

Challenges in the collaboration between researchers and in-house communication professionals in the digital media landscape

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Abstract

In the changing science communication landscape, researchers may govern their public science-society relations through the social media connections at their fingertips. However, digital media outreach may create challenges for researchers and cause changes in the communication professionals' role. The aim of this qualitative interview study was to enhance understanding of the challenges in the rarely explored organizational collaboration between researchers and communication professionals. The results identify ambiguous duties and responsibilities, as well as blurring boundaries of occupational roles and coordination challenges in content production.

Keywords

Professionalism, professional development and training in science communication

DOI

<https://doi.org/10.22323/2.20030204>

Submitted: 7th October 2020

Accepted: 26th March 2021

Published: 10th May 2021

Introduction

The potential of employee social media communication to share messages about their organization offers opportunities to broaden digital communication's reach [Zoonen, Verhoeven and Elving, 2014; Zoonen and Treem, 2019]. This study focuses on research organizations in order to analyze how researchers currently seize this opportunity to directly communicate science to the publics. More specifically, we increase understanding of the challenges in the collaboration between researchers and in-house communication professionals.

With the increasing importance of organizational communication at scientific institutions, and driven by the development of online media, scientists have become more visible public communicators, also appearing as organizational representatives [Schäfer, Kessler and Fähnrich, 2019]. Autzen and Weitkamp [2019, p. 468] suggested adapting the idea of organizational actorhood, where the "communication of research findings becomes essential, not just to the constitution

of the individual research organization but to the constitution of science as a social institution; the scientist becomes a central actor in both contexts.”

The wider transitions in the media ecosystem influence the boundaries and relationships of professions with specific claims to knowledge production [Autzen and Weitkamp, 2019; König, 2019]. Researchers’ direct digital communication with the public may bypass the traditional media professionals’ roles, triggering a “crisis of mediators” [Bucchi, 2013]. In many organizations the employees are expected to fulfill extended, traditional communication professionals’ roles online, such as being the drivers and producers of public relations. Because of these expectations communication professionals’ jobs may change [Falkheimer et al., 2016; Madsen and Verhoeven, 2019]. This raises the question whether communication professionals are still needed and what value they bring.

In the current science communication research literature, the meanings of organizational science communication, science public relations, and the strategic aspects of science communication are debated [Roberson, 2020; Schäfer and Fähnrich, 2020]. Autzen and Weitkamp [2019] and Roberson [2020] discussed literature from public relations research in order to challenge the idea that science public relations are merely concerned with promotional, corporate communication. Klerk and Verwey [2013] and Roberson [2020] argued that, to better prepare organizations to cope with the increased communication complexity, public relations should be freed from its narrow definition of corporate communication. However, specific challenges may occur regarding which aspects of a university should be highlighted in organizational science communication. In her analyses of a university communication campaign, Davies [2020] found that the challenges relate to approaches that draw on the communication practices of the corporate sector. They were interpreted as symbolizing the increasing market orientation within academia.

In this study, *organizational science communication* refers to the external, public communication from scientific organizations and from researchers embedded in the organizational context [Schäfer and Fähnrich, 2020]. Along the lines of Besley’s [2020] understanding, the focus of this study is practical strategic organizational science communication, pursuing enhancing collective impact as an organizational practice.

Public communication responsibilities within the science institution may be arranged in different ways [Davies and Horst, 2016]. Recent developments suggest that the routines are changing within and between the two occupations that constitute organizational science communication. The changes argue for inquiry into how the mutual roles and responsibilities are conceptualized, how science communication is managed, and how well aligned the actual communication activities are [Autzen and Weitkamp, 2019; Borchelt and Nielsen, 2014]. Gaps have been reported, as social media communication activities may be enacted without being part of a broader strategy [Macnamara and Zerfass, 2012] of organizational science communication [Casini and Neresini, 2013].

Research on the interactions of in-house communication professionals and scientists is rare [Marcinkowski et al., 2014]. Therefore, by providing an in-depth exploration into the perceptions of researchers and communication professionals,

the aim of this study is to explore what challenges may occur in the context of evolving organizational and digital science communication practices with the help of the research question: what challenges are emerging in the collaboration between researchers and in-house communication professionals?

Theoretical development in the field of science communication could be assisted by further imports of approaches from various disciplines [Schäfer, Kessler and Fähnrich, 2019]. This study profits from and contributes to the literature on science communication and public relations, and pitches into strategic communication research.

An interorganizational research project provides the empirical backdrop and a viewpoint to organizational practice in a wider academic context. We introduce Scandinavian institutionalism to sort our data and interpret it against the backdrop of the organizational activity of science communication, which is changing due to the changing media landscape.

