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Author(s): Hirvonen, Helena; Tammelin, Mia; Hämäläinen, Antti; Taipale, Sakari

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RESEARCH ARTICLE

Group-based instant messaging in Finnish residential elder care work: Taming the technology or vice versa?

Helena Hirvonen[1] 🟢 | Mia Tammelin[2] | Antti Hämäläinen[1] |
Sakari Taipale[1]

[1]Centre of Excellence in Research on Ageing and Care, University of Jyväskylä, Jyväskylä, Finland

[2]Jyväskylä University of Applied Sciences, Jyväskylä, Finland

Correspondence
Helena Hirvonen, Centre of Excellence in Research on Ageing and Care, University of Jyväskylä, Jyväskylä, Finland.
Email: helena.m.hirvonen@uef.fi

Present address
Helena Hirvonen, Department of Social Sciences, University of Eastern Finland, Joensuu, Finland.

Abstract

As new communication technologies become embedded in care work, there is a need to understand how they affect its temporal order. This article analyses group-based mobile instant messaging (IM) in residential elder care work in Finland. The article asks (i) how care workers use group-based messaging for work; and (ii) how they negotiate the rules for its use. Theoretically, the article draws on science and technology studies focusing on 'taming' and 'unleashing' (Pols, 2017), and temporality (Wajcman, 2008). Analysis is based on a qualitative interview study of care workers and nurses ($n = 25$) conducted in 2018. The results showed how the time-shifting functionality of IM allows employees to 'tame the technology' and unleash effective communication practices. However, IM also increases a risk of boundless accessibility and tames its users, pointing to a growing need for time work to manage their work-life balance in the complex temporal order of care work.

KEYWORDS
care work, communication, elder care, instant messaging, science and technology studies, technology, temporality

INTRODUCTION

Instant messaging (IM) via personal mobile devices challenges the collective temporal rhythms of communication in workplaces and communities (Barber et al., 2019; Derks et al., 2016; Tammelin, 2018). IM applications as a mode of communication between workers have gradually found their way also to human service work and to health and social care units where communication typically takes place through telephone calls, emails, face-to-face meetings and increasingly through written entries in electronic patient records (Hämäläinen & Hirvonen, 2020). The aim of this article is to gain a greater understanding of how the implementation of new communication technology—in this case WhatsApp IM group chats—has consequences on the collective temporal practices in long-term, around the clock residential care work of older people in Finnish intensive service housing (ISH) units.

Until recently, residential care has typified the kind of employment where strict boundaries are drawn between work and private life with limited flexibility because the work is shift-based and takes place in a housing unit. However, the increasing use of smartphones and IM in the workplace, as well as implementation of New Public Management-inspired reforms to increase work flexibility and efficiency, have encouraged new communication practices to take root in care work. Previous reports suggest care work has become increasingly standardised, leading to time-pressure, exhaustion and an undermining of care workers' professional discretion and autonomy (Olakivi et al., 2021; Pekkarinen & Pekka, 2016; Trydegård, 2012). As care workers become increasingly pressed for time, they look for new solutions to manage their workload and to communicate efficiently.

In Finland, 19% of nurses and care workers in elder care services now use IM for work purposes (Karhinen et al., 2019). Among nurses (especially younger ones), IM is preferable to using email or the phone particularly in situations which require an immediate response, where the communication is on a relatively superficial level, and where more than two people are involved (Lebbon & Sigurjonsson, 2016). It is used for both clinical purposes such as information exchange, and for nonclinical purposes, such as socialising and offloading troubles (Bautista & Lin, 2017; Buschmann Iversen et al., 2013). On the one hand, studies suggest that IM has the potential to not only improve the socioemotional well-being and professional growth of health care professionals, but also to increase the flexibility and efficiency of how they work (Bautista et al., 2018). On the other hand, there are concerns about data protection regarding patient information, and that it may negatively affect employees' work-life balance—especially when personal smartphones are used for work-related communication, as is the case with nursing and care staff in Finland (Mobasheri et al., 2015; Reponen et al., 2018, p. 57).

There is currently little information on how IM affects collective temporal rhythms of work in the care of older people where time is a scarce resource. Temporality refers to the properties of time such as speed, cycle and timing, which concern the rules, norms and conventions of care work. With the implementation of new communication technologies such as IM, interruptions and ubiquitousness become embedded in care work. To deal with these changes, communication technologies such as IM offer a technical capacity for time shifting (Wajcman & Rose, 2011); this affordance means that users can delay, bring forward and program tasks in advance. In a work environment where workers are pressed for time, IM allows users to engage in what Flaherty (2011) calls 'time work', referring to individuals' efforts to manipulate the construction of situations to bring about particular types of temporal experiences and professional agency (Hirvonen & Husso, 2012).

Despite criticism in studies of care work, linear temporal order, where time is a resource to be used as optimally as possible and activities are separated and streamlined independently to achieve maximum efficiency, remains the dominant way of governing eldercare. Especially tasks directly involving the residents cannot easily be translated into definite clock-time units or executed without acknowledging the temporal complexity of human life (Adam, 1995; Wajcman, 2008). Each technology further challenges care workers' possibilities to manage and coordinate the temporal complexities of nursing care (Hirvonen & Husso, 2012; La Cour & Højlund, 2019). The question of how IM affects the spatial and temporal management of collegial communication and work when it enters ISH units is therefore at the heart of this article. Moreover, time is organised quite differently within and outside the workplace. How care workers and nurses use group-based IM for work purposes is thus also a question about the temporal organisation and boundaries between work and nonwork, and how these boundaries are negotiated within the working community.

