IT-ENABLED PERFORMATIVE SPACES IN GENDER SEGREGATED WORK

Completed Research Paper

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Abstract

Prior research has extended Giddens’ (1984) structuration theory to incorporate material agency as part of a social-technical ensemble. Yet the ways in which physical-digital spaces contextualise interactions and structure work practices is under explored. In our study, we extend concepts of locale and regionalisation from structuration theory to IS fields of research in digitally mediated communication, and define ‘technical settings of interaction’ constituted by human and material agencies. The case of gender segregated work in Saudi is used to illustrate the performativity of these digital spaces, and shows how workers use technical configurations in ICTs to create zones of interaction that can challenge existing cultural norms. Finally, we argue that attending to Giddens’ focus on time-space not only adds an additional level of analysis to studying technology use, but also shows the potential of structurational research in contributing to discussions on materiality.

Keywords: Organisation, Spatialities, Structuration Theory, Sociomateriality, Performativity, Agency
Introduction

Recent discussions in IS research have been presenting exciting new directions for studying technology use and organisational behaviour. The strand of literature known as Sociomateriality has been paving the way forward, to overcome what is now considered critical insufficiencies in past research. These problematics include a lack in theorising technological/machine agency, or what is now recognised as the ‘problem of agency’ in IS research (Rose et al. 2005). A second shortcoming has been the field’s neglect to adequately treat materiality, as recent IS narratives have been noted to have a humanist disposition, while technological artefacts go “missing in action” (Orlikowski and Scott 2008).

As is customary, new lines of research tend to frame previous traditions as incapable of dealing with past problems. This is the case with sociomaterial studies’ dismissal of structurational IS research, which runs the risk of abandoning important theoretical and empirical contributions in search of a fresh new start. While sociomaterial research correctly posits Structuration Theory (ST) (Giddens 1979; Giddens 1984) as problematic in terms of theorising materiality and agency, we find there is room for theoretical reconciliation (Jones 1999; Rose and Jones 2005). The benefits of this are not only to retain past insights, but, to make use of unexplored areas in ST that can provide guidance on issues relating to materiality.

The focus of our study is to examine the settings or ‘spaces’ in which virtual interactions take place, their emergent and contextual nature, and the workings of power within them. We do this by outlining ST’s concept of ‘Regionalisation’ of interactions in time-space, and discuss its implications for digital communication. To develop our model, we do not limit our framework to structurational work alone, but also draw on sociomaterial discussions, and performativity studies. The field of human geography in particular has a very useful and relevant engagement with ‘performativity’, as they extend it to study the geographical spaces in which interactions occur. In drawing on these studies, we hope to demonstrate that their insights can also be used to understand the performativity of physical and digital “spaces” of interaction.

To exemplify our model, we present a number of empirical examples, from an ethnographic study conducted on gender-segregated work in Saudi Arabia. Strict segregation has led many workers in Saudi to develop work practices that rely on information and communication technologies (ICTs). The cases we examine involve the use of instant messaging (IM), and video-conferencing (VC) in a Saudi university to help men and women better collaborate with each other. The cultural connotations of these cases provide an interesting context to examine behaviour and power dynamics resulting from virtual interactions.

Technical Settings of Interaction: Regionalisation in the Digital World

Although Anthony Giddens’ (1979; 1984) rarely touches upon technology use, his work has been used extensively in IS research, providing important contributions (Jones and Karsten 2008). ST is a sociological theory, which describes society, its constitution, and endurance or mutability. In this view, social analysis is undertaken by examining social systems and social structures. Structures are defined as the rules and resources (facilities, norms, and interpretive schemes) that actors reflexively draw upon in their social practices. The central principle of ST is the duality of structure, in which structure and human agency are mutually constituted. Human action is seen to create the very structures that enable and constrain this action, while structures are dynamically created and sustained by these very actions.

