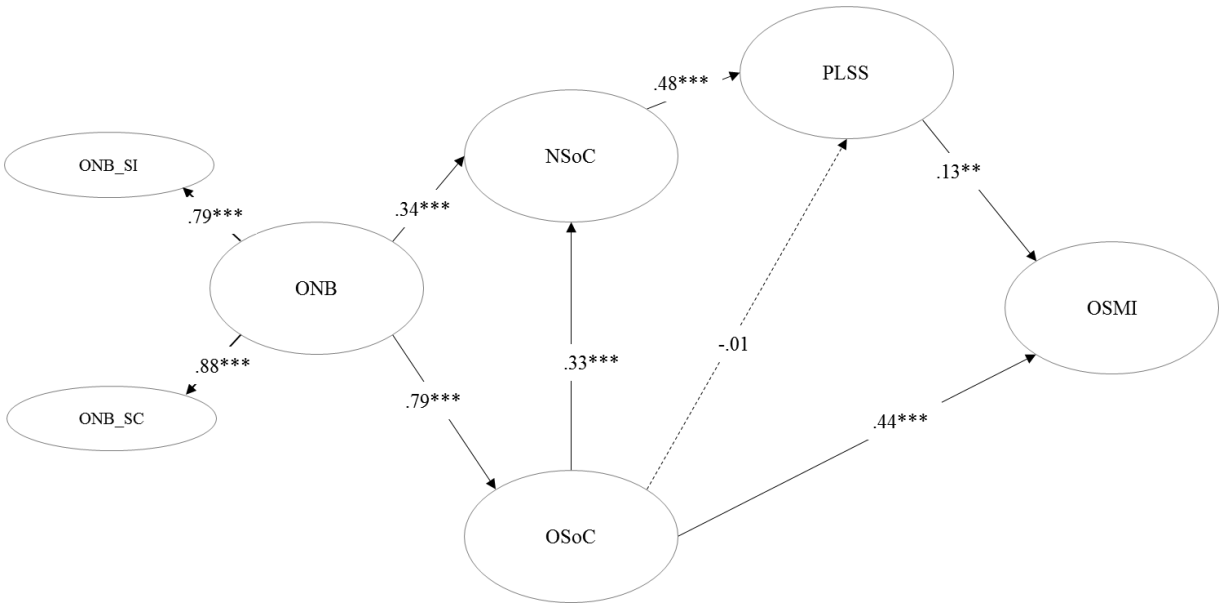
Having established these relations, we also considered to what extent and how online neighboring indirectly contributed to perceived access to local social support as well as to the intention to mobilize this local social support. We found that online neighboring was indirectly associated to perceived local social support via neighborhood sense of community (β *indirect* = .16, p < .01) and via both online and neighborhood sense of community (β *indirect* = .12, p < .001). Hence, engaging in online neighboring leads to higher perceived local support access because it first helps in developing an online and neighborhood sense of community subsequently.

Next, we tested whether ONN users intend to mobilize this perceived local social support via the ONN. We found that online neighboring was indirectly associated to online support mobilization intention via three paths. First, via online sense of community (β *indirect* = .34, p < .001), second, via neighborhood sense of community and perceived local social support (β *indirect* = .02, p < .05), and third, via online sense of community, neighborhood sense of community and perceived local social support (β *indirect* = .02, p < .05). The most dominant path is via online sense of community only, suggesting that online support mobilization intention is predominantly dependent on one's connection to the online neighborhood network, rather than the neighborhood and the resources in the neighborhood network as a whole.

With respect to the control variables only time of residence (β = -.16, p < .001) was negatively associated to online support mobilization intention. Hence, people living in the neighborhood for a longer time are less inclined to use the ONN to mobilize local support. Furthermore, gender was positively (β = .21, p < .01) while level of education was negatively (β = -.13, p < .01) associated to perceived local social support. Local social network size positively affected neighborhood sense of community (β = .11, p < .01). Level of education positively affected online sense of community (β = .12, p < .01).

Lastly, both local social network size ($\beta = .10$, $p < .05$) and age were positively associated to online neighboring ($\beta = .48$, $p < .001$). Particularly the association between age and online neighboring is noteworthy, showing that online neighboring is particularly more prevalent among older neighborhood residents.

Figure 4 Full structural model.



Note. Dashed lines are used for non-significant associations. All reported coefficients are standardized values, adjusted for the influence of the covariates. *** $p < .001$; ** $p < .01$; * $p < .05$.

DISCUSSION

The purpose of this study was to come to a better understanding of the mechanisms underpinning perceived local social support access and its exchange via online neighborhood networks. We proposed and tested a theoretical model to disentangle how access is developed to local social support via ONNs and mobilized when needed. Our proposed model explained 26% variance in perceived local social support access and 27% of the variance in mobilization intention, and all but one of our hypotheses were confirmed. Specifically, we found that engaging in online neighboring behaviors results in both an online and a neighborhood sense of community, that perceived local

social support access increases by means of neighborhood sense of community and that the intention to mobilize local social support via the ONN is motivated by both perceived local social support access and an online sense of community, with the latter being the most dominant. Below, we discuss these findings in more depth.

Online and neighborhood sense of community

Our study highlights the pivotal role in online neighborhood network use and social support access. Our findings contrasts in that regard with a study of Capece and Costa's (2013), in which no association was found between ONN use and perceived social support access. One possible explanation for this difference, is that in our study ONN use refers to prosocial neighboring behaviors, whereas Capece and Costa (2013) considered ONN use in terms of the frequency particular features were used (posting content, liking posts of others, etc.). Second, they did not assess an indirect association between ONN use and perceived local social support. Although the direct association between online neighboring behaviors and perceived local social support access also disappears in our study when taking neighborhood sense of community into account, the indirect relation remains in place showing that investing in local social relations by means of said behaviors does bring about perceived social support access.

We expected that both neighborhood and online sense of community would contribute to perceived local social support access, yet only an indirect association was found between online sense of community and perceived local social support access. A possible explanation for this is that the ties developed by means of the ONN are not perceived to be part of one's social network, hence neither are the resources contained in said network. Hampton (2007) found that active users of the e-Neighbors platform indeed develop new local ties, yet he suggests that these ties are weak and would disappear if the platform as intermediary would cease to exist as interactions via the platform did not lead to interactions via other means. Similarly, the ties developed by means of ONNs do not appear to be considered as a part of the personal local social network as the resources that could be accessed from those neighbors are not considered to be part of one's perceived local social support network.

Resource exchange, bridging behavior and network closure

Although we found that perceived local social support access contributes to the intention to mobilize support via the ONN, this association is relatively weak and can only be expressed with lower confidence than the association with online sense of community. Nevertheless, we do see that an online sense of community contributes to an intention to mobilize social support from the online neighborhood network, meaning that ONN users do perceive to have access to support by means of the ONN, yet that this is distinct from their perceived local social support access. Moreover, from the negative association between time of residence and online support mobilization intention, it can be inferred that having had fewer time to develop a local social network means that the ONN is a means to get access to local social support. As such, it can be argued that the ONN facilitates the connection across structural holes between otherwise distinct local clusters and ties. Reaching out to other clusters can be considered as network brokerage or bridging (Burt, 2005). However, as Burt (2005) argues, reaching out to unknown others is risky, requiring both exchange partners to trust each other. This can be facilitated by building network closure around the bridge that is being made. In that sense, the ONN and the sense of community that can be developed, can provide this trust because of the neighboring practices that underpin it. As discussed earlier, Kusenbach (2006) argues that neighboring entails a set of normative practices, that come with the expectations that neighbors' requests are responded to while prosocial behaviors towards neighbors should be reciprocated. Accordingly, reaching out to neighborhood residents via an ONN that do not belong to your personal neighborhood cluster is embedded in a set of norms.

Norms require boundaries. Burt (2005) argues that norms are productive in networks with high closure because they can be enforced in such contexts by punishing deviant individuals for not complying to the group norms. A particular way of enforcing these norms in a neighborhood context is by withholding aforementioned prosocial neighborly behaviors from neighborhood residents that are not perceived as neighbors or as individuals that do not reciprocate neighborly behaviors (Kusenbach, 2006). Similarly, in online communities, users are sanctioned or banned by group administrators when explicit or tacit norms are violated (Gibbs et al., 2019). Appropriate membership behavior can also be enforced in more inconspicuous

manners. In sharing information and interacting with others, affective qualifiers such as emotions and opinions are used, making online neighboring essentially a discursive practice (Postmes, Spears, & Lea, 2000). Depending to what extent individuals can subscribe to the norms and values that pervade the online network, affective relations can be formed and accordingly access to the resources in the local community. Hence, ONNs might facilitate bridging behavior, yet the effectiveness of said behavior is likely to be contingent upon one's subscription to and compliance with the emergent group norms.

Limitations and future research

In light of current debates about online polarization, ONNs may show high prosocial behavior towards and a strong sense of community with those that are perceived to be group members, while raising high boundaries to exclude individuals not belonging to the group. Although this is a possible outcome, our data do not allow us to make statements in that regard, nor do we know studies being indicative of such online behavior at a local level. Neighborhood relations are predominantly weak tie networks, with the most important denominator being their proximity and shared public and parochial spaces (Kusenbach, 2006). Moreover, in the current context of networked individualism, neighborhood networks are but one of the networks individuals maintain, meaning one's investment in neighborhood relations are often lower (Mahmoudi Farahani, 2016). In that sense, neighborhood networks might be relatively free of conflict. However, higher autonomy from neighborhood relations and interactions tends to coincide with higher socio-economic status. It might be interesting for future research to investigate to what extent individual level and neighborhood level socio-economic status corresponds with group delineation, online neighboring and local social resource exchange.

Social cohesion is a desired state of social networks on any scale, including the neighborhood. This study indicates that online neighborhood networks can play role in this process. First, it allows to engage in pro-social behavior, in the form of online neighboring, which are the most basic instances of social network development. Second, it contributes to an increased sense of community, the affective relation an individual develop towards the social network he or she perceives to be part of. Third,

this sense of community is instrumental in perceived social support access and motivates individual residents to mobilize this support. Both neighboring behaviors and sense of community are individual level constituents of cohesion on a collective level (Buckner, 1988). The difficulty lies in disentangling its causal relation and finding the most appropriate entry point in this mechanism in order to bring about desired individual and neighborhood level outcomes. Because of its cross-sectional nature, this study is not well-equipped to make strong statements in that regard. Yet, with its theoretical foundations it does provide a basis for a future longitudinal and or quasi experimental study in which both the effectiveness and direction of online neighboring behavior by means of online neighborhood networks can be investigated in relation to the theorized outcomes.

Similarly, a novelty of our study pertains to how active online neighborhood network use was measured. Responding to a call for tailoring measures of SNS use to specific use contexts (Bessière, Kiesler, Kraut, & Boneva, 2008), we used the self-developed measures shared interests and supportive communication, combined in the second level construct online neighboring behaviors, as well as online support mobilization intention. Their development is theoretically (Lin, 2004; Vitak, 2014a) and empirically grounded, they proved to be reliable, and they showed good fit to our data in this study. Still, repeated use in future studies would be desirable to ascertain their reliability and validity in other samples and contexts.