Technologies might facilitate synchronisation of care, but they might also require more time-shifting activities to synchronise time and space. Højlund and Villadsen (2020) emphasise that more studies are needed on the situational, often invisible strategies that emerge when care workers aim to adjust new technologies to their professional codex. In this article, we analyse how such strategies and time-shifting activities are negotiated by residential care workers and nurses from round-the-clock ISH units for older people where the mobile IM application called WhatsApp is used. WhatsApp is an application that allows 'chats' between multiple users that allow a range of media to be transmitted: typed text, recorded audio, video, documents, images and audio files; as well as live video and voice calls. In 2017, it was the second most popular social media application in Finland with a user-rate of over 69% in all age groups (Audience Project, 2017). Globally, the demand for safe mobile health applications for communication between professionals currently outstrips their supply, which explains the popularity of commercial applications such as WhatsApp among professionals (Price, 2018).

In this article, we ask (i) how care workers and nurses use group-based IM for work and (ii) how they engage in time work and negotiate the rules for its use in terms of organisational and professional expectations and work-life-balance. The article is based on a qualitative interview study conducted in 2018 with Finnish residential long-term care (LTC) workers and nurses ($n = 25$). Focusing on this group provides new information on the use of IM in working life and especially on the ways in which new work practices are adopted in a dispersed round-the-clock care work community. Theoretically, our article draws from workplace and organisation studies indebted to science and technology studies (STS) (Pols, 2017), and with focus on temporalisation (Flaherty, 2011; Wajcman & Rose, 2011). The results contribute to the microanalyses on how care workers use new communication technologies and how this affects their outlook on boundaries between work and nonwork.

It is worth noting that few of the existing studies on the collective use of mobile technology in the workplace have dealt with the service sector or round-the-clock workplaces. Instead, the focus has been mainly on managerial and knowledge work (for an exception, see Hislop & Axtell, 2011). Moreover, IM represents a 'bottom-up technology' insofar as it is often initiated by the employees themselves. The consequences of its use may therefore escape unnoticed as 'invisible organisational practices' (Dupret, 2017) since health technologies are only formally evaluated when typically implemented from the top downwards. Analysing the ways care workers engage in or disengage from the techno-human practices of IM can give important cues to how technologies arrive in workplaces when not introduced by the employer.

In this article, we first present the key findings from previous studies on the use of mobile technology and the boundaries between (care) work and nonwork. We next describe the theoretical framework of the study, then the data and methodology used and the precise context of this study. After this, there are two sections devoted to the results, and finally the conclusions.

Use of personal mobile devices and IM in care work

Although the use of digital devices and applications is on the rise, studies regarding the benefits and risks of IM in health and social care work are somewhat disjointed. Not only are they rare, but their results are also inconclusive—possibly as it is still an emerging area of research (Chari & Gane, 2018; Wan et al., 2019). Some studies suggest that IM can help decisions to be made quickly while also facilitating communication, the exchange of ideas, employees' motivation, their concentration, and a sense of workplace community (Quan-Haase et al., 2005). However, studies also suggest it can frequently interrupt work, may extend the length of the working day, increase stress, negatively affect well-being (Mullan & Wajcman, 2019; Russo et al., 2019) and cause telepressure—the preoccupation and urge to respond to messages from work (Barber et al., 2019). Furthermore, IM in 24/7 shift employment (such as ISH) often takes place on employees' personal smartphones rather than equipment and devices devoted exclusively to work (Bautista & Lin, 2017; Bautista et al., 2018), thus work may interfere with their private life.

As a consequence, employees must engage in multifaceted strategies to manage, shape and control the boundaries between work and nonwork (Rose, 2013, 2014; Wajcman & Rose, 2011; Wan et al., 2019). While no one single factor dictates how individuals use and experience mobile technology, as Rose (2014) points out, there is evidence that this behaviour, and not conforming to boundary crossing preferences have significant repercussions for these negative outcomes (Derks et al., 2016). Decisions as to whether or not to cross these boundaries when using IM are guided not only by individual preferences, but also by factors such as organisational norms, the work culture, not to mention how employees picture their own job roles (Schlachter et al., 2018).

The culture of an organisation, especially the subcultures of teams, clearly affects how employees manage and experience the border between work and nonwork. In this article, 'organisational culture' thus refers to the internalised assumptions, values, beliefs, meanings and expectations that are shared by employees of a service housing unit (Mauno et al., 2005; Powell et al., 2009; Schein, 1990). In the context of care work, this also entails assessing if and how IM supports LTC workers' and nurses' ethical, professional standards and efforts to provide patient-centered care (Mol, 2008; Pols, 2017). In this respect, it is important to acknowledge the assumptions and values they attach to work flexibility and availability when new communication technologies are introduces to workplace.