Literature review

It appears that the conditions under which contemporary science is carried out dissuade researchers from increasing public engagement and communication. These conditions include the system rewarding scientific publications, the lack of resources, time, competencies, as well as institutional and collegial support [Davies, 2018; Heidenreich, 2018; Ho et al., 2019; Rose, Markowitz and Brossard, 2020].

This counters the stream of research defining researchers' perceptions of their duty to communicate. Most researchers would acknowledge that they have this duty [Davies, 2018]. However, it has been found that, researchers regard outreach as something they "ought to do" as part of their role despite not actively participating [Entradas et al., 2019; Heidenreich, 2018]. Some do not cite their sense of social duty as a major motivation to serve as knowledge producers [Ho et al., 2019]. Direct involvement in public communication activities is required by research funders and society while research organizations scarcely recognize science communication as part of the researchers' profession [Casini and Neresini, 2013].

In other organizations, employees' function as brand ambassadors and advocates, shaping the corporate reputation [Dreher, 2014]. Identity expressiveness constructs have been "suggesting that the more work-related social media use is a salient part of employee's identity the greater their work-related social media use" Zoonen, Verhoeven and Elving [2014, p. 178]. Public science communication has been regarded as important to scientists' identity construction as the representatives of a particular collective, identifying with or disassociating themselves from research organizations [Davies and Horst, 2016]. The researchers may also be viewed as actors who are capable of creating digital representations of science that contribute to the reception of scientific knowledge [Koivumäki, Koivumäki and Karvonen, 2020].

While social media may be perceived as an important digital public sphere, and one of the only direct and cheap channels available, according to König [2019], the lack of deliberative quality and undefined practices are reasons why social media has not been fully accepted within academia. Digital media outreach may be experienced as an occupational challenge, further complicated by the adoption of

new modes of working that punctures “existing boundaries and obliges researchers to re-assess their identity as researchers” [Grand et al., 2016, p. 8].

Nevertheless, scientists assign themselves a prominent role over other actors in science communication [Casini and Neresini, 2013]. However, due to the researchers’ lack of resources, it has been questioned who should be responsible for the public engagement of science [Heidenreich, 2018]. “So perhaps it is not scientists who need to build communication into their role, but science organizations and institutions” [Palmer and Schibeci, 2012, p. 523].

To better support scientists’ participation in science communication via social media, it should be valued and manageable in the organizations [Dreher, 2014; McClain and Neeley, 2014]. However, it is likely that not all researchers will feel comfortable performing the new digital communication roles [Grand et al., 2016]. Therefore, scholars have expressed that there is a need for frequent and extended cooperation between scientists and communication professionals in order to generate partnerships [Pinto, Costa and Cabral, 2017], to ameliorate researchers’ concerns, and to enhance their proficiency in conducting public engagement [Claessens, 2014; Ho et al., 2019; Marcinkowski et al., 2014]. It has also been recommended that coaching and training need to become a greater part of the communication professionals’ work [Madsen and Verhoeven, 2019], ultimately enabling the entire organization to communicate [Trench, 2017; Zerfass and Volk, 2018].

Moreover, the pursuit of enhancing scientists’ reflection on the social impacts of their communications [Entradas et al., 2019] calls on public institutions to provide stronger educational infrastructures [Bucchi, 2013; Claessens, 2014]. However, science communication training commonly overemphasizes practical skills and inadequately attends to the setting of strategic objectives and goals as the critical first stage in any effort to communicate effectively [Dudo and Besley, 2016].

Regarding strategic social media communication, communication scholars currently suggest taking a critical perspective on traditional, organization-centric communication planning [Zerfass and Volk, 2018]. In the complexity of the digital communication environment, “organizations no longer control communication; instead, in the public debate on issues, groups and individuals compete equally for attention” [Vos, Schoemaker and Luoma-aho, 2014, p. 12]. Therefore, corporate communication research has suggested the concepts of an “issue arena” and “issues management” [Luoma-aho and Vos, 2010]. These include monitoring the development of issues and how this relates to strategic practice.

Such emerging strategic communication management may face challenges on the level of practice in coordinating and integrating the communication activities of organizations [Davies, 2020; Klerk and Verwey, 2013]. According to the limited knowledge on the role of communication professionals in research organizations, they must often maneuver through the complex internal communication processes that precede the external communication actions [Autzen and Weitkamp, 2019; Lo, Huang and Peters, 2019; Rödder, 2020]. Beyond activating researchers’ communication [Marcinkowski et al., 2014], communication professionals are presumed to influence science communication and perhaps even take part in deciding what content scientists communicate publicly on behalf of the organization [Autzen and Weitkamp, 2019].