Lastly, unforeseen biases might be present in our sample. Although we specifically targeted ONN users, the characteristics of their population are largely unknown. In some previous studies on localized digital media use, adoption rates or use intention are higher among individuals who are socially integrated, have children, are older, are more likely to be female and have a higher socio-economic status (Carroll & Rosson, 1996; Hampton, 2007; Hampton & Wellman, 2003; Johnson & Halegoua, 2014; Kavanaugh et al., 2005; Smith, 2010). In that sense, our sample appears to be appropriate. At the same time, since these studies were conducted, general internet adoption and uses have changed significantly (Perrin & Anderson, 2019; Vanhaelewyn & De Marez, 2019), meaning the nature of the local digital media users might have changed as well. Moreover, there is the factor of self-selection in our sampling

procedure, meaning more engaged ONN users might be overrepresented in our study. Hence, confirmation of our findings using a random a-select survey is recommended.

Conclusion

In conclusion, our study indicates that an online and neighborhood sense of community play a pivotal role in how online neighborhood networks facilitate the local exchange of social support. The proposed theoretical model, drawing on a community psychology framework and complemented by literature on social support, social capital, and social media, fits the data and shows that engaging in online neighboring behaviors underpins the development of both an online and neighborhood sense of community, which in turn provide access to perceived local social support and the intention to mobilize local social support via the online neighborhood network. The intention to mobilize local social support online was predominantly explained via the path along online sense of community, suggesting that online neighborhood networks facilitate local bridging behavior, connecting otherwise distinct local networks and ties. At the same time, online neighboring behaviors provide the normative context that support the exchange process.

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CHAPTER 6

EXPLORING THE USER BASE OF ONLINE NEIGHBORHOOD NETWORKS: DETERMINANTS OF ONLINE NEIGHBORHOOD NETWORK MEMBERSHIP AND USES

This paper aims to determine online neighborhood networks (ONNs) use prevalence and explore which socio-demographic, socio-economic (SES), social integration and media use determinants predict ONN membership and uses. Drawing on a random a-select sample (Ghent, Belgium), we found that over a third of the population is ONN member, that membership was mainly predicted by socio-demographic characteristics while SES was an important predictor of both uses. In contrast to prior research, our results show that ONNs are the local online territory of residents with lower SES, to whom these ONNs are a means to connect with and capitalize on neighborhood connections.

De Meulenaere, J., Courtois, C., Walrave, M., Pauwels, L. J. R., Hardyns, W., & Ponnet, K. (under review). Exploring the user base of online neighborhood networks: Determinants of online neighborhood network membership and uses. *Journal of Urban Technology*.

INTRODUCTION

Popular social media platforms such as Facebook or WhatsApp are frequently used by citizens to convene in local Online Neighborhood Networks (ONNs) to discuss local issues (Konsti-Laakso, 2017), share neighborhood related information (Bingham-Hall & Law, 2015; Bouko & Calabrese, 2017; Turner, 2015) and notify about local events (Afzalan & Evans-Cowley, 2015; López et al., 2014). In addition, ONNs are frequently used to exchange goods, information and social support (López & Farzan, 2015; Silver & Matthews, 2016) as well as warn each other about potential threats (Lub, 2018). Interestingly, locally situated digital media use has been associated with having more local social ties (Hampton & Wellman, 2003), higher sense of belonging (Kim et al., 2015) as well as civic participation and engagement (Nah & Yamamoto, 2017; Ognyanova et al., 2013). In that regard, digital media appear to play a supportive role concerning local community life. Moreover, these observed consequences of local digital media use may bring about increased quality of life and better health on an individual level (Cohen & Wills, 1985; Lin et al., 1986; Thoits, 2011), as well as increased solidarity and more intense community bonds on a neighborhood level (Buchan et al., 2002; Lawler & Yoon, 1996; Uehara, 1990) and a belief of being able to tackle collective challenges (Bandura, 2000; Sampson et al., 1997). However, it is unclear to whom these benefits might accrue as little is known about the prevalence and distribution of ONN membership and its uses.

Use imbalances can lead to missing out on opportunities and resources ONNs can provide, confirming and even increasing existing social inequalities (Hargittai & Hinnant, 2008; van Deursen & van Dijk, 2014). Prior studies on localized digital media use consistently indicate higher adoption rates among higher educated and more affluent neighborhood residents (Capece & Costa, 2013; Hampton, 2007; Kavanaugh et al., 2005; Smith, 2010). However, since those early days of neighborhood forums and related local e-initiatives the adoption and appropriation of digital media has changed significantly. One to two decades ago, these online environments were predominantly populated by young innovators and early adopters which stands in contrast to the current widespread adoption rates of Social Network Sites (SNSs) across the population in terms of age and socio-economic status (Perrin & Anderson, 2019; Van Haelewyn & De Marez, 2019). From that perspective, the contemporary digital media

environment cannot easily be compared, let alone be equated, to the one in which the Netville study (Hampton & Wellman, 2003), the case study on the e-Neighbors platform (Hampton, 2007), the Blacksburg Electronic Village (Kavanaugh et al., 2005) or the e-democracy case study (López & Farzan, 2015) took place. Moreover, illustrative of this new digital media environment is that the ONNs today have a strong bottom-up and self-organized structure, with residents opportunistically using the technological infrastructure of global SNS platforms such as those provided by Facebook (Bouko & Calabrese, 2017; De Meulenaere et al., in press; Konsti-Laakso, 2017; Turner, 2015). This contrasts with the top down and dedicated experimental platforms investigated in aforementioned projects. Accordingly, we can expect that the user base of ONNs has changed.

These changes in adoption rates are but one indication of the present-day ONN user base composition. There is strong evidence for socio-demographic and local social integration as predictors of ONN membership and use. From media and communication literature we know that new media technologies are appropriated in existing everyday practices (Silverstone & Haddon, 1996). Hence, ONN use is probably more prevalent among individuals in those life stages in which neighborhood life becomes more prominent. Whereas adolescents and young adults have little affinity towards their neighborhood (Albanesi et al., 2007), it does gain prominence for adults whom are settling down and starting a family (Guest & Wierzbicki, 1999; Hampton, 2007; Mollenhorst et al., 2009), with elderly typically being found to rely most heavily on local social ties and interactions (Guest & Wierzbicki, 1999; Mollenhorst et al., 2009; van den Berg et al., 2015; Völker & Flap, 2007; York Cornwell & Behler, 2015). Conversely, local social integration is typically more challenging for individuals with a migration background (Tselios et al., 2015), which might impede one's neighborhood participation in general, including those in ONNs.

Neighborhood communication is contingent on a range of neighborhood characteristics. Higher rates of pre-existing social cohesion and informal social control have been found to stimulate while social disorder impedes local communication (Ball-Rokeach et al., 2001). Applied to the use of digital means for local communication positive associations have been found with residential stability, the presence of

children, and sense of community (Hampton, 2007) as well as the neighborhood's SES and the frequency of neighborhood interactions (Yamamoto, 2015).

Study aim

This study's aim is to investigate the user base of these bottom-up and self-organized ONNs, both in terms of membership and uses. Drawing on prior research on local social interaction and relations (Ball-Rokeach et al., 2001; Guest & Wierzbicki, 1999; Mollenhorst et al., 2009; van den Berg et al., 2015; Völker & Flap, 2007) and local digital media use (Hampton, 2007; Hampton & Wellman, 2003; Kavanaugh et al., 2005; Kim & Shin, 2016; Smith, 2010; Yamamoto, 2015) we will consider socio-demographic, socio-economic, and social network variables as well as variables pertaining media use. Specifically, age, gender, first and second generation migrant background, having children under 14 years old, educational attainment, income, time of residence, perceived social cohesion, perceived social disorder, perceived social support as well as online disinhibition and digital stress are investigated as potential individual level determinants of ONN membership and two types of uses, being expressive and instrumental ONN use. Expressive ONN use entails discussing local issues (Konsti-Laakso, 2017) and sharing information concerning the neighborhood (Bingham-Hall & Law, 2015; Bouko & Calabrese, 2017; Turner, 2015). This use relates to online social relational maintenance (Vitak, 2014), hence behaviors that effectively maintain the online network. Instrumental ONN use involves the mobilization of the online network by asking for particular forms of help (Ellison et al., 2014; López & Farzan, 2015). This use can be understood as capitalizing on the online network. Lastly, the neighborhood context is taken into account by considering collective efficacy, social disorder, residential stability, and the number of young children.

Rather than developing and testing a theoretical model that explains why neighborhood residents become an ONN member or use ONNs in a particular way, we aim to get a grasp of the composition of its user base in terms of the aforementioned determinants. To do so, we draw on a random a-select sample of Ghent, Belgium, a mid-sized North-Western European city. Most studies on local digital media use consider a generic social media use for local purposes (Kim et al., 2015; Nay & Yamamoto, 2017; Ognyanova, 2013), the use of social media by local associations

(Johnson & Halegoua; 2014), while the few studies focusing on ONNs are often case based and rely on self-selected samples (Afzalan & Evans-Cowley, 2015; Capece & Costa, 2013). In addition, socio-demographic and SES variables are typically used as control variables with little deliberation and seldom reported in depth. However, both future studies and local governments or businesses looking to capitalize on these self-organized networks, might benefit from a more thorough understanding of these basic characteristics of ONN users and which of these more tangible factors affect membership and use. Moreover, with regard to local governments and in the light of digital inequalities, it is necessary to get a grasp of who is and who is not participating in the local online conversations.

METHOD

Sample and procedure

This study draws upon data from the interuniversity Social CApital in Neighborhoods (SCAN) project in which 1,821 respondents living in 50 neighborhoods of Ghent (Flanders, Belgium) participated in the period October - November 2018. Ghent is a densely populated city with a population of approximately 250,000 residents (Hardyns et al. 2015). Face-to-face interviews were conducted during home visits using a structured questionnaire on social capital, digital media use and online and offline risk behaviors.

The sampling design is based on Hardyns et al. (2015). A sample of inhabitants from each neighborhood was selected based on the municipal registry of 2018. This sample was representative of the composition of each neighborhood and stratified by gender (male versus female), age (16–24, 25–34, 35–44, 45–54, 55–64, 65+) and nationality (Belgian versus non-Belgian). Moreover, for every inhabitant in the sample, five substitutes with the same gender, age and nationality were randomly selected. When the interviewers ran out of substitutes, random inhabitants living in the same neighborhood were contacted. This happened in 5.99% (n = 109) of the cases. Missing values were excluded from the analyses using listwise deletion, resulting in a final

sample of 1,821 respondents (n = 901, male and n = 920, female) with a mean age of 46.6 (SD = 18.9). Table 1 provides the descriptive characteristics of the sample.

