Social support for digital inclusion of women in South African townships

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ABSTRACT

Despite strong evidence of its critical role in facilitating digital inclusion, social support – the emotional, instrumental and informational aid received from support networks to assist an individual's use of digital technologies – remains an unexplored area of research in low-resourced South African communities. By drawing on the 'Typology of digital social support' framework, this paper presents rich insights into the intricacies of the underlying motivations, behaviour and help-seeking processes in the digital engagement of women in South African townships. The findings show that the women had the strong social embeddedness necessary for digital support and relied on a range of nuanced and cross-cutting support-seeking strategies, including formal and particularly informal support channels and, to a lesser extent, self-learning.

This qualitative phenomenological study relies on in-depth individual interviews with a small sample of women in three South African townships. In revealing potential disparities between social support in developed and developing regions, the study affirms the need to prioritise further South African research and the development of theoretical frameworks grounded in local realities.

1. Introduction

Some degree of technological engagement is critical for full participation in society today. Digital inclusion and the necessary preconditions for optimising the benefits of information and communication technology (ICT) has long been a topical issue. Early theoretical perspectives – specifically related to access and skills – are largely mirrored in the digital inclusion interventions of many developing countries, including South Africa, where efforts by the government have largely centred around establishing telecentres and Wi-Fi hotspots in disadvantaged communities. In a country where only half of citizens access the Internet (Gillwald et al., 2018), it is critical that our understanding of how people come to adopt technology and develop skill sets reflects the reality of society, and that interventions follow suit.

Social support has been proven to play an integral role in digital inclusion, yet has typically received less focused study. Asmar et al. (2020, p. 140) define social support for digital inclusion as:

> … the aid—emotional, instrumental, and informational—that an individual receives from his/her network in his/her use of digital technologies…. Social support for digital inclusion points thus to the diverse nature of support networks and highlights

the variety of support seeking patterns people use and/or combine, from individuals without access to support networks, to individuals who gain support by emulating others.

Quantitative perspectives have increasingly shed light on important areas such as indicators predicting aspects of social support and relationships between relevant digital inclusion variables. Limited qualitative research, however, has resulted in a body of "often unnuanced academic literature on social support" (Asmar et al., 2020, p. 142), which is troubling given the subtle yet critical role of such support in the manner in which technologies are (or are not) used.

Through in-depth qualitative investigation of a small sample of women, this paper provides richer insight into existing typologies of social support, specifically from the context of women in disadvantaged areas, commonly known as townships. It aims to contribute to the limited empirical studies exploring the nuances and intricacies of the underlying motivations, behaviour and processes of help-seeking. It addresses how women in South African townships approach the adoption of technology and skills development and the nature of social support in this process. The research question for this study therefore was: What social support strategies do women in townships employ in using ICT and developing digital skills?

In presenting these findings, the article draws on the framework of Asmar et al. (2020) and their typologies of social support. The remainder of this paper: a) provides background and context to the subject of social support in digital inclusion; b) explains the research methodology; c) describes key research findings; and d) addresses the research question with an integrated discussion and recommendations.

2. Literature

2.1. Related work

2.1.1. The South African technological landscape

According to data collected in 2017, South Africa had an Internet penetration rate of 53 %, with 85 % of the population owning mobile phones (Gillwald et al., 2018).[1] Despite such pervasive ownership, only 47 % of these phones were smartphones, leaving many without Internet access. The affordability of devices and services has been the primary inhibitor to Internet use in the country, where mobile data prices have been described as "incredibly expensive for the poor" (Bottomley, 2020). This is especially relevant given that South Africa is a mobile-centric country where the majority of Internet users connect strictly via these devices (Gillwald et al., 2018; Statistics South Africa, 2020a).

The National Digital and Future Skills Strategy (Department of Communications and Digital Technologies [DCDT] (2020)) of the South African government identifies specific digital skills development facilitators as drivers of ICT access and digital skills development. Unsurprisingly, these 'intermediaries' continue to be an important resource and often the sole gateway to technologies and learning opportunities for low-resourced communities in townships – "underdeveloped, usually [but not only] urban residential areas, which were reserved for non-whites [Africans, Colored and Indians] who lived near or worked in areas designated for whites only during Apartheid" (Booi et al., 2019, p. 153). These areas typically have poor telecommunication infrastructure, and personal ownership of computers and other high-quality devices are scarce (Aji et al., 2010; Rospabe and Selod, 2006).

2.1.2. Social support for digital inclusion

Early conceptualisations largely positioned the 'digital divide' as a matter of access to ICT, and gradually came to include the digital skills required for usage. More recent discourse has prioritised other critical factors, such as self-efficacy, motivation and meaningful engagement with technology to attain the benefits or "tangible outcomes" of ICT (Helsper et al., 2015). The complexity of these aspects, as opposed to the binary nature of a digital divide, has seen many favouring more nuanced alternatives in discussion, such as 'digital inequality' and 'digital inclusion'. Social support has received growing attention as one such aspect that may facilitate inclusion (Asmar et al., 2022; Borg et al., 2018).

