CONCEPTUALIZING COMPETENCE: A STUDY ON DIGITALIZATION OF WORK PRACTICES

Research paper

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Abstract

Competence development at work has since long been a core managerial challenge and a topic that has received a steady research interest. In academia, the topic has been explored in what we see as two scholarly traditions: 1) the earlier scholarship on 'competence' where discussions of technology have largely been absent, and 2) the later scholarship on 'digital competence' where the focus has been on the individual's abilities to use particular Information Technology (IT) artifacts. With the increased sophistication of digitalization in today's society, we suggest—while attending to digitalization—competence scholarship needs to go beyond the study of individuals' ability to use particular IT artifacts. One way to do so is to investigate how digitalization transforms work conditions, and how individuals respond to these shifts. In this study, we focus on the role of today's cyber-infrastructural technology, such as social media, in re-writing work conditions. By examining, through in-depth interviews, how the work of communication practitioners is digitalized, we 1) extend the conceptualization of digital competence beyond the customary IT competence, and 2) suggest two levels of competence based on two empirically grounded conceptualizations; competence as the optimization of existing resources, and competence as the envisioning of new possibilities.

Keywords: competence, digitalization, social media, work practice

1 Digital Competence: Beyond IT Competence

Most contemporary work involves the application of digital technologies. Today's workforce is uncertain about the answer to questions such as "what to change", "how to adapt to the change", and "how to stay relevant in changing work settings". To respond to these questions, reports on competence development at work have resurged in recent years (Suskind and Suskind, 2015; Brynjolfsson and McAfee; 2014). As a core managerial as well as an educational challenge, *competence development* has received a steady research interest from multiple scholars (e.g., Sandberg, 2000; Sandberg et al., 2017; Murawski and Bick, 2017) in what we see as two distinct scholarly traditions. Altogether, these traditions have informed our understanding of competence across several disciplines. However, as we explain further, both traditions have left certain areas of concern thinly covered.

First, while largely inattentive to the role of digital technologies, the earlier scholarship on *competence* has been engaged in understanding what competence is and what constitutes it (see Le Deist and Winterton, 2005; Dooley et al., 2004; Sandberg, 2000; Teodorescu and Binder, 2004). What is thinly covered by the *competence* scholarship is thus the role of (digital) technologies in relation to competence. Second, prompted by the increasing impact of digital technologies, more recent studies on competence shifted focus on understanding competence in relation to digital technologies. The later scholarship on *digital competence* thus has zoomed in on what competences or abilities individuals need to use Information and Communication Technologies (ICT) (see Ferrari et al., 2012; Eshet-Alkalai, 2012; Ilomäki et al., 2016; Vieru, 2015; Vieru et al., 2015). However, what *digital competence* scholarship leaves insufficiently analyzed is the way the general characteristics of work practices and their related competences are affected by digitalization (Shahlaei et al., 2017). In other words, the digital competence scholarship is yet to address the bigger picture of how digitalization is reconfiguring professions and their related competences.

To address the above shortcomings, we turned to Information Systems (IS); a discipline concerned with the application of digital technologies at work (see Hirschheim and Klein, 2012; Benbasat and Zmud, 2003; Gregor, 2006; Orlikowski and Iacono 2001). Although IS certainly addresses the issue of competence in relation to digital artefacts, it shares many of the same contributions and limitation with the scholarship on *digital competence* across different disciplines. The IS literature usually refers to employees' competence as a combination of individuals' *practice*, *action*, and *knowledge* in performing their job (Lindgren et al., 2003), the IT professionals' *knowledge* of the business in which they are employed (Bassellier and Benbasat, 2004), the *ability* of non-IT employees to work with IT artifacts (Davis et al., 2009), a *capability or skill* to work in virtual settings (Wang and Haggerty, 2009), *influential sets of behaviors* in software requirement analysts for delivering desired outcomes (Klendauer et al., 2012), and the joint *IT-expertise* of employees in non-IT departments (Davis, 2013). In this light, *IT competence* (Davis et al., 2009; Davis, 2013; Benaroch and Chernobai, 2015; Ravichandran, 2018) and *IT capabilities* (Pavlou and El Sawy, 2006; Baker et al., 2011;) are among the conceptual constructs that have been developed and refined in IS in relation to digital technologies.

However, what characterizes a considerable portion of IS literature on competence is the focus on competence in relation to 1) IT artifacts designed for and implemented in particular organizations, and 2) work that takes place in the context of a single organization. This comes as no surprise since many scholars in IS study how IT artifacts allow for the pursuit of organizational goals (Tilson et al., 2010; Yoo et al., 2010; Winter et al., 2010). Employees' digital competence in most of these studies then becomes a matter of the ability to work with specific IT artefacts to achieve organizational goals. However, the foundations for these tacit assumptions are now changing. Recent digital technologies—not the least so social media—are not designed exclusively for any specific organization but serve as cyber-infrastructures that transcend organizational borders. These technologies allow multiple stakeholders, providers, customers and users to affect organizational goals and the way its members' work to achieve those goals (Winter et al., 2014). With pluralistic contexts having an impact on the nature of contemporary work, and with the ever-changing infrastructures that support it, focusing on the em-

ployees' ability to use IT artefacts to obtain organizational goals offers a partial and short-term understanding of digital competence. As Winter et al. (2014) suggest:

> "These are not organizational infrastructures that embed managerial imperatives […], but societal and field-level infrastructures that digitalize aspects of work and allow it to be performed outside the organizational contexts. While formal organizations and traditional work arrangements are not disappearing, discussions of work and technology that are implicitly or explicitly limited to activity and systems contained within or linking across traditional, formal organizations may yield incomplete understandings and misguided action." (p. 24)

Thus, we identify two general shortcomings in relation to the scholarship on digital competence; first, overemphasizing the ability of individuals to use particular IT artifacts as the core issue in understanding digital competence, and second, limiting focus to IT artifacts implemented in single organizations in studying digital technologies at work. To tackle these shortcomings, we follow two paths.

First rather than asking what competences are needed to work with specific IT/digital artefacts, we ask how the application of digital technologies reconfigure prior possibilities and constraints in practice, and how individuals respond to these shifting conditions at work. In this light, we form our research question as "what constitutes employees' competence when work practices are influenced by digitalization". Our objective here is to investigate how digital technologies, as Winter et al. propose, digitalize various aspects of work in general and what else—besides the individuals' ability to use particular IT artifacts—counts as competence in times of digitalization. This undertaking contributes to expanding the scope of digital competence scholarship.

Second, we selected the work context of communication practitioners who engage with digital technologies beyond technology specifically designed for or implemented in their immediate organizations. Their use of social media exemplifies how today's cyber-infrastructural technology digitalizes various aspects of their work and how they modify their work practices and competences to respond to new working conditions. Our objective here is to extend the horizon of IS scholarship on competence beyond the customary IT competence or IT capability. Contextually, this undertaking extends the scope of digital scholarship in general, and the IS digital competence scholarship in particular.

In the next section, we explain how digitalization has influenced these practitioners' work and develop a set of theoretical tools for studying communication competence in relation to digitalization. Following the description of the methodological approach, we then present our empirical results, which are subsequently discussed. Finally, prior to the conclusion, we briefly reflect on our study limitations and the implications for future research.

2 Developing an analytic lens

In order to understand analytically what constitutes communicators' competence when influenced by digitalization, we needed analytic lenses that help us zoom in on how competence manifests itself. Not having found an off-the-shelf theory to do the job, we investigated the existing communication theory literature in order to identify and synthesize recurring factors that would enable us to analyze the communicators' practice. The work of communication practitioners includes two major tasks; packaging, which refers to preparing the core of the message and highlighting it with the appropriate background information, and channeling, which refers to determining the appropriate channel for the prepared package of information (Shahlaei et al., 2017). Both preparing the message and selecting the proper channel require an understanding of various digital channels and how communication in each channel works.

Not only has digitalization had a transformative effect by multiplying the number of channels through which a message could be communicated, but also by changing the very principals governing communication. On top of these changes, each of these digital channels provide multiple *modes of communication*. Modes of communication are the ways through which the communicative act is performed (Bezemer and Jewitt, 2010). Communicative modes can refer to, for instance, the written, spoken, visual, digital or analog ways of communication (Jewitt, 2014). It is also possible to identify various

modes that are available within a particular mode. For instance, gesture, intonation or gaze are all modes within the spoken mode. Since modes have various affordances, people always use different modes simultaneously and orchestrate complex ensembles of multiple modes for communicating meaning. As such, theories of communication and social semiotics have increasingly emphasized that people draw on a multiplicity of modes to communicate meaning. (cf. Jewitt, 2013).

Digital technologies are of particular interest to communication theoreticians (Domingo et al., 2015), since they facilitate a multi-modal communication more easily than ever (Jewitt, 2013). For example, interactive digital platforms such as Instagram and Facebook support the convergence of multiple modes (text, audio, video, image), and allow users to communicate through multi-modal content (Herring, 2015). Multi-modality of digital channels has consequences for the competence of practitioners whose work is performed through these channels (see Hauck, 2010; Cotter, 2003; Domingo et al., 2014). For instance, multi-modal channels facilitated by digital technologies demand competence in a range of the above-mentioned modes, such as audio, video, and visual modes (Hauck, 2010). Additionally, knowing how a combination of modes, each with their specific affordances, affect the intended meaning becomes increasingly important (Jewitt, 2013). Arguably then, communication practitioners' competence is not limited to the technical skills to work with various modes in digital channels. Rather, they also need to know how—in communicating through multiple modes (e.g. a text, a spoken interchange, and an image on a website)—the meaning of the intended message is distributed across all of the employed modes and not necessarily evenly (Jewitt, 2013).

