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## SOCIOLOGY OF EDUCATION | RESEARCH ARTICLE

# European doctoral researchers' work communication during the COVID-19 pandemic

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**Abstract:** The situation caused by coronavirus disease 2019 closures in the spring of 2020 resulted in various restrictions for universities and led to a reorganisation of their operations. This created unprecedented challenges for all academic work. This study aimed to analyse the pandemic-related work experiences of doctoral researchers from several European universities. Thirty-eight doctoral researchers of management and organisation studies wrote voluntarily about their pandemic-related work experiences. The analysis focused on work communication since it emerged as the key theme in the writings. An analytical framework was developed to capture corporeal, virtual, formal, and informal dimensions of work communication in 72 relevant mentions that were extracted from the writings. These mentions created a rich evaluative space in that they evaluated different aspects of work communication. The general finding that all combinations of corporeal, virtual, formal, and informal work communication received both positive and negative evaluations theoretically made sense from a sociomaterial—technological perspective. Doctoral researchers must become immersed in specific sociomaterially and technologically constructed entanglements to achieve their goals of work communication. The findings revealed that these entanglements were both impeding the determinants of work communication as well as enabling researchers to carry out work communication in novel and creative ways.

### ABOUT THE AUTHOR

Seppo Poutanen is Senior Research Fellow and Docent of sociology at Turku Centre for Labour Studies (TCLS) of University of Turku, Finland. His areas of expertise extend from sociology of science & technology and gender studies to work life studies. Dr. Poutanen's latest publications include two books: *Digital Work and the Platform Economy*, edited with Anne Kovalainen and Petri Rouvinen (Routledge, 2020), and *Skills, Creativity and Innovation in the Digital Platform Era* with Anne Kovalainen (Routledge, 2023). The article "European doctoral researchers' work communication during the COVID-19 pandemic" is one output from the ongoing research project "Digital platformisation and academia", led by Dr. Poutanen.

### PUBLIC INTEREST STATEMENT

The article gives a multifaceted description of some European doctoral researchers' work experiences during the first months of the COVID-19 pandemic. Quarantines and shutdowns meant that doctoral researchers had to adapt to remote work, mostly performed at home with digital tools and platforms. The importance of communication with supervisors and colleagues was emphasized in these unprecedented circumstances, and both disadvantages and benefits of digital online work communication compared to face-to-face interactions at office became highlighted. In spite of many difficulties and hardships, the doctoral researchers were able to find new and creative solutions to their work communication and interaction needs.

**Subjects:** ICT; Interpersonal Communication; Organizational Communication; Higher Education; Open & Distance Education and eLearning; Sociology of Education; Information Technology

**Keywords:** doctoral students; computer-mediated communication; blended learning; teleworking; COVID-19 pandemic

## 1. Introduction

In Europe, the coronavirus disease 2019 (COVID-19) pandemic began in the spring of 2020, leading to multiple closures, curfews, and quarantines. For universities, this radically novel and complex situation resulted in many kinds of restrictions and a reorganisation of their operations, which caused unprecedented and difficult challenges for academic researchers, teachers, administrators, and students (Cairns et al., 2021; Jack & Glover, 2021; Pyhältö et al., 2022; Watermeyer et al., 2021). The focus of this study is on certain pandemic-related work experiences of doctoral researchers in management and organisation studies from several European universities and specifically on the dimension of such experiences that concerns doctoral researchers' work communication.

Numerous survey-based analyses exist concerning not only how doctoral students worldwide have coped with the exceptional state of affairs and faced stress, boredom, anxiety, and even dread, but also the means by which they have developed new strategies for survival and academic success (Hasgall & Peneoasu, 2022; Jackman et al., 2021; Naumann et al., 2022; NSF, 2022). Qualitative social scientific analyses on this subject matter have also been published (Campbell, 2021; Cullinane et al., 2022; Phan et al., 2023).

However, notably missing from the existing research are studies systematically addressing *the more specific elements* from which doctoral researchers' work experiences were derived during the pandemic. Without an understanding of such key elements, the profoundly context-dependent nature of the work experience cannot be well grasped. Strong and general presumptions about pandemic-related problems in many existing studies may carry the danger of excluding the research subjects' own spontaneous and multi-layered views on the matter. This study aimed to systematically examine some of the more specific elements that appeared in textual materials written freely by two groups of European doctoral researchers.

The unique textual research materials for the study were produced in a voluntary and spontaneous way, comprising both form and content. The specific element that emerged from the research materials was *work communication*, understood now broadly as a doctoral researcher's varied exchange of work-related information and knowledge with her supervisors, teachers, fellow students, colleagues, and informants, among others. The qualitative analysis demonstrated how this specific element in its particular sociomaterial—technologically conditioned forms constituted the academic work and related key experiences of the participants through the first 14 months of the COVID-19 pandemic. Nonetheless, this constitution does not emerge as an overwhelming determinant of doctoral researchers' working life but more as an affordance with ample and versatile potential for choices and action. The novelty of this study comes from the careful delimitation of focus on certain dimensions of doctoral researchers' experiences and basing the analysis closely on their own, spontaneously expressed views.