Social support can be defined as the support given to individuals by other interacting individuals that may enhance their well-being, and assist them in dealing with stressful events and achieving particular goals (Cohen and Syme, 1985; Thoits, 1982). This may include: emotional support – behaviour leading an individual to feel comfortable, secure and cared for; cognitive support – provision of advice, information and knowledge; and material support – the supply of goods and services (Jacobson, 1986). Congruent with this conceptualisation, Straub (2009, p. 645) proposes that, as "a complex, inherently social, developmental process … successfully facilitating technology adoption needs to address cognitive, emotional, and contextual concerns". Social support therefore has been viewed as salient for facilitating digital inclusion, both in the initial steps of introducing individuals to ICT (i.e. providing access and motivation), as well as in the development of digital skills.

The literature indicates several ways in which individuals go about seeking support for digital skills development (if they do, in fact, seek it). Formal channels, such as computer courses, Internet helpdesks, libraries and digital inclusion intermediary centres, have traditionally been considered the foremost form of support for skills development. While formal support remains critical within a knowledge ecosystem (Meyers et al., 2013), drawing on the assistance of immediate informal networks has been identified as the most natural and common form of skills development (Asmar et al., 2020; Courtois and Verdegem, 2016; Tsai et al., 2017; Van Deursen

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[1] Although more recent national surveys have captured information about Internet access, this is typically pertaining to the household level rather than the individual level.

et al., 2014).

Family – particularly within the immediate home environment – and friends are a dominant source of such informal support. Material aid is often provided through access to devices and the Internet on account of living in households in which these resources are present (Eynon and Helsper, 2015). Mobile phones are commonly also gifted to older adults (Tsai et al., 2017; Xiong and Zuo, 2019) – typically older devices passed on from younger generations (Gatto and Tak, 2008). Family support has proven critical, especially for older people, in overcoming the initial fear of or difficulties in using new technologies. Knowledge transferred from adult children, and particularly grandchildren, to older adults (i.e. intergenerational learning) is a notably common form of informal learning (Barrantes Cáceres and Cozzubo Chaparro, 2019; Bencivenga, 2017; Eynon and Helsper, 2015; Tatnall, 2014). In contrast, adults have reported teaching their children how to use ICT, for example in school-related activities (Barrantes Cáceres and Cozzubo Chaparro, 2019).

Friends and family may also act as proxies, performing digital tasks for others. This provides emotional support by alleviating the individual's anxiety at the prospect of ICT usage, as well as instrumental or task-oriented support (Asmar et al., 2020). Broadly speaking, family and friends play an important role as 'warm experts' – those within the close social network with greater online proficiency who assist those needing help (Bakardjieva, 2005). Given time, the assisted themselves have taken up the role of warm experts, helping others in need of support (Bakardjieva, 2005). Finally, while debatable whether colleagues constitute an informal or formal channel of support, there is consensus that these role players and the workplace itself play a significant role in social support for digital inclusion (Asmar et al., 2020; Courtois and Verdegem, 2016; Van Deursen et al., 2014).

The critical role of family, friends and colleagues underlines that having a strong social embeddedness is highly significant in getting the necessary support for digital engagement (Asmar et al., 2020; Courtois and Verdegem, 2016). It therefore is important not to lose sight of those lacking this social embeddedness and who thus are 'support-deprived' (Asmar et al., 2020). Asmar et al. (2020)

Type of support	Characteristics	Type of support	Characteristics
Support-Deprived	• Low level of digital skills and of often in situations of social precarity and/ or social exclusion. • Acknowledge that they need help with digital technologies but in the incapacity to find someone to help because of their situation of exclusion. • Found within all three life categories (18-years old; 31–50 years old; 51–70 years old)	**Network-Supported**	• Draw support mainly from close social circle (family/children/spouses/close friends and/or coworkers. • Show the importance of social embedding: to be able to draw support, there is a need to be integrated in a social network. • Mostly, 2nd life category (31–50 years old) and 3rd life category (51–70 years old).
Community-Supported	• Almost all sources of support come from computer room and/or computer classes. • Computer room/classes seen as: — a way out of potential exclusion, both at the social and digital level — a way to become more independent (no longer depends on children for support) • Mostly respondents from 3rd life category (51–70 years old)	**Vicarious Learners**	• Do not explicitly ask for support but learn by emulating others. • Rely on watching friends' and family's use of digital media and from then onwards start learning by doing. • Mostly respondents from the 1st life category (18–30 years old).
Supported Through Substitution	• Do not directly engage with digital media but ask someone in their close social circle (generally family members) to accomplish a specific task for them (e.g. send an email) • Spotted with older couples where one spouse either has more skills than the other or when one spouse does not want to use digital media. • To be distinguished between a) supported with low digital skills, and b) supported with low motivation. • Mostly respondents from late 2nd life category (41-50 years old) and 3rd life category 51–70 years old)	**Self Supported**	• Do not seek support from the domestic sphere but are a great source of support for others (mostly domestic circle). • Reveal high levels of digital skills and digital fluidity. Are more likely to stretch out of their comfort zone to learn new things. When help is needed , they look for solutions online and learn by doing. • Mostly respondents from the late 1st life category and early 2nd life category (between, 25 and 45 years old). Mostly male and highly educated.