From a multi-modal perspective on communication, individuals actively employ a combination of modes through their "intentions and knowledge" (Jewitt, 2013, p. 251). In other words, individuals actively choose modes of communication and their choice is guided by both their communication goals (intentions), and their knowledge of the context in which communication is taking place. Various factors in that context can affect the individuals' choice of communication modes. The available tools and technologies, the social context where the activity is happening, the available modes and their affordances, and the motivation and intentions of people performing these activities. As Jewitt (2013) maintains:

> "Representations or interactions that consist of more than one mode can be referred to as a multimodal ensemble. The term draws attention to the agency of the sign maker – who pulls together the ensemble within the social and material constraints of a specific context of meaning making. Multimodal ensembles can therefore be seen as a material outcome or trace of the *social context*, available modes and *modal affordances*, the *technology available* and the *agency* of an individual" (p. 255). [Italics added]

Thus, multi-modality of communication draws attention to the way communication is constrained and produced in relation to the context (Jewitt, 2013). In this light, all communication representations or interactions are multi-modal ensembles and are governed by contextual factors. Therefore, when studying what counts as competence among a set of communication practitioners, paying attention to how these practitioners' tasks are affected by the above-mentioned factors seems useful. Based on the extended multi-modal perspective of communication, we synthesize four overarching factors that theoretically influence how competence is enacted among communication practitioners. Although, the proponents of the multi-modal perspective on communication and digital technologies (Jewitt et al., 2001; Jewitt, 2013; Jewitt, 2014; Bezemer and Jewitt 2010) do not provided an explicit framework for analyzing these four factors, the recurrence of them across the multi-modal literature turns them into a focal area of investigation in studying communicative competence. These factors are explained below:

2.1 Social context

Social contexts are dominated by certain reasoning or discourses that allow for specific ways of communication. The relation between social discourse and ways of performance is culturally shared and agreed upon (Jewitt, 2013). For instance, the social context of the university has an academic discourse or way of reasoning. This academic discourse allows for formal, written and scientific forms or ways, and the academic mode has been conventionalized through repeated historical use and is now

culturally agreed upon. It is the demands of the work context that shapes certain forms of reasoning and discourses and, that ultimately allows for certain ways through which those demands can be realized.

2.2 Available technologies

Modes of communication need channels or media to do what they are supposed to do. The technologies that are available in a social context offer such channels. Take, for instance, an organization which decides to present itself as an internationally active one through possible digital modes. The goal cannot be realized unless there are specific artifacts such as social media, or websites, through which one can connect with international contexts. Thus, different existing modes of performance in a social context depend on the available technologies (Jewitt, 2013).

2.3 Individual agency

Agency refers to the active role of individuals to select a certain combination of resources to communicate in a specific way. Central to this aspect are the motivations of agents. These motivations can be psychological, cultural, social, or economic (Kress, 1993), including, for instance, the individuals' social positioning, their present purposes, and intentions or their past experiences. Thus, the individuals' interests or motivations are the "articulation and realization of [their] relation to an object or event" (Kress, 1993, p. 174). This means that, in relation to any object or event, individuals focus on particular characteristics of that object/event based on their social, cultural, or historical experiences and present goals. These past experiences and present goals then motivate the individuals to decide what is critical to be done in the context at hand.

2.4 Modal affordance

The final factor refers to "potentialities and constraints of different modes – what is possible to express and represent or communicate easily through a mode and what is less straightforward or even impossible" (Jewitt, 2013, p. 254). The *material* affordance of a mode refers to what functions are possible through the logic or characteristics of a mode. For instance, the mode of speech is governed by the logic of time as each sound is uttered after the other, one textual component after the other. Even though, any mode can have several material affordances, not all the material affordances of a mode are actualized in a social context. Rather, it is the demands and culture of an environment that determines what material affordances will be enacted. The *social* affordance of a mode refers to the affordances of that mode that have been conventionally used. Nevertheless, the conventional affordances can be unsettled, changed and reshaped (Jewitt, 2013) at any time. This likelihood for affordances to be disrupted, changed and reshaped through unconventional uses of a mode is facilitated more easily through the flexible characteristics of digital artifacts (Jewitt, 2014).

3 Data Collection

The profession of communication corresponds directly to both media and technology industries. Reports on digital transformation have time and again identified media and technology as the two industries that have so far received the most digital transformation (Rigby and Tager 2014; Manyika et al., 2015; Gandhi et al., 2016). This profession is also present in almost all organizations and thus of interest to a broad audience. To capture the professionals' experience of their work, we conducted in-depth open-ended interviews to maintain an emic perspective and gain insider's viewpoint about the participants' experience (Hennink et al., 2011). For our study, we first identified 45 prospective interviewees holding the title of *communicator* or *information officer* at various faculties in two different universities in Sweden. Our particular interest in the academic context was due to the academia's required emphasis on enhancing online communication for boosting visibility and non-EU student recruitments which had faced serious hurdles since the introduction of tuition fees in 2011 (Times Higher Educa-

tion, 2011). The invitees were identified through the universities' official webpages. Candidates were first sent an email invitation, which was followed up after two days through phone calls in case no response was received from the invitees. This resulted in 15 respondents from across 15 different faculties agreeing to participate in the study.