Unleashing WhatsApp: Taming or tamed *by* the technology?

Theoretically, the present article subscribes to the idea—from the STS—that the identity of a technology is never given by their design alone, but is the result of their users' practices (Mol, 2008; Pols, 2010). A particular technology actively co-shapes what can be done with it, due to the specific and context-sensitive ways it addresses its users. In a sense, this means

technologies are scripted (Akrich, 1992; Latour, 1992); and the descriptions by LTC workers about the benefits and drawbacks of IM are thus 'scripts of technology use' (Pols & Willems, 2011). Technologies contain directions on who their supposed users are and how and when the technology should be used. However, scripts are not one-directional nor pre-determined; when a new technology is adopted in LTC work, it can create both new possibilities as well as unexpected challenges that are also scripted—as Pols and Willems (2011) point out (see also Dupret, 2017).

While the adoption of new technology in LTC work may allow an organisation to reinvent certain practices towards more efficient communication and information exchange, workers may also adopt resistive practices. Improvised use of the technology may lead to unintended consequences (Brown & Korczynski, 2010; Cameron & Webster, 2005; Saario, 2012). Pols and Willems (2011) call this mutual responsiveness between technology and user 'the taming and unleashing of technology'. To avoid determinism of either human or machine, their idea merges domestication theory—in which humans determine what happens—with script theory—where the technology is granted scripting power (see also Akrich, 1992; Pols, 2017; Stokke, 2017). In this sense, our study acknowledges mobile phones and IM as active participants in the ISH units and their constant process of temporal and spatial (re)arrangement where IM becomes a mediator for collegial communication, relationships and organising of daily work.

Technological scripts are always context sensitive. The work in ISH units is characterised by high time pressure and employees' responsibility for round-the-clock care and well-being of others under the participatory and efficiency-driven management culture. IM practices are thus coproduced by the technology and its users, with the result that the technology may tame its users (Pols, 2017), users may tame the technology or IM unleashes new communication practices. For one, this concerns the ways in which the time-shifting functions of IM and its users' possibilities to engage in time work to manipulate their experience of time.

The heuristics of these taming and unleashing metaphors can help bring forward the invisible organisational and social practices that the mutual responsiveness between IM and care workers creates in ISH units. This allows us to analyse how LTC workers harness the time-shifting capacity of IM, for example, by negotiating shared guidelines on the purpose and appropriate time frames for using the technology. Technology might facilitate care, but it could also require further time work from workers to synchronise time and space (Kamp, 2021). In light of this phenomenological understanding temporality (Flaherty, 2011) we investigate how IM as a technology affects the constitution of the practices of time management and the spatial and social organisation of work in ISH units. From the point of view of temporality, our focus on the taming and unleashing metaphors thereby taps into the paradox suggested by Rosa (2013) of the role of technology as a cause of acceleration of life and work, and simultaneously, also as a means to try to control this acceleration.

Data and methodology

Qualitative, semistructured interviews ($n = 25$) for the study were collected in 2018 from residential LTC workers and nurses employed in the ISH units of two Finnish cities. Interviewees were recruited either (i) via the cities' LTC unit managers who produced a list of interviewees for the researchers, or (ii) through an open invitation that was circulated electronically via ISH staff mailing lists. At this stage, it turned out that we would not get an access to entire ISH units

or teams but would need to recruit voluntary interviewees from various units. Given this limitation, we aimed at the composition of interviewees that would reflect a typical distribution of occupational groups and age differences in a Finnish ISH unit. This methodological choice aligns with our epistemological premise that aimed to reveal a whole spectrum of meanings and practices associated with technology use at ISH units, and not to detect trends or make comparisons between occupational, age or any other groups. The first means of recruitment provided preselected informants whose participation was probably encouraged by their manager, while the second provided those who subscribed of their own initiative. Most interviews were conducted at the interviewee's workplace during their shift, one took place at university, and one in a researcher's home.

ISH units are managed on the basis of national-level policy aims, guidelines, and legislative and professional standards according to which municipalities allocate necessary resources to ISH units (Anttonen & Karsio, 2016). All units thereby fulfill the same criteria concerning the quality of personnel, equipment, facilities and other conditions. The interviewees represented a typical sample of the workforce in residential care ISH units: most were either practical ($n = 14$) or registered nurses ($n = 8$)—some of whom had a managerial role in their unit; while the other interviewees were activity instructors and occupational therapists ($n = 3$). All groups were involved in hands-on, multiprofessional teamwork in their units and shared many of the same responsibilities and care tasks. All groups also participated in shared communication networks in their units. Gender distribution among the interviewees was also typical of the health and social care sector: 23 were women and 2 were men; while age varied from 26 to 57 years. The focus of this article is particularly on the characteristics of the interviewees' efforts to time management with IM in a participatory management and teamwork culture of eldercare work, which shapes new communication practices and influence the temporality of work. The question of user differences that arise in relation to interviewees' personal characteristics such as age or professional status remain outside of the scope of this article.