Measures

Independent variables

The socio demographic variables taken into account are age (expressed in years), gender (0 = male, 1 = female), having children under 14 (0 = no, 1 = yes) and having a migratory background (0 = no, 1 = yes). Regarding the latter, we distinguished between first and second generation migrants. First generation migrants are those who did not have the Belgian nationality at birth (n = 238). Second generation migrants are those whose parents did not have the Belgian nationality at birth (n = 112).

Regarding socio-economic status, educational attainment was measured using three categories: lower level of secondary education (similar to junior high school in the US), highest level of secondary education, and higher education/post-secondary education, which is consistent with previous research (e.g. Hardyns et al., 2018). Total net monthly household income was measured using 21 equidistant categories of €500, with an end category of €10000 or more. In line with prior research (Kim & Shin, 2016), these were reduced to five categories, with the highest as the reference category (Table 16).

The variables indicative of individuals' local social integration was measured by means of their time of residence, their perceived social cohesion as well as their perceived social support access. Time of residence was measured categorically: "living in this house for ..." "less than one year", "between one and five years", "between five and ten years", or "more than ten years". This measure was recoded into a binary variable, being less or more than five years. It has previously been indicated that local social integration, for instance in terms of local social interactions, increases steeply in the first years but levels of later on, hinting at a ceiling effect (Guest et al., 2006). Perceived neighborhood cohesion (Sampson et al., 1997) was measured using four items (Cronbach's alpha = .80), rated on a five-point scale, ranging from 1 = disagree to 5 = agree. A sample item is "This is a close-knit neighborhood." Perceived social support was measured using an adaptation of the MOS social support scale (Hardyns

et al. 2015). The participants were asked four questions: "how many people from your personal network of family, friends or acquaintances..." 1) understand your problems', 2) 'would let you move into their house for a week if you temporarily could not stay at your house', 3) "would stimulate you to see a doctor in case you are sick" and 4) "make you feel good". These items were rated on an 8-point scale ranging from 0 = none to 7 = ten or more. The reliability of the scale proved to be good (Cronbach's alpha = .82).

Lastly, online disinhibition (Suler, 2004) was included as independent variable to assess the individual's experienced inhibition to share content online. This construct was measured using four items, rated on a five-point scale from 1 = disagree to 5 = agree (Cronbach's alpha = .69). Digital stress, gauging people's perceived capacity to deal with digital and technological evolutions, was measured using four items, rated on a five-point scale from 1 = disagree to 5 = agree (Cronbach's alpha = .69). A sample item is "with my current knowledge and skills it is difficult to stay on top of digital and technological developments."

Contextual variables

Collective efficacy refers to the level of cohesion among residents as well as "the capacity of residents to control group level processes and visible signs of social disorder" (Sampson et al. , 1997, p. 918), and is measured by two constructs on an individual level, being perceived social cohesion and perceived informal social control, and aggregated to the neighborhood level by calculating the mean per neighborhood. Informal social control was measured using six items (Cronbach's alpha = .79), both rated on a five-point scale. Similarly, perceived social disorder was measured using four items, rated on a five-point scale (Cronbach's alpha = .71), and then aggregated to the neighborhood level by calculating the mean per neighborhood.

In line with previous studies the neighborhood's socio-economic status was not included in the analyses as it is known to cause multicollinearity problems with both the collective efficacy and social disorder measures (Hardyns et al., 2018). Instead, individual SES characteristics are taken into account.

Table 16 Descriptive statistics of individual level predictors.

	N	Percentage	Mean	SD
Dependent variables				
ONN membership	657	36.10%		
Facebook or Hoplr	556	30.50%		
WhatsApp	101	5.50%		
Expressive ONN use	657		2.73	1.28
Instrumental ONN use	657		2.19	1.19
Independent variables				
Gender (ref = female)	920	50.60%		
Age			46.62	18.9
16 - 24	228	12.50%		
25 - 34	366	20.10%		
35 - 44	300	16.50%		
45 - 54	283	15.50%		
55 - 64	260	14.30%		
65+	384	21.10%		
Migration first generation	228	12.50%		
Migration second generation	112	6.20%		
Children under 14 (yes)	557	30.60%		
Educational attainment				
low	309	17.00%		
middle	612	33.60%		
high	900	49.40%		
Income				
≤ €1999	512	28.10%		
€2000 ≤ x ≤ €3999	745	40.90%		
€4000 ≤ x ≤ €5999	360	19.80%		
€6000 ≤ x ≤ €7999	74	4.10%		
8000 ≤	34	1.90%		
Time of residence				
Less than 5 year	594	32.6%		
More than 5 years	1227	67.3%		
Perceived social cohesion	1821		3.87	0.85
Perceived social support	1821		4.88	1.49
Online disinhibition	1660		1.81	0.77
Digital stress	1821		2.33	1.14

Note. Perceived social cohesion, informal social control, social disorder, and online disinhibition were all rated on a five point Likert scale. Social support was measured on an eight point scale.

The presence of children was calculated by summing the individual responses to the questions "how many children under 14 are living at the same address as you?" while, residential stability was calculated from the average time of residence of the respondents per neighborhood. Higher mean time of residence means higher residential stability.

Dependent variables

We distinguish between being a member of an online neighborhood network, and two types of ONN use. First, the dichotomous dependent variable online neighborhood network membership (0 = no; 1 = yes) was measured asking the respondents whether they were a member of one or multiple ONNs on Facebook, WhatsApp or Hoplr, the latter being a Belgian social network focused on neighborhoods (www.hoplr.be).

Both expressive and instrumental ONN use were measured using three items, rated on a 5-point Likert scale (agree – disagree). Sample items are "I share information about the neighborhood to the online group" for expressive ONN use and "If I would urgently need something, I would consider asking the help from my neighbors via the online group" for instrumental ONN use. The reliability of the constructs proved to be adequate, with Cronbach's alpha .77 and .82 for expressive and instrumental ONN use respectively.

The descriptive statistics of both independent and dependent variables are presented in Table 16.

Analytic strategy

First, we examined the prevalence of ONN membership. Next, a series of hierarchical logistic regressions were performed testing which factors predict ONN membership, adding the variables pertaining socio-demographic characteristics, socio-economic status, local social integration and media use in separate blocks. Third, two ordinary least squares (OLS) regression models were estimated, determining which predictors affect expressive and instrumental ONN use respectively. Similar to the logistic regression analyses, the factors were added to the model in different blocks. The intraclass correlation coefficients were calculated for the three models to test for any neighborhood level variance. For ONN membership only 0.14% of the variance is

explained on the neighborhood level. Likewise, only 0.17% and 0.7% of the variance of expressive and instrumental ONN use was accounted for by the neighborhood level respectively. Accordingly, multilevel analyses for investigating the contextual effects were not warranted.

RESULTS

Prevalence of ONN use

Over a third of the Ghent population (36.1%) indicated to be a member of an ONN on Facebook, Hoplr, or WhatsApp (Table 16): 30.5% indicated a local Facebook or Hoplr group was their preferred ONN, while 5.5% preferred a local WhatsApp group.

Logistic regression with ONN membership as dependent variable

Logistic regression analysis was performed, testing which predictors were significantly associated to ONN membership (Table 17). First, we tested whether the continuous predictors were linearly associated to their log odds in the outcome variable by means of a Box-Tidwell test. Age proved to be non-linearly associated to its log. Therefore we used age as a categorical variable in the analyses.

We subsequently added the socio-demographic, socio-economic, relation to the neighborhood, social support and lastly digital media use variables to the model in separate blocks. The model fit χ^2 values indicated that apart from the socio-economic variables ($p = .548$), all blocks added significantly to the model meaning that one's socio-demographic characteristics ($p < .001$), relation to the neighborhood ($p < .01$), perceived social support ($p < .01$) and one's level online disinhibition ($p < .01$) were meaningful predictors concerning ones ONN membership.

In Block 1 we tested the socio-demographic predictors concerning ONN membership. We found that women are 1.41 times more likely to join ONNs than men. With respect to age, individuals older than 65 were significantly less likely to be joining ONNs than individuals between 16 and 64, with those between 35 and 44 (OR = 3.83) being most likely to join (cf. Table 17). First generation migrants were less likely to be an ONN

member than individuals who did have the Belgian nationality at birth. Specifically, the inverted odds ratio shows that being born with the Belgian nationality leads to an increased chance of ONN membership of 2.56. Interestingly, being a migrant of the second generation was not significantly associated to ONN membership. Likewise, having children under 14 is not a meaningful predictor of ONN membership status when taking other factors into consideration.

Table 17 Results of hierarchical logistic regression analysis of ONN membership.

	B (S.E.)	Wald	Odds Ratio
Block 1: socio-demographic			
Gender (ref = female)	0.35 (0.11)**	9.29	1.41
Age (ref = 65 ≤ x)		36.46	0
16 - 24	0.91 (0.25)***	13.4	2.49
25 - 34	1.1 (0.24)***	21.73	3
35 - 44	1.34 (0.24)***	30.09	3.83
45 - 54	1.04 (0.22)***	23.02	2.84
55 - 64	0.48 (0.22)*	4.74	1.62
Migrant first generation (ref = yes)	-0.94 (0.19)*	24.66	0.39
Migrant second generation (ref = yes)	-0.16 (0.22)	0.5	0.85
Having children under 14 (ref = yes)	0.17 (0.13)	1.58	1.18
χ^2 (9)	134.854***		
Nagelkerke R^2	0.110		
Block 2: socio-economic			
Education (ref = High)	0 (0)	0.2	
Low	0 (0.19)	0	1
Middle	0.05 (0.13)	0.16	1.05
Net monthly family income (ref = €8000 ≤)	0 (0)	2.71	
≤ €1999	0.39 (0.39)	0.96	1.47
€2000 ≤ x ≤ €3999	0.51 (0.38)	1.75	1.66
€4000 ≤ x ≤ €5999	0.54 (0.39)	1.91	1.71
€6000 ≤ x ≤ €7999	0.4 (0.44)	0.81	1.49
χ^2 (6)	6.298		
Nagelkerke R^2	0.005		

Block 3: local social integration			
Time of Residence (ref = more than five years)	-0.2 (0.13)	2.35	0.82
Perceived neighborhood cohesion	0.19 (0.07)**	7.15	1.21
Perceived social support	0.12 (0.04)**	7.78	1.13
χ^2 (3)	22.226**		
Nagelkerke R^2	0.008		
Block 4: media use and skills			
Online disinhibition	-0.23 (0.08)**	8.78	0.79
Digital Stress	-0.08 (0.06)	1.68	0.93
χ^2 (2)	11.312**		
Nagelkerke R^2	0.008		
Total χ^2 (20)	174.690***		
Total Nagelkerke R^2	0.14		

Note. N = 1581.Block 1 contains the socio-demographic, Block 2 the socio-economic variables, and Block 3 the variables concerning the connection to the neighbourhood. B are the unstandardized regression coefficients. S.E. are the standard errors. Wald is the Wald Chi² statistic. * $p < .05$. ** $p < .01$. *** $p < .001$.