Respondent	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
University	A	A	A	B	A	A	A	A	A	A	B	A	B
Duration (min)	68	82	55	40	69	34	57	52	67	55	70	47	44
Total interview length: 12h 20. Mean interview length: 57 minutes													

Table 1. Number of respondents, their affiliations, and duration of interviews

Two pilot interviews were conducted as a pre-run to help us fine-tune our questions, and these interviews were therefore excluded from the subsequent analysis. We then continued to interview, code and analyze until the point of saturation, i.e., where "information begins to repeat itself" (Hennink et al., 2011, p. 88). In this study, the saturation point was achieved after at the 11th interview. This is fully in line what Guest, Bunce and Johnson (2006) have concluded that 6-12 interviews are often enough to reach saturation, particularly when a certain degree of participant homogeneity can be expected, as in our case where the respondents were purposively chosen. Still, the remaining two interviews were conducted as planned, but almost no new information surfaced, confirming our initial decision. Hence, thirteen interviews form the basis for our analysis. All interviews were audio recorded and subsequently transcribed. Additional information is provided in Table 1.

4 Data Analysis

We followed data analysis rounds suggested in a thematic analysis approach (Rapley, 2016; Braun and Clarke, 2006). Although our interview guide was enlightened by the theoretical framework of our study, we had initially asked open-ended questions including, "what do you do on a daily basis", "what tools or technologies do you use to perform these tasks you mentioned", "how do you comment on the limitations/possibilities of these tools", "who is a competent communication practitioner in your opinion" and "would you say the same thing if you were not working in times of digitalization". "Living in the details" (Rapley, 2016, p. 337) in the initial rounds of analysis, we aimed at *familiarizing* ourselves with *what* the communicators did as part of their work and *how* they performed these tasks. The familiarization round resulted in approximately 15-20 overarching themes.

The subsequent analysis round however was more deductively oriented (Bryman, 2012). Here, we aimed at categorizing the themes under the four multi-modal factors to see how these factors were influencing the *whats* and *hows* of the participants' work. This round thus focused on reducing and *abstracting* (Rapley, 2016) the empirical data to establish relations. However, this was not a straightforward task. Some themes could be, more easily, categorized under one of the multi-modal factors. Yet, we kept coming across themes that shared features with the more straightforward themes, and at the same time displayed nuanced variances. The challenge was that, on the one hand, these nuances were not distinctive enough to motivate forming separate overarching themes. On the other hand, the validity of the generalizations derived from interpretive research relies on being open to new discoveries and the clarity of logical reasoning for describing the data (Myers, 2017). A meticulous analysis thus required finding a way for rigorously capturing and presenting the detected subtle differences, rather than conveniently pushing all the varied themes under the same multi-modal factor.

Therefore, on a third round of analysis, after discussing and reaching a tentative agreement, the first and the second author presented their common themes to the third author whose role was to put forward alternative interpretations and counterarguments. In this phase, the third author used *bracketing* (Lee, 2017) as a technique to avoid taking the interpretation of a statement for granted. Bracketing

refers to putting one's belief in the validity of their interpretations into brackets in order to suspend what they already know and re-investigate their belief. Bracketing, in this case, included comparing similar but slightly varied statements, and asking questions such as, "if you say this [statement] is an instantiation of the factor *social context*, then what is that [statement] an instance of".

Eventually, a notable variation was observed. These nuances were seemingly referring to the same *kind* of theme, but they were indicating slightly different *levels* of detail and comprehension. For instance, in referring to the social context, some statements focused on describing the discourse and logic governing the participants' immediate organization (example theme: faculty tradition). However, some other statements went beyond only the immediate organization and explained how, for instance, considering the discourse of other similar organizations as well as the customer/audience's needs and desires influenced the communication practitioners' practice (example theme: benchmarking). All of these statements were referring to the same theme, e.g., how paying attention to the social context required taking certain measures. All these statements could be categorized under the same theme, i.e., the multi-modal factor *social context*. Yet, it sounded like some statements referred to multiple instances of social context and therefore suggested a broader perspective.

Keeping this variation in mind, we returned to each transcription individually in a fourth round of analysis first to find out how the more comprehensive statements appeared in the overall transcript of each interview, and second make sense of the implications such statements could have for interviewee's experience of work. The data analysis continued until all authors agreed on the placement of statements under the relevant multi-modal factor, as well as the right *level of comprehension*. Finally, we concluded that nearly *all* participants had made similar statements about their work and its related competences. However, *some* participants' statements were more comprehensive and detailed, indicating a deeper understanding. The variation was observable in statements related to all four multi-modal factors. The result of this iterative analysis is presented in the next section.