Another change influencing mutual relationships is the evolution of the roles of communication professionals due to the changing media environment. Although communication professionals have evolved, it may be that other functions or professions in the organizations are not fully aware of their old or new roles, which may create unclarity [Falkheimer et al., 2016].

All in all, in the face of the new media landscape, many changes appear in the different aspects of the collaboration between researchers and communication professionals. To summarize, firstly, the growing pressure on researchers to communicate on digital platforms touches the fundamentals of research culture and appears to be a controversial subject [Grand et al., 2016; König, 2019]. Secondly, moving away from individualistic, ad hoc communication and towards developing organizational capacity for science communication may enhance the collective impact by building on community goals [Besley, 2020]. The extant literature and research gaps regarding organizational science communication present important reasons to argue that both the dynamics of (1) getting participation from researchers in science communication and (2) coordination around content production are worthy of exploration.

Data and methods *Context*

This article presents an analysis of semi-structured, face-to-face interviews with researchers and communication professionals who collaborated within the inter-disciplinary BCDC Energy Research project (2015–2021). The project involves five academic organizations in Finland and approximately 40 researchers, and is funded by the Academy of Finland's Strategic Research Council, which provides funding to research aimed at finding solutions to major societal challenges and views interaction with society highly important.

In Finland the reallocation of public research funding to competitive research funding has changed the structure of the national public research organizations over the past decade. Research is often conducted in projects. The interviewees were simultaneously affiliated in their own organizations and worked temporarily for this project, while many also participated in other projects. For this study, the BCDC Energy Research project provides a viewpoint on science communication as an organizational practice in several organizations. The project's science communication activities emphasized tweeting and blogging by researchers, with the support of communication professionals in their organizations, including one of this article's authors (Kaisu Koivumäki). The interviews were collected as part of a larger study, and the aspects of the funding's influence and styles of science communication have been reported in Koivumäki, Koivumäki and Karvonen [2020] and Koivumäki and Wilkinson [2020].

Design

As this study is focused on the views of researchers and communication professionals, qualitative research techniques and interview method were deemed appropriate to elicit the accounts of their perceptions, understanding, and interpretations [Lewis-Beck, Bryman and Liao, n.d.]. The dialogues were

Table 1. Interviewees' disciplines and affiliations.

Researchers	University 1	University 2	Center 1	Center 2	Center 3	Others
Economics	2		2		1	
Information technology (IT)	2	4				
Sciences				3		
Social sciences and humanities (SSH)	3					
Communication professionals	3	2	1	2	2	5

ethnographic interviews in the sense that they followed ongoing relationships and contacts in the field. The interviewer was involved in the wider project, extending the possibilities for rapport between the parties [Lewis-Beck, Bryman and Liao, n.d.]. Using a qualitative approach, the research aims for sensitivity over objectivity, recognizing that professional knowledge may blind or enable researchers to see connections within the data [Corbin and Strauss, 2014]. Therefore, to raise confidence in this study's interpretations, the declaration of Kaisu Koivumäki's involvement with the group is acknowledged. The interpretations may be affected by bias; therefore, the reflexive approach was employed throughout the study.

A pre-questionnaire contextualizing the interviews and the interview guide was inspired by previous science communication studies. The sequence of questions was structured around the main topics, still allowing flexibility to follow up on particular areas [Lewis-Beck, Bryman and Liao, n.d.], including questions such as "What kind of topics are important for science communication training? Why?" The questions were similar for both groups; additionally, communication professionals were asked about their organizations' research projects' communications. The pre-questionnaire was not meant to function as an exhaustive list or quantitative data, but served as a thought-provoking, inspirational tool for the interviews and, as such, is not included in the analysis.

Interviewees

All the interviewed researchers (n=17) had participated in the project's communication activities by blogging or tweeting. Their academic status ranged from PhD students to professors, comprising five nationalities and a variety of academic fields (see Table 1). The interviewed communication professionals (n=15) had positions varying from supportive to full-time communication officers; half of the professionals were in managerial roles, representing all of the interviewed researchers' affiliated universities and governmental research institutes on the levels of faculties, centers, and central communication units, as well as interviewees from a peer project, strategic partner, associated science communication agency, funding body, and the Finnish Government (see Table 1). Interviews lasted 54–132 minutes and were held at places of work or in workplace coffee rooms during June–August 2017.

