

Tuning professionalism in the public sector

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Abstract

The digitalization in the public sector poses challenges for the professionals that have previously not been using digital tools as a part of their everyday practice. Building on three qualitative research projects this study shed light on contradictions and tussles, as well as possibilities related to professionalism in the public sector. The three cases involve different professionals: cancer rehabilitation nurses, municipality communicators, and resident physicians. The paper aims to gain a better understanding of the impact of digitalization efforts on everyday work practices, and the emerging opportunities and challenges of using digital artifacts as a part of professional work. Our findings show how the transition toward digital work practices is pushing the professional boundaries of rooted professionalism in the public sector. The meaning of work and what it means to be a professional profoundly changes. The process of tuning professionalism in the public sector is not straightforward.

Keywords: Digitalization, public sector, professionalism, boundaries

1 Introduction

The focus of this paper is on the impact of digitalization efforts on everyday work practices and professionalism within the public sector. Digitalization in the public sector (eGovernance, eHealth) is often mentioned as key to transformation and modernization (e.g. Agarwal et al., 2010; Klecun, 2016). The Swedish government recently issued a digital strategy, aiming for Sweden to become the world leader in digitalization. Pointing to, among other things, digital skills in the public sector workforce and data-driven innovation and research (e.g. big data, health apps, Internet banking) as having the potential to meet anticipated challenges for society at large (Government Offices of Sweden, 2017). The importance of digital competence, beyond technical skills, such as communication, critical thinking, and a learning mindset has been stressed as crucial for the digital transformation (Ala-Mutka et al., 2008; Ferrari, 2013).

Research on the use of technology in the workplace tends to approach digitalization efforts from an instrumental perspective, focus on the design, implementation, and use of specific technologies or tools, or exploring issues related to digital artifacts and marketing or public relations (Holden & Karsh, 2010; Leonardi et al., 2013; Schuppan, 2010). Ellison & Hardey (2013) illustrate how civil servants in the government conceptualize new IT such as social media as equal to traditional media and hence use it mainly for broadcasting, marketing, and advertising instead of networking and collaboration (Ellison & Hardey, 2013). Thus, the potential of IT as a generator of users content (Kaplan & Haenlein, 2010) is not fully utilized. Information systems research within the public sector is paved with examples of failed implementations due to

usability issues or superficial understanding of the existing practice (Ellingsen & Monteiro, 2012; Fitzgerald & Russo, 2005; Monteiro et al., 2013) leaving us with challenges that need to be overcome. While the literature has addressed how digitalization transforms work in public sector, comparatively little attention has yet been paid to understanding the impact and changing conditions for professional work in the specific context of public sector organizations (Plesner et al., 2016).

As digital artifacts become a part of everyday practices, we need to dig deeper into what the transition of increased use of digital artifacts as a part of everyday work truly means in terms of consequences for professionalism and how it affects work. Working with digitalization efforts in the public sector, and being a part of a strong public sector profession, where there is a long history of professionalism (such as being a communicator, a nurse or a physician) pushes the boundaries of being a professional in a new way. This becomes visible when working with digitalization efforts in various ways. When the setting of work has been highly institutional, as hospitals tend to be, the work has historically been performed in specific rooms, in a uniform and within the shift, where the uniform and work phone is left at work at the end of the day. According to Susskind & Susskind (2015), the professions, in particular, are challenged in new and profound ways. Due to digitalization efforts, it becomes increasingly hard to maintain such strict boundaries between work and personal life. Digitalization also transitions other essential parts of working within such professions. For instance, when communication transitions from one-to-one in well-known work situations to one-to-many in open work environments, new communication approaches are needed. We call these new approaches and relations new ‘dynamic practices’ that are enacted on the verge of what can be done to improve democratic conversations and what is ‘obliged’ to do as a public servant (Bergquist et al., 2015).