Block 2 contained the SES factors. Interestingly, neither educational attainment or income significantly predicted ONN membership when other variables were taken into account. In Block 3 we tested how individuals' connection and perception of the neighborhood affected the likelihood of ONN membership. Perceived neighborhood cohesion was positively associated to ONN membership. For every one point increase on the perceived cohesion scale, the odds of being a member of an ONN increased by a factor of 1.21. Time of residence did not affect ONN membership. Having higher rates of perceived social support access (Block 4) has been found to be predictive of ONN membership (OR = 1.13). Lastly, with respect to digital media use (Block 5), online disinhibition was negatively associated to ONN membership. An inversion of the odds ratio shows that a decrease of one unit on the online disinhibition scale meant that the likelihood of being an ONN member increased with a factor of 1.27. Conversely, experiencing digital stress was not significantly associated to ONN membership. Combined, the model weakly explains the variance in ONN membership (Nagelkerke $R^2 = .15$) and classifies 66.0% of the respondents correctly with respect to ONN membership.

OLS analyses with expressive and instrumental ONN use as dependent variables

Next, we tested which determinants are associated to expressive and instrumental ONN use. We found that expressive ONN use (Table 18) was significantly predicted by age, educational attainment, income, perceived neighborhood cohesion, online disinhibition and digital stress. With respect to age, older individuals are more inclined to use ONNs expressively than younger individuals (β = .26, $p < .001$). Expressive use is lower among individuals with a higher educational attainment than those who have a lower educational attainment (β = -.15, $p < .05$). People with a diploma of post-secondary education, for instance university, tend to share less information within ONNs than those who have a diploma of lower secondary education. Income was negatively associated to expressive uses. Individuals with a lower income are more inclined to share information via ONNs than individuals in the highest income categories (cf. Table 18). Perceiving the neighborhood to be more cohesive was positively associated to expressive uses (β = .14, $p < .001$). Lastly, in terms of digital media use and skills, we found that online disinhibition was positively (β = .13, $p < .01$) while experiencing digital stress was negatively (β = -.11, $p < .01$) associated to expressive ONN use. Combined, these socio-demographic, socio-economic, neighborhood related, social network, and digital media use variables account for 10% of the variance in expressive ONN use, with age being the most important predictor, followed by income, educational attainment, perceived neighborhood cohesion, online disinhibition and digital stress.

Significant predictors of instrumental ONN use intention (Table 18) were income, perceived neighborhood cohesion, perceived social support, and online disinhibition. Individuals in the lower income categories were more inclined to use ONNs instrumentally than those in the highest income category (cf. Table 18). Perceiving the neighborhood to be more cohesive was positively associated to instrumental ONN use (β = .17, $p < .001$), as was perceived social support (β = .09, $p < .05$). Individuals with higher online disinhibition are more inclined to use ONNs instrumentally (β = .13, $p < .01$). Together, these significant predictors account for just 5% of the variance in Instrumental ONN use.

Table 18 OLS regression coefficients predicting expressive and instrumental ONN use.

	Expressive ONN use		Instrumental ONN use	
	B (S.E.)	β	B (S.E.)	β
(Intercept)	-0.070		0.00 (0.47)	
Block 1: socio-demographic				
Gender (ref = female)	0.02 (0.10)	0.01	0.1 (0.10)	0.04
Age	0.02 (0.04)***	0.26	-0.01 (0.00)	-0.05
Migrant first generation	0.15 (0.18)	0.03	0.06 (0.18)	0.01
Migrant second generation	0.07 (0.19)	0.02	-0.07 (0.19)	-0.01
Having young children	0.18 (0.10)	0.07	0.14 (0.10)	0.06
Block 2: socio-economic				
Educational attainment (ref = Low)				
Middle	0.06 (0.17)	0.02	-0.09 (0.16)	-0.03
High	-0.4 (0.17)*	-0.15	-0.06 (0.16)	-0.02
Net monthly family income (ref = €8000 ≤)				
≤ €1999	0.72 (0.25)**	0.23	0.57 (0.24)*	0.19
€2000 ≤ x ≤ €3999	0.63 (0.23)**	0.24	0.47 (0.22)*	0.20
€4000 ≤ x ≤ €5999	0.58 (0.24)*	0.20	0.33 (0.23)	0.12
€6000 ≤ x ≤ €7999	0.44 (0.31)	0.08	0.35 (0.30)	0.06
Block 3: local social integration				
Time of Residence (ref = more than five years)	0.01 (0.11)	0.00	0.04 (0.10)	0.02
Perceived neighborhood cohesion	0.24 (0.07)***	0.14	0.26 (0.06)***	0.17
Perceived social support	0.07 (0.04)	0.07	0.08 (0.04)*	0.09
Block 4: media use and skills				
Online disinhibition	0.23 (0.07)**	0.13	0.21 (0.07)**	0.13
Digital stress	-0.14 (0.05)**	-0.11	-0.02 (0.05)	-0.01
R^2	0.13		0.08	
adjusted R^2	0.10		0.05	
Df	640		640	

Note. N = 657.Block 1 contains the socio-demographic, Block 2 the socio-economic variables, and Block 3 the variables concerning the connection to the neighborhood. B are the unstandardized regression coefficients. S.E. are the standard errors. B are the standardized coefficients. * $p < .05$. ** $p < .01$. *** $p < .001$.

DISCUSSION

This exploratory study had a twofold aim. First, we aimed to determine the prevalence of ONN membership and use, thereby taking into account ONNs on social network sites (Facebook or Hoplr) as well as on a chat application (WhatsApp) and two types of uses, expressive and instrumental. Second, we want to understand who is using these platforms and how.

Prevalence

In terms of prevalence, we found that over a third of the Ghent population indicated to be a member of an online neighborhood network, with Facebook or Hoplr groups being more prevalent than WhatsApp groups and more users using ONNs expressively than instrumentally. There is little comparable information available from other studies to put these figures in perspective. Reportedly, 75% of the population of Blacksburg was member of the local Blacksburg Electronic Village (Carroll & Rosson, 1996), yet that was a different time, with internet applications and uses in its infancy. In more recent years, Smith (2010) reported that only 4% of the US population indicated to have joined a local group via SNS. Adoption rates of local blogs (11%) or e-mail lists (5%) were slightly higher, yet still rather marginal. Johnson and Halegoua's (2014) survey showed that around 20% of the population of a small US town indicated to be interested in using social media for local purposes. Lastly, a recent survey in Seoul, South-Korea, (Kim & Shin, 2016) indicated that around 32% of the population had used local websites, 22% local online cafés, 15% local mobile group chats, and 13% local Facebook-pages or groups. Hence, adoption rates of ONNs in our study population is at least on par with other populations, if not higher.

Comparing these results to studies investigating experimental and innovative neighborhood forums dating one to two decades back (Capece & Costa, 2013; Hampton & Wellman, 2003; Hampton, 2007; Kavanaugh et al., 2005; López & Farzan, 2015) we see that membership and use indeed are associated to existing local social integration, which is evident from the positive associations with perceived social support and perceived neighborhood cohesion, yet also in terms of age (Albanesi et al., 2007; Hampton, 2007; Mollenhorst et al., 2009) or migration background (Tselios et

al., 2015). Interestingly, having children nor a longer time of residence increased the likelihood of being a member of the extent to which ONNs would be used expressively or instrumentally, which is different from what we expected based on prior research (Hampton, 2007; Johnson & Halegoua, 2015).

Interestingly, we were unable to find a significant association between SES and ONN membership, yet there is one concerning both ONN uses. We see that neighborhood residents with lower SES are more likely to share content and engage in online conversations via the ONN than individuals with a higher SES. A similar trend is found concerning the intention to ask for help via an ONN, although less outspoken. This clearly contrasts with prior studies which found that both income (Kim & Shin, 2016; Ognyanova et al., 2013) and educational attainment (Ognyanova et al., 2013; Smith, 2010) are positively associated to localized digital media use. Although the differential conceptualization between membership and uses could account for this difference, these findings are in line with studies on local social interaction patterns and relations (Guest & Wierzbicki, 1999; van den Berg & Timmermans, 2015), showing that ONNs are integrated in the everyday lives of those more likely to interact locally. Below these findings are discussed in more detail.

The outcomes of online neighborhood network use

Membership might be a first requirement, but ONNs are created and maintained by its active use. In that regard, it appears that ONNs are the online territory for neighborhood residents that are in those life stages in which the neighborhood becomes more prominent, who are socially integrated in the neighborhood, and have a lower socio-economic status. Accordingly, the potential positive consequences of ONNs appear to accrue to these users.

Hampton (2007) speculated that the haves were the most likely to benefit from internet use in general, as well as on a neighborhood level. Digital inequality studies tend to agree, showing that capitalizing online behavior is more frequent among those with higher SES (Hargittai & Hinnant, 2008). Still, our study indicates that ONNs are more frequently used to mobilize local social support among those in the lower income categories. For them, ONNs are a means to connect to latent neighborhood ties to access resources that were otherwise unavailable. Sharing content and engaging in

local conversations online is equally more frequent among those with lower SES. Through conversations, individuals converge to each other as well as develop a common discourse about who they are, how they relate to each other and to others and how to deal with common issues and obstacles (Kim & Ball-Rokeach, 2006a). Previous studies indicated that engaging in conversations with other neighborhood residents about the neighborhood has positive outcomes with respect to civic and community participation as well as neighborhood belonging (Ball-Rokeach et al., 2001; Kim & Ball-Rokeach, 2006b; Kim et al., 2015; Nah & Yamamoto, 2017; Ognyanova et al., 2013). Considering ONNs as a means to engage in neighborhood conversations with other residents (De Meulenaere et al., in press) they can be regarded as a means to develop neighborhood belonging, a shared social identity, and trust within a local social network. At the same time, these ONNs are also a means to voice concerns and opinions by those who are otherwise often marginalized, provided that these ONNs are also a means to connect to individuals that have political power.

The latter touches upon a crucial matter with respect to both individual life chances and the neighborhood's capacity to deal with internal (e.g. poverty, crime ...) and external (process of marginalization) challenges. Paraphrasing Burt (2005, p. 4), it is about the people you know. Burt (2005) distinguishes between bonding and bridging social capital. Bonding referring to the development of strong relations and a dense network. Bridging is about connecting to individuals or clusters of individuals that are different from oneself, and relates to capitalizing on the strength of weak ties (Granovetter, 1973). Studies on neighborhood interaction and relation patterns indicate that individuals with higher SES are typically connected to a broader variety of networks, extending beyond the neighborhood, whereas lower SES tend to be more dependent on neighborhood relations and interactions (Guest & Wierzbicki, 1999; van den Berg & Timmermans, 2015).