Analysis

All interviews were conducted and audio-recorded by one author, the majority in Finnish and three in English. Working systematically, the data set was managed with qualitative data analysis software NVivo11. Thematic analysis [Braun and Clarke, 2006] was used to identify and analyze patterns of meaning and how broader social contexts impinged on those meanings. To provide analysis beyond description, thematic analysis is recommended to be used within an existing theoretical framework in order to anchor the analytic claims [Braun and Clarke, 2006]. Accordingly, and to systematically scrutinize what kind of challenges emerged in researchers' and communication professionals' intersections, Scandinavian institutionalism, commonly referred to as translation theory, was applied in the analytical framework. Scandinavian institutionalism focuses on how ideas become embedded in local organizational settings through the work and preferences of those translating these ideas.

Recent studies employing the framework allow the argument for its potential contribution to the field of science communication research in the organizational context. Pallas, Fredriksson and Wedlin [2016], for example, applied Scandinavian institutionalism to study mediatization in one of the few studies comparing researchers' and in-house communication professionals' views.

The framework includes elements that can be used to observe, analyze, and describe the different aspects of the challenges and in which ways they actually emerged in order to organize sub-themes into major themes, according to the elements of artifacts, symbolic systems, relational systems, and routines [Pallas, Fredriksson and Wedlin, 2016; Scott, 2014]. For the purposes of this study, artifacts and symbolic systems are combined into an analytical category of "Organizational and societal roles". It helped to detect challenges in the ways in which the production of science communication artifacts (e.g., blogs and tweets) changes from the viewpoint of the symbolic systems of expectations, values, and organizational and societal duties underlying the production. The element of relational systems helped to identify challenges related to the changes in the interplay and modes of collaboration between the two groups as "Relationships". Finally, routines were detected and described as "Changing working practices and strategies". It is acknowledged that the different indicators cannot be analyzed in isolation from each other, which is obvious in some parts of the analysis.

Results

In the following, we analyze how the challenges in organizational collaborations were identified, perceived, and expressed by researchers, followed by and compared with the communication professionals' views. The major themes of the identified challenges are foregrounded in the sub-headings. Finally, an overview of the themes is provided in Table 2.

Organizational and societal roles *Vague recommendations and unclear duties*

The majority of the interviewed researchers experienced that their colleagues' science communication attitudes are improving. However, some characterized the

change as more general, and they were unsure whether actual actions would follow.

Unsurprisingly, lack of time as a science communication production barrier was visible throughout the data. As science communication is not explicitly assigned to the duties of researchers, researchers experienced expectations as vague recommendations and unclear duties. Elaborating earlier results [Koivumäki and Wilkinson, 2020], the researchers were mainly willing to understand *duty* as the employers' assigned task and time allocation, and it was less seen from the perspective of societal duty:

Since nothing is usually defined in researcher positions, you don't really know what to do and what not to do. So, normally I wouldn't count it [communicating online] as a duty; but if it were, then I could do it. (Researcher 26, IT)

All the communication professionals were reluctant to invoke or refer to *duty*. Sometimes their motivational attempts were a struggle, and they tried to minimize their communication requests as they recognized researchers' balancing indeterminate conditions and time restrictions, as shown in previous studies [Davies, 2018; Ho et al., 2019; Rose, Markowitz and Brossard, 2020]:

Researchers have very little time for this [communication] too, so if it was required from them, it might become even more difficult. (Communicator 4, university)

It's a nightmare to think whether all the hard work motivating researchers, grounded in blue-sky arguments about saving the world, always hits the brick wall of science communication depriving time from scientific work. (Communicator 34, agency)

Researchers' evasion of representing science

There was sensitivity regarding the appropriateness of social media requests. Although some saw alignment with their affiliations' science communication activities as helpful in framing their own online activities, most researchers evaded acting as representatives of science or their organizations. Such suggestions would be too wide and inappropriate, triggering resistance:

You can maybe represent the University of [name], but not science. Science is too general and some people think, like, "My science is the truth". (Researcher 36, IT)

It's that the employees of the University of [name] are mostly not researchers. I mean, researchers don't necessarily work for the university because they always work for some project. (Researcher 28, SSH)

However, interestingly, these findings are in contrast with the researchers' views (below) of themselves being the central actors in science communication.

The communication professionals hoped for the researchers' support in the outreach activities of their peer scholars or organization online, which must come innately. Similarly to Rödder [2020], the majority abstained from or courteously requested the supportive actions directly:

Employee advocacy for our organization or for the science community in general is at its best when it's effortless, complimentary, springing from one's motivation. But to request that, I don't know. . . For researchers to start sharing more and wider content about our [field] or [organization] would require a good reason why. What's in it for me? (Communicator 17, center)

This means that communication professionals have to be content with researchers' participation in science communication activities if they find the time or interest.