Fig. 1. Patterns of social support.

state that these individuals often tend to be in difficult or unstable living conditions, have limited or inexistent social networks, and lack the resources required for sufficient access to technology.

In contrast, not everyone has been found to need (or want) support. Independent (Van Deursen et al., 2014), self-reliant (Courtois and Verdegem, 2016) and self-supported users (Asmar et al., 2020) typically engage in self-directed learning, "playing around" with technology (Tsai et al., 2017, p. 29), or using self-collected instructional material (Van Deursen et al., 2014). Some independent users still appreciate some form of structured help (Tsai et al., 2017) – alluding to the nuanced and cross-cutting nature of support-seeking strategies. Digital users with higher skills also tend to be less satisfied with the available support, strengthening the tendency to be self-reliant (Helsper and Van Deursen, 2017).

Finally, studies have emphasised the importance of emotional support and an understanding and encouraging environment for successfully acquiring digital skills (Dalberg Global Development Advisors, 2012; Advisors, 2012; Liff et al., 2004; Lin et al., 2010), which at times is more influential than instrumental or cognitive support (Chu, 2010). However, family members may be impatient and reluctant, or withhold support, thereby causing anxiety or embarrassment and negatively affecting confidence, self-efficacy and motivation to learn (Chou et al., 2013; Lin et al., 2010; Xiong and Zuo, 2019). Lin et al. (2010) found that the absence of support from family members was particularly constraining for middle-aged and elderly women, given that they already had low self-efficacy and little confidence. This may increase dependence on others and adversely affect individual development and digital interaction, particularly among those with poor skills but strong social embeddedness (Thompson and Paul, 2016). On the other hand, the frustration of relying on family members has reportedly left some determined to be self-sufficient and seek other forms of (often formal) support in their digital skills development (Asmar et al., 2020).

2.2. Theoretical framework

In recognising the limited qualitative research focus on social support in relation to digital inequalities, and on the basis of Belgian research findings, Asmar et al. (2020) developed a 'Typology of digital social support' framework, composed of six patterns of help-seeking, namely: 1) the support-deprived; 2) the community-supported; 3) the supported through substitution; 4) the network-supported; 5) vicarious learners; and 6) the self-supported. The key characteristics of each of these patterns are outlined in Fig. 1 below and will be considered throughout the discussion.

Asmar et al. (2020, p. 142) have made clear that the patterns outlined above are not mutually exclusive, given that "people combine varied forms of support to meet their needs". Likewise, the social support patterns of many participants in this study have characteristics cutting across multiple typologies. This consequently has often made categorising or typecasting a difficult endeavour; however, this speaks to and further highlights the nuanced nature of the social support that is central to this study. Nevertheless, the framework allows for a practical and effective means of structuring the study findings presented in section 4 of this paper. Furthermore, contrasting the findings from developed and developing countries (i.e. Belgium and South Africa), also allows for a richer and contextualised discussion of social support for digital inclusion presented in section 5 of this paper.

3. Methodology

The findings presented in this paper emerged from a broader doctoral study, which sought to gain in-depth understanding of individual women's perspectives and lived experiences of ICT. Given this objective, a qualitative research strategy and a phenomenological approach were adopted.

> Phenomenology is concerned with the study of experience from the perspective of the individual, 'bracketing' taken-for-granted assumptions and usual ways of perceiving. Epistemologically, phenomenological approaches are based in a paradigm of personal knowledge and subjectivity, and emphasise the importance of personal perspective and interpretation. As such they are powerful for understanding subjective experience, gaining insights into people's motivations and actions, and cutting through the clutter of taken-for-granted assumptions and conventional wisdom (Lester, 1999, p. 1).

Table 1
Participant demographic information.