From our study, and drawing on previous studies showing how localized digital media use is associated to local belonging and local tie development, we can infer that ONNs are a means to develop social capital for residents with lower SES. Whether this is bonding, bridging or both types of social capital, depends on the composition of the network and the extent to which a connection is developed to individuals that possess differential types of resources. Considering the participation rate of individuals with

higher SES, we found that they are as likely to be a member, yet less likely to actively participate. Their connection to a wider variety of social networks might explain why they are less likely to participate in ONNs (cf. supra). Yet, this also suggests that developing bridging social capital will not be an easy feat for those with lower SES as the ones that might bring more diverse resource to the network (ONN users with higher SES) participate less. Moreover, the efficacy of informal social networks appears to be lower in low-income neighborhoods because of the absence of such bridging networks, disseminate antisocial norms or are unable to provide the necessary resources (Booth, Lin, & Wei, 2018), reducing the potential benefits of ONN use for individuals with low SES further. It should be noted, however, that we did not find any neighborhood level variance.

To nuance this further, we see that ONNs are not a means for local participation for elderly or first generation migrants, as they appear to be largely absent from the network. In that regard, the online networks that develop locally yield most likely no direct benefits to the most vulnerable segments of the population. For them, it boils down to knowing someone – a sibling, a social worker, or someone similar – who can connect to the neighborhood on behalf of them. Support seeking for ICT related needs tend to happen predominantly within the personal social networks. Those ties often do have high motivation to help, yet the provided help tend to lack in quality in order to be efficacious (Courtois & Verdegem, 2016). Accordingly, institutional help rather than social support appears to be necessary.

Limitations

The predictors in the models are typically used as control variables rather than as variables of interest. Hence, the explanatory power of the three models is rather low. Still, they allow us to ascertain which common individual characteristics such as those covered by socio-demographic and socio-economic factors affect ONN use. Moreover, for practitioners and government affiliates, this is often the data that is available and equally the most tangible. With respect to future research, our study provides evidence of relevant covariates, such as age and SES with respect to active ONN use.

We did not distinguish between ONNs on WhatsApp, Facebook or Hoplr when testing the predictors regarding the three outcome variables. Hoplr is a platform dedicated

towards online neighborhood networks whereas Facebook is a generic SNS, meaning they may both attract different types of users while group dynamics may also differ. Still, Facebook and Hoplr show many similarities in that they both have a central news feed and allow users to identify other users, through profiles and their real names. ONNs on WhatsApp are most likely quite different from those on Hoplr or Facebook. Still, given the low ONN use prevalence on WhatsApp, analyzing both types of platforms separately was not feasible.

Contrary to our expectations we were unable to find any neighborhood level variance in either ONN membership or use. Although prior research indicated that neighborhoods often have little bearing on individual behavior (Ellen & Turner, 1997; Guest et al., 2006) ONNs are neighborhood based. Neighborhood characteristics are typically derived from individual residents' characteristics, hence differences in user base and correlating differences in ONN use can be expected. At the same time, ONNs and neighborhoods do not coincide. Multiple ONNs can exist and overlap within the same neighborhood, while ONNs can also transgress the boundaries of administratively delineated neighborhoods, thus affecting our results (Wong, 2009). Still, this does not mean that individuals' behaviors are not affected by any second level determinants. For instance, as group dynamics are contingent upon the individual members' behaviors (Postmes, Spears, & Lea, 2000) plausible second level predictors are more likely to be ONN based than neighborhood based.

Conclusions

Online neighborhood networks (ONNs) are a popular means among the Ghent population to connect to other neighborhood residents, with over a third indicating to be a member. In general, both membership and use of ONNs largely correspond with the literature on neighborhood social interaction and relation patterns, with the exception for elderly, functioning as a testament of how SNS adoption rates are reaching its saturation point, and how these technological communication means are integrated in the users' everyday communication and interaction practices. Interestingly, and in contrast to the existing literature, these ONNs are predominantly appropriated by neighborhood residents with a lower socio-economic status. Hence, potential benefits that might accumulate from ONN use probably accrue to them. Still,

the extent and nature of these benefits are contingent on the overall composition of the ONN.

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CHAPTER 7

DISCUSSION AND CONCLUSION

The aim of this doctoral dissertation was to investigate (i) how online neighborhood networks can be conceptualized, (ii) how they relate to local social relation development and (iii) facilitate local social support exchanges, (iv) to develop an instrument to measure online neighborhood network uses, and lastly, (v) to get a grasp of its adoption rates and composition of its user base. Theoretically and conceptually, this dissertation reached out to a diverse body of literature, including social media, social support and social capital, community psychology and sociology, and Communication Infrastructure Theory (CIT). Methodologically, a multi method design was used, involving both quantitative and qualitative research methods.

In this discussion, I will first discuss the findings pertaining these five research objectives. Next, we identify the overarching limitations of this dissertation and suggest further research directions. This is followed by the presentation of a few societal recommendations and this dissertation closes with a short general conclusion.

TACKLING THE FIVE RESEARCH GOALS

Conceptualizing online neighborhood networks

In line with the research endeavors in the last wave of studies on localized digital media use (cf. introduction), the first goal of this doctoral dissertation was to come to a conceptualization of online neighborhood networks and its uses that is empirically grounded in the experiences of online neighborhood network users and the content they produce. In addition, this conceptualization should be theoretically informed so it allows to theorize its neighborhood related outcomes. As such, the aim was to provide a stronger theoretical explanation and grounding for the claims made with

respect to self-organized local online networks, and to reconcile the diverging lines of research on localized digital media use.

In this doctoral dissertation, online neighborhood networks have been conceptualized in several ways depending on the theoretical approach that was used. Drawing on CIT we argued that online neighborhood networks are collaboratively created digital neighborhood storytelling devices in chapter two, while in chapter four we extended this by considering online neighborhood networks as neighborhood hotspots and as community awareness media. Lastly, in chapter five, online neighborhood networks were approached as local online communities governing online neighborhood interactions. Before going more in-depth on these conceptualizations and how they are related, we emphasize that rather than competing conceptualizations, each of these comes with a specific lens to enrich our understanding of what online neighborhood networks are and how they function with respect to the local communication infrastructure, the development of a sense of community and the local exchange of social support. Moreover, I argue that all of these conceptualizations are indebted to the same bottom-up and agency-centric approach and have adopted the paradigmatic shift from groups to networks (Wellman, Boase, & Chen, 2002). That is, online neighborhood networks only exist in the practices and behaviors of individual users, which produce and reproduce the online neighborhood network in their practices. At the same time, these behaviors are contingent on the social structure of the network they create. Accordingly, we cannot conceptualize online neighborhood networks without conceptualizing online neighborhood network uses and vice versa.

In its most basic and functionalist form, online neighborhood networks can be considered as a market place for exchanging local information and resources, as we have done in chapter 5. In that capacity, neighborhood residents use online neighborhood networks to engage in online neighboring behaviors, which are prosocial behaviors directed at others who are perceived as neighbors. Drawing on community psychology literature, we argued that engaging in these exchange behaviors brings about social relations which in turn lead to the development of a network. Informed by Kusenbach's (2006) ethnographic study and Vitak's (2014) conceptualization of Facebook Relational Maintenance Behaviors we identified two types of online neighboring: unprompted sharing information pertaining the

neighborhood and engaging in supportive communication (cf. chapter 3). These social interactions and relations that develop are more than mere exchange relations, as is evident in the online sense of community we observed. Thus, in its most basic form, online neighborhood networks are local online communities that develop out of online interactions and exchanges.

Although informed by the content analysis we reported on in chapter two, this conceptualization is more in line with those (implicitly) used in wave one studies (Chapter 1). Limiting the conceptualization to a local online community, however, neglects the mediation process and how online neighborhood networks communicatively relate to the neighborhoods they are embedded in. That is, it disregards the discursive character of online neighborhood network use, the mediation process and its relation with the socio-technical infrastructure of the social media platforms, and the different ways how online neighborhood networks are used (Chapter 1).

Drawing on communication infrastructure theory (Ball-Rokeach, Kim, & Matei, 2001; Kim & Ball-Rokeach, 2006), and its distinction between the communication action context and neighborhood storytelling network, we argued in chapters two and four that online neighborhood networks are the product of digital neighborhood storytelling behaviors and effectively perform a double role in the local communication infrastructure. In the neighborhood's communication action context, an online neighborhood network can be regarded as a neighborhood hotspot (Zhang, Motta, & Georgiou, 2018), facilitating online neighborhood interaction, or practices of neighborhood storytelling on a micro-level. Conceptualizing online neighborhood networks as neighborhood hotspots is basically using a different metaphor for the market place we used earlier, yet one that fits in the CIT framework (Ball-Rokeach et al., 2001). Moreover, in that capacity, online neighborhood networks can be regarded as the digital equivalent of a town's square or a local pub, with bulletin boards, people expressing their opinions, residents interacting with each other, and a market area where local goods are being exchanged.

Yet, these online interactions with neighbors are discursive practices, involve talking about the neighborhood, in its broadest interpretation, and are considered neighborhood storytelling by Ball-Rokeach and colleagues (Ball-Rokeach et al., 2001:

Kim & Ball-Rokeach, 2006). Storytelling is a process by which neighborhood residents can express their interpretation of neighborhood related events, issues and so on. We argued in chapters two and four that interpersonal storytelling among individual neighborhood residents in a social media context brings about an ambient and affective local social news stream. In chapter two, we found that individual users passively and actively consult their online neighborhood network to get information on local events, issues and neighbors, while in chapter four, our data indicated that active online neighborhood network users have a higher awareness about neighborhood events and issues, and how other neighborhood residents think about these. In that regard, online neighborhood networks are collaboratively created community awareness media.

In sum, online neighborhood networks are the product of discursive interpersonal neighborly behavior in an online environment, with the online neighborhood network resulting from those behaviors and contingent to the technological infrastructure and its affordances. The online neighborhood network can appear as a community awareness medium and as an online neighborhood hotspot, facilitating local social interaction in various forms, and capable of supporting a local online community. As such, this dissertation has extended the literature in three ways. First, in line with the studies in the third wave of localized digital media use studies, we argued that online neighborhood networks are constructed bottom-up and thus emergent in nature. Without the active use of online neighborhood networks, functional or expressive, there would be no network, let alone a perceived community. However, by explicitly embedding this multifaceted conceptualization in the aforementioned theoretical frameworks, we provided ways to theorize how online neighborhood networks pertain to the local social environment. In line with this, by means of this conceptualization, online neighborhood networks are now embedded in both the CIT framework and community psychology literature, while leads for integrating both frameworks are provided. Third, by emphasizing the mediation process of online neighborhood networks and the expressive character of its uses, it is highlighted that online neighborhood networks are more than just a digital equivalent of offline networks, yet also a medium in their own right with its specific consequences.

Local sense of community and resource exchange

The second and third objective of this doctoral dissertation pertained to the neighborhood related outcomes of the self-organized online neighborhood networks, specifically the development of a sense of community and the local exchange of social support. The studies in the third wave have forwarded several claims with respect to how online neighborhood networks bring about sociability and foster a sense of community (cf. introduction); claims we also found evidence for in chapter two. We explored these further in chapters four and five and provided additional evidence for the surmised neighborhood related outcomes of self-organized online neighborhood networks, thereby connecting the literature on self-organized online neighborhood networks with those of the previous waves. Because both phenomena of local social relations and social support exchange are strongly related to each other, we discuss the findings regarding both objectives together.