Uncertainty about the researchers' online role

As a smaller, but important theme in some researchers' views, a deeper uncertainty regarding their online persona and digital role could be identified as a cross-draught between online engagement's importance and being uncomfortable with it, thus remaining a follower:

Many of my colleagues and I can't find our own Twitter persona, so it remains a platform for following interesting topics. But one does not dare or isn't able to direct that sphere. . . It's a problem that managing this new role may only be learned through trial and error. There's no guiding, assistance, training, and of course, this leads to a dilemma and paradox in researchers' minds. Of course, I realize that I should, but dammit, how? (Researcher 24, economics)

In some communication professionals' interpretation, the uncertainty that restricts the researchers' participation originates from excessive modesty regarding their communication skills, inward complexity, and considerations about the relevance of their research:

Researchers' ideas of who gets a say in society are on a very different level to those of politicians or consultants and those who raise their voices and take the floor; the researchers could respect themselves more as orators. . . While we [the academic community] complexify amongst ourselves — "Damn, we need to check the reference again" — there are forces who don't care and hijack the world. (Communicator 34, agency)

Relationships

Incompatible views on responsibilities

Despite some scholarly suggestions for rethinking the organizational division of labor of science communication [Heidenreich, 2018; Palmer and Schibeci, 2012], the researchers in this study unanimously agree with Casini and Neresini [2013] in thinking that they should be the ones conducting science communication also online:

The core person is the researcher. Outsourcing this to someone — I think it's not good. (Researcher 36, IT)

Contrastingly, a number of the communication professionals have experienced that researchers tend to leave the communication of their research to them, and they feel it is no longer acceptable that researchers disengage from the communication process:

How did it ever work before when researchers would say: "I have a result, do something about it. The researchers can't completely disengage, there must be some collaboration. (Communicator 33, project)

The division of communication responsibilities remained ambiguous, and some interviewees described gaps that emerged between the two professions while newsworthy topics passed by unrecognized:

Interviewer: *You can't see which topics to highlight, because you're so absorbed in them.*

Researcher 24, economics: *That's right, definitely.*

Interviewer: *So if one doesn't know your topic and can't see the hidden news value...*

Researcher 24, economics: *... you are not able to recognize it.*

Interviewer: *So then it falls in the gap.*

Researcher 24, economics: *It falls in the gap.*

Some of the researchers wished that the communication professionals would help them recall the bigger picture of the societal relevance of the conducted research:

There may be a danger of the researchers getting too absorbed in their research world, and they may lose sight of the fundamental purposes of the work. (Researcher 16, sciences)

However, many of the communication professionals seemed to trust the researchers to be following the online societal discussions relevant to their research:

We absolutely count on the researchers to know where the relevant discussions for them are happening; if this is not the case, we really need to think. I'd also like to add that how far you can go significantly depends on the resourcing of the communications unit. Ours has been just enough to serve the outbound stream of press releases and social media basics. But resourcing would need to change in order to monitor the social discussions relevant for researchers — presuming that we have researchers who are willing to participate in such discussions. (Communicator 31, university)

Closer collaboration hindered by the organizational settings

Most of the researchers warmly encouraged the communication professionals to act as their digital science communication coaches and trainers, helping them to perform their new digital communication roles. The researchers even hoped for a gentle push into action. Despite direct contact with the publics online, all

researchers still thought that the communication practitioners were needed, but many pointed out that their role needs to change. They would welcome a revised relationship, which would be helpful in their sometimes uneasy role (re)construction:

Challenging the authors more about why something is like it is and asking “What does this mean in the wider picture?” — this is something that you can do and not me. Your job is to swim with me, challenge me, make me speak in other, more popularized words. (Researcher 24, economics)

Most of the communication professionals felt that their occupation was changing, and many had started to support and coach the researchers in conducting the communication they used to do themselves, as scholars have suggested [Falkheimer et al., 2016; Madsen and Verhoeven, 2019; Trench, 2017]. Some of the communication professionals noted that researchers need to feel comfortable enough to ask for help with practical entrance barriers, developing their new media persona, and getting started in social media, which may be embarrassing to those who are known for being proficient in their fields. This would require proximity, and many of the professionals wished to be easily approachable on demand, but often the lacking resources only allowed limited opportunities to maintain regular contact with researchers:

We could be a sparring partner with whom to write a piece or act in social media if researchers have a feeling that “I don’t dare to go onto social media because I don’t really know what to say”. . . so that they would feel comfortable to pop in and ask for help with their trouble and perhaps write together. . . But we are forced behind an anonymous service desk in locked corridors. . . Instead, I’d like us to be in the middle of campus, welcoming to pop in anytime. (Communicator 15, university)