Giddens’ concept of regionalisation is particularly useful for our study. He puts much emphasis on locales as providing backdrops for, and setting the “tone” of interactions. Interaction settings are seen as contextual; they are regionalised based on different zonings of time/space. “[A] private house is a locale which is a ‘station’ for a large cluster of interactions in the course of a typical day. Houses in contemporary societies are regionalized into floors, halls and rooms. But the various rooms of the house are zoned differently in time as well as space. The rooms downstairs are characteristically used most in daylight hours, while bedrooms are where individuals ‘retire to’ at night” (Giddens 1984, p. 119).

To better illustrate this concept, Giddens proffers different modes in which time-space is regionalised: form, duration, span, and character. Form refers to the boundaries of the interaction zones, the “physical or symbolic markers” (p. 121) which separate one region from another. Duration refers to the length of
time the interaction occurs in. Span refers to the institutionalisation of this region, whether it “extend[s] widely in space and deeply in time” (p. 122) or if it is a recently constituted setting. Finally the character of regionalisation refers to the structuring of locales within social systems, i.e. the contextuality of the setting in terms of the modes of behaviour and relations enacted within it.

To elaborate on how regionalisation is implicated in social practices, Giddens draws on and critiques Goffman (1959). Goffman’s dramaturgy analogy is well suited for this, as it explores the different manifestations of self, and relates social behaviour to actors playing a role to different audiences in theatrical performances. In everyday life, the self is constructed and maintained by the actor to gain acceptance from others. Front and back stage are used in the analogy to illustrate aspects of the self that are meant to be witnessed by others (front), and the real self that is hidden from view (back). Giddens finds that this portrays people as fake, and prefers to view discrepancies in behaviour as alternations between autonomous and normative modes of behaviour. He reconceptualises interactions as occurring with various levels of presence-availability, in contextual zonings of time space: front and back regions.

Giddens’ work on regionalisation is in relation to face-to-face encounters. However, we find much of his discussion can be extended to virtual interactions occurring in technical settings. A technical setting is defined here as a communication space in a digitally meditated environment, such as interactions on social networking sites or forums, message logs in IS, or chat boxes in instant messages (IM). Similar to physical “real world” encounters, mediated settings are contextual; they are regionalised in a way that structures interaction.

Figure 1 illustrates the various modes a technical setting is regionalised. This is dependant on both social and material elements. A setting’s form can be seen as the boundaries that separate the interaction setting from other digital or physical settings. The duration of an interaction occurring in a technical setting can resemble that of physical encounters, and include opening/closing markers such as hello/goodbye greetings. However, digital environments are known for diverse durations, such as open-ended, ubiquitous, and asynchronous. Span refers to how deeply the technical setting has been institutionalised within social practices. For example, a newly implemented information system in a small company has a short span, whereas a legacy system in global organisation extends deeper in time-space, and is thus institutionalised. The character of the setting refers to the behaviour carried out within it, it’s contextuality, and which end of the front/back region spectrum it is classified in.
The Constitution of Technical Settings: A Mangle of Human and Material Agency

When examining technical settings, it is important to understand how they are constituted. How exactly can we account for their regionalisation? To answer this, we first need to consider how physical settings are regionalised. In ST, these settings are not pre-existing “given milieux”, but are (re)constituted in practice by human agency. The physical properties of locales—aspects of the material world along with human artefacts—are used recursively “to constitute the meaningful content of interaction” (Giddens 1984, p. 119). In other words, the regionalisation of a locale depends not only on material elements, but also human elements; it is only to be conceptualised in relation to social systems.

From the previous, we find that ST considers social factors and materiality intrinsic to the structuration of social conduct. This is also evident in Giddens’ inclination to use ‘locale’ instead of ‘place’ in defining regionalisation. “For Giddens, place is not as strong as the word locale to accentuate human agency in constituting contexts of interaction since it still addresses toward physical features. He points out that locale embodies human actions and artifacts” (Sun 2009, p. 247). The term locale, then, is intended to acknowledge what humans do to create and sustain settings, but still gives recognition to materiality.