ISH units consist of small-scale group homes providing 24-h assistance and care for the residents. ISH units aim to guarantee normalised living conditions for those who can no longer survive at home independently or with home-care services delivered to them. In the 21st century, ISH units have quickly become the primary type of sheltered housing in Finland for older people. In 2017, 8.5% of all those aged 75 or over lived in ISH units (THL, 2018). The residents typically have extensive care needs and suffer from some degree of memory loss or other conditions characteristic of old age. Round-the-clock care is provided via three 8-h shifts, with a recommended worker/client ratio of 0.5. However, the actual ratio is often less than this (Olakivi et al., 2021). The units in this study were of an average size with 12–18 residents and a total of 15–20 nurses per unit, with 1–4 nurses working each 8-h shift. The work evolves around the residents' daily routines consisting of meals, personal hygiene, recreational activities and health care services. Each nurse is typically responsible for attending to those residents whose care has been specifically designated to them for a longer period of time. This is to create stability to the residents' life and to help nurses familiarise themselves with the residents.

The Finnish eldercare system is characterised by multiprofessional teams and a participatory management style, low hierarchies and a flexible allocation of the staff as needed inside the organisation (Vehko et al., 2018). In other words, the organisational culture in ISH units encourages employees to negotiate residents' care and to share work tasks in close collaboration with one another beyond professional boundaries. Communication and interaction skills are a prerequisite for successful and effective management of ISH units that operate around the

clock. The work involves remote management, and capability from staff to manage their work collectively and individually.

Together with the other Nordic countries (Denmark, Sweden and Norway) and the Netherlands, a report by International Labour Organization (ILO) (2018) places Finland in a cluster of countries with high levels of employment and educational attainment in care sector. Among them, Finland has the smallest proportion of care workers at the lowest educational attainment level as majority of LTC workers are educated either as practical nurses (secondary-level degree) or as registered nurses (tertiary-level) (Olakivi et al., 2021). According to ILO (2018, p. 197), crucial to explaining the high levels of care employment and educational attainment in these countries is the coverage of high-quality, tax-funded care services, in particular childcare and older person care. The overwhelming majority of care workers are formal, protected and covered by social security, with unions protecting their working conditions. For one, in Finland, trade union membership rates are above the average of 70% among all wage and salary earners (Ahtiainen, 2019). Although unionisation in LTC provision within ILO's (2018, p. 200) five-country cluster is lower than in other sectors, it is higher than in most other countries. Moreover, unions are able to extend protection to workers who find themselves in unprotected jobs and to counteract the worst effects of privatisation trends (ILO, 2018, p. 200).

These factors suggest that the national eldercare system places high trust but also high expectations on its workforce under demanding conditions where they are often pressed for time, suffer from staff shortages and frequently report experiences of mental and physical stress (Olakivi et al., 2021). Moreover, according to a national e-health survey (Vehko et al., 2018), only a minority of the nurses agreed that information systems in use sufficiently support the nurse–patient relationship and the goal of person centred care (see also Hämäläinen & Hirvonen, 2020). To some extent, these factors may explain why LTC workers resort to new means such as IM as an offset for a bottom-up communication practice to support both the professional goal of patient-centred care and the organisational goal of efficient management of work and time. Furthermore, the current organisational culture emphasises participatory management style and multiprofessional, low hierarchy teamwork (Vehko et al., 2018), which further encourages work communities to collectively find ways to save time, also in their communication practices.

Before data collection, the research project obtained a statement on research ethics from the University of Jyväskylä Ethical Committee; and interviewees' signed a consent form which gave their permission to record the interviews. They were informed that the recorded material would remain anonymous and that they had the right to call off the interview, or prevent data being used at any point. Audio recordings were made of the (approximately 1.5 h long) semi-structured interviews, and then manually transcribed. Specific themes were introduced using key questions and prompts when necessary. Interview themes included issues such as the use of information and communication technologies (ICT) at work; the use of smartphones at work; the pace of technology-related changes at work; the benefits and risks of technology for workers and residents; the impact of technology on recognising residents' needs and how ICT may affect employees' work-life balance.

Analysis began with coding the interview-transcripts in terms of the work-related use of smartphones and other ICTs. This resulted in forming empirically closed codes which indicated interviewees' work-life balance, their expertise as technology users and the impact of ICTs and smartphones on their social relations with other colleagues and residents. A more detailed inductive analysis followed where the coded passages concerning IM were further analysed in

light of Pols' (2017) heuristics of taming and unleashing and with a focus on time work (Flaherty, 2011) and time shifting (Wajcman & Rose, 2011).

The results are presented under two themes that became apparent after going back and forth between theory and empirical data, using theory as a sensitising tool in the analysis. The first theme (and section) brings together results concerning the heuristics of 'technology taming its user' and 'users taming the technology'—entitled *Negotiating the use of IM in long-term care*; while the second focuses on the two other heuristics of 'technology unleashing its users' and 'new user practices'—entitled *Unleashing users and new work practices with IM*. The results begin with a brief introduction to communication practices in the ISH units studied here.

RESULTS

Communication practices between nurses in ISH units typically included a brief exchange of information between shift-workers as they swapped over. Not everyone would be present in these briefings, however, if there was a need to attend to urgent care tasks. Otherwise, reading entries from residents' electronic health records (EHR) via computer was the primary means of exchanging (medical) information between nurses. All employees were expected to read and complete EHR information on a regular basis, but very little or no time was officially allocated to this. TypicalIy, EHR was not available on mobile devices such as smartphones and finding the time to sit down to read patient information on a unit computer was challenging.