The aim of the study that forms the basis for this paper is to explore the emerging opportunities and challenges of using various types of digital artifacts as a part of work within the public sector; and to shed light on how such digitalization efforts are pushing the professional boundaries of rooted professions. The research questions we seek an answer to is: *How are digital artifacts pushing the professional boundaries of rooted professionalism within the public sector?*

2 Related work

The work life of today is characterized by speed, flexibility, and increasing professional specialization (Castells, 2010; Sennett, 1998; Spinuzzi, 2015). Developments in Artificial Intelligence (AI) and automation are making work more effective, changing and replacing both routine jobs and more advanced and cognitive work tasks and creating new types of work (e.g. Brynjolfsson & McAfee, 2014; Frey & Osborne, 2017). Rather than replacing entire occupations, the transformation is characterized by redefinition of roles and changes to professional work practices as certain work activities become automated (Chui et al., 2015; Fölster, 2015). Furthermore, digitalization and the openness of social media and the Internet has simplified the sharing of knowledge, making professional knowledge a public resource, and changing professional work and the position of professions as the gatekeepers of knowledge, experience, and expertise (Susskind & Susskind, 2015). Clearly, as the digitization of society increases, the conditions for professional work and work practices changes. Modern digital technologies provide benefits in terms of increased flexibility and simplicity of being able to work anywhere, anytime, with constant access to information and support for collaboration and knowledge sharing. However, the transformation of work practices brings

challenges as well. The freedom and flexibility demand new competencies for working and highlights security and privacy concerns due to the blurring of personal and professional life and access to information on different devices.

These kinds of challenges are not new. As pointed out by Sennett (1998), modern working life demands of us to be flexible and open to change and taking risks. He further argues that the pursuit of flexibility, in contrast to bureaucracy, has not led to freedom but has instead produced new structures of power and control. The challenges, however, have accentuated in the wake of increasingly digital work practices. Susskind and Susskind (2015) argue that flexibility is a necessity for professionals to be able to handle their work situation and to use and collaborate with digital technologies. Mazmanian et al. (2013) talk about the autonomy paradox, where professionals describe choosing to use mobile email to work anywhere/anytime, as evidence of personal autonomy, while ending up using it everywhere/all the time consequently rather diminishing their autonomy in practice (Cousins & Robey, 2015; Mazmanian et al., 2013). Furthermore, the issue of IT consumerization (i.e. blending of consumer and enterprise technologies at work) may create tensions, in particular from IT and management, when it comes to allowing people to use their own choice of IT, but at the same time make sure that they do it safely and securely, supported by the IT department policies for information security (Harris et al., 2012; Taras et al., 2004). The importance to take a more critical perspective on digitalization have been addressed in the literature (Zittrain, 2008; Zuboff, 2015) pointing to that it is common to put forward rather simplistic and uncritical views on the future and the possibilities that come with digitalization, whereas issues regarding surveillance, information security, and integrity tend to be overlooked.

In sum, contemporary professional work is characterized by tensions (e.g. contradictions, blurred boundaries, control, etc.) especially highlighted in the public sector organizations. Even though they have been around for a couple of decades, they are now pervasive and need a new strategy. In this paper, we wish to shed light on the impact of digitalization efforts on everyday work practices within the public sector. We explore emerging opportunities and challenges of using various types of digital artifacts as a part of public professional work and how such efforts in various ways are pushing the boundaries of professionalism.

3 Method

This paper builds on three qualitative research projects (2014-ongoing), all concerned with how the digitalization of work practices impact professionals in the public sector in Sweden. Findings from this research have been reported in a previous paper (Norström et al., 2017). Whereas the first study explored emerging social media practices in public sector, this paper takes a more general approach to the everyday issues of workplaces becoming increasingly digital. Rather than focusing on a particular technology in practice, we take a bird's view, aiming for a deeper understanding of the conditions for work practices in transition and subsequent challenges for professionalism in the interplay between technology, organization and people aspects.

The case study as a method, as suggested by Yin (2013) includes complementary forms of data collection (Yin, 2013). Stake (1994) describes the choice of conducting a case study as a choice of what object is to be studied, rather than merely a choice of techniques or methods (Stake, 1995). Therefore, it is more relevant to talk about the case study in terms of an approach to study a specific phenomenon that is part of a real-life context (Yin, 2013). A case study can be positivistic (Yin, 2013), interpretive

(Walsham, 1993) or critical (Carr & Kemmis, 2003). The approach in this study is an interpretive case study, in accordance with Walsham (Walsham, 1993, 2006) and Klein & Myers (Klein & Myers, 1999). This particular interpretive case study is presented in an ethnographic manner, through realistic narrative vignettes, aiming to provide the reader with an ‘authoritative’ description of the work practice. That means thick descriptions of the socio-technical practice, hence the technology used and the individuals’ perceptions of use (Geertz, 1994). The ethnographic rhetoric aims to provide the reader with a shared framework of observations, interpretations, and reflections of the researchers (Bryman, 2015). The analytical method has been thematic, using an interpretive and iterative approach to find main categories common in all three cases. Our findings, from the three cases, are merely applicable to the public sector and are thereby not generalizable for working life in the private sector.