5 Results

5.1 Social context

Our participants reflections on the logic and discourse governing their workplace and their comments on the degree of alignment between application of various channels and the demands of their organization. The participants frequently referred to experiences when being unaware of or insensitive to the often-implicit expectations of the organization would cause problems. For instance, the fact that digital channels are easily accessible does not mean that anyone can choose just about any channel of communication. Even though the communication practitioners have considerable freedom to choose their desired channels for promoting the faculty, they are still required to accommodate certain communication guidelines by the university to which they belong. As the communication head at the university's central communication board discusses:

(I) *We have eight faculties and also the teachers' board at our university. They have a lot of power on their own decisions. We have to listen to them, but they have their own agendas. We have to be diplomatic and still be quite firm at some point. They have their own budget and their own agenda to promote themselves. It is lot about talking and diplomacy, we understand. But we can't just wait for everyone to say what they want. You should know the balance and the line between diplomacy and being decisive. And of course, you need to know the organization... You should know where to back down and where to foot down.* (R7)

Sometimes, the demands of the organization transcend the boundaries of the respondents' own departments or even their own universities. Some respondents explained that they had started reflecting on the demands and logic of their organization by considering the logic or discourse of a wider context. According to these respondents, part of the demands now come from this wider context and they therefore need to relate themselves to other universities and learn from what they do. One such area

brought up by respondent 5 was student recruitment. In an international environment, it is no longer sufficient to be mindful of one's own faculty discourse and expectations. Rather, it is important to learn from how other similar organizations around the world achieve their intended goals:

(II) *I also look at other university or governmental websites, and international websites like Stanford University's website. I look for inspiration…we can find new students that want to study at X. And we also want to reach out to students that already know they want to study at X but do not know anything about our university.* (R5)

5.2 Available technologies

During interviews, all participants frequently referred to various sets of digital technologies that were at their disposal in their organizations and through which they performed their daily tasks. Apart from similar content management technologies such as SharePoint and InfoGlue, as well as formal websites, and blogs, communication practitioners employ a wide range of social media platforms such as Twitter, Facebook, Instagram, LinkedIn and YouTube. The respondents, for instance, explained that with the growing number of available digital channels and tools, it had become difficult for a single person to manage them all. Trying to manage the workload, some communication departments with multiple employees shared responsibilities of working with various artifacts.

(III) *Couple of years ago there were no social media. Today is very different. Right now, we have people who are in charge of social media, Facebook, Twitter and the blogs. We didn't need to think about it a couple of years ago. Now it is very important.* (R6)

In their descriptions of the technologies used, some participants showed their command in employing artifacts that were not yet officially part of the organizational repertoire in addition to the ones officially endorsed. Most communicators were not using video as part of their work. However, some of our respondents had started to notice the benefits of channels such as YouTube and were trying to influence their organization to explore such technologies. For example, respondent 3 disapproved of his organization's negligence towards the use of YouTube as an opportune platform for receiving international attention. So, while YouTube was not among the conventional platforms used in their organization, R3 took the initiative to take advantage of YouTube for receiving worldwide visibility.

(IV) *YouTube is the second largest search engine for young people. They go to Google and then they go to YouTube. And if you search us on YouTube, you would be embarrassed…So, we had this "uterus transplantation" project. A really big project and we made a very good video about the project, put it on YouTube and press releases and linked it to our website. So, every time people look for information about "uterus", they find us everywhere. And BBC and CNN, every large news outlet has used this video... So now I'm able to say to my boss "look if we use the right tool with a nice hook to it, we can get worldwide attention. So now I can go to my boss tell him look we made a video clip and 10,000,000 people have watched it. So, it's important to work with video. It's important that you get training to perform in front of a camera". My colleague and I do a lot of video clips for internal news. And then suddenly the effect is that my boss also becomes interested in doing that.* (R3)

5.3 Individual agency

During the interviews, our participants commented on how their past experiences would motivate them to take certain measures, such as trying various channels of communication for achieving their goals. Many of our participants had received their formal training traditionally in journalism and had their background in writing journalistic texts. Drawing on their past experiences, the respondents explained how they loved to tell a story, how their job at the university showed more resemblance to that of a journalist in the sense that they were writing content that was actually meant for reading. In the example below, the participant likes the fact that her job as a communicator at the university is quite close to her previous occupation as a journalist. The participant mentions that being a communicator in

teacher recruitment programs is a valuable occupation compared to any communication role in e.g., the advertisement industry:

(V) *Being a communicator means to work with what I like most; the way people interact and understand each other. There are many aspects to it of course. We have this big teacher challenge for finding teachers, without whom there would be a disaster. This is what gives meaning to my job. Actually, there is a sad side to it too! Deep down I am a journalist. Here in Sweden there are less and less journalists and more and more PR people and communicators because of the digitalization process that affects the market of the papers. I'm not sure that it is a good thing for the society though. I like the work here at university. I couldn't work for someone who, like, produces tobacco.* (R9)

However, some participants stated more elaborately how their interests drove them to take certain measures to do something more than just a daily job. These participants considered the role of a communicator as that of a leader. They explained the importance of being pro-active without being told what to do, or even the importance of making changes to the way things typically are done. Respondent 13 emphasizes that communication is something that everyone performs on a daily basis. Yet, performing communication based on expertise needs to be different. Expertise in performing communication professionally includes, for instance, developing appropriate metric systems to evaluate communication results or being evaluative and proactive in order to guide the organization's communication strategies:

(VI) *We need to collect different metrics to help the organization keep track of the right kind of thinking; "are we communicating in right manners for our target group? Do we have a believable and trustworthy story here to communicate"? And we also need to try to be proactive! It is more or less strategic ways of thinking. Everyone can communicate but you can see that you have been in a workplace for a couple of years and you are still repeating the same things every time in the meetings. They just keep forgetting! They forget and need help to remember, "who is our target group and what do they need to know". I don't know, I mean anyone can come to the meeting with the same questions as me [laughs]! But it appears that that function [reminding] is needed.* (R13)

5.4 Modal affordance

A key understanding for a communication practitioner, our participants emphasized, was to understand what functions would be best possible through a given channel. Understanding the customary functions possible through various digital channels was important since it would allow the practitioners to be aware of the probable consequences of online communication through various digital channels:

(VII) *We also try to avoid massive email way of connecting with students. And the reason for that is that if we overuse that channel, then the more important messages would be considered less important. Emails are mainly for when we need to access all students all at once. And also, this massive email communication is not a good way, anyway. If the content is a bit light, it most probably will be taken as commercial or spam even if the university is the sender. We don't want to overuse the student emails for connection and keep it for special occasions. (R7*)

In addition to the conventional functions possible in a particular channel, some participants had also found the possibility to experiment with less conventional functions in the same channel. Breaching the conventionally accepted functions of a channel was not necessarily an unfavorable course of action. Rather, going beyond the conventional functions and discovering the possibility of new functions in a channel could be seen as an opportunity facilitated by digitalization. These participants believed various channels should not be used to merely compensate for the limitations of another channel. Instead, flexible digital channels could be experimented with to achieve new effects. For example, the respondent below explained how they had initially used YouTube to compensate for the functional limitations of the formal website. However, apart from using YouTube and SoundCloud for overcoming limitations, a new and less conventional use for YouTube was discovered. YouTube was seen as a

search engine where possibilities for reaching out to a larger audience are provided. Therefore, it has turned into a channel that provides more than just the means of embedding videos in InfoGlue:

(VIII) *Well, from the start we used YouTube because our CMS InfoGlue does not provide any good media players. So, we used YouTube instead as a tool to compensate for that before. And it is more now that we see that users of YouTube are using it differently. They search it like Google. So, we always use it to embed our videos of our press releases and interviews. And it is also the case with the SoundCloud, too. We see YouTube as a possibility to reach out to a larger audience, but also as a tool that we can embed in our webpage. (R5*)

6 Discussing Two Levels of Competence

As established previously, the communication practitioners' competence to package and channel a message is closely tied to their understanding of the social context at hand, and affordances of digital communication channels, as well as the available digital technologies and the individuals' agency. We have thus separately analyzed how digitalization reshapes the way these factors guide the communication practitioners' competence to execute their work tasks.

In terms of the *social context*, it is only with respect to the rationale governing a particular social context that available technology can form acceptable genres and modes of communication (Domingo et al., 2014). All our participants understood the importance of critically evaluating the customary discourse dominating the context of the university in terms of the language and channels applied for communicating with the target audience (R7). However, for some participants, this was merely the first step. Digitalization has made it easy to constantly reflect on the discourse and demands of one's immediate organization in comparison to the demands and discourses governing similar but more contexts. These participants consequently argued for the need to even have one's eyes on a larger context outside the immediate organization. Respondent 5, for instance, reflected on how other universities world-wide or even other governmental sectors would use their websites.

In terms of the *available technology*, digital technologies make a wide range of modes available in the same channel, create new relationships among modes, and unsettle and re-make genres, in ways that can reshape practices and interaction (Jewitt, 2013). Therefore, the availability and employment of different technologies could result in different ways of practicing work (see Cotter, 2015; Domingo et al., 2014). Having access to a common range of digital technologies, all participants commented on the effects of the growing number of multi-modal media, and the need for being present in various digital channels on practice. An instance included the changes in division of labor in the communication departments (R6). However, with digitalization providing a wide range of organizationally unbound technologies, some participants found it important to continuously evaluate the match between technologies and communication goals rather than randomly employing a variety of them. Respondent 3 exemplified how determining the right tool, YouTube (previously not employed in the organization), had resulted in visibility in a scope much larger than initially expected. This optimization of results through the right technological match had in turn created a change in the practices of the communicators as well as other staff including the managers.

In terms of *agency*, individuals have an active role in employing certain modes and technologies to communicate their intended meaning That is, despite having access to the same communication resources (technologies and the modes), individuals' interpretation of what needs to be communicated and how is not necessarily the same (see Jewitt et al., 2001). Rather, through establishing a relation between certain aspects of their past experience and current goals, individuals as active agents choose one communication resource over another (Kress, 1993; Jewitt et al., 2013). All our participants shared anecdotes of how their previous experiences, for instance, as an ex-journalist would lead the way to taking certain measures when packaging and channeling the message in their current job as a communicator (R9). However, with digitalization providing the opportunity to systematically guide the communication practice, individual and subjective interventions were only a first step. Respondent 13 exemplified the importance of distinguishing professional and expert communication practice from the way lay people communicate on a daily basis. To continuously reflect this distinction, certain met-

rics for evaluating and even guiding the organization's communication strategies needed to substitute individual determination.