Materiality, however, is seen as a resource in ST, which has no agency except that which is implicated in human action (Rose and Jones 2005). This brings us back to technical settings, and more importantly the problem of agency in structurational IS literature (Rose et al. 2005). Giddens non-dualistic account of structure and agency, while being beneficial in IS research, has been problematic in terms of technical agency. In ST, structure is considered a “virtual order”; it exists only as implicated in human action, or as memory traces in knowledgeable human agents. This noted subjectivist ontology means that structure is inseparable from human agency, and therefore, structure (and agency) can never be embodied in technology. Consequently, agency is a purely human attribute; technology can have no agency of its own.

Theoretical discussions by Jones (1999) and Rose et al. (2005) were among research that highlighted these issues, subsequently leading to the development of Sociomaterial literature. Jones critiqued the accounts of technological agency in both structurational IS research and actor network theory (ANT). Structurational research, particularly studies in accordance with Giddens subjectivist ontology (notably Orlikowski’s (2000) practice lens), emphasises human agency at the expense of technical agency, while ANT insists on the symmetry of the two. For structurational researchers wishing to stay true to Giddens, Jones suggests that a critical realist approach, which allows for “a relatively autonomous, relatively stable, institutional context” (Jones 1999, p. 295) that is separate from human agency does not contradict ST’s view of structure being instantiated in practice. “The properties of a technology may therefore exist independently of its use in any particular context, but their meaning is locally emergent...Following this line would appear to enable structuration to be extended to allow for technologies having objective material properties by which they may exert agency” (Jones 1999, p. 295,296).

This augmented view, however, is not enough for a proper treatment of technical agency. Giddens’ limited reference to technology, coupled with his humanistic view of agency, leaves ST lacking in its ability to adequately tackle this. Rose and Jones (2005) present a model, the double dance of agency, which encourages future research to better theorise agency in socio-technical systems. The focus of this research is to operationalize the agency involved in technology use, describe its human and technical aspects, while attempting to move beyond views of human voluntarism or technical symmetry. Drawing on Andrew Pickering’s (1995) the mangle of practice, the study reconceptualises agency as that which emerges from the process of interaction between both machine (material) and human agency. It also distinguishes between the two, recognising that human agency is distinct because of properties such as intentionality and interpretation, while material agency is seen to manifest itself in “its capacity to make a difference” (Rose and Jones 2005, p. 28).

This view provides a framework that gives recognition to both the human and material agencies involved in constituting regionalised technical settings. Humans use the material properties of a technology (e.g. software features or existing configurations in IS) to provide the “meaningful content of interaction”. The technology, through its functionality, and both its enabling and constraining properties, exerts agency that helps structure interaction. Whether the case is an ERP system, or a social networking tool, the features of the technology are used to construct bounded settings, with their own unique and diverse duration, span and character.
Figure 2 illustrates the on-going cycle that occurs in the creation and maintaining of technical settings, as well as significant aspects of their regionalisation. The interaction of human and material agencies in time-space creates a regionally bounded setting of interaction. We distinguish between “Time-Space” and “Virtual Time-Space” because of the unique temporal and spatial qualities that differentiate virtual encounters. For example, in virtual settings, asynchronous and “space bridging” communication can be established very easily, and in a way that would be hard to achieve in physical settings.

![Figure 2. The Constitution and Regionalisation of Technical Settings](image)

The modes of regionalisation we highlight are character and form. Presence-Availability, the first aspect of character, refers to how accessible individuals in a social system are to one another. This is not only regarding physical proximity and the ability to reach particular individuals, but whether a person is actually socially accessible. Disclosure/Enclosure refers to modes of front and back regions. An individual giving “more of themselves” in an interaction is disclosing (back region), while being in line with normative behaviour can be a state of enclosure (front region). The character of technical settings is determined more by social factors, and yet technical features of the technology play a role in this as well. For example, we allow people to access our profiles in social networking sites, such as Facebook, and engage in informal communication. Just as easily, we may choose to block a person’s access, and ignore their messages. And all this is done with the aid of security features on the site. With regard to form, a regionalised setting is set apart from adjacent settings by both social and material factors. Yet, materiality plays a greater role in specifying boundaries; i.e. technical features are significant in determining form. What this means is that, the configurations and permissions we define in digital environments determine how closed off the interaction is from other interaction settings.

