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ICT-mediated social work practice and innovation: professionals' experiences in the Norwegian Labour And Welfare Administration

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ABSTRACT

The widespread adoption of ICT today has a significant impact on the social work profession. In the Norwegian Labour and Welfare Administration (NAV), a new specialization, ICT-mediated or digital social work, is taking shape. It requires new knowledge, including guidelines for theories, methods and ethics to support skilful ICT use for professional goals. This article combines Rogers' diffusion of innovations theory with perspectives from social work and technology to advance the understanding of ICT-mediated practice amongst frontline social workers in NAV. Through a qualitative research approach, this study reveals the distinct characteristics of current digital social work in NAV and discusses activities that help further realize ICT's potential for social work innovation.

Introduction

One of the grand challenges for social workers in today's digitalized world is to harness information and communication technology (ICT) for innovation that focuses on creating new services, work methods and ethical standards to meet ever-changing social needs (Traube et al. 2016; Berzin and Coulton 2017; Goldkind, Wolf, and Freddolino 2018). Nevertheless, to date, little discussion amongst social work scholars about how to use ICT to facilitate innovation that will be robust and widespread within the field (Traube et al. 2016). A few social work studies apply innovation theories that contribute to identifying the most influencing factors for generating widespread and sustainable innovation that leads to desirable goals (Dearing 2009; Dingfelder and Mandell 2011;Zhu and Andersen 2018).

The authors in this article develop a novel theoretical approach by combining perspectives from social work and technology with Rogers (2010) 'diffusion of innovations' theory (DOI), in particular the five attributes of innovation, to support a different explanation of social work innovation. By addressing the perception of frontline social workers in the Norwegian Welfare and Labour Organization (NAV),[1] this article seeks to answer these questions:

- How do frontline social workers in NAV perceive their new ICT-mediated practice?
- How can NAV advance its digital social work and facilitate further innovation to target ever-changing challenges and needs?

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Theoretical framework

Innovation is an interdisciplinary concept and often means 'a new idea, practice, or object' for an individual or other unit of adoption (Rogers 2010, 259), or 'new combinations' of knowledge and resources that lead to a desirable effect (Schumpeter 1934, 66). In social work the term refers to something new that has a detectable impact on the profession, such as new forms of services, interventions, work methods, ethical standards and policies (Traube et al. 2016; Flynn 2017; Antonio, Raquel and Victoria, 2018). These innovations focus on social value, targeting social needs and problems, in ways that go beyond financial or economic gains (Halvorsen 2017; Traube et al. 2016).

Within innovation studies, Rogers' DOI is a well-known theory that seeks to answer how, why, and at what rate an innovation spread (e.g. Greenhalgh et al. 2004; Knudsen and Roman 2015; Dingfelder and Mandell 2011). DOI concludes that perceived characteristics of innovation can affect how far and how well innovations spread and evolve (Rogers 2010). Specifically, innovations have five intrinsic, interacting attributes: relative advantages, compatibility, complexity, trialability and observability, which can collectively affect potential adopters' perceived quality of innovations and thus influence their dissemination process (Rogers 2010). This research uses Rogers' five attributes heuristically to categorize the perceived features of new ICT-mediated practice in NAV amongst frontline social workers. The following paragraphs describe each attribute and illustrate how the authors interpret them under relevant previous studies.

Relative advantages

Relative advantages of innovation are the desirable consequences that it potentially has for adopters compared with the alternatives. Once potential users decide to adopt an innovation, they will not consider it to be without advantages; therefore, relative advantages are *a sine qua non* for innovation adoption (Rogers 2010; Greenhalgh et al. 2004). This article examines the relative advantages by looking at practitioners' perceived benefits of new ICT solutions for carrying out professional tasks.

Previous social work studies agree that ICT's transformational power in communication and information sharing has advanced the profession (Hill and Shaw 2011; Antonio, Raquel and Victoria, 2018). Using the Internet, mobile telephones and social media can enhance the availability of social workers and increase their interaction with individual clients, specific groups, and cooperative partners, resulting in a more collaborative working relationship amongst different stakeholders (Baker et al. 2014; Chan and Holosko 2016; Halvorsen 2017).

The various web-based data management systems facilitate information searching, storage and sharing (Ryan and Garrett 2018; Gillingham 2015, 2016). These systems are generators of actionable information that supports practitioners' professional judgement, decision-making, quality control and professional learning (Antonio, José, and Chaime 2018; Berzin and Coulton 2017). Systems also offer the opportunity for organizations, professionals and clients to gain a better overview of all decisions made in case processing, increasing transparency and professional accountability in service (Bradt, Roose, and Devlieghere 2017; Andreassen 2018).