A smaller number of professionals observed the need to re-justify the organizational communication units, describing their former ways as organization centrality [Macnamara and Zerfass, 2012]. They thought that working closer to the researchers and their projects’ communication efforts could also help the communication units to increase the value of science communication and avoid being perceived as a diluted part of the organization as Falkheimer et al. [2016] forewarned:

Sometimes we wish that someone would blow up our unit. . . I do experience that we are an institution for better and worse, and we have the structures and systems. . . But we’d need shaking up, to get rid of the history of this-is-how-we-have-always-done. (Communicator 18, center)

The more projects there are, the less the centralized communications — that mainly focus on brand issues — really understands what the researchers speak about. (Communicator 2, strategic partner)

The complexity of working relationships due to the variegation of roles

Our results show how the roles blur, for example, in becoming a medium on an individual level and facing increasing expectations:

It's a darn delusion to imagine that I'm able to handle communication well, pertinently, and impactfully only because it's technically possible. It is certainly not the case. We need you for that, but the right way to do it must be found. . . You say yourself that it is putting on the final touch; to me, that sounds belittling because it is much more. An even more substantial contribution is needed when we talk about science communication and not just basic editing. (Researcher 24, economics)

Some of the communication professionals experienced a need to change and variegate their roles as Falkheimer et al. [2016] suggested. However, for many of the professionals, increasing expectations to master new roles create exhaustion, and coherent views may get lost between team members or organizational sectors. The new roles include, for example, a digital communicator and a cultural change promotor proactively monitoring societal trends and a facilitator inventing new operations for participation [Casini and Neresini, 2013; Klerk and Verwey, 2013] in order to engender societal impact:

One should know just about everything: social media, coding, video, photographing, editing, and the novel motivator and coaching roles. How can it all be embedded in one or two employees? It is a huge field of work. We have been miracle makers for a long while, but now it's getting impossible. (Communicator 7, center)

Changing working practices and strategies

Managing communication activities

Most of the researchers found that simple routines and clear responsibilities, organized by the communication professional, may release the online communication potential of a research group. The researchers would also allow the communication professionals to aggregate the communication of the scattered topics of a faculty to avoid the potential cacophony, but not to lead the autonomous researchers' communication. This resembles Rödder's [2020] notion of communication professionals proportioned to exercise indirect influence without control. The results show that the researchers' communication is clearly dependent on the scientific lead's recognition, which is crucial for the researcher's activity:

It's a mishmash if it's fully directed bottom-up, and rather cacophonous. . . It wouldn't work if everyone posted on the main forum and there [the organization's website] wildly. It definitely needs those who plan the display window. (Researcher 11, economics)

If my own research director says that this [communication] is valuable work to invest in, that would likely allow me to say I must allocate working hours to this. (Researcher 25, economics)

However, many communication professionals reported challenges in their attempts to integrate the communication activities among the fragmented structures of research organizations, projects and profiles, and for example, aggregate themes from the wealth of conducted studies:

At our division, we currently have 200 Principal Investigators, meaning that we partner 200 research projects. It might be even more. You see, nobody is able to keep track on all those projects. (Communicator 15, university)

Approximately 300 scientific articles are published yearly. And we wish to find a procedure to aggregate larger themes periodically to create narratives or at least some summarizations. (Communicator 8, center)

Disengaging from strategic science communication planning

Although many researchers found reflexive discussions of science and society relations inspirational, most were willing to exclude them from communication training as too time consuming. They regarded strategic planning of science communication as the duty of others and were not willing to attend to further strategizing over the objectives of public communication:

Researchers are interested in doing science and not communicating about science to the public. Discussions of wider societal perspectives or research organizations' communication strategies are not fruitful... because it doesn't really come close to me in any way. I mean, how could it be approached differently... and without explaining away the university's agendas, not even referring to the word communication strategy...

In a way, it's like mashing the untasty food into the tasty to get the kid to eat. Similarly, researchers' communications could be foisted upon their research organization's directions. (Researcher 6, IT)

Many of the communication professionals shared the researchers' views on organizational communication strategies because they may be laborious and stall interest in practical action online. Some of the professionals also reminded as Macnamara and Zerfass [2012] of the traditional organization-centric forms of strategic communication conflicting with the philosophies of the openness and participation of social media:

But to build a sort of big picture about what our organization's strategic communication goals are, I don't think these types of issues would be very effective. (Communicator 17, center)

Table 2 provides an overview of the emerging challenges in organizational collaborations expressed by the researchers and in-house communication professionals.

Table 2. Challenges in organizational collaborations as expressed by researchers and communication professionals.