**Regionalised Technical Settings: Empirical Cases**

**Research Methods**

Research was conducted in a gender-segregated university in Saudi Arabia. The research site provides an opportunity to examine diverse technical settings, and the practices of segregated workers that collaborate solely through mediated communication. We use ethnographic methods, including interviews and non-participant observation. Fieldwork was carried out over a 1-year period by one of the researchers, a Saudi female, who has over (8) years experience at the university under study, and has held administrative roles, including supervisor of the ITC (female branch) for (5) years. This experience provides necessary insights.
into the research context, such as first-hand accounts of the events that took place during the implementation of the technologies under study. During the time fieldwork was conducted, the Saudi researcher was on an extended leave from her job post at the university, and was identified as a visiting researcher. As such, she took a peripheral membership role, and did not take part in any of the activities observed, while still having an insider’s perspective on working in a segregated environment (Adler and Adler 1994).

Participant for the study ranged from deans, heads of administrations/academic departments, managers, academic staff, and employees. Participants were enlisted using a snowball sampling strategy, to help identify work teams consisting of segregated genders collaborating extensively through ICTs. Observation was restricted to the female campus, wherein women were observed collaborating with the male side, either by conducting office work or participating in video-conferencing meetings. Observation was overt, and all participants agreed to, and were aware when they were being observed. To minimise influencing participants’ behaviour, the central theme of “gender collaboration” was not divulged until after the observation was conducted. Prior to observation, participants were simply informed that the study examined virtual work in distributed environments. The researchers have taken ethical considerations into account, and all care has been taken to ensure the anonymity of participants.

Interviews were semi-structured, and sought to uncover how different technologies were used to collaborate, with a focus on gender related cultural attitudes (positive/negative associations, taboos, etc.). Overall, a total of (37) interviews and (9) observations were conducted, each lasting between (1-2) hours. Observations were recorded by note taking. Interviews were audio recorded, transcribed, and translated from Arabic to English by the Saudi researcher.

From the data we discerned (9) cases of cross-gender teams, (3) of which we present in this paper. Analysis was conducted in 2 stages. First, the interview and observation data was analysed to understand the technologies in practice for each team, with a focus on the purpose of collaboration, capabilities/constraints, ideological schemas, and change in comparison with previous practices. In this stage, the ICTs and applications used by each team were identified. From the work teams we examined, we found (3) different technologies used for collaboration: 1- an ad hoc system using instant messaging, telephone, and a shared database, 2- video conferencing, 3- an Oracle system (not included in this study).

In the second stage, data was re-examined to arrive at a set of recurring concepts and themes, derived either from the literature or from the data. Data was then codified by the first researcher to develop descriptive accounts for, and compare between, each similar set of technologies in practice (Rubin and Rubin 2005). A total of (20) codes and (102) related quotes resulted from the data analysis. While we collated and analysed our data, we identified theoretical categories that led us back to the literature. This approach provided a practical middle ground to iterate between empirical data and theory, avoiding the pitfalls of ignoring the literature (Suddaby 2006). During our analysis, we identified the theory of structuration as an appropriate lens, and were also guided by literature on sociomateriality. For clarity of presentation, we review the literature prior to the discussion of the empirical cases, although we examined it throughout this research as data collection and analysis indicated its theoretical relevance.

**Background: Technology and Gender Segregated Work in Saudi Arabia**

The chosen research site provides a unique window for examining culturally diverse forms of mediated communication. In Saudi, ICTs are now being used to achieve easily accessible and efficient modes of work in segregated environments. However, this is not what we find most interesting about the case. For over 3 decades, Saudi workers had already established lines of communication between genders, through letters, telephones, faxes, closed circuit TV (CCTV), and so forth. What is most compelling about the case are the new settings of interaction emerging from ICT use, and the modes of behaviour within these settings.