Compatibility

A relative advantage alone does not ensure widespread adoption; diffusion requires that innovations are consistent with the values, beliefs and needs of the adopters (Rogers 2010). Perceived compatibility problems for practitioners are the main deterrents to the embracing technology potentials in social work (Goldkind, Wolf, and Jones 2016). Debates and critical arguments include face-to-face versus impersonal communication, flexibility versus standardization, quality control versus monitoring and equal access versus digital exclusion.

Face-to-face vs impersonal communication

Social workers have a traditional reliance on face-to-face intervention with individual clients. Many practitioners continue to believe that ICT-mediated communication is inadequate for carrying out reasoning and relationship building, both of which are at the core of social work (Ryan and Garrett 2018; Goldkind, Wolf, and Jones 2016). Face-to-face communication helps to collect critical nonverbal cues, which are necessary for clarifying a problematic situation, identifying underlying needs, and building credibility and trust (Mishna, Fantus, and McInroy 2016; Goldkind, Wolf, and Jones 2016).

Flexibility vs standardization

Although ICT can enable professionals to work more flexibly, in terms of task execution, time and location (Hill and Shaw 2011; Goldkind, Wolf, and Freddolino 2018), excessive computerization with massive data input and system requirements can lead to a fear of digital rigidity (Andreassen 2018; Hansen, Lundberg, and Syltevik 2018). Earlier research on NAV suggests that some ICT systems standardized social work by offering specific regulation and case processing steps, with instructions about responsibilities and channels of communication (e.g. Andreassen 2018; Hansen, Lundberg, and Syltevik 2018; Røhnebæk 2013). Standardized ICT-assisted tasks reduce social workers' opportunities for discretion at the local level to provide a tailored service for clients (Barfoed 2019; Røhnebæk 2013; Røysum 2017).

Quality control vs monitoring

Automation in case processing ensures that legal principles such as equality of treatment are met (Røhnebæk 2013). However, an extensive system can increase an organizations' ability to monitor their employees' activities, diminishing individual social workers' autonomy and flexibility in meeting professional goals (Parrott and Madoc-Jones 2008; Øvrelid 2018; Røysum 2017).

Equal access vs digital exclusion

The concept of the digital divide today not only means uneven access to possessing digital devices and Internet; it also describes individuals' unequal digital skills (Olsson, Samuelsson, and Viscovi 2019; Mariën and Prodnik 2014). Some social work scholars are concerned that extensive digital social work can produce unequal outcomes for clients. People without relevant resources and digital skills can be at risk of digital exclusion (e.g. Parton 2008; Mariën and Prodnik 2014; Olsson, Samuelsson, and Viscovi 2019)

Complexity

Complexity is a measure of the ease with which adopters can comprehend, learn and use innovations. People usually adopt complex innovations less quickly (Rogers 2010). The authors assess complexity by looking at whether practitioners in NAV perceive new ICT solutions as easy or difficult to master.

Evidence in social work studies indicates that poor usability and interface design lead to perceived complexity and reduce the adoption of new technology amongst social workers (Goldkind, Wolf, and Jones 2016; Lagsten and Andersson 2018). For example, usability problems in data management systems can include missing data, inflexible formats for data entry, confusing navigation and orientation, a high number of clicks required to complete a task, and a conceptual mismatch between socially handling a case and system-based handling (e.g. Barfoed 2019; Parton 2008; Lagsten and Andersson 2018). A top-down technical development process that neglects professionals' needs could contribute to poor usability and interface design (Hill and Shaw 2011; Berzin and Coulton 2017).

Trialability and observability

Trialability determines the opportunities that potential adopters have to learn about innovations and thus influences the chances of adoption (Rogers 2010; Dearing 2009). There is no consensus on

the connection between trial opportunity and ICT adoption amongst social workers. However, early evidence confirms that the lack of functional training leads to a misunderstanding of digital solutions and hence hurts social workers' technological adoption (Antonio, Raquel and Victoria, 2018; Goldkind, Wolf, and Jones 2016).

Observability is the degree to which adopters can obtain the benefits of innovations. Greater observability means that adopters experience fewer barriers to potential advantages of innovations; it improves attitudes and increases adoption (Rogers 2010). Despite the exceptional opportunities ICT offers, factors such as legislation and regulations, ethics and digital competence can hinder social workers from realizing ICT's potential to support their practice (Baker et al. 2014; Berzin and Coulton 2017; Hill and Shaw 2011).

For example, legislation, institutional regulation and ethics intended to reduce threats to confidentiality and privacy as well as to avoid cross-jurisdictional problems can constrain practitioners' presence on specific digital channels (Barsky 2017). Likewise, limited digital competence can discourage social workers from adopting, adapting and using ICT at work or in private. As a result, these individuals will learn and evolve less in the technology-rich environment and eventually be unable to use digital tools creatively for professional purposes (Hill and Shaw 2011; Baker et al. 2014; Antonio, Raquel and Victoria, 2018).