We investigated associations between online neighborhood network use and both sense of community and perceived local social support access, two subjective components of local social networks, rather than its structural components such as the number of local ties or frequency of local social interactions. Our results indicate that sharing neighborhood related information to the online neighborhood network and responding in a constructive manner to posts and comments of others was positively associated to a neighborhood sense of community. This association can be explained in two ways. First, because online neighborhood networks function as a community awareness medium, neighborhood residents have a higher awareness about the neighborhood and the neighbors, which is instrumental in developing local social relations (chapter 4). Second, online interaction facilitates local social relation development (chapters 4 and 5).

What is interesting about the findings in chapter five regarding perceived local social support access, online and neighborhood sense of community, and online support mobilization intention, is that it highlights that the nature of the local social relations that are developed by means of the online neighborhood network are weak and tied to the online neighborhood network. In that sense, our findings are in line with Hampton's (2007) findings. Actively using e-Neighbors, the platform he studied, led to an annual increase of four neighborhood ties, yet this increase was dependent on

the platform. If the platform were to disappear, the ties would probably wither away as well as the relations were not multiplexed. One might talk online, recognize each other's name, yet do not meet each other offline in the neighborhood or visit each other at home. The absence of the latter should not be over problematized, however, as neighborhood ties are typically weak and not multiplexed (Wellman & Wortley, 1990; Völker & Flap, 2007). Moreover, taking into account Kusenbach's (2006, 2008) studies on the nested hierarchy of place-based communities and neighboring interactions (Chapter 1 and 5), neighborhood residents tend to focus on a limited set of neighbors when developing local relations, with whom one is only connected through a few neighborly practices. Having developed local relations within particular place-based communities, be it the immediate environment of the house, the street, the walking distance neighborhood or a local enclave, they are less likely to develop relations outside of that.

Our findings can be interpreted that online neighborhood networks are means to extend the reach and number of local social relations, across those nested place based communities, without requiring the investments normally needed to develop and maintain those relations. From chapters two, four and five can be inferred that online neighborhood networks are a means via which the public space of the neighborhood can be parochialized (Chapter 1). By engaging in online neighboring behaviors, a normative environment is created in which local social interaction can take place. Such behaviors would typically be limited within a particular place based community, yet via the online neighborhood network, they can reach beyond that as is evident from the findings in chapter five. Similarly, within these place based communities, people are aware of each other's private and semi-private routines (chapters 2 and 4), which again is extended beyond a particular place based community. Online neighborhood networks make this possible because of their ambient and lightweight nature, requiring little cognitive effort from the users, thus not *burdening* residents with more social relation maintenance requirements (Burke & Kraut, 2016; Ellison, Gray, Lampe & Fiore, 2014; Eranti & Lonkila, 2015; Hampton, 2016; Vitak, 2014). Moreover, online neighborhood networks distribute the burden of social relationship maintenance over all active members, instead of demanding all effort from one individual.

Thus, online neighborhood networks afford to bridge to ties within the neighborhood (Burt, 2005) beyond the existing offline local social relations (cf. Kusenbach, 2008). Yet, it should be noted that the social media platforms providing the infrastructures for these online neighborhood networks are not neutral transmission channels, but operating according to a network media logic (Klinger & Svensson, 2014). Three biases, pertaining content production, circulation, and consumption, can be identified. First, production of media content is motivated by users' personal self-interests and reflexive, meaning facts and information are blended with emotions and opinions (Papacharissi & de Fatima Oliveira, 2012). Thus, what is shared and communicated online is limited and biased towards the active online neighborhood network members' interests. Second, the way the content is circulated and presented to the other online neighborhood network members is algorithmically governed (Van Dijk & Poell, 2013). Content that is deemed to be of more interest to a particular individual will more likely be presented to that individual than other posts. This means that some mobilization requests (Chapter 5) or types of post (Chapter 2) will reach a larger audience than others. Lastly, audiences are self-selected, based on their personal interests. We touched upon this in chapter two and it is implicit in chapter four; disagreeing with the dominant discourse in the online neighborhood network can imply that no connection will be developed to the online neighborhood network. Hence, online neighborhood networks may indeed afford to connect to other local social ties across the different levels of place based communities, yet it probably does not do so blindly, without taking into account characteristics of content, senders and audiences.

Measuring expressive and instrumental online neighborhood uses

In order to study how online neighborhood network use relates to local community development, an instrument was developed and psychometrically tested to measure two types of online neighborhood network uses, being expressive and instrumental online neighborhood network uses (Chapter 3). Theoretically, the instrument is embedded in the action dimension of Lin's (2004) social capital framework and drawing on the work of Vitak (2014) with respect to the expressive uses and the work of Ellison and colleagues (Ellison, Gray et al., 2014; Lampe et al., 2014) and López and

Farzan (2015) concerning the instrumental use intention dimensions. The developed instrument was informed by the findings reported on in chapter two and applied in chapters four, five and six. In addition, we also used to opportunity of the SCAN data used in chapter six to assess the stability of the found factor structure on a sample (*n* = 657) of a different population, being citizens of Ghent, Belgium. Specifically, we conducted a CFA on the shared interests construct and an abridged version of the tangible support mobilization intention construct. The tested model showed adequate fit to the data (Relative $\chi^2 = 4.38$, $p < .001$, CFI = . 980; TLI = . 963; RMSEA = . 072 [CI 90% . 048 - . 097]; SRMR = . 034) and confirmed the factor structures found in the previous EFA and CFA analyses on a different sample, hence providing additional evidence for the psychometric and theoretical soundness of both constructs.

As discussed earlier, online neighborhood networks emerge out of the online behaviors of individual neighborhood network members. These online behaviors maintain the network. Without those behaviors, in which content is added to the network and questions are answered, there would be no network, hence no network from which potential help or other resources could be mobilized. The study of López and Farzan (2015) clearly highlighted the pragmatic way neighborhood residents behaved online, which was also apparent in our own content analysis, albeit to a lesser extent (Chapters 2 and 3). Lin's (2004) theorizing about individuals' expressive and instrumental actions towards social relations provides a useful framework to grasp these online behaviors. In line with the interpretation that social relations need to be developed first before they can be made actionable and turned into something productive, such as community and civic engagement or the accumulation of social capital (Chapter 1), we have argued that through practices of storytelling and online neighboring, local relationships can be developed (cf. supra), while posting mobilization requests can be regarded as capitalizing on earlier made investments and thus as acts of social capital conversion (Ellison, Gray et al., 2014). Accordingly, the developed *expressive uses* construct measures behaviors in which individual users add content to the network through which this network is maintained, while the *instrumental uses* construct measures behaviors through which the online neighborhood network is asked to help with a particular need. Additional uses of the developed measures are discussed in the discussion of chapter three, including

distinguishing between users, aggregating to the neighborhood or to an online neighborhood network level, or applying them in different online network contexts

With the development of these measures, this dissertation extends the literature by providing an instrument to capture particular uses of online neighborhood networks and to study how these are related to individual and neighborhood outcomes (cf. Chapter 3). To the best of our knowledge, this is also the first instrument, designed to measure social relationship maintenance and social capital conversion with respect to larger networks instead of dyads. At the same time, it also subscribes to the reasoning that there is no such thing as online social capital. As extensively discussed by Appel et al. (2014), the measure developed by Williams (2006) and popularized by Ellison and colleagues (Brooks, Hogan, Ellison, Lampe, & Vitak, 2014; Ellison, Gray et al., 2014; Ellison et al., 2007, 2011) fails to capture social capital, and rather measures sense of belonging and attachment. Accordingly, rather than investigating traces of online social capital, with online social capital being a distinctive and identifiable entity, we argue that social media are a means to acquire access to social capital. In this dissertation, we have applied this in the context of online neighborhood networks, thereby providing the handles for further inquiry by explicating how local relations can be formed online and made productive. Moreover, in that sense, this dissertation provides an explanation for the surmised relationship between online neighborhood network uses and social capital (cf. Gregory, 2015).

Contextualizing online neighborhood network uses

To provide more context to who these (active) online neighborhood network members are, we investigated the adoption rates of online neighborhood networks and explored its user base in terms of membership and both expressive and instrumental uses. This fifth goal of this dissertation was tackled in chapter six. As argued in the introduction, little information is known on adoption rates and the user base of local digital media use in general, let alone self-organized online neighborhood networks. Our results showed that over a third of the Ghent population indicated to be a member of an online neighborhood network, be it on Facebook, WhatsApp or Hoplr. In line with the limited information available (Hampton, 2007; Kavanaugh & Patterson, 2001), we found that adoption coincides with both explicit and implicit indicators of local social integration.

Online neighborhood network use appears to be an extension of offline neighborhood life as the predictors of online neighborhood network membership coincide with those that predict the prominence of local social interactions and relations (Albanesi, Cigognani, & Zani, 2007; Hampton, 2007; Mollenhorst, Völker, & Schutjens, 2009; Tselios, Noback, van Dijk, & McCann, 2015). Moreover, predictors of online neighborhood network membership diverge from predictors of online neighborhood network use, showing that membership is but a first threshold pertaining online neighborhood network use and suggesting how the vocal minority differs from the silent majority. Specifically, membership is more likely among women, individuals under 65, born with the Belgian nationality, and individuals that are less inclined to share personal information online, yet with no differences in terms of socio-economic status.

Actively sharing information is more prevalent among middle aged users, with lower socio-economic status – as in lower educational attainment and less prevalent in the highest income categories – yet still with high level of perceived social cohesion. As socio-economic status has no significant impact on the decision to become a member, it appears that members of varying socio-economic status are present, yet those with a higher socio-economic status are less active in the local exchange of social support, the co-construction of the local social news stream, and by extension, the co-creation of the local social identity.

Based on the hypotheses that (i) social ties are formed through processes of social support exchange (Chapter 5) and neighborhood storytelling (Chapters 2 and 4), while (ii) the discourse pervading the social interactions can either increase or decrease the likelihood of developing an online sense of community towards each other (Chapters 2 and 4), and (iii) based on the logic according to which the socio-technical platforms supporting the online neighborhood networks operate (Klinger & Svensson, 2014; Van Dijck & Poell, 2013), we can argue that these online neighborhood networks are online environments in which older, socially integrated individuals, with a lower socio-economic status are more likely to connect to other older, socially integrated individuals, with a lower socio-economic status. This might stimulate neighborly behaviors among themselves (Burt, 2005; Farrell, Aubry, & Coulomb, 2004), yet capitalizing on the online neighborhood networks' potential beyond the minor

exchanges typical for neighborly interactions requires a bridging behavior towards individuals with different characteristics (Gil de Zúñinga & Valenzuela, 2011; Hampton, 2011; Son & Lin, 2008), i.e. the development of linking social capital, that is less prevalent among individuals with a lower socio-economic status (Hargittai & Hinnant, 2008; Hays & Kogl, 2007; Phan, Blumer, & Demaiter, 2009).