Each unit typically had a smartphone to share, which one of the nurses carried during each shift. However, the work phone was primarily used for receiving residents' safety alarm bracelet alerts, and for communicating with anyone calling from outside the unit. It was therefore *not* primarily used for IM with colleagues. Instead, 15 out of 25 interviewees revealed that they engaged in work-related IM group chats on their own private smartphones, which sometimes also included the unit's work phone. In some cases, employees were members of several work-related IM group chats. Employers' attitudes toward IM and the use of private smartphones varied—some even explicitly forbade their staff from carrying their own phones during their shift; however, this rule was regularly broken. Other interviewees claimed that having your own phone at work was silently approved of, as long as it did not interfere with work.

Negotiating the use of work-related IM in LTC

Technologies are designed with either a weak or strong inscription and the inscription of WhatsApp IM is relatively weak. While a strong technological script would allow users little headroom to manipulate how they use the technology, WhatsApp allows them more flexibility. Many of our interviewees explained in length how the rules and practices of IM had often not been made explicit at their workplace when it was first introduced either by their manager or more often by one of their colleagues. Instead, nurses had to create these practices 'on the go'. Sometimes this had meant learning to set work-life boundaries by trial and error, as one nurse and a unit manager explained:

Q: Does it bother you that work, in a way, extends into your free time?

A: Well, not really. One just has to know how to set some limits to it. Once I sent a message through WhatsApp at the weekend about an email I received about the shortage of sheets in our linen closets and I wanted my unit's staff to take this into account. [...] I sent it through WhatsApp so it would reach as many staff as quickly as possible. I ended up getting back replies about someone's absence and requests to change shifts or something. I realised I'd made a small mistake then, and that I shouldn't send messages like this, as if I'm online all the time. [...] One shouldn't let it get to a point where you give an impression you're available around the clock. (Practical nurse, i6)

According to Rose (2014), workers need to actively engage in multifaceted strategies to manage, shape and control their interaction with mobile devices when the temporal regimes of work and home clash (see also Rose, 2013; Wajcman & Rose, 2011). From a nurse in a managerial position this requires even more meta-work as they have a responsibility of informing their unit and organising its work and may therefore experience a pressure for a higher degree of availability outside the workplace. Findings in the present study would seem to confirm this: nurses reported that they had to make a special effort to keep work-life balance when using IM for work, so as not to mislead others as to one's availability when off duty. This 'taming' of the technology required individuals to balance their personal IM preferences with the practices of their work community. Nurses actively negotiated these time-shifting activities with one another, as we see from one example below:

A: We've talked about whether or not we should set it [WhatsApp chat] on some kind of 'do-not-disturb' mode at certain times. Some people have posted something there after 11pm, and this has bothered others if they've left their phone's sound on. [...] But then no one's obliged to be in the chat group, it's just between our unit members—we created it. [...] Personally it doesn't bother me—I like to react straight away. If I see my phone's beeping while I'm eating, I go see what it's about. But I know there are others, especially older colleagues, who don't necessarily like it so much, especially if it happens late at night. (Registered nurse, i3)

Besides the 24/7 aspect, the nature of work itself in ISH units further complicated the nurses' collective negotiation over the appropriate communication practices established through IM. The nurses' negotiation of when to use IM is telling of the temporal complexities of professional work that emerge in round-the-clock care facilities. This process of negotiation was the basis for the 'digital culture of the team', and the ways in which it was negotiated should thus be understood in light of the temporal complexity of care work.

Our results suggest connectivity afforded by IM contributed to new work practices that involved evaluation and prioritisation of incoming mediated messages. Reliance on mobile technology can accelerate work units' communication but simultaneously create demands for accessibility, promptness and accuracy of communication which can conflict with individual workers' autonomy (Cavazotte et al., 2014). This was the case with one WhatsApp group that had been set up between members of different units in one large ISH complex. One of the interviewees recalled a time when a group member from one of the units had been looking for a replacement through the IM group chat.

The latest exchange we had about this issue (rules and regulations of IM) con-cerned the fact that one of us started to get a bit annoyed when another had asked

for a replacement for their unit on WhatsApp, and repeated the question over and over, because not every unit had responded to her. The person [who had responded] was annoyed because she felt she was always the first to respond, and so always had to give up one of the nurses in her unit as the replacement in another. If everyone would reply equally fast, the rotation of substitute workers would also happen in a more equal fashion between units. (Practical nurse, i6)

This illustrates how the script of WhatsApp is relatively weak. As a work-related channel of communication, it clearly requires active negotiation on its time-shifting functionality for work-related communication. As Cavazotte et al. (2014) suggest, professionals are highly reflexive of the ambiguities of their smartphone and acknowledge their own role as active and conscious players in the implementation of work-related communication technologies. In this case a failure to comply with the implicit expectation that someone in each unit responds to a group message led to an unequal division of work. The negotiation and conflicts that emerge demonstrate the challenges in nurses' efforts to multitask and to increase their control over timing of communication, as one nurse described:

A: It's not that often we use our unit's own IM group. One of us just had a baby, so she posted a photo [there] and everyone congratulated her. But if I begin to worry about work stuff when I go to bed, it's not like I post it there in the middle of the night. Well, O.K., I've done that once, I sent a message to the night shift worker through WhatsApp group, asking if she could check on something that I forgot to do.