The remainder of this paper is organised as follows: The **Literature review** summarises the general effects of the COVID-19 pandemic on academia and highlights the centrality of communication in doctoral research. Social scientific research on pandemic experiences has not particularly focused on this type of communication, and this study attempts to address this clear gap in the research. The **Research design, materials and methods** detail the research design, describe how the empirical materials were collected, and how a conceptual framework was created for a detailed analysis. The **Results** section organises and summarises the results of the analysis in the

four tables. The **Discussion** then interprets the results and explains their novelty and richness from a sociomaterial—technological perspective. Finally, the **Conclusion** highlights the objectives and results of the study and reflects their broader implications for research and policy questions.

## 2. Literature review

The COVID-19 crisis forced doctoral researchers to reorganise and recreate key elements of their everyday life, with the resources that were available to them, and their studies and research worked as the central parts. The essential change at most European universities (as well as globally) in the spring of 2020 was a comprehensive transition to remote work (Garcia-Morales et al., 2021; Tataj et al., 2021; Watermeyer et al., 2022). This relocation of research, teaching, studying and administration to places outside of offices, libraries, lecture halls and laboratories was carried out in varying forms and absoluteness in different countries and universities. However, for doctoral researchers, especially at the beginning of the pandemic, the crucial change meant that they had to start doing most, if not all, of their work at home or some other location outside the university. The change brought unexpected challenges, in particular to doctoral researchers' central relationship with their supervisors, and new arrangements in the relationship have involved both negative and positive features (Dabaieh & Sarkheyli, 2023; Pyhältö et al., 2023; van Tienoven et al., 2022; Wisker et al., 2021).

On the face of it, the transition from in-attendance work to remote work may seem a smooth operation for doctoral researchers to accomplish—at least when compared to many other occupations and to younger, more “lecture-bound” university students' work. First, some digital tools and virtual platforms that enable remote work—such as Outlook, Google Drive, Moodle, Doodle, Teams, Zoom, and Skype—were familiar to most doctoral researchers prior to the pandemic (Dowling & Wilson, 2017; Gouseti, 2017; Maor et al., 2016). Second, many of the doctoral researchers' tasks—that is, accomplishing courses, reading literature, writing research plans, maintaining contact with supervisors and other colleagues, collecting and analysing data, participating in conferences and seminars and applying for research grants—seemed quite feasible when conducted virtually (Cullinane et al., 2022; Torka, 2021; Webber et al., 2022).

Numerous doctoral researchers were accustomed to accomplishing their studies at least partly remotely before the spring of 2020 for reasons of needing flexibility because their main job was outside the university or due to limitations in mobility (Gouseti, 2017; Gray & Crosta, 2019; Huet & Casanova, 2021). Doctoral researchers and other academics would have faced serious difficulties in managing their responsibilities if digital tools and platforms had not been available to them during the pandemic. However, countless different realities of virtualised academic work have turned out as multifaceted, often unexpected and both positively and negatively charged in many ways (Hasgall & Peneoasu, 2022; Jackman et al., 2021; Lokhtina et al., 2022).

Concerning doctoral researchers' work, the conditions for communication and the ability to effectively communicate with supervisors, colleagues, and peers essentially define how well a doctoral researcher can perform their tasks and succeed in their studies. This communication is essentially about learning know-how, many parts of which are not explicated in scientific textbooks or other literal instructions, but which must be learned tacitly in regular and diverse interactions within the academic community (Becker, 1998; Phan et al., 2023; Wisker et al., 2021). Nevertheless, social scientific research that specifically focuses on the communication of doctoral researchers is remarkably scarce. Typically, the focus of analysis has been learning, academic progress, and well-being, where the function of communication has mostly been considered as self-evidently related to other elements in the subjects of study (Donohue et al., 2021; Dowling & Wilson, 2017; Goldstone & Zhang, 2022; Pyhältö et al., 2022; Riva et al., 2022).

Although the core of a doctoral researcher's work communication consists of different contents of their studies and research, it is not the whole picture. In addition to the content-centred, formal, and concise communication, a different kind of interaction, which is informal communication,

small talk, or chit-chat, occurs in practically every office (Fayard & Weeks, 2007; Methot et al., 2021; Mirivel & Tracy, 2005). This chit-chat may mean several things, such as greeting co-workers at office, chatting about trivial matters, socialising before and after meetings and sharing personal issues with colleagues (ibid.). These informal forms of communication constitute and typically strengthen membership in work communities (ibid.).