Methodology

This article bases on a one-year qualitative study at two NAV offices in the northern part of Norway. One is small, with four social workers,[2] while the other is medium-sized, with approximately 12 social workers. The authors contacted the managers of the two NAV offices in October 2017 and obtained consent to recruit participants from different professional fields. This article uses data only from participants classified as social workers.

The research used three primary methods for data collection: participatory observation, focus group interviews and semi-structured interviews (Figure 1). Norwegian Centre for Research Data (NSD) has approved the whole research and data collection process. Before data collection, the authors held briefing meetings at both NAV offices, presenting research topics, objectives and our data management plan. The authors informed attendees that their decision to participate in the study would be recorded as consent to perform specific roles and to have certain rights during the study period.

Eleven social workers, two men and nine women with ages ranging from 27 to 65 years, contributed between December 2017 and December 2018. They were working across various departments, including Economic and Social Help, the Qualification Programme for Long Term Unemployment, and the Refugees Service.The authors agreed on dates for all data collection sessions with the managers and employees were then free to decide whether they wanted to be part of the process, based on their availability. Most employees participated in one or two data collection sessions.

The participatory observation, consisting of field notes and informal interviews, was first carried out at two NAV offices over two weeks. During the period, one of the authors observed routine

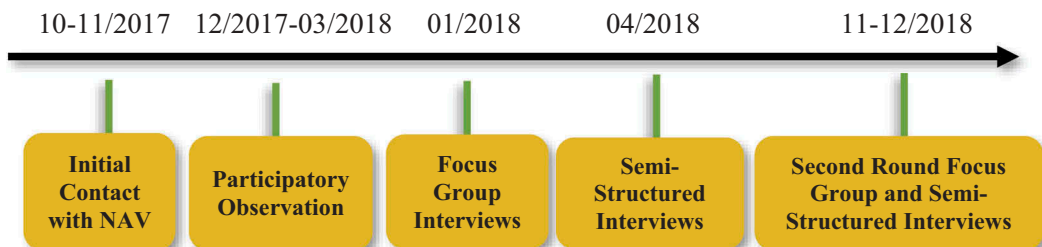| 10-11/2017	12/2017-03/2018	01/2018	04/2018	11-12/2018
Initial Contact with NAV	Participatory Observation	Focus Group Interviews	Semi-Structured Interviews	Second Round Focus Group and Semi-Structured Interviews

Figure 1. The data collection timeline.

activities within the offices during work hours, participated in some employees' meetings, explored different implemented ICT, and had a conversation with employees and service recipients towards their perception about digital solutions in NAV.

The collected information from observation contributed to developing some of the questions for the first focus group session, which took place over one and a half hours in both offices and involved five social workers. These focus group interviews targeted group interaction and joint definition of ICT features relevant to professional values such as relationship building, empowerment and user participation (Stewart and Shamdasani 2014).

After this, the authors carried out semi-structured interviews with seven social workers distributed across both offices. The interviews varied from 20 to 60 minutes and contributed to valuable information that some of the respondents might not have felt able to provide during the focus group (Stewart and Shamdasani 2014). At the end of 2018, the authors delivered the second round of focus group and semi-structured interviews to collect additional data about the substantial impact that ICT is having on social work. Five practitioners participated in the half-hour focus group, and two of them further provided semi-structured interviews lasting about 20 minutes.

The author further used transcribed interview data for content analysis. The entire analysis process included three primary stages. First, the authors identified, coded and categorized participants' narrations into five groups based on the operationalization of Rogers' five innovation attributes: 'ICT-mediated relative advantages', 'compatibility', 'complexity of ICT', 'ICT-related trial or training' and 'ICT-related regulation, ethical issues, and digital competence'. Second, we summarized and restructured narrations within each category. Finally, we compared and interpreted different respondents' narration to generate meaningful patterns and then combined the patterns into themes and looked at how they could answer the research questions (Creswell 2014).

Findings

NAV provides all of its social workers with station computers, laptops, mobiles, cameras and headsets; practitioners also have equal access to collective printers, scanners and projectors. Social workers' daily practice is heavily reliant on several ICT systems including Navet (NAV's intranet),[3] Microsoft Office (containing Outlook, Office 365 and Skype for business), and professional data management systems[4] such as Modia, Gosys, and Arena. Microsoft Office aside, NAV explicitly developed or adapted its other commonly used systems. None of the participants has a formal responsibility to use social media, albeit some of them informally use sites such as Facebook, Instagram and Snapchat for work purposes.