Participant	Age	Education	Employment description	Relationship status	Children
Helga	45	Post-school qualification	Teacher	Married	3
Diane	64	Grade 6	Retired	Married	3
Eleanor	51	Grade 11	Homemaker	Married	2
Iris	30	Post-school qualification	Self-employed	Boyfriend	1
Charlene	50	Grade 12	Administrative work	Divorced	3
Grace	21	Grade 11	Student	Boyfriend	1
Bongiwe	34	Post-school qualification	Self-employed	Single	2
Jasmine	59	None	Domestic worker	Single	3
Rashieda	36	Grade 12	Unemployed	Married	2
Annie	19	Grade 12	Unemployed	Single	0
Fiona	58	Grade 10	Unemployed	Married	3
Belinda	41	Post-school qualification	Unemployed	Married	0

Data collection was conducted in 2017 by way of semi-structured individual interviews, which were recorded, transcribed and analysed with the use of the computer-assisted qualitative data analysis software (CAQDAS), ATLAS.ti©, using the process of interpretative phenomenological analysis (IPA). Sampling decisions in IPA should be made from the perspective that the focus is on the depth, rather than breadth, of the study (Pietkiewicz and Smith, 2012). IPA studies therefore consist of small sample sizes, in a range of one to 15 participants (Pietkiewicz and Smith, 2012). Although 15 generally is unusually large for this approach, it provides researchers with more opportunities to explore both similarities and differences between individuals (Pietkiewicz and Smith, 2012). This was an intention of the present study, in which the sample comprised of 12 women living in under-resourced areas in the Western Cape of South Africa (specifically Khayelitsha, Saldanha and Mitchells Plain). The women were diverse in age, employment, education, marital status and cultural and religious groups (see Table 1).

The respondents were identified and contacted with the assistance of community workers and local intermediaries. Upon completion of data analysis, additional follow-up interviews were conducted with several of the respondents where more information was required. This process was beneficial in adding further depth to the data. Informed consent was obtained after respondents were advised that their identities would remain anonymous and that their voluntary participation could be withdrawn at any stage. All names used in reporting of the research results are pseudonyms.

4. Results

4.1. The support-deprived

All participants were able to find assistance in operating their mobile phones if need be – even if the network of people to draw on was very small. However, the case of a 59-year-old domestic worker and sole breadwinner for her household of nine people is notable in the context of the support-deprived. Although avid mobile phone users, Jasmine's network of family and friends have extremely limited interaction with computers and believe them to be "only [for] school and working in offices". This has left her with little opportunity for computer interaction, given her line of work and the fact that she has no schooling whatsoever. The same holds for her network, who are primarily unemployed or involved in the informal sector, for example "selling things at the station" or "sweeping the streets". According to Jasmine, lack of ownership of computers in her social circle has resulted in her having "no chance" for computer use – despite interest in doing so.

4.2. The community-supported

Although five participants had participated in training interventions, only one used public community resources as a primary means of support. Lack of ability drove 30-year-old, self-employed Iris's reliance on the local telecentre, despite personally owning the necessary devices – by her own account, "wasting money". Mobile phone training led to a drastic change in attitude, from an admitted distaste for technology to:

> Technology has so much power. I really didn't know […] They opened my mind what you can do with your phone […] Now I'm like wow, this is how it works! I was so excited, like a baby. Oh my god, now I can do so much with my phone. (Iris, 30)

All participants who had undergone digital training were motivated solely by professional goals: gaining a qualification for employment or advancing their small business. Even some of those already confident in their digital skills, as well as in their capacity for self-learning, perceived this to be insufficient in the world of work without having "the papers" to show for it: "It helps a lot now that I have a certificate to show that I have computer [training …] Especially if you're a woman and you're looking for work" (Rashieda, 36). The combination of formal guidance and individual practice is however appreciated:

> Most of the time, I want to do things on my own […] You obviously need that guidance also. So, I would say yes, you can teach but after a while I'm going to switch off because now I'm going to do my own thing. (Rashieda, 36)
> [F]or someone to just demonstrate makes things easier but being thrown in the deep end, it works for me as well. (Bongiwe, 34)

This approach is in contrast with that of aforementioned Iris, who was "nervous" to perform new mobile phone activities independently and constantly sought the instructor's close supervision. Aversion to self-learning underlay her making no attempt to explore the possibilities of her laptop. For those already inclined to self-learning, formal training improved their confidence to be self-supported users.

4.3. The supported through substitution

All participants viewed sole ownership of a mobile phone as a critical aspect of independence. Actual use of the device was a different matter, however, and five of the women often relied on proxy users due to their own lack of ability.

Jasmine's (59) extremely poor digital ability is inextricably linked to her illiteracy. Unable to read the names of her contacts, she has come to recognise the phone numbers of a few friends and family members. Any additional digital tasks are assigned to her grandchildren who live with her. Others of similar age may be Internet users, but only to a very limited degree, aptly encapsulated in Diane's (64) statement: "I've never been to Google […] I'm just glad I've got a phone to phone and to get a phone call or to go and send a WhatsApp […] I don't actually scratch in phones." Acute awareness of poor ability results in discomfort, hesitation or fear when engaging beyond the very basic features with which they are already familiar: "I feel a bit scared because I don't know what to do and if

I do, then it's going to be trouble" (Diane, 64). Responding to the prospect of using an online search engine, Fiona (58) declared: "I'm not going on my own […] I need some help". The "help" sought, however, is in the form of children and grandchildren performing tasks on these women's behalf. A participant's habit of taking photos on her mobile phone and requesting her grandson to share the image via her WhatsApp account is a fitting example of the way in which support through substitution presents amongst the women: digital technologies are enjoyed and the substitution is partial rather than in full. However, retrieving online information is an activity left entirely to the proxies of these older participants.