The significance of office chit-chat and small talk has often been ignored in organisational studies (Methot et al., 2021). However, the COVID-19 pandemic led to a massive revelation in the general theme of communication after a large number of employees went remote and lost most chances of both corporeal face-to-face content-centred work communication and related chit-chatting with colleagues. This sudden communication void has roused social scientists, and studies on the meaning of the loss of interaction and efforts to replace it with virtual content-centred communication and virtual face-to-face small talk (online coffee and lunch breaks) have emerged (Bennett et al., 2021; Bleakley et al., 2022; Jacks, 2021; Viererbl et al., 2022; Woo et al., 2023). This study discusses the abrupt and complex changes in work communication from the perspective of doctoral researchers. The doctoral researchers who participated in the study did not all have an office at the university, not even before the pandemic, but the importance of both formal and informal work communication to their studies became clear in the analysis.

### 3. Research design, materials and methods

The formulation of the research design was guided by the broad research interest in what changes the COVID-19 pandemic situation had brought to doctoral researchers' working life and how they experienced those changes. The exploratory nature of the design was realised in both the manner of collecting the research materials and the methods of analysing them. Participants in the study were given a voluntary and non-directive writing assignment to freely tell about their pandemic-related work experiences. The individuals belonged to management and organisation studies and were affiliated with universities in Finland, Sweden, Denmark, Belgium, The Netherlands, Ireland, and Great Britain. Some of the doctoral researchers hailed from a different country than where their universities were located. They participated in two online seminars organised by the author and their colleagues on qualitative research methods, the total number of all participants being 45. The seminar, which was conventionally organised prior to the pandemic, is designed for doctoral researchers at the beginning stage of their PhD project.

The first online seminar took place in May 2020, while the second was held in May 2021, when the pandemic was still intensive and travel restrictions prevailed. Research materials were collected on an extra-curricular basis. At the end of both courses, participants were given a voluntary assignment without any set limits for format or length, where they were asked to write in general about how the COVID-19 pandemic situation had changed their work situation, their PhD progress, or their views on research. Seventeen participants of the seminar in May 2020 and 21 participants of the seminar in May 2021 returned the assignment, making a total number of 38 pieces of writing for analysis. Permission to use the writings as research material was requested, and complete anonymity was guaranteed.

Following the exploratory research design, the first stage in the analysis was kept as open as possible to include all the richness and surprises in the texts. The first stage thus consisted of an experienced social researcher reading the texts closely several times, and constantly asking the question, "What is going on here?" The theoretical lens for the analysis was provided by a sociomaterial—technological perspective, which emphasises the inevitable and embodied entanglement of human actions with all kinds of devices and artefacts (Gourlay, 2021; Leonardi, 2013, 2015; Orlikowski, 2007, 2010; Waizenegger et al., 2023). Accordingly, particular attention was paid to possible changes in how doctoral researchers related to their workspaces, tools, and other material arrangements.

Neither the writing assignment nor the theoretical lens especially focused on the subject of work communication, but after three close reading rounds its centrality became apparent. The research

question could then be adjusted to focus on how the participants described and assessed their work communication during the COVID-19 pandemic. As the close readings also revealed that the texts dealt with both corporeal face-to-face and virtual work communication, it became necessary to design a systematic conceptual and analytical framework for further text analysis. The framework partly utilises the work of Fayard and Weeks (2007), Methot et al. (2021), and Mirivel and Tracy (2005) on informal communication and comprises four categories: i) formal (to the point) corporeal face-to-face work communication; ii) informal (chit-chat) corporeal face-to-face work communication; iii) formal (to the point) virtual face-to-face work communication; and iv) informal (chit-chat) virtual face-to-face work communication.

The elaborated research interest of this study is the different combinations of the corporeal—virtual and formal—informal dimensions of work communication in the analysed texts. This implies that some potentially interesting and important research subjects, such as articulations of non-verbal communication and linguistic constructions of professional self-narratives, are left without attention. The texts as a whole can be best regarded as complex and multi-layered discursive artefacts, which resist any effort at exhaustive interpretation or reconstruction (see Handford & Gee, 2023; Whittle et al., 2023).

After close readings, the analysis proceeded by applying the designed conceptual and analytical framework to identify and list all the mentions in the texts that obviously or reasonably clearly dealt with work communication. The operability and reliability of all categorisations were strengthened with selective comparable categorisations performed by another experienced researcher. In the 38 texts, 72 separate mentions, that is, 28 from May 2020 and 44 from May 2021, were selected for further study. These mentions varied in length from one sentence to short paragraphs, and the analysis of their contents is presented in the following section.

Descriptions of the participants’ personal attributes and situations were kept to a minimum. Accordingly, the contributors’ anonymity was comprehensively protected; however, a depiction of such aspects would be misleading from an analytical perspective. This is because the contents of their mentions cannot be explained from a participant’s gender, PhD student status, economic situation or cultural background in this kind of study. Therefore, the focus is on the mentions themselves, and particularly the aspects of *evaluative space* the mentions create. This conceptual construction with its emphasis on evaluation is justified by the core nature of the references. Despite the original assignment being neutrally descriptive (write about how the COVID-19 pandemic situation changed your work situation), the bulk of the texts elaborate on various positives and negatives in work communication throughout the pandemic.