In terms of *modal affordance*, each mode is perceived with regard to its material affordances as well as its social-historical and cultural uses of that mode (Bezemer and Jewitt, 2010). Due to the difference between the material and social affordances, some functions are perceived to be more straightforward than others. All participants discussed their awareness of how the historical and social uses of a channel established them as immediately in/appropriate for a certain function. An example being email as the appropriate channel only for a certain frequency of use and for messages with a certain degree of importance (R7). As it turned out, communication practitioners need this sort of understanding to avoid breaching these customary cultural, social and historical perceptions of what is appropriate to do through a channel. However, with digitalization allowing for the convergence of multiple modes in one channel, awareness of conventionally appropriate functions was the first step. Respondent 5 exemplified that the multi-modal digital channels are apt for discovering a combination of less conventional functions and creating new effects.

As might be observable through our discussion so far, we find that the participants' statements can be seen as belonging to two different sets. In the first set, the participants express their understanding of and positioning towards the four factors by referring to all the fundamental competences required to work as a professional communicator. To illustrate, excerpt I in the result section corresponds to the fundamental understanding for the factor *social context*. The fundamental understanding of social context thus includes an awareness of the implicit expectations and unspoken demands of the organization. Excerpts III, V, VII operate in similar terms and belong to this set, too. In the second set, the participants show a *deeper* understanding of the four factors by referring to not only the fundamental competences but also to additional nuances that complement the fundamental competences. Excerpt III then illustrates an instance of a deeper understanding for the factor *social context*. This deeper understanding includes the ability to critically evaluate demands and expectations of one's own organization in comparison with demands and expectations of other similar contexts. Thus, excerpt III includes everything covered by excerpts I as well as some nuanced aspects not found in it. Excerpts II, IV, VI, VIII operate in similar fashion for other factors and thus belong to the second set, as well. An analytic summary of our findings is found in Table 2.

	Excerpts	Conceptions	Factors			
			Social Context	Available Technologies	Individual Agency	Modal Affordance
Level 1	I, III, V, VII	Competence as optimizing existing resources	Understanding implicit expectations and unspoken demands of the organization	Using a variety of digital artifacts as part of the communicative repertoire	Interpreting what needs to be done and how in the light of one's past experiences to achieve the defined organizational goals	Appreciating the subtle communicative nuances of available channels
Level2	II, IV, VI, VIII	Competence as envisioning new possibilities	Critically evaluating demands and expectations of one's own organization in comparison with demands and expectations of other similar contexts	Evaluating and incorporating technologies not yet officially sanctioned	Employing various resources or even developing new metrics to guide the organization's communication strategies in a proactive way	Identifying the materially possible yet not actualized potentials of communication channels

Table 2. Two qualitatively different conceptualization of communicators' competence

We interpret this stepwise distinction in individuals' understanding as *levels* of competence. Level1 refers to all the fundamental competences and Level2 refers to the nuances that complement the fundamental competences. By fundamental we mean the foundational and necessary understanding without which a Level2 understanding cannot be developed. This Level1/Level2-pattern is traceable in the excerpts related to all the other factors as well. Looking at all the explanations in table 2 which shape the fundamental competences in this study, one common point is the need to understand and attend to the existing socio-technical work relations. The common point among all the explanations indicating a Level2 competence is the emphasis on a reflective and evaluative worldview to continuously renegotiate the goals, technologies and practices to make new socio-technical relations possible. These common focus areas, we argue, result in two qualitatively different conceptions of competence, i.e., competence as 1) optimizing existing resources, and 2) envisioning new possibilities.

With little emphasis on the role of technology, earlier scholarship on *competence* has suggested that people's understanding of their work constitute their competence at work (Sandberg, 2000). Conceptualizing competence as 'optimizing existing resources' points to such understanding and attention to the existing socio-technical relations at work. That is, the ability to understand and respond to what *is*. Today's flexible digital technology turns competence to the ability to understand and respond to what is *becoming*. Such digital technology, as shown throughout this paper, has an instrumental role in providing individuals with a variety of alternatives, and hence with an evaluative and reflective view towards the present goals, practices and tools. Thus, being a motivated employee, or merely having the skills to perform the defined tasks by using a certain artifact, as has been the presumption of the (IS) scholarship on digital competence, is no longer enough. Rather, it is the application of digital technologies for developing an evaluative and reflective view which enhances the individuals' competence and influences their adoption of certain technologies and the skills to work with them. In other words, given the effects of digitalization, employees' reflective ability to constantly evaluate and renegotiate the socio-technical relations at work constitute competence. Conceptualizing competence as "envisioning new possibilities" points to this evaluative and reflective ability.