> My daughter is very good in [finding information] […] She will tell me 'Don't worry. I'll Google it for you and then I'll phone you'. (Diane, 64)
> I didn't really understand what [the medication was], so [my daughter] told me they're going to Google […] That's also very good with the phone […] To help us with things, whatever you need you can go and Google and they will explain it to you. (Fiona, 58)

Both women hold highly positive perceptions of these digital platforms, stemming solely from the experiences of their proxies. Despite a reported genuine interest in being taught, family members appear unwilling to take the time to teach and opt to perform the tasks themselves.

> I would like to do that [but they're] busy. They must give me a chance with that. (Fiona, 58)
> I wanted to do it. Jason didn't want to help me because he had too much homework. He said, 'Ma, not now, later.' So, I left it. (Diane, 64)

Impatience or reluctance to teach also seemingly stems from a perception that instruction is wasted on older women, given supposed forgetfulness and slow learning pace: "[My children and grandchildren] don't want to [teach me]. 'We must show you again tomorrow, so leave it.' [… My husband] will tell me, 'It's no use I'm going to teach you. Tomorrow you will ask me again'" (Diane, 64). Twenty-one-year-old Grace acknowledges performing tasks for her mother due to the repetition required to teach her: "I'm not that patient […] I'm like, 'Mommy, but I just told you now.'" The subtle manner in which her mother requests to be taught to use more applications assists Grace in ignoring these cues.

Being taught comes at the price of being belittled for Charlene (50), who is often called "stupid" by her adult sons. Concerningly, she also refers to herself as "not that clever" in certain digital activities, despite evidence suggesting otherwise. She has consequently resorted to a strategy of 'playing dumb' – feigning complete ignorance – in order for tasks to be performed on her behalf and avoid negative interactions with her sons:

> I knew where I had to actually go but I said 'Oh, must I go to tools?' [He says] 'No! Stupid, you must go to Play Store!' I knew if he just downloaded the app and do it, it would be quicker and better […] They're always moaning and groaning, 'Mommy, you stupid.' […] So, if I'm so stupid, I don't want you to still explain. Just do it […] Because of their impatience […] If they want to show me, there's no time for a note because then I already hear I'm stupid. So, stupid stops and stupid gives it to them. Just do it.

This is in stark contrast to the supportive approach of her colleague:

> She will say: 'No, it's okay I will show you and then you can make the notes.' So, then I don't mind if I can't get to it, there was somebody that would guide me through it. On the other hand, if you're impatient and scolding then I feel you just do it. I'm not going to make an effort then.

4.4. The network-supported

Reliance on immediate networks was by far the most common pattern of support and sought by participants across all life stages. Familial support was particularly significant given the three-generation households of several women and the consequent influence of grandchildren in particular. Many older women receive their smartphones when children or grandchildren upgrade to new technologies.

Colleagues were another channel of support for the two women in formal employment. One relied significantly on co-workers to assist in completing work-related tasks involving spreadsheets. The other had created a Facebook account when a colleague suggested "Let's play a game". Friends and neighbours also proved highly influential, as explained by Charlene (50): "The crowd that we sort of involved with, they are quite into Google and that makes that I'm also making use of it." Local churches played a notable role in providing Wi-Fi access to church and nearby community members, and motivating participants to be digitally active (for example, WhatsApp chat groups enjoyed by older participants and requiring church leaders to engage on the organisation's Facebook page). Older church members were reportedly enjoying the Internet access and increasingly participating in new digital activities.

Most network-supported participants strongly disliked independent exploration of new applications. Several ultimately undertook tasks on their own after instruction and time to internalise the new information.

> I like if somebody [shows] me but let me just make a note so I can do it on my own and refer to my notes […] Even photos we used to take and first how we have to download it and transfer it onto the computer […] I made notes for myself and eventually I could do it on my own because I got used to doing it. (Charlene, 50)

Such learning environments are not always possible. Children have attempted to discourage participants from social media because

they perceive it as inappropriate for their mothers, while several women described males as particularly unhelpful: "[Men] would have the patience for [only a short] time […] As a woman you have to figure it out yourself" (Belinda, 41). Several participants had faced opposition from male partners in using their devices on the basis of deeply embedded sociocultural gender norms, claiming that ICT would deter women from their expected responsibilities of childcare and housework. One participant's more advanced use of technology was seemingly viewed by her husband as a threat to the power dynamic in their relationship.