Current social work in NAV is a hybrid form of ICT-mediated and ICT-free practice, operating interdependently. Most participants only have casework while some also participate in group and community work. The number of clients each participant follows is various from at least 20 to around 60. Respondents rarely have pure digital or face-to-face communication with their clients; instead, communication with a mix of personal and cyber interaction is standard. Dependent on the nature of the case and clients' preference, social workers prioritize one communication method while others serve as the supplementary.

The following sections describe practitioners' perceptions of the characteristics of their ICT-mediated practice in line with Rogers' model of the five innovation attributes of innovation.

Relative advantages

Increased communication availability
Increased communication availability between professionals and clients is the essential theme participants mentioned regarding relative advantages of ICT-mediated practice. ICT solutions in NAV have made communication more accessible:

> Instead of physically visiting local offices or ringing the institution's call centres with waiting 20 minutes in the queue, people today have other ways to reach us – by SMS, e-message at nav.no, and social media such as Facebook (Female, 36, Refuge Service).

> Modia contributes most to raise communication availability. Clients can send instant messages to me whenever they want. I go into Modia daily to check up if any hanging messages from clients that I have to reply (Female, 59, Qualification Program for Long Term Unemployment).

The extensive use of laptops and smartphones with access to NAV systems enhance social workers' availability and communicative flexibility; more ways in which practitioners can respond to their clients' and cooperative partners' inquiries outside the office and office hours. The use of video conferencing, Skype for Business, also enables frequent synchronous communication amongst professionals within and beyond NAV offices for professional cooperation.

Data management systems offer a better case overview

NAV operates different data management systems to cover its various welfare services. To better integrate clients' information, NAV launched Modia in 2014, serving as a work surface displaying clients' relevant information retrieved from other professional systems. In this way, participants emphasized that Modia offers an 'easier way to search clients' information' and 'a better overview' towards clients' cases'.

For example, when a social worker enters a client's name or ID number in Modia, the program will lead to an overview page, Person Overview, displaying the client's status information (e.g. age, employment, and marital status), follow up process and received welfare benefits. Person Overview further links Case Overview module where social workers can review clients' historical and current case application process together with their supporting documents submitted to NAV. Professionals can also have access to previous evaluation reports and meeting notes produced by other colleagues who have encountered clients before.

Better participation for clients with relevant resources and competences

Empowering clients and promoting their participation in service to enable positive outcome are fundamental goals amongst social workers in NAV. Instant e-message service and the interactive online Activities Plan[5] on Modia are two examples of how ICT can be helpful to fulfil these goals. Instant e-messaging reduces barriers to real-time digital interaction and information sharing between NAV clients and professionals, while digital Activity Plans make it easier for clients to communicate their needs and take part in activity planning and decision-making:

> If I find something (new job vacancies) that suit a client, I can write a quick message in Modia together with the link of vacancy. He can check that post himself, consider about it, and we can further discuss it at the next personal meeting. In this way, he can more engage in our follow up. Before, we can only discuss this kind of information at the scheduled meeting, which happens maximum once per fortnight (Female, 63, Qualification Program for Long Term Unemployment).

> Clients can easily access a digital activity platform to set up, edit, or give feedback on goals and defined activities. We had to previously work with such a plan across a more extended period through meetings, writing a letter, posting and waiting for a signature return. My clients and I feel it is easier to gain an overview of the changing process, i.e. what activities clients have done, what activities function better but others did not, and what will be necessary to do further (Female, 59, Qualification Program for Long Term Unemployment).

Nevertheless, the outcomes of using ICT to empower and promote clients' participation have been manifold. Clients need relevant resources, competence and motivation to have an overall positive experience with ICT-mediated communication and service. Our respondents identified five groups of people who can encounter challenges or even exclusion from ICT-mediated social work in NAV.

First, individuals who lack resources for digital access: they may lack BankID or other authenticated online identification for access to NAV digital platform, or have trouble to afford smartphones,

personal computer and Wi-Fi. Second, individuals who lack digital competence at the instrumental and structural level, i.e. they may not know how to use a keyboard and navigate a computer system. Third, people with health issues such as disability, reading difficulty, or severe mental or cognitive problems that may not be fully able to understand and operate NAV digital solutions alone. Fourth, clients who are technology scepticism, or they distrust NAV digital solutions in protecting their privacy and personal data.

The fifth group consisting of individuals who have issues to understand the bureaucratic language and standardized writing NAV adopted at its digital front, and who generally know less about NAV and the concept of participation, i.e. why actively involved in needs identification, activity planning and evaluation are essential to ensure the positive outcome of NAV services. As participants suggested, these individuals, most likely are young clients under 30 years of age and immigrants, who need extra motivation and supervision to understand NAV's operation and the defined rights and duties as welfare applicants, the concept of active participation, and how NAV ICT services can be useful in supporting their engagement and overall service experience.