Q: Did your message get through?

A: Yes, it did, and she just replied that 'why don't you just go to bed now, O.K?' (Registered nurse, i4)

This quote reveals the temporal complexities embedded in nurses' efforts to use IM to organise care work. While the participatory management style in ISH units encourages nurses to collectively take responsibility of their work, using IM simply to accelerate communication can lead to misunderstandings and conflicts over the question of appropriate timing of communication. Recognising this risk, some nurses had gone to the extreme of completely opting out of using work-related IM on their personal mobile phones:

A: I know that the nurses here have these WhatsApp groups, and are a bit too keen to message from their personal mobile numbers on there, without assessing if the topic is really important enough first.

Q: Is this common?

A: Yes, it's surprisingly common, and I don't think it's very sensible. I've stayed outside these groups.

Q: To draw the line [between work and home]?

A: Exactly. Work is on my mind enough as it is, so I don't really need to be reminded about it anymore than I already am. (Practical nurse, i12)

Opting out of collegial IM is an extreme example of time work: an effort to gain control over the reorganisation of the temporal and spatial arrangements of care work. Although none of the interviewees declared that either they or their colleagues were unable to us IM, lack of adequate know-how should nevertheless be considered as one possible explanation for some employees refusing to use it. Today, employers expect health and social care workers to have basic skills with a variety of technologies ranging from word processing and electronic patient records, to internet and mobile applications such as IM—not to mention context-specific eHealth devices and software (Kuusisto-Niemi et al., 2018; Reponen et al., 2018). Yet, the fact that many of the interviewees referred to differences in user skills as one explanation for the hesitance of some of their colleagues to use IM, does raise the question of whether, as an unintended consequence, technology may have tamed some users by making them quite dependent on it, while pushing others away, thereby creating a new kind of inequality in communication networks at work.

Unleashing users and new work practices with IM

Our analysis showed how nurses strategised their engagement with IM, and how they collegially negotiated ways of 'taming it'. They seemed motivated to do this as IM brought clear benefits to organising their work. For one, it unleashed innovative ways of communication which contributed to effective and sensible work practices in ISH units. As an example, one of the interviewees explained how she used WhatsApp to get around organisational data protection protocols so photos of a social event with residents could be sent to their unit's manager:

Our unit's mobile phone doesn't allow us to send photos as attachments, for data security reasons, I think. Our employer has these restrictions; so I have to export photos to the computer first and then email them. But with WhatsApp, I can send them directly to our team manager via my own phone. I've sometimes done this if she's asked for photos, and when our residents have given us permission to take and use them. (Practical nurse, i12)

While explaining this, the above interviewee stressed that there was a need to protect patient privacy. In efforts to try and follow proper ethical conduct, nurses communicated about patient-related issues with pseudonyms and code names, such as room numbers. This is in line with reports indicating that, overall, Finnish health and social care workers are skilled in the issues of data protection and professional, ethical conduct regarding patient information (Kuusisto-Niemi et al., 2018; Reponen et al., 2018). Moreover, the fact that work-related IM is encouraged by some unit managers suggests the participatory management style in the eldercare system that places high trust and high expectations on nurses extends to the question of their respect for patient privacy in social media.

Examples of ways in which work tasks were facilitated by group-based IM included circulating short announcements, sharing medical or social information about the condition of residents, reminding others to address certain tasks or requesting information about future shifts. These can all be understood in the context of time work—as communication practices

through which nurses try to 'make time' (Flaherty, 2011). Importantly, these practices re-configure the temporal and spatial nature of nursing care in ISH units, relationships between people and the spaces they occupy. To make time, some of the interviewees were involved in more than one work-related IM group:

> A: We have WhatsApp installed on each unit's work mobile. There's a group that includes all of our homes in the city and units in our area. There, you can ask for instance if someone in unit A has mitrazapine [antidepressant medicine], if we need it here in unit B, and that kind of thing. Then we have smaller chat groups, too, between say, just homes B and C.
>
> Q: Do you have these IM groups on your personal mobile, too?
>
> A: Yes. And we have another with just the staff in my own unit, too. The other day, for instance, someone sent a message asking if the night duty nurse could go remove a nitro bandage from one of the residents.
>
> Q: Do you often get messages on it via your private phone?
>
> A: No, I mean, maybe once a week. And we might send jokes and stuff there, too. It's not always just work-related, because it's our unit's private group that doesn't include the manager or anyone else. So, you could ask for example if the new shifts are up yet, and if someone at work could take a photo and post it up there, or something like that. (Registered nurse, i13)

The above quotation describes how acceleration of collegial communication through IM at the workplace and outside it successfully unleashed new practices of time work. It provided an efficient means of communication to inform others about sometimes vital matters of care—like the removal of a nitro bandage. As Wajcman (2015) suggests, at their best technologies can hold potential for flexibilisation and time management. This allows opportunities to defy the rigidity of the linear time regime that cannot appropriately account for tasks that are unpredictable or difficult to schedule, as care tasks typically are. In this respect, IM contributed to the nurses' organisational and professional goal of providing patient-centred care and responding to care needs in a timely manner.