#### 4. Results

The 72 mentions are numerically summarised in two tables according to the year. When the texts in Table 1 were written, the pandemic lasted for approximately two months. The seriousness of the illness caused by COVID-19 remains unclear, and no remedies have been developed. The texts presented in Table 2 were produced 14 months into the pandemic with no clear end in sight, even

**Table 1. Negative and positive evaluative mentions written in 2020 of a total of 28 mentions**

Evaluative mention	Formal communication	Informal communication	All mentions
Abrupt loss of corporeal face-to-face communication	-10	-5	15
	+1	+2	3
Abrupt prevalence of virtual face-to-face communication	-4	-2	6
	+2	+2	4
Total	17	11	28

**Table 2. Negative and positive evaluative mentions written in 2021 of a total of 44 mentions**

<b>Evaluative mention</b>	<b>Formal communication</b>	<b>Informal communication</b>	<b>All mentions</b>
Abrupt loss of corporeal face-to-face communication	-8	-10	18
	+none	+4	4
Abrupt prevalence of virtual face-to-face communication	-7	-2	9
	+11	+2	13
Total	26	18	44

though worldwide vaccinations had already begun being administered. Although a straightforward comparison of the texts written by different individuals over the course of two years would not be meaningful, what united all the participants was an unprecedented general experience in the spring of 2020. They suddenly and completely lost all corporeal face-to-face work communications, both formal and informal. Direct formal and informal interactions that were often spontaneous with people in offices, lecture halls, laboratories, conferences, and coffee rooms have been replaced by virtual face-to-face communication through online tools such as Skype, Zoom and Microsoft Teams.

In Tables 1 and 2, the types of content of the work communication, that is, formal or informal, are cross-tabulated with the nature of the face-to-face work communication, that is, corporeal or virtual. The tables present the distribution of the 72 mentions of the 4 analytical categories, but additional sorting was done as well. As highlighted earlier, all the mentions are evaluative. They assess the sudden loss of corporeal face-to-face work communication in its formal and informal modes and the abrupt prevalence of virtual face-to-face work communication. Each cell indicates the number of mentions classified as per the designated type. The minus and plus symbols indicate the negative or positive evaluation given by a mention.

Table 1 indicates that 10 mentions negatively evaluated the loss of formal corporeal face-to-face work communication, and 2 mentions considered the prevalence of informal virtual face-to-face work communication as a positive thing. Correspondingly, Table 2 shows that 11 mentions positively evaluated the prevalence of formal virtual face-to-face work communication, while 10 mentions viewed the loss of informal corporeal face-to-face work communication as a negative thing.

Tables 1 and 2 emphasise the evaluative space concerning the work communication based on four dimensions, where the numbers of negative and positive evaluative mentions categorised as per each basic dimension are defined. Asymmetrical dispersion can be observed, as most mentions concentrate on various downsides in the switch from corporeal to virtual work communication. In the following section, the evaluative space is made more substantial by discussing the reasons why some evaluative mentions have been categorised as negative and others as positive within their basic dimensions. This was intended to analyse the negative and positive aspects of the prevalence of formal virtual face-to-face work communication and the loss of informal corporeal face-to-face work communication, respectively.

Tables 3 and 4 organise the evaluative mentions around the drastic dual-sided development that the doctoral researchers had experienced due to and after the various closures and quarantines triggered by the COVID-19 pandemic in the spring of 2020. The two components of this development consisted of a simultaneous loss of most corporeal face-to-face work communication and an abrupt commencement of virtual face-to-face work communication. The excerpts inside quotation marks are direct quotes from the 72 mentions; however, generally, the texts separated by asterisks summarise the contents of one or more separate evaluative mentions. This unification