Above identified five client groups can receive continuous NAV services today by using paper-based applications and personal counselling and support, some of they are nevertheless likely to be disempowered or even victimized and excluded when it comes to other areas of life in a digital society, such as employment, education and health care.

> Some clients, such as the elderly and refugees, can lack necessary instrumental skills to deal with technologies. They have problems trying to find information on NAV websites, not to mention making full use of other digital communication channels to communicate with us, setting up an online profile and CV for job searching, or sending out an electronic application for education (Female, 36, Refuge Service).

Compatibility

Face-to-face vs digital communication

Amongst participants, face-to-face is still the best approach in reaching at-risk clients while digital channels serve as supplementary communication. Even though most participants confirmed that they usually had constrained time and resource for face-to-face, the approach itself helps to form an in-depth, empathic and sensitive dialogue, which is essential for trust-building, needs identification and empowerment:

> Through face-to-face, I can see how clients dress, what has been changed since last time – the weight, the look, or the smell. I can also catch up the hidden message in their eyes, gestures, facial expression, all of which people are not able to see through Modia chat. Of course, digital contact is also helpful in holding contacts with clients during the follow-up, by asking the updates, sharing information or making a new meeting appointment (Female, 36, Refuge Service).

> Not everyone wants to write about his entire life story. People cannot include all things by a written message. We need dialogues, reflective questions and conversation to get more depth in the situation of the person and then build trust. It is superficial that we can only communicate digitally. We are humans who deliver so many messages through our emotions, facial expression, and behaviour. Through a meeting, I can see a person's vulnerability, a way he/she understands and deals with things (Female, 47, Qualification Program for Long Term Unemployment).

> I think we miss many parts of communication when you do not get a face in front of you. Your communication behind the screen is more tough and informative. When I write in Modia, I cannot predict the client's reaction. He may read the message long after it was sent, and I am not there to take care of his feeling or reaction. I cannot help to deal with upset, disappointment, or explain if the misunderstanding is the case (Female, 36, Social and Economic Help).

Flexibility vs standardization

Participants contributed conflicting stories about whether ICT in NAV standardizes their professional practice or make it more flexible. Most individuals believe administrative tools such as e-calendar in Outlook and digital tasks benches in different case management systems make their daily schedule 'more predictable' and 'more comfortable to organize', saving their time for other professional tasks. Additionally, with laptops and mobile solution, respondents can have more flexible forms with work hours and places.

However, the massive computer assignments from the case management systems also excessively standardize casework in NAV. Tasks carried out on different case management systems compel participants to follow a pre-defined series of steps to ensure that they exercise professional judgement appropriately and consider all relevant aspects of a case. Such system requirements bring both positive and negative consequences.

Some participants pointed out that casework in NAV 'was more bureaucratic without technology'. Digitalization process increases 'efficiency, decreases the case processing time and raise professional accountability'. Practitioners find it much easier now to 'seek legitimacy and claim jurisdiction from the system'. Moreover, standardization allows 'greater quality control'. In Gosys, for example, caseworkers can find different inquiries with deadlines and priority levels, such as evolving tasks requiring contact with a client and discussion with a cooperative partner, as well as routine assignments such as the evaluation of documents and follow up processes.

On the other hand, some participants argued that standardization leads to less professional autonomy. They complained that they felt the strong need to 'satisfy the time-consuming system assignments'. They often spend more than four hours each day filling out different electronic forms with a high number of boxes to tick. Furthermore, systems such as Modia offers standardized texts that professionals can use to write a report or reply to their clients' questions. While the original purpose of adopting standardized context is to increase work efficiency and ensure a good quality of writing, both professionally and linguistically, standardized writing also results in less personal, tailored communication. A standardized description is unlikely to capture the complex and dynamic features of a conversation or situation.

> I'm rather against standardisation. Because it may seem that we work here are concerned with satisfying a system all the time. I do much data input instead of going out to meet the clients. Then it becomes like a clip and paste. We use much standard text. We cut and paste it instead of individually customising the text to each individual. We have the requirements for how much we should do in a week or month. Then we will continuously work towards satisfying the system (Male, 30, Social and Economic Help).

Complexity

Problems with usability and interface design

Participants generally described new NAV's information systems like Modia and Gosys as 'user-friendly', 'simple', 'quick to update' and 'self-explanatory', whereas old systems such as Arena are 'illogical', 'outdated' and 'difficult to use'. However, NAV's systems have relatively weak user interfaces. Professionals complained that they had experienced many technical inconveniences such as the system freezing, data loss, tasks requiring a high number of clicks, failure of automatic updating procedures and poor usability on mobile devices.

> Modia Chat is like Facebook Messenger but with fewer features. For example, Modia fails to offer an instant notification on the mobile when the system received a message. I have to login Modia consistently during a day to check if I have missed something important coming from my clients (Female, 59, Qualification Program for Long Term Unemployment).