Such a conceptualization of competence is in alignment with the more recent IS debates on how various strategies for digital transformation are continuously in the making with no foreseeable end (Chanias et al., 2019). For better or worse, this ever-emergent conceptualization of competence as 'envisioning new possibilities' has long-term consequences for employees as well as IS scholars. Today, the constant evaluation and "continual negotiation" (Winter et al., 2014, p. 260) of goals, practices and tools become not just a management responsibility but an exercise on the employee level. Turning this new responsibility into a useful tool—as opposed to added stress at work—requires specific measures. Rather than focusing on what competences one needs to work with a specific IT artifact, the management and research focus needs to shift towards equipping individuals with an evaluative and reflective understanding of their work relations. Despite the obvious emphasis in the Swedish academic sector to improve social media communication and for all the increasing work pressure on communication practitioners, little interventionalist effort was seen in any of the 15 faculties in this study to implement methods and tools to enhance employees' evaluative abilities. We argue that, just as the emergence of infrastructural digital technologies requires turning the current evaluation approaches on its head, for instance, in social media marketing (see Hoffman and Fodor, 2010), there is also a need to revisit the criteria for evaluating employees' performance and competence.

In the face of digital technologies, the recent research calls in IS invite scholars to revisit the concepts, categories and approaches that have so far shaped our understanding of working life (Tilson et al., 2010; Winter et al., 2014). These calls specifically recommend that when a study is branded as a study of *digital X* (*e.g.* digital competence), it needs to suggest new insights around the phenomenon X in relation to digitalization, rather than simply selling old wine in new bottles (Baiyere, Gupta, Grover, Woerner and Lyytinen, 2017; Orlikowski and Scott, 2016). The scholarship on *digital competence* in general, and in IS in particular, has predominantly focused on the importance of individuals' competence to use particular IT artifacts in performing organizational tasks (see Wang and Haggerty, 2009; Davis et al., 2009; Davis, 2013). To extend and suggest new insights to the previous IS literature on competence, we have 1) argued for extending the IS focus beyond IT artifacts implemented and used

in single organization, 2) emphasized on understanding competence beyond the ability of individuals to work with specific digital tools, and 3) responded to the recent IS research agendas that emphasize the importance of examining the role of dynamic capabilities which allow firms to repeatedly and continuously adapt to the transformative effects of digitalization (Vial, 2019). Identifying the mechanisms for such a "continual negotiation (Winter et al., 2014), or as Teece (2014) puts it, "continued renewal" (p. 332) of goals, practices and tools is at the heart of dynamic capabilities (Vial, 2019). To conceptualize competence as the employees' evaluative and reflective view toward their work is to highlight one such mechanism.

7 Limitations and Suggestions for Further Research

Our hope was to bring the role of digitalization on the broader context of work and competence into focus. To do so, we argued for investigating the digitalization of practices and their related competences, hence the title of the paper. However, our methodology is limited to in-depth interviews and does not include more immersed data gathering methods such as observations or shadowing of practitioners' daily activities which underline their practice. Future research can thus continue the focus on the digitalization of profession-based practices using such methods and in various professions. Furthermore, the specific definition of competence provided here might be valid in the context of communication practitioners. What we suggest could be tested for generalizability in future research is the implications of defining competence as a dynamic capability including the effects of evaluative tools and mindsets in dealing with multivocality and added work stress. Finally, our developed analytic lens is particularly meaningful for analyzing the communication related practices. What can be followed when studying the digitalization of other professions is our process for identifying the core characteristics of a profession in a structured way and identifying the way digitalization transforms those integral characteristics. However, for those interested in the field of digital communication, exploring the relationship between the four multi-modal factors can generate useful insights about what parameters are likely to contribute to a higher level of competence in digital communication and how.

8 Conclusion

Our aim was to understand what constitutes competence at work in times of digitalization. We found that competence can be conceptualized on two different levels: 1) optimizing existing resources, and 2) envisioning new possibilities. The first conceptualization is a confirmation of the findings in previous studies of competence; competence as the individuals' ability to understand work as *is*. The second conceptualization of competence adds a critical savor to the individuals' understanding of their work and stimulates them to reflect on and evaluate the exiting work relations. It is not only individuals' understanding of their work that constitutes competence. It is also their critical ability, ever more facilitated by the flexible digital technologies, to constantly evaluate and reshape existing work relations. Eventually, digital competence in today's world transforms the individuals from the *executor*—appointed to carry out defined tasks with given tools and structures—to *executives* with the critical ability to evaluate goals, tools and structures.

To conceptualize competence as an evaluative and reflective view toward work is to understand competence in terms of a dynamic capability in the making rather than a pre-defined attribute to be possessed. However, this emerging formulation of competence has implications both for the IS researchers as well as communication practitioners. Apart from the stress caused by having to do more than what one is told, such multivocality on what needs to be done will influence our criteria in evaluating competent employees, particularly in contexts where work guidelines are less defined and performing work relies mainly on individuals' interpretation of the situation. Thus, in practice, technologies and methods which enable the evaluative and comparative knowledge of what is possible as opposed to what is customary—including social media analytics in the case of communication profession—would be useful. Hence, application of such tools and methods should no longer be confined to optimizing business opportunities in the private sector. Our findings show that evaluation is no longer merely a business advantage, but a core constituent of competence in times of digitalization.

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