3.1 Setting and participants

The empirical data is primarily based on interviews and observations from three research projects, where we have studied three different public organizations and the digital work of the professionals in these organizations: cancer rehabilitation nurses, municipality communicators, and resident physicians. The three cases are conducted in Sweden and are based on action research methods whereas this paper presents a re-analysis of the empirical material, from a different unit of analysis. The unit of analysis for this paper has been on dimensions of professionalism in everyday socio-technical practices. Data collection and case descriptions are specified in Table 1.

The contexts are different in the three cases when it comes to working tasks: *The cancer rehabilitation nurses* are specialized ontology nurses working within a clinical practice at one of the largest hospitals in the country. They meet patients that have undergone severe cancer treatment in the pelvic region and help them with their struggles, mainly related to urination and defecation control and frequency, as well as dealing with a range of sexual problems; *the communicators* are working in the central administration in the city hall. They have the responsibility to inform the public about the development and activities undertaken by the municipality. They plan the strategic communication with citizens and other stakeholders, they do research and publish municipality news and they serve as a media expert or coach to the rest of the municipality. *The resident physicians* practice as physicians but are also engaged in clinical training (min 5 years) towards specialist competence. They represent a number of medical fields and work across departments and between professions.

However, the three contexts share the non-profit interest which characterizes the role of a professional in the public sector, such as being representative, accountable, and transparent. The digitalization of work in the public sector is characterized by how Sweden is governed. The public sector is built upon a number of legislation and frameworks that directly or indirectly control and imposes on the everyday work, such as the principle of public access to official documents and the Patient Act (PSL 2010:659), as well as working in a tax-funded and political driven organization per se. The cases also have in common that the professionals use digital technologies for communication. Our findings, from the three cases, are merely applying to the public sector and are thereby not generalizable for working life in the private sector.

Table 1: Case descriptions and empirical data

Research	Time	Case descriptions (purpose)	Empirical data
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Case 1: Cancer rehabilitation nurses	2015-on-going	This case focuses on the transformation of the nurses' practice when designing and using various digital artifacts in collaboration with the patients, whereas in this paper the focus is the use of digital artifacts as a part of everyday work.	15 observation days at the clinic. 8 patient-nurse meetings. 10 workshops with nurses and patients, some only with nurses, some mixed. 8 semi-structured interviews with nurses
Case 2: Municipality communicators	2014-on-going	Within the scope of the work, the communicators need to evaluate and try new technology for communication. Social media is one such relatively new approach that they started using 2012-2014.	14 interviews with communicators and communication managers and 2 workshops with 26 participants from different municipalities.
Case 3: Resident physicians	2015-on-going	The empirical data is from an interview study on IT-mediated workplace learning and a joint R&D project on the county council intranet. The focus is on the physicians' experiences, attitudes and use of digital artifacts for everyday work.	15 individual semi-structured interviews, 3 follow-up focus groups (15 participants), 1 workshop and 3 work meetings (4-6 participants each time).

4 Findings and analysis

The findings are presented according to the themes and subthemes identified in the analysis, describing essential aspects related to professionalism in the transition toward new everyday digital work practices: *work task boundaries* (professionalism in a transparent work environment); *work-life boundaries* (flexibility and responsibility when professional and private merge) and *inter-professional boundaries* (entangled practices, complexity and strategic resources).

4.1 Work task boundaries: Professionalism in a transparent work environment

The participating professionals commented in various, yet similar ways on the specific role and responsibility that comes with working in public sector, which was described as demands to be accountable, politically neutral and formal, or less personal in the communication. Professionalism in ever-changing, informal, flexible and transparent work environments, characteristic of e.g. social media practices, contrast with the traditionally more hierarchal structures in public sector.

People expect to get instant replies on social media, Sofia explains. If we continue to be slow, as before, we are not giving a serious impression as if we are not keeping up with how people talk to each other these days. Then the old impression of the municipality as a bureaucratic institution will last, and people might stop talking to us. (Communicator).