Duplicative tasks and different formats of data

Many task requests on NAV information systems are overlapping because of failures to integrate and synchronize systems. Practitioners often have to perform the same tasks such as data input multiple times to ensure that all users of these systems (in or outside NAV) have equal access to critical information. Although Modia is becoming the work platform that helps to integrate information and provide links to materials stored within other systems, going through all the links to gain a full picture is still time-consuming. For example, when processing a specific case, many participants have to retrieve information from partner agencies such as health centres that have their own rules for data registration. Moreover, understanding the retrieved information requires knowledge of what the dataset means and under what circumstances professionals collected the data.

Trialability and observability

Lack of functional ICT training

The adoption of an ICT in these two NAV offices is a top-down process, with the decision being made by the central NAV department. No trial or test period is available for participants to gain experience with new technologies before they become standard practice. However, old systems rarely retire immediately, and social workers have time to learn how to master new solutions. NAV also provides ICT training in physical and online contexts, but many participants described previous ICT training as 'anti–interactive', 'incomprehensible' and 'time-consuming'.

Regulation and ethical concerns

By following different laws and regulations, NAV has an increasing number of rules, standards and procedures addressing new privacy and confidentiality problems brought about by its growing digital practice. Stringent institutional regulation means a more supervised practice in the digital environment, but it also constrains practitioners' opportunities to exploit certain technological conveniences in practice:

> Unlike others, we have no permission to direct chat with clients through Modia to safeguard clients' confidential and sensitive information such as health records. We are also forbidden to contact clients through a private mobile or social media profile (Female, 36, Social and Economic Help).

Social workers in NAV have a primary responsibility to evaluate whether retrieved information is sensitive. If they consider the information to be sensitive based on relevant legislation, they have to flag this information on systems so that its use will be restricted to only those who have legal access for the case. However, if a professional fails to restrict information across systems, the consequence can be dire, and clients' privacy and confidentiality will be breached.

Additionally, both selected NAV offices locate in small communities where practitioners' clients may be acquaintances or even friends in the private sphere. Participants frequently receive phone calls, SMS or social network contacts from their clients who want to discuss their cases and ask for advice. Using multiple online and offline private channels to interact with clients presents conflicts of interest, blurs the boundaries between professional and client and eventually compromises clients' privacy and confidentiality.

Digital competence

Based on our observations, ICT super-users amongst participants are more willing to use new ICT solutions at work and in private. They are more likely to critically reflect on how to improve their work by harnessing digital advances. For example, although digital communication does not substitute for personal interaction in practice, ICT super-users highlighted that a growing number of their clients, especially the young people, prefer to be reached and engaged via SMS, audio message, video chat and social networking sites. They are avid users of handheld ICT devices and

fluent digital communicators. Practitioners therefore need to understand that unplanned cyber interactions have now become part of the relationship-building for a specific group of population. They have a responsibility to identify clients' ICT preferences, be familiar with new technological trends and understand digital implications for communication and relationship-building:

> You have to catch up with younger generations and understand how they prefer to be engaged, by using social media, video clips, and text messages with a mixture of symbols, characters and GIFs. I have been using Snapchat and Instagram to communicate with a group of young people who are job seekers. I often post new vacancies together with pictures or snaps of the workplaces to give them a more visual reality of how the physical environment is going to look like if they work there (Female, 32, Qualification Program for Long Term Unemployment).

Discussion

Enhance the relative advantages

Most participants in our study perceive NAV's new ICT solutions as an inherently useful tool, enhancing their communication availability, supporting a better overview of case proceeding, and raising participation opportunities for clients with relevant resource and competence. Given the importance of relative advantages for a widespread and sustainable innovation (Rogers 2010; Dearing 2009), the following paragraphs discuss potential activities and directions that can further enhance the relative advantages of ICT-mediated social work in NAV.

More feasible digital communication channels

Extending the advantages of ICT in communication means that NAV has to explore new possibilities for harnessing other digital channels for dialogue with clients. Current ICT in NAV enables asynchronous communication between professionals and clients, but no digital solutions such as video conferencing to support interaction that is both synchronous and face-to-face. An ethical and secure digital face-to-face communication or other synchronous interaction solutions would be one way of increasing the relative advantage of digital social work in NAV (e.g. Lavié and Fernandez 2018; Byrne and Kirwan 2019).

Furthermore, more than 66% of the Norwegian population aged 16–79 years uses social media on a daily or near-daily basis (Statistic Norway 2018). The popularity of social media has driven NAV to expand its presence on relevant platforms to reach different target groups, spread information, and provide new communication channels. Today NAV has its Foreldrepenger (parental benefits)[6] on Facebook, and Jobblyst[7] (willing to work) on Facebook, Snapchat, and YouTube. New possibilities for using social media in NAV, especially in local NAV offices, need to be discussed within the framework of the Norwegian state's social media policy for the public sector.