The technology also functioned as a way to organise work and as a means for socialisation and catharsis (see also Bautista & Lin, 2017), especially in smaller groups that were only between the members of one unit. Overall, IM unleashed new work practices, insofar as nurses were conducting versatile articulation work or meta-work to accomplish more tangible and visible results in the care of residents (Buschmann Iversen et al., 2013). Overall, IM unleashed communication practices that had potential to benefit the cohesion within a work community. From a managerial point of view, these practices represent the invisible work that nurses do to try to fulfill their organisational and professional goals of providing efficient, patient-centred care. In a line of work that suffers from staff shortages and where self-reported experiences of mental and physical stress are frequent, it is critical to bring to a closer scrutiny the invisible organisational practices that new technologies coproduce together with their users.

Interviewees explained that starting a work-related IM group had been in many cases quite a spontaneous decision, resulting from a desire to strengthen collegial communication at work.

Moreover, some of them were not particularly worried that work-related IM had blurred the line between home and work (see also Cousins & Robey, 2005). A nurse who had recently set up a WhatsApp group for her unit explained it in the following way:

> A: I established the WhatsApp group in our unit. I was on sick leave a while ago [...] so, while I was at home stuck in bed, I was asking myself 'why don't we have a WhatsApp group?', wondering if we could have one. [...]
>
> Q: So, how do you use it then?
>
> A: We've swapped shifts with one another there. This way we don't need to contact everyone separately. And someone might post a funny photo to say 'we're in the pub' [laughs]. [...] Because part of it is that we're friends with one another outside work, too. At first I worried of course if it [IM] would be somehow too much, but it's not like we use it every day. (Registered nurse, i23)

The above quote highlights an important aspect to assessing how IM affects one's social and emotional well-being. As a form of social media, it provides more options than users can feasibly pursue. This can sometimes cause anxiety and a desire to stay continually connected. The 'fear-of-missing-out' (FoMO) might be what drives many nurses to actively follow IM group chats, as has also been suggested by McBride et al. (2015). FoMO refers to a form of social anxiety that results from a compulsive concern about missing out on an opportunity for social interaction and rewarding experiences that others may be having. This concern can get to a point where it impairs a person's social and emotional well-being (Przybylski et al., 2013). By keeping its users continually connected, WhatsApp was 'taming' the nurses by encouraging (re) active, round-the-clock communication with colleagues. This fear of excessive engagement with IM could explain why some nurses avoided collegial group messaging altogether. It shows the other side of the coin in the novel opportunities of IM to efficient time management—the complexity of the processes of negotiation and reordering that can result in unintended and contradictory outcomes, such as the choice to opt out from IM or to stay constantly connected.

CONCLUSIONS

The aim of this article was to shed light on the complexity of the processes of negotiation and reordering of temporality and spatiality that IM induces when it is introduced to 24/7 care work as a communication device. Care work is a joint accomplishment between human and non-human actors that requires continuous organising, synchronisation and a common orientation from workers in an environment characterised by scarcity of time, unpredictable nature of work tasks, and due to new communication technologies, also growing ubiquitousness and interruptions. Wajcman and Rose (2011) emphasise that interaction with communication technology depends on the materiality of the devices themselves and the ways that these entangle with social factors operating in the work environment. Our results reveal unintended and also contradictory outcomes of the use of WhatsApp in efforts to gain control over the fundamental complexity of temporal organisation of care work. The STS-inspired analysis of the use of IM in residential care work applied the taming and unleashing metaphors to analyse how practices of IM generate temporality (Pols, 2017; Wajcman, 2008) in care work.

Theoretically, the article has contributed to studies on new technologies and work from the point of view of temporalisation, demonstrating how this viewpoint can help pinpoint the benefits and risks of implementation of new communication technologies in a context of care work that fits poorly to the predominant regime of linear time (see also Kamp, 2021; La Cour & Højlund, 2019).

The more deeply new communication technologies become embedded in care work, the greater the need to understand how they affect its temporal order. Empirically, our results show how the bottom-up implementation of new communication technologies such as WhatsApp is an understandable phenomenon in eldercare work, given that this sector is expected to improve efficiency and quality of care in spite of staffing shortages and having few available work-dedicated mobile devices. Under these conditions, introducing group-based IM may seem like a practical solution that offers nurses a sensible means to do meta- and articulation work that helps them exercise their professional judgement and ethical commitment to patient-centred care. It not only helps them fulfil the organisational goal of efficient care provision but contributes to their ethical, professional goal of providing patient-centred care, while also providing a way to improve communication networks and ties with their colleagues. Because of its weak script, WhatsApp allows nurses plenty of opportunities to engage in time-shifting activities to 'tame the technology'. This can unleash communication practices that support the workers' professional goal of person-centered care and defy the predominant linear time regime in working life by allowing workers more opportunities for individualised time management.