LIMITATIONS AND FUTURE RESEARCH

We discussed the limitations of each study in the respective chapters, except for chapter two. Rather than merely repeating those limitations, I will use this discussion to elaborate on some of the overarching methodological and theoretical limitations and use them as an opportunity for discussing a number of future research directions.

Methodological considerations

A first general methodological limitation in this dissertation pertains to the cross-sectional design of all samples used and of the self-selection in the sample chapters four and five rely on. We executed the Flemish online neighborhood network use survey before the study in chapter six was conducted, meaning little was known about the population of online neighborhood network users at the time the survey was administered. Based on our findings in chapter six, the sample used in chapters four and five appears to match the age distribution, exaggerates the over-representation of women, but misrepresents the socio-economic composition. Specifically about 60% of the respondents in the Flemish online neighborhood network use survey had either a bachelor's or master's degree. It is difficult to compare the mean scores on both shared interests and support mobilization intention as a different numbers of response categories were used (5-point scale in chapter 6; 7-point scale in chapters 4 and 5), yet in both instances, respondents were more likely to share information than to ask for help. Obviously, random a-select samples are something to strive for in future research. A random a-select longitudinal panel design would even be better, as it would allow to tease apart the direction of the associations in the proposed models, which now could only be inferred theoretically. We argued in chapter five that there

is most likely a reciprocal relation between media use and media outcomes. A longitudinal panel design as used in several of the wave 1 studies (Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005; Hampton, 2007) is absolutely necessary to further the knowledge on localized digital media use in general and self-organized online neighborhood networks specifically.

A second methodological limitation relates to the measures designed in the context of this dissertation (chapter 3). We assessed their content and construct validity, tested them in different samples and obtained satisfying psychometric results. Although the construction of these measures is a significant asset of this dissertation, it comes with the limitation that they do not have the track record of established constructs. Moreover, its criterion validity as in how well it predicts similar constructs (DeVellis, 2003) is thus far largely absent. Hence, future research is necessary to further assess its reliability and validity in different contexts and with different samples. Other constructs that could serve as criterion are the SNS dependency scale of Kim and Jung (2017) or the integrated connectedness to a storytelling network measure (Kim & Ball-Rokeach, 2006). With respect to these measures, I also acknowledge that the conceptualization of the constructs is insufficiently crystallized, as is evident from the different labels we used to refer to the second level construct in the different chapters. As argued earlier in this discussion, we highlighted the discursive nature of expressive online neighborhood network use in chapter four and its neighborly nature in chapter five, while the construct *shared interests* was labeled expressive use in chapter six. Using different labels is not the best strategy to further the field. With respect to future research, the second order construct is best considered as *expressive uses*, which can be used to measure online neighboring behaviors. Digital neighborhood storytelling requires a more appropriate measure, embodying its sense making process. Still, this does not mean that its application in chapter four was inappropriate, only that it was sub-optimal.

A third methodological short coming is that we relied on subjective measures for both local social relations (online and neighborhood sense of community) and perceived local social support as well as self-report measures for both expressive and instrumental online neighborhood network use. The former could be tackled by also inquiring about the structural characteristics of local social relations, including number

and variety of neighborhood ties and frequency of contact. The latter would require access to server-level behavioral data of a specific panel of users and either manual or computer based content classification in terms of expressive and instrumental use. Inspiration on that account can be found in prior studies (Ellison, Gray et al., 2014; Joyce & Kraut, 2006; Wang, Kraut & Levine, 2012). Going beyond self-reporting with respect to online neighborhood network use would be a significant step ahead in terms of our understanding of how social relations develop through online behaviors. That is not to say that objective measures should replace the self-reported data. I believe that subjective and objective measures should work in tandem, as the self-reported data is the result of an interpretation of the respondent about his or her behavior.

Fourth, the analytic decision to focus on the individual level, and, consequentially, thereby limiting the inclusion of the neighborhood context in the analysis, may have biased our understanding of online neighborhood networks in relation to the neighborhoods they are anchored in. Specifically, the bias may stem from the initial exploratory study, reported on in chapter two, for which the data were collected in Ghent. Although we did include a variety of neighborhoods – both inner-city neighborhoods with lower and higher socio-economic status, as well as neighborhoods in the suburban periphery – the conceptualization of online neighborhood networks is inextricably entangled with this Ghentian context of growing, diverse, and dynamic neighborhood populations (cf. Chapter 1). As such, it may have steered the interpretation of online neighborhood networks into the direction of identity-based instead bond-based online networks. As the subsequent survey, reported on in chapters three, four, and five, was administered to a broad population of online neighborhood network users in different cities, as well as the Flemish suburban towns and villages, it may have had a different meaning in these contexts compared to the one we explored in the Ghentian context. Yet, by focusing on the individual level, we may have been blinded from the potential contextual influence on the results and their interpretation. Although we did test for any second level variance (cf. chapters 4 and 5), we do believe that future studies could challenge the proposed conceptualization of online neighborhood networks as well as the proposed models by exploring very different neighborhood contexts, using qualitative and quantitative methodologies.

Finally, the chronological order of the conducted studies had its consequences on how the studies were approached. Chapter six clearly shows the role of socio-economic status and age with respect to online neighborhood networks uses. If we would have had this knowledge earlier, we would have considered this more explicitly in the models we proposed and would have tested in chapters four and five whether the found relationships differ along socio-economic fault lines.

Theoretical considerations

Agency over structure

A first general theoretical limitation is the minimization of the structural side of online neighborhood network use. As a way of drawing the boundaries and determining the scope of this dissertation, focus was predominantly on the agentic side of online neighborhood networks and their users, while the social structures they are embedded in were only touched upon in chapter six. The theoretical merits of the models tested in chapter four and five will improve when structural measures are taken into account. Chapter six showed that individual level differences have bearing on how online neighborhood networks are used, life cycle, demographics, socio-economic status and social integration chief among them. Moreover, the extent to which individual personal networks extend beyond the neighborhood co-varies with such structural characteristics. This bears the question how outcomes of online neighborhood network use varies across individual differences. Possible ways forward include testing for moderation by any of the aforementioned variables or latent class analyses, allowing to identify different types of online neighborhood network users.

The neighborhood is a second level on which structural characteristics may affect online neighborhood network use and its outcomes. Hampton (2007), for instance, found different adoption rates between neighborhoods with lower and higher levels of pre-existing social cohesion or with more and fewer children to name but a few characteristics. López (2015) argued that fewer residents use and keep using online neighborhood networks in neighborhoods with lower residential stability, while the content quality is equally lower. In addition, the Communication Infrastructure Theory framework this dissertation borrows heavily from is essentially an ecological framework, emphasizing the communication action context in which the storytelling

network is situated. We predominantly focused on the storytelling component of the framework, and argued how online neighborhood networks fit in both the storytelling network as well as in the communication action context. Still, differences in that communication action context may account for differences in the dynamics of online neighborhood networks and in their efficacy of producing (desirable) outcomes. The same holds for the presence or absence of pre-existing storytelling networks. Hence, differences can be expected on this level, even though we were unable to find any neighborhood level differences in chapter six. A case based design is the logical way forward in that regard, as it allows to take more neighborhood related information into account, while being able to distinguish between different use practices and perhaps different online neighborhood networks co-existing in the neighborhood.

Third, on the level of the online neighborhood networks, structural differences can be discerned in terms communication dynamics, network characteristics, and qualities of individual nodes in the network. Chapter two provided some information on the number of users, number of posts and comments, posting frequency or the length of its existence of the analyzed online neighborhood networks, yet none of such characteristics were taken into account in the later chapters. Whole network analyses are an interesting path to explore. For instance in terms of how network characteristics such as size, heterogeneity, density or closure affect online dynamics, the nature of the shared content, balance between expressive and instrumental online neighborhood network use, and subsequent neighborhood-related outcomes. Likewise, neighborhood and individual antecedents to such online network characteristics can be investigated, such as level of urbanization, SES, demographic composition or level social disorganization. Related to this, there is tentative evidence in the data of the Flemish online neighborhood network use survey that the geographical entity the online neighborhood network covers may affect its dynamics. Both online and neighborhood sense of community in online neighborhood networks pertaining to an entire town were rated as lower compared to online neighborhood networks pertaining to a neighborhood in a city or a village. Interestingly, online neighborhood networks on Hoplr also scored higher on those accounts. The latter pertains to the last online neighborhood network level differences, being the platform. In chapter 6 we discerned between WhatsApp groups on the one hand and Facebook and Hoplr groups on the other hand. Again, there was tentative evidence of platform related

differences, with higher expressive and instrumental uses in WhatsApp groups. Hence, actively distinguishing between different social media platforms is advisable.

Studies in wave 3 emphasized the contextualized nature of how localized digital media are used and made sense of by its users. In this dissertation we accounted for this by starting with an exploratory research phase and building on the information in later research phases. Still, there is room for improvement as we did not fully explore the differential interpretations and consequences of online neighborhood networks. One way to further the exploration of this is by considering more negative cases (Strauss & Corbin, 1998) with respect to both uses and interpretations of online neighborhood networks. Although a number of the interviewees could be interpreted as negative cases (Chapter 2) there are many more things to explore, including differential interpretations of online neighborhood networks between individuals with higher and lower socio-economic status or older and younger users among other things. In line with this, the constructs we conceptualized and operationalized in the context of the scale construction (Chapter 3) are of course a significant reduction of the variation in possible uses of online neighborhood networks.

Conflict and anti-social behavior

A second general theoretical limitation is that in the focus on community development, storytelling practices and prosocial online behaviors, negative online behaviors and undesirable online neighborhood network outcomes have been neglected. Nevertheless, there are examples of online neighborhood networks that split into new groups because of enduring conflicts or of individual members being banned from the online network (De Standaard, 2016; De Kock, 2018; Het Nieuwsblad, 2019). In the data reported on in chapter two, multiple interviewees expressed their displeasure with other online neighborhood network users and mentioned several conflicts within the online network, yet not to the extremes (e.g. online and offline bullying) that feature in the news articles referred to above. More broadly, this pertains to issues of online conflict and misbehavior on an individual level, and polarization and echo chambers on group level. With respect to the former, future studies could look into how online misbehavior affects specific communication dynamics as well as online neighborhood network use outcomes with respect to local social relation development. Avoiding

online conflicts all together is neither realistic nor desirable. A logical second research step relates to ways of conflict management in online neighborhood networks.

Anti-social behavior on a group level is undoubtedly more difficult to manage as this goes directly to the bottom-up constructed group identities and associated behaviors. This anti-social behavior can express itself in terms of drawing up group boundaries with respect to who is susceptible to receive neighborly support, and who is not. Our studies say little regarding who is considered a part of that community and how far prosocial behaviors extend. The findings in chapter six are indicative of who is more and who is less likely to be a member, who is more and who is less likely to be participating in the creation of the group boundaries. Follow-up studies might focus on how (effectively) group boundaries are enforced in self-organized online neighborhood networks and to what extent structural exclusion could be present in these online neighborhood environments.