The participants expressed this push for change, both as expectations coming from the public in relation to the directness and transparency enabled by, e.g. social media

and new consumer-driven or patient-centric technologies, but also internally as strategic aims and ambitions from management and politicians. The conversation outlined below exemplifies the type of contradictions perceived by the professionals and how the organization of the public sector healthcare in itself becomes a barrier for utilizing the features for instance for collaboration and patient involvement that the new technologies are intended to contribute to.

Emma and Elisabeth talked about practical problems, describing how they are stuck using traditional mail, or 'fax if it is urgent,' while the patients expect them to be updated and have their medical history at hand, and overall a general unpreparedness to handle digital communication in clinical practice. On the other hand, when it came to patients' access to healthcare online, they believe the development is going too fast, without evidence or evaluations of the effects or value. Eventually, the discussion turned toward managerial and political aspects and the structure of the healthcare system rather than the IT-systems as the main challenge (Resident physicians)

Related to this “sense of duty” that comes with being a representative for the public sector, participants also tended to take on a strong responsibility towards patients and citizens by means of quality and trustworthy information and services. Hence, while they put forward concerns and sharp critique towards their work situation, and the information systems and infrastructure, there was also a strong professional pride underpinning the discussions. This was expressed as a willingness and ambition, where wanting the best for patients and citizens were always put in the first room. However, the digital work was also perceived to increase the administrative burden and participants raised concerns about increased workload. Participants emphasized the risks of not letting work go as stressful especially since it is often imposed upon them as individuals to take on the responsibility for figuring out strategies and understanding how to juggle multiple and competing tasks and demands in a day. The professionals need to find a balance and navigate established practices with the integration of new work activities, and sometimes this becomes a struggle, as in the case of the cancer rehabilitation.

Erika is highly professional in her everyday work, but she has been trained in one-to-one communication. She slowly realizes that the social media part of her work needs to be scheduled. She often goes out of the clinic, to an office the nurses' share, to be able to concentrate on this new part of her work. This makes her transition even more complicated. She is not able to take that risk with understaffed clinical practice with urgent patient matters. Sometimes this feels overwhelming (Nurse)

Working in the public sector was also perceived as different from the private sector because it means working for the public good in a sense. Both the communicators and the health professionals expressed a concern that the openness may lead to misunderstandings, unnecessary worries among patients or citizens. Taking on the responsibility to inform and educate patients and citizens have become an increasingly important part of professional practice in all three cases. Being a professional in an open and complex work environment clearly contrast with the traditionally more hierarchal structures in public sector in general, and healthcare in particular, and the high demands for information security and privacy that comes with it. The physicians, for example, talked about how they often feel insecure about patient confidentiality online.

Jenny described this in terms of taking to the coping strategy of instead being safe than sorry. She explained how she often ends up thinking of how she might be accused, being responsible if confidential information should spread somehow on the internet, and how, because of this, faxing feels safer, although she knows from a rational perspective that of course it really is not (Resident physician).

In sum, this theme describes challenges within the public sector, where the boundaries of professionalism are being pushed due to the shift from previously formal, hierarchic structures towards increased flexibility and openness. Work tasks change, and new ones are added, and then it means something else to be professional. Then again the professions do not change in its entirety; rather the boundaries are changed when work is done in old and new practices in parallel.

4.2 Work-life boundaries: Flexibility and responsibility when professional and private merge

The technology that affords the communication to be around-a-clock and the public professionals that clocks out at a certain time and has a history of leaving the work at the office brings new challenges. The boundaries between professional life and private life are challenged by constant availability.

As a part of being a professional, a part of being a nurse is leaving work at work. The traditional practice of nursing does not require constant availability where the private and the professional collide. The practice of being a nurse often involves having a uniform at work, having a specific work phone, only accessing emails and electronic patient records at the hospital (Nurse).

To be always online and available demand coping strategies to deal with the changes in the professional practice. The participants reflected on both positive and negative aspects. Especially when it is rooted in the professional culture that works stays at work, there is a struggle of being used to leaving work at work, when hanging up the 'digital' uniform at the end of the day is no longer always an option.

Jenny describes how she tries to keep work at work. Yet, most of the times she ends up checking e-mails and social media at home or on the way to work. She has a responsibility to keep her knowledge and expertise updated and to be there for her patients; it is an important part of the medical profession. Nowadays, she often struggles to find the right balance between her private and professional role in the context of digital work (Resident physician).