**Table 3. Evaluative mentions elaborating the loss of corporeal face-to-face work communication**

Year	Why is the loss of formal corporeal face-to-face work communication negative?	Why is the loss of informal corporeal face-to-face work communication negative?	Why is the loss of formal corporeal face-to-face work communication positive?	Why is the loss of informal corporeal face-to-face work communication positive?
2020	<ul style="list-style-type: none"> <li>* work is hampered because supervisors, colleagues, peers, research subjects, and/or co-participants of conferences and seminars are not able to meet in person</li> <li>* networking is not possible</li> <li>* support network at the office is lost</li> </ul>	<ul style="list-style-type: none"> <li>* “bonding with other colleagues” is not possible</li> <li>* lunch and coffee breaks with chit-chats are not possible</li> <li>* no chatting with colleagues at office and experiencing loneliness at home</li> </ul>	<ul style="list-style-type: none"> <li>* communication situation with colleagues became equal (they could not insist on corporeal face-to-face communication anymore)</li> </ul>	<ul style="list-style-type: none"> <li>* colleagues cannot disturb the work process with their “conversations and incidents” at office</li> <li>* there is no point of informal chit-chat at the workplace</li> </ul>
2021	<ul style="list-style-type: none"> <li>* no physical visits to seminars or conferences</li> <li>* no international network building</li> <li>* not becoming a real member of the academic community</li> <li>* “working atmosphere” is lost</li> <li>* no free discussions are possible where important work information can be exchanged</li> <li>* “brainstorming” opportunities are lost</li> </ul>	<ul style="list-style-type: none"> <li>* no “water cooler conversations”</li> <li>* coffee &amp; lunch break opportunities are lost</li> <li>* spontaneous closeness is lost</li> <li>* opportunities to share “funny things” that could lead to a more personal discussion are lost</li> <li>* isolation and loneliness at home</li> <li>* no possibility of receiving help from peers in desperate moments</li> </ul>	no mentions	<ul style="list-style-type: none"> <li>* better focus on work without external distractions</li> <li>* peaceful working conditions</li> <li>* energy that went into coffee and lunch meetings was saved</li> </ul>

is meant to avoid needless repetition and make the different dimensions of the evaluative space as clear and distinctive as possible.

### 5. Discussion

The answer to the research question “What is going on here”? (in the texts written by the doctoral researchers) became a multifaceted study of different modes of work communication. The conceptual and analytical tools developed in the second section made it possible to organise the 72 identified mentions in the 4 multidimensional tables, as elaborated in the third section. The importance of work communication to doctoral researchers and the pervasive consequences of the COVID-19 pandemic become strongly expressed by the fact that none of the mentions is neutrally descriptive. On the contrary, and without any incentive from the original assignment (see Research design, materials and methods), all the mentions focus on negatively and positively assessing the various characteristics of work communication during the unprecedented state of affairs. The organised whole of these assessments has been designated as an *evaluative space*, which reveals many interesting features for further discussion.

**Table 4. Evaluative mentions elaborating the prevalence of virtual face-to-face work communication**

Year	Why is the prevalence of formal virtual face-to-face work communication negative?	Why is the prevalence of informal virtual face-to-face work communication negative?	Why is the prevalence of formal virtual face-to-face work communication positive?	Why is the prevalence of informal virtual face-to-face work communication positive?
2020	<ul style="list-style-type: none"> <li>* paucity of facial and bodily expressions hampers work performance</li> <li>* lack of whiteboards</li> <li>* conversations are slightly stilted; one cannot discuss an issue at length</li> <li>* less work time together than before</li> <li>* everything is so organised that situations have become tense</li> </ul>	<ul style="list-style-type: none"> <li>* virtual coffee breaks do not compare to normal life</li> <li>* participating in virtual coffee breaks would mean excessive time spent in front of the screen</li> </ul>	<ul style="list-style-type: none"> <li>* better concentration on tasks is possible</li> <li>* Zoom calls work as well as face-to-face meetings (Zoom meetings tend to be shorter, which may be good or bad, depending on the situation)</li> </ul>	<ul style="list-style-type: none"> <li>* “disturbance time” at work can be managed better</li> <li>* online presence is handy because you do not need to be “really” present</li> </ul>
2021	<ul style="list-style-type: none"> <li>* team and trust building is difficult</li> <li>* every issue needs a meeting; therefore, everyone is occupied all the time</li> <li>* every day in a remote seminar feels the same</li> <li>* abundance of virtual opportunities is sometimes overwhelming</li> <li>* attendance is expected all the time because “it is so easy”</li> <li>* difficult to meet new people for networking</li> <li>* some important work-related matters cannot be managed</li> <li>* difficult to develop anything new</li> </ul>	<ul style="list-style-type: none"> <li>* virtual coffee chats and pub quizzes are quite tiresome because you sit in front of the screen the whole day anyway</li> <li>* virtual coffee breaks are often stiff because it is hard to interpret people’s reactions and gestures</li> </ul>	<ul style="list-style-type: none"> <li>* great comments on online presentations were received that would not have been expected offline</li> <li>* virtual meetings are great to maintain existing relationships</li> <li>* regular update calls are efficient and easy to organise</li> <li>* exchange of ideas works if planned beforehand</li> <li>* time and money is saved</li> <li>* better concentration on work</li> <li>* it is easy to connect and remember names and faces (in Zoom calls &amp; Webex meetings)</li> <li>* you can participate in international webinars</li> <li>* efficient networking</li> <li>* easier to give presentations (while “hiding behind the screen”)</li> <li>* remote working and studying is easy and flexible</li> </ul>	<ul style="list-style-type: none"> <li>* levels of intimacy with colleagues are easier to manage than face-to-face communication at office</li> <li>* seeing colleagues worldwide in their homes strengthens the feeling of togetherness</li> </ul>