In Saudi, gender-segregation is practiced due to a mixture of cultural and religious norms. The root of these norms can be found in conservative religious doctrines, which dictate that women should not be seen by, or interact with, men other than close relatives. Any interaction that does occur is done from behind religious attire for women, usually a veil and face cover. Consequently, interaction between unrelated genders is confined to their respective social and public spheres (Pharaon 2004). In the workplace, men and women work from separate facilities, with administrations typically set up to consist of two branches (Al-Kahtani et al. 2005; Baki 2004). Organisational structures in Saudi are hegemonic,
with women holding a subordinate position to men. Ironically, this entails a high degree of coordination between segregated genders, and necessitates mediated communication.

Changes in gender communication began in the late ’90s, following the wide diffusion of the internet and ICTs (Al-Saggaf and Weckert 2004). Since then, new practices have been emerging, such as formal and perhaps informal interactions via email, groupware, video-conferencing, and instant messaging (IM). Yet some of these uses may still be seen to conflict with Saudi cultural values. What is termed “gender-mixing”, i.e. face-to-face exchanges between unrelated genders, is considered taboo, especially if mixing is one-on-one or unmonitored. Therefore, any communication leading to this is generally distrusted, and considered inappropriate.

Finally, to help understand the various dispositions regarding ICT use in segregated work, and the role of cultural factors, we have turned to the socio-cognitive literature on schemas or frames. Schemas are a common set of beliefs and assumptions, held by a specific group to guide them on how to proceed in social interactions (Karsten 1995). The examination of schemas provides a backdrop of the Saudi culture, and has been instrumental in the ways we organise our findings. In IS studies, they are seen to provide valuable insights into the usage and interpretation of technologies within a specific context (Orlikowski and Gash 1994). In our study, we found the primary schemata guiding usage are ideologically/culturally rooted. They reflect the general ideologies prevailing in Saudi, and represent widely held classifications of cultural and/or religious views. Firstly, conservatives adhere to extreme religious doctrines that oppose gender mixing, and dictate that communication is carried out by formal methods alone. Then there are the moderates, who may have some reservations about ICTs, but pragmatically, will still use them to alleviate complications arising from segregated work. In their view, genders can communicate with any medium, as long as this remains culturally appropriate. As for the liberals, this group encourages communication and interpersonal relations between genders, and promotes using a wide range of mediums. Liberals are the change advocates and the technology enthusiasts in our study.

**Case 1: Instant Messaging at Administration [A]**

The first case illustrates regionalised technical settings following the work practices of a small group of managers at Administration A, who work together from corresponding branches, and use mediated communication to collaborate. Their administrative unit provides a number of academic and extracurricular services to university members, and consists of both male/female branches situated in separate buildings. Throughout the years, the unit has oscillated between the subordination and autonomy of the female branch. At the time of data collection, a male manager was responsible for the general supervision of both branches. A female manager supervised the female branch, which consisted of a coordinator, (7) service experts, and (2) secretaries. Work was carried out with a high degree of co-ordination between branches, but without face-to-face communication. We focus here specifically on the use of instant messaging to coordinate work practices between the male and female managers and the coordinator (female), who act as liaisons between branches.

In administration A, both females communicate with the male manager on a daily basis. This is done to keep him up to date about current events in the female branch. Communication is carried out through various channels, e.g. formal letters, telephone and emails. However, the team prefers to interact through a mixture of interspersed and sporadic telephone and IM conversations, coupled with making use of a shared network drive, which serves as an archive for different media files and software. This is done despite the fact that upper management discourages IM use, and has put much effort in blocking IM software within university network settings. Over a three-year period, the team have developed a process for working with the other side. A project draft is placed in a shared folder with read/write permissions set for the team. This is followed by an IM to detail what is needed from other team members, and to determine if they are available for a “chat” about the project. The female coordinator explains: “The shared drive has been very useful for us. When you work with someone over there you can look things over with him at the same time, or you could give him editing permissions on the system. Whoever opens the file first gets editing permissions. So, for example, if we want to work on the budget, he’ll say ‘let me edit’ and then he’ll open it first. I’ll be getting the changes and see them changing in front of me”.