In the case of the municipalities, they also struggle with similar challenges where some communicators have accepted the notion that they need to be alert and check their social media feed during weekends whereas others have not adapted.

As an example, the work of the professionals within the municipalities is often regulated as a 9-17 job, which does not leave any leniency towards checking the social media feed during the weekend. Sofia however, is full of energy and loves to work. She is continuously online checking her social media feeds, and she cannot understand how some fellow communicators can check out from the municipality Facebook page in the evening and weekends and return the day after or on Monday. (Communicator)

For the professionals in healthcare, the boundaries between who you are in private life and as a professional (in social media) become even more crucial due to the integrity of patients for example. Participants recalled people being careless and posting photos on Instagram or writing stuff about the employer in a private group, and even losing their job over such incidents. This is the same for the communicators, who may also be responsible for the social media channels, and thus what other people write or comment and how to handle controversial or sensitive content. This, again, relates to the role of being a professional in public sector, even if you leave work at work you are still and always a representative of a public professional.

It is important to have in mind that the communicators always represent the municipality, even in private settings. That means you cannot post inappropriate things in your private feed that is not in line with values of public government (Communicator).

In this theme, the around-the-clock access to information and the ability to communicate across organizational and geographical borders provides a liberating practice for some people. This is, however, a struggle in traditional public sector organizations where the professionals are used to be able to leave work at work. When the boundaries between professional and private life become blurred, this creates flexibility but also digital stress when the responsibility to find the work-life balance is imposed upon the individual professionals.

4.3 Inter-professional boundaries: entangled practices, complexity, and strategic resources

The participating professionals from in all three cases describe working in a *complex digital environment with many different systems and channels*. It is challenging to allow people to use their own choice of IT at work, which may create tensions from an IT and management perspectives, along with frustration from the professionals perspective, due to that the digital technology is not being used to its full potential and the IT department is an obstacle rather than a support.

Jenny often feels confused about the different rules and guidelines and how the policies are sometimes contradicting each other. In her opinion, healthcare is lagging behind. Due to uncertainty related to patient confidentiality and information security, management and IT departments tend to set up a lot of restrictions and regulation just for precaution. Using social media and smartphones at work is promoted as part of 'digital care' at the strategic level while not allowed and often mistrusted by many of the managers and colleagues in everyday practice. (Resident physician)

It was also viewed as distressing not to understand how to use a system that is supposedly simple and needing to ask for help, and while new, younger colleagues may be knowledgeable about the technology, such as social media, it does not necessarily mean they know how to be digital at work. An overview and understanding of how the systems are related are needed, yet hard to obtain. This was also expressed as a lack of strategies and direction in general.

All public servants have a communication responsibility, Sofia stresses. There are specific policies on how to use social media, but they are instrumental, hence more about what is decent to publish and not. The policies are not something that you

look at and try to follow, she says. They are just there because they have to be there. Common sense is the most important policy (Communicator).

Furthermore, the new work tasks are also challenging the boundaries between and across professional groups. New tools for communication and online templates change the work for the communicators, for example, when citizens and co-workers can fill out a form on the web there is less need for layout and graphics. Whereas the healthcare professionals face new work tasks that are patient-related, but not directly connected to the care work. There are also boundaries connected to the professional identity, where the professionals feel strongly about what they perceive as most important, core tasks, and especially in the case of healthcare where work tasks and activities besides care work, is commonly experienced as administration. The cancer rehabilitation project provides an illustrative example of the communicator as a part of the team, helping the nurses with transitioning into digitalization as a part of their everyday work practice.

The communicator is not a part of the clinical work but rather a helping hand as a part of the research project focusing on digitalization in healthcare. As such, the communicator has been a part of the change process but is not a permanent part of the practice; the nurses are slowly transitioning into having increased responsibility for all online communication. (Nurse)

This theme illustrates how boundaries are also pushed among and between the professionals and the digital artifacts as a result of new and changed work tasks and work activities. The change requires increased teamwork between professions and also with citizens and patients as co-creators and co-workers in the development of new work practices. The modern workplace and digital work, in particular, places high demands on people's ability to plan and prioritize among their work tasks.