Concerning the negative evaluations of the loss of formal corporeal face-to-face work communication (Table 3), it is unsurprising that personal interaction with supervisors and colleagues pivotally enables doctoral researchers' work. The result is in line with several recent studies on the question (Anttila et al., 2023; Dabaieh & Sarkheyli, 2023; Hasgall & Peneoasu, 2022; Werker & Ooms, 2020; Wisker et al., 2021). Networking, that is, purposefully contacting colleagues with the aim of advancing one's studies and research, suffered during the COVID-19 pandemic, as did the spontaneous exchange of information and ideas with co-workers and other associates. As many studies show, such losses can seriously hamper a doctoral researcher's success in their studies and research and also hinder their integration into the academic community as a full member (Goldstone & Zhang, 2022; Phan et al., 2023; Sverdlik et al., 2018; Webber et al., 2022).

Furthermore, a case can be made that the loss of informal corporeal face-to-face work communication often brought its importance into sharp relief (cf. Viererbl et al., 2022). Regarding the contribution of this communication to well-being at the office, it is worth emphasising that chances for such interaction must be typically engendered via sociomaterial practices (Leonardi, 2013; Orlikowski, 2007; Waizenegger et al., 2023). This point was graphically described by a participant from the year 2020:

[...] every week, one person was responsible for bringing some form of cake, cookies, buns, or other sweets for everyone at work. This was when most people came out of the wood-works, and it was a nice way to socialise. All of these situations have completely disappeared, and our kitchen is mostly deserted these days. [...] (C7, -20)

The analytical distinction between formal and informal communication was clearly challenged by one text. In this case, a contributor holistically conceptualised negativity in the loss of corporeal face-to-face communication:

A big part of my personality involves the need to be amongst people, not necessarily talking with them, but being part of the smiles and warm atmosphere people shared ... I could talk to someone or watch someone else's interaction and then regain the focus to continue working. (C14, -21)

Not only do the formal, informal, and non-verbal modes of corporeal face-to-face communication merge together but also what the loss obviously concerns is the affectively charged social being and becoming at office. This being and becoming make an individual's work possible in the first place. Therefore, a dimension to the evaluative space is discursively created in a manner that problematises any simple method of capturing the elements from which the doctoral researchers' hardships and survival during the COVID-19 pandemic originated. Only a contextually sensitive research method that foregrounds the research subjects' own voices is able to catch such complex realities in doctoral researchers' working life.

The potentially surprising positive stance on losing formal corporeal face-to-face work communication indicates certain complexities in satisfyingly organising doctoral researchers' work. Various combinations of corporeal and virtual work communication had become a central part of life in academia long before the COVID-19 pandemic wherein problems and conflicts could also emerge (Gray & Crosta, 2019; Maor et al., 2016; Nasiri & Mafakheri, 2015). In the case at hand, certain pre-pandemic tensions about work communication had disappeared in a manner preferred by the participant due to the pandemic. The loss that was negatively experienced by their colleagues meant improved fairness to the person because it had brought everyone on an equal virtual footing. Meanwhile, informal corporeal face-to-face work communication can clearly become a burden or an energy-sapping hindrance for doctoral researchers. If this form of communication is considered as an obstacle to concentration and efficiency at work, feelings about its ending, even when caused by an unprecedented pandemic, can tend towards relief. Positive consequences of the pandemic that are attributed to doctoral researchers' loss of their formal

and/or informal corporeal face-to-face work communication are rarely, if at all, reported in the research literature (Jackman et al., 2021; Lokhtina et al., 2022; Pyhältö et al., 2022).

The other half of the evaluative space, that is, evaluative mentions elaborating on the prevalence of virtual face-to-face work communication, also introduces an intriguing basis for discussion. In Table 4, most of the negative mentions are intelligible as additional explanations of why the loss of corporeal face-to-face work communication had been devastating. Related problems are empirically well-documented in the research literature (Donohue et al., 2021; Naumann et al., 2022; NSF, 2022). For the purpose of this study it is possible to make theoretical sense of the mentions in Table 4 from the sociomaterial—technological perspective (Gourlay, 2021; Leonardi, 2013, 2015; Orlikowski, 2007, 2010; Waizenegger et al., 2023). What the complaints about stiltedness, narrowness and repetitiveness refer to is the fact that “all aspects of digital engagement are [...] grounded in material and embodied entanglements with devices and other artefacts” (Gourlay, 2021, p. 57). Therefore, the “virtuality” consists of sociomaterially and technologically built processes in which a human actor must become immersed for their communication goals. Some benefits often associated with these sociomaterial—technological entanglements may also turn out to be a burden. This is because “the ease to participate” can create an implicit duty to take part in every potentially worthwhile virtual seminar and conference that is accessible with one’s laptop.