The male manager and female coordinator transition between communication mediums depending on the task at hand; each technology serves to complement the other, and the affordances of one medium help
overcome the limitations of the other. Most importantly, IM’s asynchronous communication helps maintain a link with the counterpart branch. In a sense, the three mediums serve to create a virtual meeting space for the team, in which they can “see” the presence of the other parties (IM), speak with them (telephone), and pull up different work material to discuss and collaborate on (shared drive).

The work dynamics previously described represent a shift from how the team had initially begun to interact just three years prior. The male manager, having been transferred from a different unit, had never been in contact with any of these females before. As is characteristic of segregated work relations in Saudi, the team went through an initial stage of awkwardness and hesitancy in their interactions with an unknown member of the opposite sex. This led them to resort to communication through letters sent by courier, or brief and formal telephone calls. The gradual shift to electronic modes of interaction served to familiarise the team with one another, and led to less formalised communication.

The use of ICTs helped develop a more collegial attitude between male and female members of the work team. This was evident during an observation, in which the female coordinator was collaborating with the male manager. The two had been working together to update the administration’s website. They began the day's work by having a brief telephone conversation, and the female was speaking in a reserved and formal manner. There was no exchange of pleasantries, and the conversation was quick and to the point. What was most interesting is what happened once they switched to IM. Although they had conversed over the phone, it was only when they logged on to IM that they exchanged pleasantries. The male manager began by greeting her and asking how she was doing. He then gave some encouraging words, telling her she was doing an excellent job at the female branch. The two exchanged a number of smileys (emoticons), conveying happy faces. They continued for a brief time to exchange these less formal IMs before moving on to other work topics.

Later, the female coordinator was asked why pleasantries were only exchanged through IM. At first, the coordinator seemed perplexed by this question. She said she had never noticed this before, and explained that this was probably what usually occurred; a formal phone call with no greeting or social exchange, followed by an IM that was relaxed and less inhibited. This reserved mannerism over the telephone is not uncommon in Saudi, particularly with conservatives, who prefer communicating through letters or email. The giving off of less social cues in textual communication is what deems it as appropriate in comparison to the telephone, which involves more of the presence associated with face-to-face interactions (voice, laughter, ...etc.). This is the first example of discrepancies in behaviour depending on the communication medium used, showing the enactment of conflicting—if not opposing—ideological schemas.

The second example involves the male manager, and the different interpretive schemas he enacted with regards to instant messaging. From the observation sessions, it was evident that he was communicating daily through IM in a proactive manner, as he initiated IM sessions with his female colleagues, and maintained interactions of an informal nature. However, during his interviews with the female researcher, the manner in which he verbalised his IM experience conveyed an underlying disdain for it, as he expressed his wish to limit this type of interaction because of the "negative social meanings associated with chatting and communicating with women". The manager was reluctant to go into details about IM, and he only relayed apprehensions regarding its social implications. He also emphasised the importance of email and the shared drive when collaborating with females, in an attempt to underplay his IM use. This leads us to conclude that the male manager enacted a moderate/liberal schema with his female colleagues when he proactively used IM to communicate. He also enacted a different schema with the researcher, as his attitude was conservative when speaking of communicating with females through IM.

**Regionalised Interaction Settings (IM, Telephone)**

In case 1, if we take the office at the female branch (the locale) where our observation of the team was conducted, we find a number of interaction zones, some of which occur through mediation. Examining the IM setting through the lens of regionalisation provides an extra level of analysis, as what is implicated here is much more than simple message exchanges. Interactions between the male manager and female coordinator occur within the IM setting, which has a form and is regionally bounded in a manner inherently different from face-to-face interactions. The chat window (the technical setting) is seen on the computer screen in the office, the office itself a regionalised setting. These 2 regions can be considered adjacent or one interior to the other. The chat region is set apart from the office space, and because of the
placement of the computer screen, it is very much a private setting. It can also be instantaneously concealed (most IM software now include add-ons or shortcuts to auto-hide chat windows and icons), something which cannot be done with non-technical regions.