4.5. The vicarious learners

Twenty-one-year-old Grace is a fitting example of the cross-cutting nature of social support patterns, presenting characteristics of community, network and even self-supported profiles: She had formal computer training in school, which instilled a solid foundation of confidence, and has a close circle of friends who are able to provide support if necessary, but primarily adopts new technologies through independent exploration. Her general thought process is: "Okay, it's new. I'm just going to try it […] I don't ask. I just do my own thing and I see okay, you must go like this, do it like that." Grace most closely resembles the profile of a vicarious learner, who:

> … distinguish themselves from other patterns of support, as they gain confidence from watching the digital uses of friends and family members before deciding to use the technology themselves … Once the vicarious learners are convinced of the validity or usefulness of digital tools, they start discovering the digital by themselves through trial and error (Asmar et al., 2020, p. 146).

One example of such behaviour is Grace's adoption of the social media application, Instagram, after observing the activity of her friends. Adamantly opposed to using the application during the first interview, this stance had reversed by the second: "I just think it's interesting now […] I need to get on Instagram. I just changed my mind." As is also common of vicarious learners, Grace provides the primary support for her low-skilled immediate family.

4.6. The self-supported

Following years of work that was dependent on computers, two of the participants are tech-savvy, independent learners and actively seek out "challenge" (Bongiwe, 34) in new technologies. Rashieda (36) described the following scenario:

> I had to send 3 000 emails every weekend. I thought to myself, I need a quicker thing here […] Then I went on to YouTube and typed in 'how to send 10 000 emails quickly'. It gave me a little video where it explained everything and I thought […] I'm gonna try this. That's how I taught myself how to mail merge.

Though typically self-taught, both women had undergone training, albeit solely for professional purposes. While preferring self-learning, Rashieda reported that it would be difficult to gain support through her network, as she was generally the most knowledgeable: "There is basically no one that you can ask […] So, you have to figure it out for yourself." Maintaining this knowledgeable reputation is important to her, particularly amongst her children.

Rashieda and Bongiwe are the primary support for their networks, particularly prioritising the skills of their children. Bongiwe prides herself on the fact that her children "don't have to go outside in order to get assisted"; while Rashieda ensures that "whatever I know they know". Interestingly, while one woman adopted a teaching role, the other also adopted a proxy role, completing school-related digital tasks on the child's behalf. Bongiwe also interacts with teenage girls in her township, promoting technology as a career path.

5. Discussion

At the core of these findings regarding social support for digital inclusion is the fact that each participant in this study – women in townships – had strong social ties within their respective networks and often also their broader communities. Woolcock (2005, p. 12) notes that:

> The urban poor … rely heavily on their friends and relatives to help them both 'get by' and 'get ahead.' Faced with institutions, policies, and services that are frequently hostile, inadequate, or indifferent to their concerns, the urban poor have little choice but to valiantly deploy a range of coping strategies, chief among them the use of their social networks, to provide everything from credit and physical security to information about housing and employment opportunities.

The norms and networks upholding such support are commonly referred to as social capital, with 'bonding (social) capital' – kinship and intracommunity ties – potentially abundant in such areas (Woolcock, 2005). Evidence of such bonding capital emerged in this study, where strong social embeddedness distinguished all participants from the theoretically support-deprived grouping (characterised by limited or inexistent social networks). Some, however, resembled this typology in their precarious socio-economic conditions and low economic resources, which constrain their access to and ownership of quality digital tools (specifically computers and high-quality smartphones). Given the nature of townships described earlier, and the evidence that the social network shares the same poor living conditions and resources, little opportunity is left for adequate support and improved access to out-of-reach technology. The "sense of powerlessness" (Asmar et al., 2020, p. 143) of the support-deprived typology is mirrored in the "no chance" sentiment in this study. This supports the argument of Helsper and Van Deursen (2017) that those most in need of assistance tend to be the ones lacking opportunities for high-quality support.

Overall, the social support patterns of the women in this study were nuanced and, in most cases, cut across multiple typologies.