Self-initiated efforts to time work through IM, however, are not without risks. As constant connectivity enters the world of care work, application such as WhatsApp can tame their users and reassert the rigid, temporal order of care work. Due to this, a risk of compulsion towards nurses' boundless accessibility, more familiar from studies on knowledge work (Wajcman & Rose, 2011), also grows with the bottom-up implementation of new communication technologies. To control this risk, the results show that IM requires complex time-shifting activities from its users at the workplace and outside of it. In the case of care work, these involve the need to assess the perceived urgency of messages that can range from matters of critical patient care to mundane announcements on the shortage of bedlinen supply, among others.

From the point of view of nurses' work-life balance, these results raise the question of the sustainability of the participatory management style that encourages bottom-up strategies, such as IM, to organise care work. Moreover, the risks our study reveals highlight the need for employers to understand how information technologies affect the already complex temporality of care work. Qualities such as speed and efficiency are not produced by technologies alone but are related to the social norms that evolve as devices are integrated into daily life (Wajcman, 2015). Efforts to 'make time' in care work communities through the bottom-up implementation of IM are thereby always a result from the mutual constitution of technology and the social conditions characterised by multiprofessional, participatory management style in the Finnish eldercare system.

What is concerning in our findings is that the negotiations over the care work practices that new technologies coproduce together with their users remain largely invisible. The bottom-up diffusion of IM in work communities means that the negotiations over its use easily remain invisible and out of reach from formal recognition and evaluation in workplaces. Recently, and in efforts to 'tame the technology', professional regulators and trade unions in Finland and elsewhere have begun to publish social media guidelines for nurses (e.g., Finnish Union of practical Nurses, 2019; Nursing and Midwifery Council, 2019). However, and despite their exceptionally high trade union membership rates in Finland, most of these guidelines

completely ignore the questions of the impact of work-related social-media use on employees' work-life balance and the temporal aspects of care work. The primary focus has instead been on ensuring patient information safety and maintaining a positive image of the employer. In the case of Finland, this corresponds to work culture overall: work-life balance is a private matter, not a concern for organisations, but for individuals, their family and the welfare state (Tammelin, 2018).

In sum, the results show that the paradox of IM, as many technologies, is that it is both a solution and a source of acceleration of work and life. As a communication channel that can be potentially reached at any time of day or night, IM provides an efficient means of communication for nurses in round-the-clock care facilities, but not without risks to their well-being. The organisational culture in residential LTC units is thus the ideal but also a risky context for using new mobile devices and applications to improve communication ties and service efficiency. To benefit from such technologies, workplaces need to consider the context-specific consequences they have for employees' work-life balance and their temporal experience of work, and the possibility of formulating guidelines on how to tame these technologies responsibly.

The blurring of work's boundaries, due to the pervasive use of social media either side of them, is a relatively new angle of research concerning service-sector work. The discussion in this article has been limited to the context of LTC homes and so provides only a partial picture of IM used in the work of caring for older people. Future research could cover in-home care services which are a rapidly growing sector with many staff using mobile devices in their work (Karhinen et al., 2019). Another would be to study the differences between various professional groups' time-shifting capability in relation to their perceived degree of availability and the conflicts these produce in multiprofessional work communities (Cavazotte et al., 2014). Overall, our results support the view according to which communication technologies should not be seen as an interruption to 'the real work of care'. Instead, as Kamp (2021) suggests, the more deeply technologies become embedded in care work, the greater the need to assess how they affect its temporalisation.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

AUTHOR CONTRIBUTIONS

The order of the authors as listed above illustrates their contributions made in the process of writing the manuscript. They have each substantially contributed to the manuscript. The order of names reflects the significance of their contribution as follows: conception and design (Helena Hirvonen; Mia Tammelin), acquisition of data (Helena Hirvonen, Antti Hämäläinen); analysis and interpretation of data (Helena Hirvonen, Mia Tammelin, Antti Hämäläinen, Sakari Taipale). The authors have agreed on the order in which their names are listed in the manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Helena Hirvonen 🔟 https://orcid.org/0000-0002-5997-4606

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AUTHOR BIOGRAPHIES

Helena Hirvonen, PhD, adjunct professor, is senior lecturer of Social and Public Policy at the University of Eastern Finland. She is also a senior researcher studying digitalisation of care work at the Centre of Excellence in Research on Ageing and Care, University of Jyväskylä, Finland.

Mia Tammelin, PhD, adjunct professor, is principal lecturer at School of Health and Social Studies, Jyväskylä University of Applied Sciences, Finland. She is also a senior researcher at the Centre of Excellence in Research on Ageing and Care, University of Jyväskylä, Finland.

Antti Hämäläinen is a doctoral student at the Centre of Excellence in Research of Ageing and Care, University of Jyväskylä, Finland. His PhD dissertation elaborates how ideals of good care manifest in long-term care of older people and how technologisation impacts them.

Sakari Taipale, PhD, is associate professor in the Department of Social Sciences and Philosophy, University of Jyväskylä, Finland, and a part-time senior research fellow in the

Faculty of Social Sciences, University of Ljubljana, Slovenia. He leads a research group on digitalisation and ageing at the Centre of Excellence in Research on Ageing and Care, University of Jyväskylä, Finland.