The duration of these message exchanges is very flexible, due to the asynchronous mode of IM; in some instances they are short and sporadic messages, but they can also take on longer durations. Presence-availability can be determined/secured in a number of ways. The status chosen in the chat application (Online, Away, Busy...etc.) provides some indication as to whether a team member is free to chat. Finally, the character of the chat region—the modes of behaviour and relations enacted within it—is carried out and maintained independent of what is going on in the office. The IM interactions we observed between the male and female were very relaxed and informal. The choice of words and the conversation openers revealed a level of familiarity and comfort between the two, which was not evident during their phone conversation. Also, the chosen emoticons were playful. Hence, the chat region can be considered a back region interaction setting.

On the other hand, the telephone setting was a front region interaction. The telephone conversations take place in a public setting, and the female’s responses can be heard by anyone in the office or standing close to the door. Her mannerisms, tone of voice, and other social cues cannot be concealed from adjacent regions. The character of the telephone setting is also an indicator of its being front region. The conversation was very formal, and the manner in which the female spoke was guarded. Unlike IM, The content of the interactions was limited to task related discussions. The discrepancies in behaviour between IM and telephone are particularly interesting, especially given the fact that these are the same two people interacting, only with different mediums, and with varying social bandwidths.

Case 2: Video Conferencing within the University

Starting in early 2004, the Information Technology Center (ITC) at the university began implementing Tandberg video-conferencing technology (VC). The initial purpose was to supplement the already existing CCTV studios that enabled male lecturers to teach female students, a practice that had been carried out for decades. However, during this initial phase of use, an entirely different purpose began to transpire, as top members of the ITC began advocating its use to integrate work practices between the segregated branches. The new technology was presented as a means to facilitate more participation for women, and allow them to participate in proceedings held at the male branches, such as male only meetings, and university wide events. Furthermore, VC was framed as a tool that would enable women to have their voices heard, as well as encourage more collaboration between the male and female side.

Departmental staff meetings, in particular, were one of the main concerns of the ITC due to an extreme lack of integration. At the time, male and female members of the same department held separate meetings, each at their respective branches. After the meeting, they would usually update the other side on the proceedings by exchanging meeting minutes. Given that male branches are head offices, the meetings held there were considered the primary, official meetings. Therefore, deliberations at the male side would encompass issues concerning both branches, while the females discussed issues pertaining only to the women’s branch. This arrangement had left the women at a disadvantage, especially if there were specific topics they needed to have discussed in the main meetings. In an interview, a male staff member relayed some of the dilemmas faced by a female colleague of his, who confided her distress about not taking part in the meetings. Being head of the female branch, she had to compensate for her absence by preparing detailed memos with suggestions and complaints, and request they be discussed during the main meetings on her behalf. “[She] later finds out that her requests had been rejected or not even discussed. Sometimes, she’d send in things only to be surprised that her phrasing had been changed. The male head would say to her, well that’s what happened in the meeting so just accept it”. In addition, other difficulties arose from having separate meetings. Male heads of departments often needed to relay topics to the female staff to receive feedback, but had no joint venue to facilitate this. In order to accomplish this, the male head would first convey these topics to a liaison—usually head of the female branch—and explain to her the information needed. The go-between was time consuming, and involved much duplication of effort.

Hence, the introduction of VC across male and female branches was greeted enthusiastically by staff members, and enabled gradual transition to holding conjunctive meetings on a regular basis. Most of the
staff meetings were held in conferencing studios, while university wide events were held in larger halls. In these facilities, the conferencing system is connected to a projector and audio system. To initiate a videoconference, a LAN IP is dialled on the Tandberg VC device to connect to the other side. What is often transmitted is audio/video from the male side with audio only from the female side. Either side can also transmit presentations slides, videos, or run applications such as web browsers or other tools.