[...] small talk about both research and private life is almost completely absent. The faculty is trying to do its best to host coffee chats or occasional pub quizzes, but many people, including me, have become quite tired of sitting in front of a screen and only seldom participate in these events. (C10, –21)

In workplaces where most of the personnel had been asked to do remote work at the beginning of the pandemic, it was often quickly realised that many employees missed what has been conceptualised in this study as informal corporeal face-to-face communication with their colleagues (Viererbl et al., 2022). That the success of virtual substitutes proved to be mixed at best is well comprehensible from the sociomaterial—technological perspective. How are spontaneous affections of togetherness expected to emerge when the sociomaterial—technological arrangement of virtual coffee chats and pub quizzes is exactly the same as in virtual work meetings? When it comes to the general phenomenon of “Zoom fatigue/exhaustion” (Fauville et al., 2021; Nadler, 2020; Ngien & Hogan, 2022), the specific wearisomeness is presumably derived from the necessity of incessantly producing and monitoring one’s digital double, who is the actual contributor to virtual communication with other digital doubles.

If various digital tools and platforms had not been widely available for remote work in the spring of 2020, then undoubtedly, most operations in academia would have become rather difficult or practically impossible to manage and carry out. This fact may seem to unjustifiably diminish in importance when all the problems and shortcomings of virtual work communication are detailed. The rest of Table 4 shows how the positively evaluated features of virtual face-to-face work communication can transform the bare minimum possibility to communicate at all. First, for doctoral researchers often operating with frugal budgets, the end of commuting and conference trips could mean a real improvement in their work situation economically, and the time earlier allocated elsewhere could be used for “work itself” or maybe their personal and family life. Second, “lucky” researchers, depending on their field, are able to virtually collect their research materials in the form of online research interviews. Generally, many kinds of arrangements of remote work and related virtual communication can create savings in money and time (Cullinane et al., 2022; Jack & Glover, 2021; Jackman et al., 2021).

The other advantages of formal virtual work communication, that is, better concentration, easy organisation of meetings, efficient networking, flexible studying, and access to international webinars, highlight the many modes in which the communication can be actualised as sociomaterial—technological entanglements. The fact that these entanglements are similar to

multidimensional affordances than any of the strict determinants of their work communication (cf. Leonardi, 2013, 2015) for human contributors is well-illuminated by the mentions of certain benefits. The mediated virtual co-presence with communication partners can be experienced as empowering, where familiarising oneself with people, giving presentations at seminars and conferences and receiving feedback on one's work, become easier and more fruitful compared to the customary pre-pandemic meetings.

Although many positives have been associated with informal corporeal face-to-face communication at workplaces and in organisations (Fayard & Weeks, 2007; Methot et al., 2021; Mirivel & Tracy, 2005), there can be no guarantee that all involved parties benefit from it. Some employees or associates may even experience an objectionable “obligation of intimacy” wherein their colleagues expect them to discuss private matters in a manner that they find uncomfortable. For some doctoral researchers in such an awkward position before the pandemic, the sudden prevalence of virtual face-to-face work communication created new resources for averting unwelcome closeness with colleagues. The distinctive sociomaterial—technological arrangement experienced by some as being stilted or emotionally empty, therefore, enabled others to create the kind of distance (you do not need to be “really” present in online meetings) they wanted to towards their colleagues.

Nonetheless, the positivity in this corner of the evaluative space is not just about freeing oneself from the unpleasant intimacies of face-to-face communication:

[...] the world feels smaller; people around the world seem to be closer to each other and more connected ... when participating, for instance, [in an] important webinar and seeing people in their homes maybe not dressed quite that professionally as they would in physical meetings, I get that feeling that to some extent, we are all sharing the same experience of a struggle. (C16, –21)

One of the fascinating outcomes of the pandemic upheaval is the emergence of a novel global and beneficent informal virtual face-to-face work communication, which is a new kind of solidarity.

As this study shows, the quantity and quality of work communication are central to the success of doctoral researchers. The global catastrophe of the COVID-19 pandemic placed unprecedented pressure on this key aspect of their work. The research material for the present study was collected without any special focus on the doctoral researchers' work communication; however, the subject matter was highlighted by the participants. Therefore, a specific four-pronged conceptual and analytical tool was created to comprehensively capture the dimensions of work communication. The success of this research objective is discussed in the Results section, where the tables demonstrate multiple aspects of the constructed evaluative space.

With the four-pronged analytical tool, this study illuminates the vivid complexity of *one* essential element—work communication—on the whole, from which not only devastation and survival but also success in the doctoral researchers' working lives was experienced during the first 14 months of the COVID-19 pandemic. Some other important elements of the whole are also indicated in the texts, such as “luck”, for example, when an individual simply prefers virtual remote work and can efficiently collect their data online. The relevance of various such elements and their mutual interplay in individual doctoral researchers' work lives are challenging research subjects for standardised surveys and related research methods to capture. Accordingly, the need for further multifaceted qualitative analyses of different doctoral researchers' varying paths through the pandemic era is obvious.