Most women were reluctant to experiment with technology independently and unwilling to venture beyond familiar platforms. There was a deep-seated belief that broadening their range of digital activity must happen under the guidance of someone more knowledgeable, be it via informal or formal intervention. Informal channels were most clearly prevalent. Congruent with existing research (Asmar et al., 2020; Courtois and Verdegem, 2016; Tsai et al., 2017; Van Deursen et al., 2014), family members were relied on to various extents for material, cognitive and emotional support for adopting ICT, developing skill sets and broadening their range of use. Familial support was important for participants of all ages and may likely be even more significant in the South African than in the Belgian context, given that "traditional family structures … remain very important … where large proportions of the population are subject to debilitating poverty and unemployment and institutional support is inadequate" (Statistics South Africa, 2020a, p. 6). Familial support from children and particularly grandchildren proved fundamental to the digital activity of participants older than 50 years, largely enabled by three-generation household structures. Such extended family households are highly common in South Africa, with over two-thirds of households classified as such in 2020 (Statistics South Africa, 2020a). This is even more noteworthy given the prevalence of this trend amongst disadvantaged groups as, historically, "the concept of extended family living has been common among SA's black population" (Fin24, 2016). Ultimately, these findings correlate with the literature, which suggests that those relying most on their family tend to be older women, unemployed and from larger families (Courtois and Verdegem, 2016; Van Deursen et al., 2014). Friends and co-workers were also influential and the findings support the view that those relying on a combination of co-workers, family and friends are able to draw on a range of informational, instrumental and emotional support (Asmar et al., 2020).

While the supported through substitution typology includes two profiles – (1) those with low digital skills and button anxiety; and (2) those who are not motivated to use digital technologies – only the former group emerged in this study, i.e. women calling on proxies due to anxiety, fear and lack of ability. Corresponding with the profile, these participants were predominantly older and the least educated. While there certainly were women lacking motivation, it was claimed that there were no circumstances requiring more than their current basic digital activities and therefore no need for proxy support.

This alludes to a departure in the findings from that of the theoretical framework. Asmar et al. (2020) found that those dependent on proxies often have negative perceptions of digital engagement, given the societal pressure on them to use ICT. In the present study, there is no indication that those using proxies feel any such pressure. Furthermore, while the older adults in the typological community-supported grouping of Asmar et al. (2020) fear being unable to function in a digital society, older South African participants did not share this sentiment and were content with proxy or network support. It is plausible that the contrast in findings lie in significantly different levels of digital transformation between developed and developing countries and/or regions (Dutta and Lanvin, 2020) – while technologies have been embedded in critical services and are increasingly unavoidable for citizens in the former, digital activity by older South Africans in townships currently remains more optional than necessary.

The sources of support in the theoretical community-supported typology, which include a range of more formal, institutional level support as well as other sources like NGOs, may differ from the nature of intermediaries and local community-based organisations in South African townships. One community actor emerging from the study's findings, for example, was the local church, which provides material aid and holds considerable sway in the participants' digital activities. Such informal institutions, which are deeply embedded in the community and seemingly increasingly adopt the role of facilitator of digital inclusion, may be salient in a South African context and add another dimension to a *community*-supported typology.

Women in this study seeking formal (community) support from intermediaries all did so while in their 30s or younger. The theoretical motivation for this form of help-seeking – i.e. sustaining livelihood – is likely intensified in South Africa, considering the striking contrast in unemployment rates: 5.6 % in Belgium in 2022 (Trading Economics, 2022) and a staggering 34.4 % in South Africa in 2021 (Statistics South Africa, 2021). Given that Black women and youth – South Africans between the ages of 14 and 35 – are affected disproportionately (Cerruti and Baloyi, 2020; Statistics South Africa, 2020b), it is unsurprising that these participants were highly inclined to undergo training in the hope of improving their employability or small businesses. Skills development, in and of itself, was not always the participants' motivation for seeking formal support, but rather the certification of training to compete in the strained labour market. Formal support was thus sought even where digital skills were already high and self-learning was preferred. While these findings therefore differ from the typological community-supported in terms of motivation and who seeks such support, it strongly supports the argument that social support is often a pre-emptive measure towards a broader objective, rather than a response to lacking the skills needed to complete a particular task (Asmar et al., 2020).

Intermediaries were also visited for material aid, as data-intensive services were largely unaffordable. Research in low-income South African communities has revealed that high data costs, poor Internet connectivity and lack of devices were instrumental in forcing community members to seek support in accessing ICT (Western Cape CoLab, 2022). These intermediaries were also compelled to fulfil a broader role (beyond the provision of access and skills) in providing basic necessities, including food, transportation and hygiene products (e.g. sanitary pads) to enable citizens to participate in training interventions. In motivating citizens to capitalise on technology, the study by the Western Cape CoLab (2022, p. 8) concluded that intermediaries played a "change agent, coaching and mentoring" role.

As with prior research (Courtois and Verdegem, 2016), the inclination towards self-learning was less common among the participants. Self-supported participants (and vicarious learners) typically provided the core support by instructing and/or acting as proxies for others in their social networks. In making the decisions about which approach is followed (i.e. teaching or simply doing on behalf of), these 'warm experts' certainly were the "gatekeepers in the distribution of knowledge" (Asmar et al., 2020, p. 147). It therefore is unfortunate that many "gatekeepers" in the participants' networks proved to be impatient, discouraging (albeit in a subtle manner) and reluctant to teach. Similar to previous reporting (Lin et al., 2010), poor emotional support was particularly constraining for the older women, who were mainly low skilled and either highly or solely dependent on familial support. Proxy support was therefore preferred not only by network members reluctant to teach, but by participants attempting to avoid unpleasant methods of

instruction. While observing proxies left the participants with positive perceptions of ICT, it largely failed to result in attempts at independent usage. This correlates with reporting that having strong social networks may in fact have an adverse effect on women's digital interaction in precluding learning and self-sufficiency (Thompson and Paul, 2016).