5 Discussion

Professionals in public sector have a long tradition of bureaucratic and hierarchal structures, where the main focus have been on the internal work and the role of being providers (producers) of official information and services to the public (e.g., citizens, patients, politicians). Our findings show how established views of professionalism in public sector are challenged when information and technologies are no longer controlled but developed by commercial actors and constantly changing (for example Facebook in the municipalities or health apps and self-care technologies used by patients). From the public sector professionals' perspective, one aspect relates to maybe being recorded, discussed or rated online and in public by patients or citizens, or being approached in private social media channels. This illustrates a shift, on a more general level, toward consumer influence and the new transparency and openness that comes with for instance social media as was shown in the first theme in particular. Internet and social media have specific distinguishing characteristics compared with previous technologies, described by (e.g. Yoo et al., 2012; Zittrain, 2008) in terms of generativity, referring to that the technology is not limited to one purpose, but rather the content and use is generated after the technology is launched and in ways not always anticipated or intended by the creators. Working in public sector means that there are external political and economic aspects that have an impact on and consequences for the everyday practice, e.g. political initiatives for digital services, such as eGovernance and eHealth. Whereas in practice, the work is structured around established structures and work

cultures and the professionals thus need to navigate in “both worlds,” balancing the contradictions of what is possible and the constraints as to what is allowed (Bergquist et al., 2015).

The transition from physical to digital workplaces, beyond the ability to work from home or out of the office, also means communicating with citizens from a distance and monitoring patients at home. Many studies have focused on knowledge work and people working from home or outside the office. Research on multiple social media in the workplace has shown that social media use can contribute to bringing coherence in work activities in complex and decentralized work environments (Forsgren & Byström, 2017). In healthcare, while the possibility to work mobile, either from home or “on the go” at the hospital, is one important aspect, changes for the profession is related also to digital patients, being “out of the hospital” and monitored on distance. This raises a similar concern as for how this changes the professionals when work gets perhaps more isolated and distant, while also addressing new issues to the common topic in IS research related to privacy and patient security (e.g. Romanow et al., 2012; Ross et al., 2014)

Aspects of digital stress concern the work-life balance, for example, due to a lack of strategies and guidelines on private and professional and digital presence and also because of the administration of the digital work environment (IT-systems). Focus has generally been on the development and implementation of information systems in the workplace - where people and routines have to adjust to the system - and less focus has been on training and education of personnel in these systems. Informing about the purpose and the bigger picture (for example when reporting data or statistics from one system into another), or adapting the system to the workplace ought to be crucial. Our findings support the need for more participatory approaches to digitalization of work, where the professionals, together with IT department, HR and management as well as the clients/patients, are truly involved and engaged at early stages in this kind of projects.

6 Conclusion

Through comparing three cases from the public sector, we have shed light on some of the tussles and possibilities that the professionals are dealing with in the transition to everyday digital work practices. What it means to be a professional change and this, in turn, means that professional boundaries are pushed. What we could see in all three cases is a shift towards increased stakeholder engagement and influence, where the transitioning to open environments are currently posing new challenges for the professionals in their everyday work practice, while also redefining established views of professional knowledge, skills, and expertise.

Our findings show how the impact of digitalization efforts on everyday work practices in various ways are pushing the professional boundaries of rooted professionalism in the public sector. Before the internet, technology was something that could be “dropped on the floor,” and during that time could also be left at the office. Now, digital artifacts are much more complex and due to that complexity, and due to the around the clock availability of today’s technology, there is no clocking out from work anymore. Private life and work become even more intertwined until there is no separation to be noticed. The transformation takes on being able to learn how to balance the analog/off-line work practices. This is related also to the quantity and complexity of systems in the organizations, indicating there is a need for another kind of support and leadership that allow the flexibility while providing support and guidance for creating frameworks

and boundaries. A better overview and understanding of how the systems are related is needed, along with strategies for how to act in different systems or channels, breaking down silos and seeing the bigger picture. This could be handled with more strategic resources towards such a practice.

What our three cases show is that tuning professionalism to the digitalization efforts in public sector is not a straightforward process. Navigating between, and balancing the possibilities and potential with tensions and contradictions is a process where the professionals constantly develop new dynamic practices. It is not something that can only be read in a book or learned in a weekend course. It is not a process of cracking the code and overcoming challenges in a predefined timeframe. It is rather a spiral of developing new understandings of professional work and professionalism in the context of their particular practice, where a key challenge is learning to co-work with digital artifacts in everyday life and work.

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