New resource and knowledge for supporting digital participation

ICT use requires resource and digital competence (Goldkind, Wolf, and Freddolino 2018; Olsson, Samuelsson, and Viscovi 2019; Hansen, Lundberg, and Syltevik 2018). Our participants have voiced their concerns about unequal outcomes for their clients. Groups of people, for example, can encounter a risk of digital exclusion, such as those lacking digital access or ICT competence and those who are subject to social or health problems that prevent their technological usage.

Most participants are aware of the importance of digital inclusion and the fact that clients' diverse digital literacy and uneven access to ICT can inhibit equality. However, apart from individual encouragement, the participants face constraints in resources and knowledge to support their clients' digital inclusion. Defining inequalities in the new era of digital welfare and identifying critical knowledge and resources for the work to support digital inclusion is necessary (Goldkind, Wolf, and Freddolino 2018; Olsson, Samuelsson, and Viscovi 2019).

Targeting compatibility and complexity issues

Compatibility and complexity issues can prevent the acceptance and diffusion of innovations (Rogers 2010). To target those issues, we need to discuss solutions address our participants' needs towards face-to-face intervention with at-risk population, a standardized system with flexible opportunities, and unified, user-friendly digital solutions.

Face-to-face in a digital world

Most participants in the study prefer face-to-face interaction with at-risk clients. As the literature suggests, social workers' reliance on face-to-face interaction needs to be continuously examined, because the digital dimension today cannot be described separately from the offline dimension (Antonio, Raquel and Victoria, 2018; Baker et al. 2014). However, the current NAV digital solutions indeed fail to meet professionals' need for more synchronous, visual, sensitive and empathetic communication with clients. Instead, ICT solutions primarily serve for information sharing and appointments booking. Changes and further discussion should be made to address both professional and technical improvement.

Flexible standardization

Our research findings confirm that ICT in NAV has standardized social work by offering predefined systematic steps for case processing (e.g. Andreassen 2018; Hansen, Lundberg, and Syltevik 2018; Røhnebæk 2013). However, we cannot agree that digitalization and standardization necessarily imply greater control over social workers' professional integrity and flexibility.

Most participants admit that current digital solutions in NAV divide their clients into two groups. One is the growing percentage of people who can depend on NAV digital self-services to satisfy their needs in areas such as work assessment allowance, parental benefits and old-age pensions. In contrast, the other group includes individuals with more complex social problems that do not align well with algorithmically defined welfare solutions. This group is becoming the focus of NAV social workers, as they require support and intervention from a human professional. Thus, digital solutions enable social workers to fulfil their professional remit, i.e. to target the population NAV defines as the most vulnerable. Yet, we need further evaluation of whether NAV's digital services and organizational structures succeed in identifying and including the most vulnerable groups or whether these people are at risk of being segregated or victimized.

Further, most participants believe that digital case management contributes positively to quality control. Systems guide them through a series of crucial steps to ensure equal treatment and fulfil critical legislation and perspectives in the processing of each case. Also, with access to the system, NAV colleagues, managers and external audit agencies can all be reference groups in efforts to increase the social workers' professional accountability.

Nevertheless, many participants continuously regard standardization with suspicion. As previous studies highlight, NAV's digitalization process reflects the Norwegian government's political priority for new public management (NPM) and post-NPM, which emphasizes the use of ICT to improve NAV's efficiency, accountability, and monitoring (Røysum 2013, 2017). In this sense, NAV developed its ICT to primarily addresses management and administration goals instead of supporting the fundamental tenets of social work (Røhnebæk 2013; Røysum 2017). Therefore, to continually discuss ICT's role under specific political influences is vital. Both social workers' and NAV clients' voices are crucial in redefining NAV's framework and its digital solutions. Social workers have a primary obligation to determine whether NAV's ICT decreases or enhances their quality of service.

One unified, user-friendly data management system

Complexity issues are one reason why some participants complain that they have to satisfy time-consuming system assignments that distract their attention from clients' benefits (Ryan and Garrett

2018). Many participants spend more than half of their work time on digital documentation, registering new information, filling forms and reporting meetings. Almost all participants demonstrate a demand for NAV to unify its diverse data systems into one that is user-friendly for data searching and registration. By so doing can simplify social workers' digital documentation processes and save them from endless duplication of work and favour the delivery of high-quality data for better service (Fitch 2019; Berzin and Coulton 2017). Fortunately, NAV has already started the progress of integrating its most of state services into one system, Modia.

Targeting trialability and observability issues

Trialability and observability are other critical attributes for widespread innovation (Rogers 2010). To tackle main issues about trialability and observability, we need a discussion on ICT training and new ethical consideration for digital social work.