Challenges	Researchers' views	Communication professionals' views
Organizational and societal roles		
Challenge 1: Vague recommendations and unclear duties	Participation in societal discussions online is of importance – in principle, but expectations are unclear and inconsistent.	Reluctant to invoke the “duty” resulting in minimized communication requests being accommodated in restricted conditions.
Challenge 2: Researchers' evasion of representing science	Suggestions of acting as representatives of science or their affiliated organizations regarded as inappropriate.	Abstaining from or courteously requesting supportive online actions to peer scholars or the research organization, and being content with researchers' participation only if they find the time or interest.
Challenge 3: Uncertainty about the researchers' online role	Deeper uncertainty regarding researchers' participation online.	Researchers' excessive modesty restricts participation.
Relationships		
Challenge 1: Incompatible views on responsibilities	Researchers are the only ones that may conduct science communication. Newsworthy potential unrecognized. Communication professionals could help to recall the societal relevance of research.	Researchers' tendency to leave the communication of their work to communication professionals is unacceptable. Expect that researchers follow relevant societal discussions.
Challenge 2: Closer collaboration hindered by the organizational settings	Welcome coaching and even a gentle push to change routines. Communication professionals are still needed; a revised and closer relationship is welcomed to support activity.	Changing occupation to train others to do what communicators used to do themselves. Proximity is needed to variegate perceptions and the value of communication, but organizational settings distance easily approachable coaching. A need to re-justify communication units.
Challenge 3: The complexity of working relationships due to the variegation of roles	Changing media landscape creates expectations to contribute to communication on an individual level and blurs the existing boundaries of the roles and professions.	Proliferation of competencies and roles causes exhaustion and confounds holistic views.
Changing working practices and strategies		
Challenge 1: Managing communication activities	Accepting communication professionals as organizers to aggregate the researchers' communication to avoid cacophony – not to lead science communication.	Challenges in the coordination of communication within fragmented research organizations.
Challenge 2: Disengaging from strategic science communication planning	Although reflexive discussions of science–society relations may be inspirational; these, along with strategizing science communication, are to be excluded from training, as too time consuming and seen as the duty of others.	Strategizing may stall interest in practical online action in training, implying a disconnection between strategic planning and the actual activity of members.

Discussion and conclusions

Challenges appeared in the results in getting participation in science communication from scientists on the levels of organizational and societal roles, as well as in relationships between the researchers and communication professionals. Although a representative role could be more conscious and utilized impactfully online [Madsen and Verhoeven, 2019], the data allows for the conclusion that the ambiguous organizational duties, scholars' societal role and areas of communication responsibilities online seem to hinder the academic community from acting as ambassadors of both science and its organizations.

The researchers in this study experienced science communications expectations as vague recommendations and unclear duties. This reflects previous findings [Heidenreich, 2018; Rose, Markowitz and Brossard, 2020], wherein inconsistent messages about the importance of science communication from different sectors and leaders circulate within academia. The researchers recognized communication belonging to their role, despite perhaps not participating in it, as found in previous studies [Entradas et al., 2019; Ho et al., 2019]. This study's communication professionals' reluctance to invoke the researchers' "duty" to communicate echoed a struggle with the lack of communication culture as pointed out earlier [Bucchi, 2013; Claessens, 2014].

The researchers' evasion of representing science or their affiliated organizations in these interviews reflect Davies and Horst's [2016] suggestion that researchers' participation in science communication is also about their identities as representatives of particular collectives or science as a whole, or of their relationships with research organizations. This finding also connects to studies stating that the stronger the employees' organizational identification, the greater their work-related social media use [Zoonen, Verhoeven and Elving, 2014; Zoonen and Treem, 2019]. Further, these findings challenge scholarly suggestions about the increasing importance of individual members as organizational representatives online [Madsen and Verhoeven, 2019; Schäfer, Kessler and Fähnrich, 2019].

The communication professionals' only courteously requested the researchers' support for the online activities of their colleagues or organization because they might be perceived as inappropriate. This can be interpreted as being perceived as too "corporate-ized" in Roberson's [2020] terms. These findings also echo the need to reflect the convergence that is required for managing increased communication complexity and to transcend the divergent and outdated conceptualizations of science public relations [Klerk and Verwey, 2013; Roberson, 2020] to free the academic institutions' capabilities to take part in societal discussion as a strategic organizational practice. Furthermore, the findings align with the need to associate researchers' and organizational actorhood in science communication [Autzen and Weitkamp, 2019].

Our results indicate deeper uncertainties regarding researchers' role online. These results are in line with Grand, et al.'s [2016] study, and related to König's [2019] notion of the unspoken cultural codes of participation. In communication professionals' interpretation, the uncertainties partly originate in researchers' excessive modesty and the conducted studies' relevance for public debate as Heidenreich [2018] found.