SOCIETAL REFLECTIONS AND RECOMMENDATIONS

In this doctoral dissertation, I have extensively discussed the communication dynamics of online neighborhood networks, and provided evidence that, how and to what extent online neighborhood network use pertains to local social relationship development. Based on the discussion of these findings some societal reflections and recommendations can be formulated.

First, I was able to show in this dissertation that online neighborhood networks are actively used to exchange small forms of neighborly help, that these online networks are perceived as means to get to such support, and that these networks provide access to interactions and relations that would otherwise not exist. This reminds, to some extent, of the popular big society policy "vermaatschappelijking van de zorg" (Decruyenaere, 2013), aiming to activate local social relations and interaction in taking up caring and supporting roles with respect to vulnerable members of society. However, it is a far stretch to assume that a self-organized online neighborhood network would actively take up a caregiver role. In chapter six we showed that not everyone has an equal chance of participating in online neighborhood networks and

argued that intermediaries such as caretakers would be necessary in order for the most vulnerable neighborhood residents to tap into the online neighborhood network. The online neighborhood networks and the resources contained therein can play a role in this bigger story, yet not without the extra help that is *structural*, not *social* support. After all, neighborhood networks in general and online networks specifically tend to be networks of limited liability, meaning based on selective and voluntary participation, with few interdependencies and thus easily neglected (Blokland & Savage, 2008; Driskell & Lyon, 2002; Galster, 2001; Mahmoudi Farahani, 2016). Moreover, this is more often the case for the strongest neighborhood residents (Guest & Wierzbicki, 1999) who are at the same time also least likely to engage in online neighborly behaviors (chapter 6).

Second, I argued extensively throughout this dissertation that online neighborhood networks are not just a marketplace for exchanging information and goods, but equally well an environment for neighborhood residents to make sense of their neighborhood, to express concerns, test whether their opinions resonates with those of others, and to find support for their points of view. This storytelling process comes especially to the forefront as people are being confronted with something that touches on themselves and or how they organize their everyday lives. In that regard, two reflections can be formulated, using urban renewal projects and crime and vandalism as examples.

Urban renewal projects such as interventions in the urban infrastructure, related large scale real estate development projects, or new mobility plans aimed at curtailing car use in the city center, to provide a highly topical example, can lead to concerns among the neighborhood residents who are directly affected. Although there are multiple ways of voicing one's concerns, online neighborhood networks are ideally situated as they allow neighborhood residents to reach out to an intended audience to share information pertaining these interventions, express their opinions, ask for more information, and perhaps find support. Depending on the composition of the ad hoc and free floating coalition that might emerge as neighborhood residents find each other, a constructive dialogue can unfold between such a coalition representing “the neighborhood”, and the government and or other stakeholders involved.

Still, the findings of chapter six suggest two things. First, online neighborhood networks are the online environments of older neighborhood residents with lower

socio-economic status who feel less restraint in expressing themselves online. Second, residents with a higher socio-economic status may be less likely to engage in the everyday storytelling behavior, they are as likely to use these online neighborhood networks instrumentally. Moreover, from what we know from digital divide literature (Hargittai & Hinnant, 2008), socio-economic status is positively associated to using the internet instrumentally in order to achieve, for instance, particular political goals. Accordingly, what we can expect is that individuals with a lower socio-economic status will be using online neighborhood networks to voice their concerns, yet not in such a way that it will lead to an organized, goal-oriented and efficacious association, whereas individuals with higher socio-economic status might be able to capitalize on these frictions and be capable of getting organized, using the online neighborhood network to generate awareness for their agenda and perhaps develop political traction. However, as government or other stakeholder involved in the urban intervention, it is necessary to listen in on the concerns raised in the online neighborhood networks, but also to be aware that online neighborhood networks are but one representation of the neighborhoods' opinion (if that exists). Not everyone is as good in voicing his or her opinions in a constructive manner, nor in mobilizing resources and other to achieve a particular outcome, which can lead to being absent from the debate in the online neighborhood network all together, or being marginalized online because of using an unfortunate discourse. In sum, online neighborhood networks are a valuable source to poll the neighborhoods position, but it is just one way of doing so.

Even more than interventions in the urban infrastructure, crime and vandalism touches directly upon people's lives. Even though the consequences are in the first place individual and personal rather than social, it resonates with others who can relate to the victim. Our data indicated that online neighborhood networks are frequently used to find specific forms of support by victims, mostly in terms of witness statements or to mobilize the neighborhood in helping to find back stolen property (e.g. a bike). Yet, the circulation of crime related information not only generates supportive and directly helpful comments, but is always at risk of engendering discussions that can result in unfounded accusations and or the stigmatization of certain populations. Being environments in which the circulated information is being processed into neighborhood stories means that there is a strong investment of neighborhood residents, desirable for phenomena such as informal social contral. At

the same time, they are untrained storytellers, bending facts with emotions and opinions (Papacharissi & de Fatima Oliveira, 2012). In such environments, information can be pulled out of context, facts can be twisted and rumors can spread easily. In order to control the potential damage such rumors can cause, it is advisable that governmental actors keep tabs on these environments, including the local police, while other meso-level storytellers such as (hyper-)local media operations could help therein by contextualizing particular information and in checking to what extent particular messages are grounded in truth. As such, the online neighborhood networks can support or at least play a role in an integrated storytelling network (Kim & Ball-Rokeach, 2006).

The examples provided above do not just indicate that online neighborhood networks have value in neighborhood life, but also that they are vulnerable. Based on our data it is unclear to what extent online neighborhood networks show similarities to other voluntary neighborhood associations, which are typically highly dependent on one or a few active members, functioning as bridge figures. When they cease their activities, the network starts to disintegrate. Arguably, online neighborhood networks are likely to be more resilient because of their self-organized and distributed nature, yet they do require engaged users to actively moderate the conversations. These administrators are few in number and voluntarily providing services, while their challenges extensive and complex. In order to manage online neighborly conflicts (cf. De Standaard, 2016; De Kock, 2018; Het Nieuwsblad, 2019), safeguard online group norms, and manage a pluralistic and constructive environment in order to avoid structural exclusion among other challenges, outside support is necessary if online neighborhood networks are expected to produce beneficial neighborhood outcomes. Platform owners have a responsibility here, especially when they are monetizing on the free labor of administrators and users. Likewise, (local) governments have a responsibility as online neighborhood networks are operating in the public or semi-public space of the neighborhood.

Therefore, I would argue for a cooperation between public and private actors with respect to the infrastructure for and the operation of the online neighborhood networks. Its grassroots and self-organized nature is critical and essential with respect to its functioning and existence. Yet, at the same time, to keep it functioning requires

a level of energy and commitment that is not always realistic to ask from volunteering individuals. Taking the liberty of using a metaphor: if you want a vivid and wild garden you need a plan and a skillful and committed gardener, otherwise you just get nettles and weeds. That is to say, you cannot expect to get an environment that allows for open discussion, expressive use and prosocial behavior, if the environment is not actively maintained to function that way. Thus, skill and knowledge is required to manage this communicative environment. This is a tall order to ask from citizens that voluntarily monitor and manage their local online neighborhood network. Hence the recommendation that local governments should understand the value of and invest in these online neighborhood networks, while platform owners should take up responsibility in helping local governments and volunteering administrators.

Related to that, I can provide some high level guidelines with respect to the (i) online interaction dynamics and the balance between instrumental and expressive use, and (ii) concerning the integration of online neighborhood networks in larger support networks. As argued extensively throughout this dissertation, social support exchange is instrumental in social relation development and talk is a central part of the social interactions in which social support is exchanged. Talking is a process by which the world is made sense of and by which we communicate how we perceive the world. Actively narrowing the scope of online neighborhood networks to a local online market place in which individual residents can mobilize the group might lead to a more orderly and manageable environment. Yet, talk is unavoidable, as is the potential for conflicts. Moreover, as a study of Wang et al. (2012) showed, merely instrumental use of an online platform is associated to a lower user retention and participation, while more talk and the provision of emotional support, akin to a network scoring high on strong ties and network closure, leads to higher user retention. In addition, as Burt (2005) argued, high network closure is instrumental in facilitating resource exchange. However, the down side is that talk, as a sense making process, means the environment becomes messier and more prone to conflict. Accordingly, managing the online environment is balancing on a fine line between just enough talk to make the environment productive, while minimizing the potential of (irreversible) conflict.

GENERAL CONCLUSION

This doctoral dissertation reports on an investigation of bottom-up and self-organized online neighborhood networks. This inquiry centered on conceptualizing online neighborhood networks and measuring its uses, investigating how its uses are associated to developing local social relations and facilitating local social support exchange, and lastly, contextualizing these online neighborhood networks in terms of its adoption rates and user base. These goals were tackled through a multi-methodic and a multi perspective approach. The results indicate that online neighborhood networks are collaboratively created digital neighborhood storytelling devices and tools for online neighboring behaviors, providing the means for local social interaction. They are predominantly used by older, socially integrated neighborhood residents with a lower socio-economic status. As emergent properties, online neighborhood networks function as (i) local social news streams that provide community awareness and (ii) as parochial spaces governing local social interactions, including local social support exchange. A pivotal role in these processes is attributed to a psychological sense of community. Sharing content to the network and engaging in supportive communication is instrumental in developing a sense of community, both online and offline. In turn, both online and offline sense of community directly and indirectly bring about the expectation of local social support access and enable the activation of neighborly help. In conclusion, online neighborhood networks allow neighborhood residents to develop an affective relation with a network of neighborhood residents which in turn provides access to neighborly help.

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APPENDIX

Table 19 Overview of the doctoral candidate's contributions to each chapter

Chapter	Title	Authors	Drs.' contribution
1	Introduction	*N/A*	*N/A*
2	Bottom-up hyperlocal media: Facebook-groups as collaborative neighborhood awareness systems	Jonas De Meulenaere, Cédric Courtois, & Koen Ponnet	Theoretical framework, research design, data collection, data analysis, & reporting
3	Measuring expressive and instrumental online neighborhood network uses: Development and psychometric testing	Jonas De Meulenaere, Bastiaan Baccarne, Cédric Courtois, & Koen Ponnet	Theoretical framework, research design, data collection, data analysis, & reporting
4	Neighborhood hotspots and community awareness media: The double role of Social Network Sites in local communities	Jonas De Meulenaere, Bastiaan Baccarne, Cédric Courtois, & Koen Ponnet	Theoretical framework, research design, data collection, data analysis, & reporting
5	Explaining local social support mobilization via online neighborhood networks	Jonas De Meulenaere, Bastiaan Baccarne, Cédric Courtois, & Koen Ponnet	Theoretical framework, research design, data collection, data analysis, & reporting
6	Exploring the user base of online neighborhood networks: determinants of online neighborhood network membership and uses	Jonas De Meulenaere, Cédric Courtois, Michel Walrave, Lieven J.R. Pauwels, Wim Hardyns, & Koen Ponnet	Theoretical framework, data analysis, & reporting
7	Discussion and conclusion	*N/A*	*N/A*