Identifying critical components for ICT training

As many participants report, many previous ICT training in NAV was not interactive and useful enough to help them fully understand the different solutions' functionalities and potentialities. Changes in NAV need to address improving its ICT training for social workers. The training should not only focus on ways to tackle specific system tasks or data registration but also address challenging and opportunities in using ICT for social work purposes (Antonio, Raquel and Victoria, 2018; Goldkind, Wolf, and Freddolino 2018). For example, participants expect improvement to use different digital communication channels to reach different client groups, to representing their clients' complicated situation by humanizing NAV standardized context data registration, and to conduct a more personal, in-depth and emphatic conversation through text-based messages.

New regulations and ethical standards

How to protect service recipients' confidentiality and privacy is the still main primary concern amongst our participants when they perform ICT-mediated practice. In line with literature, the extensive use of digital systems in welfare service lead to a critical discussion towards how we should collect, share and manage clients' personal data in an ethical way to safeguard individual privacy and confidentiality (Goldkind, Wolf, and Freddolino 2018; Fitch 2019).

NAV manages a large number of welfare services with each follows specific laws and regulations about the channel to communicate with clients and the process to deal with their digital information. In 2018 the EU's General Data Protection Regulation (GDPR) came into force in Norway. The national legislation relating to NAV is, therefore under the process of being redefined to meet the new requirements of the GDPR. We need further discuss how the GDPR will affect digital social work in NAV, especially for the need to ensure clients' privacy and confidentiality. For example, under the GDPR requirements, social workers need to take significant responsibilities to help their clients to understand in which way their data can be used and what is involved in privacy statements and terms and conditions. Also, NAV is routinely co-operating with other public bodies to retrieve and share clients' data for service and policy decisions. Practitioners are well placed to ensure that their clients understand that specific institutions and agents can access their data and the purpose of such access.

Conclusion

This study reveals the distinct features of ICT-mediated social work practice in NAV by using Rogers' concepts of five innovation attributes. Current ICT solutions in NAV in general offer strengths and new opportunities in enhancing communication availability and information management. The increasing availability for communication and information access further support NAV clients with relevant resource and competence a better participation in service.

However, several outstanding barriers can prevent the acceptance and diffusion of new ICT-mediated practice in NAV. These barriers require further discussion and solutions addressing questions: 1) how implemented ICT can be compatible with social workers' needs towards face-to-face intervention with at-risk population; 2) how standardized data systems can ensure the quality of case proceeding and in the meanwhile enable professionals' flexibility and autonomy; 3) what core competencies and training social workers need for better ICT-mediated practice; and 4) how NAV and other public sector can deal with the risk of digital exclusion and emerging ethical issues come along with technology-use in their welfare services.

Digital practice in NAV is a reasonably new research topic, and almost no studies applying innovation theory to interpret ICT's impact on frontline social work. Hence this study has been exploratory and descriptive. The small sample size limits its representation; we need further studies involving larger and demographically diverse samples to get an accurate overall picture. However, this article contributes to knowledge building within the study field. By using Rogers' theory, the authors present a different perspective to understand how ICT can redefine frontline social work and what we can further improve to support better digital practice. The diffusion of the new practice, as Rogers (2010) highlight, is never a linear and straightforward process; to develop and deploy a sustainable new practice requires not only considering the attributes of innovation, but also other influencing factors like communication channels, the organizational context and adopters' characteristics. These should be explored in future studies.

Notes

1. NAV has 460 customer-facing offices, serving 2.8 million people and providing more than 60 types of state and municipal service.
2. 'Social worker' is not a protected title in Norway, and so our respondents have various educational backgrounds, although they all perform social work in the selected NAV offices.
3. Navet is NAV's internal platform and was launched in 2006. It provides crucial information such as statistics, instructions, legislation and regulation. It also offers employees a professional forum and e-learning platform. Navet has its SMS service that social workers can use to contact their clients.
4. Modia, Gosys and Arena are three primary data management systems used by participants in their daily work. Modia came to use in 2014 as NAV's internal user interface for employees, displaying the same information that NAV clients can view when they log in at nav.no. It offers an overview of NAV clients' information harvested from other data systems within and outside NAV. Gosys launched in 2011 as an information platform that stores e-documents and files that are relevant to services and intervention. It is also an internal communication platform for co-workers in NAV. Arena launched in 2002 as a case processing tool; it presents procedures and works steps to support professional follow up tasks. It also presents rules and routines to ensure service quality and due process.
5. The Activity Plan is an intervention plan jointly created by service users and caseworkers in identifying and following critical activities to achieve identified goals.
6. NAV's service for parents who want to apply for parents' benefits.
7. NAV's employment services for those under 30 years old.

Disclosure Statement

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