In summary, social scientific research on the effects of the COVID-19 pandemic tends to be overloaded with strong and general presumptions about the experiences of those affected. This approach has led to numerous studies focusing specifically on the problems and suffering associated with such unprecedented situations. The current study does not aim to disprove such research; instead, its novelty comes from revealing the richness and variety of pandemic-related

experiences in the work lives of doctoral researchers. More precisely, the unique research material, the conceptual and analytical tool carefully adjusted to the key emerging theme of work communication, and the sociomaterial—technological framework for theoretical interpretation make this study distinctive in the fast-growing body of research on the effects of the COVID-19 pandemic on academia. From a different perspective, the textual strategies found in this study reflect the diversity of doctoral researchers in their attachments to, and anxieties about, their future work.

The 38 doctoral researchers who contributed to the study do not constitute a representative sample of any larger population; therefore, the results are not statistically generalisable. The doctoral researchers' coming from only management and organisation studies weakens the strength of the theoretical interpretation, because their potential differences compared to doctoral researchers from other subject areas could not be studied. Accordingly, in future, it would be useful to collect similar qualitative research material from amongst doctoral researchers of natural sciences and humanities, for example, and then analyse whether different dimensions of work communication or any distinctive aspects emerge as the central theme. Such analyses would further deepen our understanding of the different journeys doctoral researchers have experienced during the COVID-19 pandemic.

## 6. Conclusion

In the last months of 2019, tens of doctoral researchers in management and organisation studies from several European universities sent their applications for a seminar on qualitative research methods to be organised in a European city in May 2020. The seminar had been organised in the same place for many years on the same date by the same teachers. In May 2020, both the seminar teachers and most of the doctoral researchers who had agreed to participate sat on their computers around Europe, typically at home, ready to start the course via Zoom. The substitutive virtual seminar was made possible by fast and creative decision-making from the teachers who had to fight against established bureaucratic conventions. After the teachers probed the work situation and general mood of the participants in a preliminary manner, it was necessary to ask the doctoral researchers systematically about their work experiences at a point that felt like the beginning of an unforeseen era. The voluntary extra assignment proved so popular among participants that the same assignment was given to a new group of online seminar attendees a year later, with equally rich results.

The pandemic-driven escalation of virtual remote work has enriched research questions regarding the nature of this work and its processes, advantages, and disadvantages. In relevant social research, the conventional idea of a remarkably omnipotent actor/worker with clear boundaries who effortlessly uses supposedly passive tools for their purposes has been found to be increasingly problematic. Alternative theoretical understanding is usefully offered by the sociomaterial—technological perspectives. These conceptualise human agency as significantly relational and assign some powers of agency to varying non-human elements without whose contribution to the processes and results of virtual remote work would not be possible. The rich diversity of the doctoral researchers' experiences revealed in this study not only indicates complexities in the need for sophisticated sociomaterial—technological theoretical understanding and empirical research, but also endorses the strength and creativity of relational human agency.

The research material bears limitations concerning the self-selection and comparability of the texts from different years written by various participants, but a case can also be made for broader resonance of the analysis. This is due to the long-standing and continuing harmonisation of European higher education, which is known as the Bologna Process (European Commission, 2023). The more structurally unified all doctoral studies become, the more similarities doctoral researchers' work experiences purportedly entail, maybe even especially so in the unprecedented situation of a global pandemic.

With similarities in work experiences come plausible resemblances in damages caused to doctoral researchers' work by the pandemic. One noteworthy result of this study is the multiple negativities that the participants associated with the loss of their formal corporeal face-to-face work communication. The result both advances understanding of the negative effects of the obliged teleworking on academia that have been found in many studies and highlights the seriousness of the matter. Loss of formal corporeal face-to-face work communication—and also related informal communication—with supervisors, colleagues, and other important partners can be considered especially harmful to academics in the initial phases of their PhD project. This harm has probably actualised to a certain extent independently of whether doctoral researchers have subjectively experienced any damage or not.

The harmonisation of European higher education via the Bologna process leads to complex questions of higher education policy at the European level in a pandemic context. Such questions concern not only the general lessons to be learned and anticipatory measures for future pandemics, but also possible amendments to doctoral researchers whose careers have seriously suffered due to the COVID-19 pandemic. The possibility of amendments is complicated by the variability and partial arbitrariness of the pandemic measures from country to country, from university to university, and even from department to department. However, such complexities do not diminish the seriousness of this question from a justice point of view.

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No potential conflict of interest was reported by the author.

#### Data availability statement

The participants of this study did not give written consent for their data to be shared publicly; therefore, due to the sensitive nature of the research, supporting data is not available. Permission to use the data anonymously was given to the author only.

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