Although the subject matter has received little attention in the theoretical framework, several findings emerging from this study may have real implications for social support for digital inclusion in a South African context – most particularly for women in townships. Firstly, a gender dynamic is salient given the striking challenges of gender inequality and patriarchy that are deeply entrenched in South African society (SAHRC, 2018; Thobejane, 2015). This was evident in the study findings, displayed in the belief that extensive use of ICT is not necessary or unsuitable for older women; and in the deeply embedded sociocultural gender norms that underlie male resistance to women's use of technology. Support was also crucial in the access to childcare necessary to allow participants the time to attend training interventions, visit community facilities or simply explore their devices at their leisure (Pokpas, 2019). This is especially relevant given that women disproportionately carry the responsibilities of childcare and housework (OECD, 2014).

In addition, poor literacy persists as a significant challenge, specifically amongst women in developing countries (UNESCO, 2021). Typological profiles, such as the 'supported through substitution', may consider that underlying a lack of digital skills is a lack of literacy required to engage meaningfully with technology and therefore resort to calling on proxies – as was the finding of this study. A language barrier may compound this challenge, as English digital content may be poorly understood by a large population who lack fluency in it. Finally, in contrast to the framework's significant focus on computers, one grounded in South African realities should make explicit reference to mobile technology, given the country's mobile-first (and mobile-only) population (Gillwald et al., 2018).

6. Conclusion

The participants in this investigation – women in South African townships – relied on a range of support-seeking strategies to gain material, cognitive and emotional aid in digital interactions. These strategies ranged from formal training channels, learning by observing, self-learning and informal learning through family, friends and colleagues, to the absence of learning altogether and having digital tasks performed on their behalf. The strategies employed by women were cross-cutting and nuanced, as "people combine varied forms of support to meet their needs" (Asmar et al., 2020, p. 142). Informal learning was certainly the most prevalent, and a preference for self-learning less common.

The typologies proposed in the (Belgian) theoretical framework are highly relevant and applicable to these South African findings. It is critical, however, to echo the sentiment of Asmar et al. (2020, p. 144) that "the social context of the individual is crucial to explain the deeper motivations stimulating people to seek support". A more nascent state of digital transformation, along with precarious socio-economic conditions (specifically for women) in South African townships leads to variations in the support strategies employed, which affects the motivations for seeking support and the characteristics of the typologies. This includes a different take on the conceptualisation of support-deprived women (where digital resources may be limited but social ties and bonding [social] capital abundant); a potentially greater reliance on informal (familial) support; potentially more significant overlapping between typologies (e.g. community support and self-learning); and reframing the nature and conceptualisation of community support – where the motivation for citizens, the nature of institutions constituting *community* actors, and the notably broader role of intermediaries in facilitating digital inclusion may differ. A framework for social support for digital inclusion grounded in local South African realities may also do well to reflect the role of pressing challenges, such as gender inequality and poor literacy, as well as make explicit reference to support with mobile phones.

The findings from the broader doctoral study (Pokpas, 2019) reveal that ICT had been integrated into the activities, needs and ambitions of participants and that there is great potential for women to be champions of innovation. This reinforces the need for efforts at digital inclusion to specifically target women in townships – a demographic group particularly at risk of exclusion (GSMA, 2018; OECD, 2018). Given the strong inclination to informal learning, and the notion that the "strength of the tie uniting individuals" (Asmar et al., 2020, p. 145) is important, such digital inclusion interventions may benefit from a proactive strategy of capitalising on existing social ties and local, trusted informal spaces strongly embedded in communities (e.g. churches). This may include enlisting digitally competent community members to impart digital skills, rather than waiting for the excluded to seek assistance from ineffective sources. The promise in an approach centred on social ties is strengthened by the fact that many participants already actively provide support to their broader networks outside of the digital context, for example visiting the elderly or mentoring young people. While this may suffice for many, it is important that such informal learning is supplemented with more formal assistance. Affordable (preferably free) and targeted training interventions via local digital inclusion intermediaries are necessary, particularly for South African youth. These organisations should be capacitated with the necessary resources to be sustainable in providing critical support to communities. In this sense, "solving a lack of available support of high quality is the responsibility of many actors in society" (Helsper and Van Deursen, 2017, p. 711).

In contributing to the relatively unexplored subject of social support for digital inclusion in South Africa, this study affirms the need to prioritise further research on this issue in this specific setting and to develop theoretical frameworks grounded in local realities.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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