The studied groups viewed mutual, evolving roles in incompatible ways, reflecting the study by Falkheimer et al. [2016]. For example, as a prerequisite for participation, the monitoring of issue arenas online [Vos, Schoemaker and Luoma-aho, 2014] seems to be left unmanned.

Both groups in our study, as well as the previous literature, preferred close collaboration between communication departments and the scientists [Claessens, 2014; Ho et al., 2019; Marcinkowski et al., 2014; Pinto, Costa and Cabral, 2017]. This would seem helpful to clarify some of the contemporary challenges that appeared in this study. In some of these professionals' views, closer collaboration could also broaden the value of science communication more than centralized communication and distant brand management. In these divergences regarding sense-making about academia and its communications lie similar challenges as discussed in Davies [2020].

The results show how the changing media landscape blurs the established boundaries [Autzen and Weitkamp, 2019; König, 2019] and relationships of the roles of the professions with specific claims to knowledge production. According to Madsen and Verhoeven [2019], employees face increasing expectations to take on the roles that were traditionally PR's responsibilities, for example, researchers becoming a medium themselves, as these results describe.

The communication professionals in these interviews confirmed that the ambiguities of digital communication may also open new prospects for communication professionals' work [Falkheimer et al., 2016], helping researchers perform their new digital communication roles, as scholars [Grand et al., 2016; Madsen and Verhoeven, 2019; Zerfass and Volk, 2018] have suggested. But these results signal that the ambiguous organizational settings create distances between the researchers and the in-house communication professionals in many ways. Often, the differing resources only allow limited opportunities to maintain regular contact with researchers, as noted previously [Marcinkowski et al., 2014; Pinto, Costa and Cabral, 2017].

Coordination around content production met challenges in the changing working practices and strategies in this study. The researchers suggest "an organizer" as a new role for the communication professionals to establish simple social media routines and aggregate scattered research topics into larger themes. These results support the suggestion that scientists' participation in science communication via social media should be made practically manageable [Dreher, 2014; McClain and Neeley, 2014]. However, the communication professionals' faced coordination challenges among the fragmented internal structures of the organizations in line with previous studies [Davies, 2020; Klerk and Verwey, 2013; Pallas, Fredriksson and Wedlin, 2016]. They need to maneuver through complex internal processes as a prerequisite to outreach, as noted earlier [Autzen and Weitkamp, 2019; Lo, Huang and Peters, 2019; Rödder, 2020].

Scholars warrant drawing researchers' attention to reflecting on social impact [Entradas et al., 2019] and strategic science communication [Besley, Dudo and Yuan, 2018] with the research institutions' educational infrastructures [Bucchi, 2013; Claessens, 2014]. However, in this study's findings, most of the researchers were willing to distance from reflexive and strategic considerations as they were

too laborious. This reflects earlier notions of outsourcing science communication activities [Casini and Neresini, 2013; Heidenreich, 2018] and organizational social media communication enacted ad hoc, rather than strategically planned [Macnamara and Zerfass, 2012]. These findings highlight disconnections between the planning level and the actual communication activities of the organizations' members, as postulated by Autzen and Weitkamp [2019] and Borchelt and Nielsen [2014], thus raising concerns about the academic institutions' capabilities to take part in societal discussion as an organizational practice.

Our findings also suggest that increasing reflexive science and society discussions would be fruitful as they were found inspirational. Furthermore, as Luoma-aho and Vos [2010], Zerfass and Volk [2018], and Vos, Schoemaker and Luoma-aho [2014] have implied, open discussions regarding the suitability of organization-centric forms of communication and how they relate to individual, autonomous researchers' strategic practice in the complexity of the digital communication environment are needed. Perhaps "governance" [Macnamara and Zerfass, 2012] or aggregating would offer a suitable management framework for research organizations where the community goals and collective impact generation [Besley, 2020], and society at large could be advanced.

Limitations and future research

This study was exploratory in nature, focusing on researchers and communication professionals in one interorganizational, temporal, and large research project. The findings cannot predict the prevalence of the challenges in other contexts that further research will have to investigate.

Nevertheless, as this study shows, the processes of digital science communication require careful understanding of internal dynamics in order to manage organizational communications' practices. Therefore, further conceptualizations of the meanings of strategic science communication are needed among multiple goals and on different levels of scientific communities.

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How to cite

Koivumäki, K., Koivumäki, T. and Karvonen, E. (2021). 'Challenges in the collaboration between researchers and in-house communication professionals in the digital media landscape'. *JCOM* 20 (03), A04.
<https://doi.org/10.22323/2.20030204>.



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