To better illustrate the VC setting, we present observations from two different academic departments, holding conjunctive staff meetings. The departments we have chosen differ in terms of the attitudes regarding gender collaboration, and the prevalent ideological schemas within the department. The first, department (Y), has a moderate/liberal base, whereas department (Z), an Islamic discipline, is largely conservative. Consequently, these two VC meetings represent a contrast in relation to gender norms and technologies-in-practice:

1. **Staff meeting at department (Y):** In this meeting, the female conferencing studio consisted of a large rectangular table with two table microphones dispersed among the attendees. A ceiling projector displayed the video from the male side onto a pull-down screen at the front of the room. Attending the meeting were twelve male faculty members, and six female members and a female departmental secretary. The video was spanning the meeting table on the male side, and all the men were in view. Throughout the observation, the meeting setting revealed itself to be a democratic and liberal environment. The head of the department put in much effort to include females in discussions, and turn taking was carried out efficiently. The atmosphere and attitudes emanating from the room was of positive cooperation. The two sides interacted with each other in a very relaxed manner. Faculty members joked and laughed from both sides, although the male faculty members primarily prompted this. An incident occurred halfway through the meeting, when the department head, after hearing whispers from the other side, asked the females what they were discussing. A female replied that she was just going to remind him of an upcoming international conference. The head responded by saying, “*Then you and I can go there together*”, at which point everyone in both rooms laughed loudly. This type of jovial exchange from the male head towards the females occurred several times throughout the meeting. At the end of the meeting the noise level was raised due to faculty talking to others in the same room. A female faculty, however, spoke into the microphone and asked for one of the male faculty by name. He came up to the microphone and they began a discussion about some of the topics brought up in the meeting. This discussion continued for a brief time, while the others began leaving.

2. **Staff meeting at department (Z):** The meeting room layout was similar to department (Y). The meeting got off to a late start due to technical problems. The female IT technician received a call from the male side requesting the room IP number. Shortly after, the transmission began but with audio only. The female head of department asked the technician why there was no video from the male side, and one of the females interjected (with distaste) that there was no need for video from the men. “*Why do you want it anyway? The audio is enough*”. The conservative demeanour of this female implied that her comment stemmed from religious/conservative views. The female head replied to her by saying she disagreed and found the video transmission very helpful. A few minutes later, the technical problem was resolved, and the female side received a video feed from the male side. In the VC meeting, there were seven male faculty members, and five from the female side. The chairman began with the meeting agenda. After this, the men began discussing issues among them. Topics included new projects, suggestions for creating small project teams, and sharing contact information for those interested in joining. What was most striking was that, for almost the first half of the meeting, the men were engaging in discussions seemingly oblivious to the female side, while the females observed them as if watching a television. The female side’s first interjection came only after an important item in the agenda. The overall manner in which the females participated and negotiated with the male side was meek and shy; completely unlike the bold and assertive manner of the females at department (Y). The whole atmosphere of the meeting also differed in that genders spoke to each other in a very formal manner, and even when there was laughing it was only between the same genders. The men would sometimes make jokes and laugh loudly, and the women responded to this by smiling and looking at each other quietly. Finally, the meeting came to an end quite abruptly, without any interactions between the two sides afterwards. It should be said that a lot of issues were covered during the meeting and that most of the people got their voices across and were heard. In this it seemed a successful
collaborative meeting between the two sides. Yet this was done in an extremely reserved and formal atmosphere between the two sides.

The previous examples demonstrate the shift in practice as a result of transitioning from segregated meetings to integrated mixed-gender meetings, albeit in a virtual setting. In the past, the ability to collaborate in groups was almost non-existent, and any work between genders was done one-on-one, usually via telephone. VC has now allowed for a setting in which the entire department can gather and exchange ideas, instead of relying on intermediaries, or having the male side dominate the primary meetings. “It’s much better than it was in the past, when the men would meet and discuss issues relating to [the female branch] without us. What’s even worse is that they were making decisions concerning me personally without my being there to say my opinion. Now the situation is different” (Female Academic).

While these departments now hold VC meetings regularly, the difference in norms between the two is undeniable. The ambience of cooperation and equal participation in department (Y) is in stark contrast with the general mood at department (Z), which led the females to take on the role of silent observers during most of the meeting. The differences in ideological schemas can provide one explanation for this discrepancy, i.e. the contrast between liberals vs. conservatives. A second possible explanation is the different technical frames these staff members have regarding the VC technology. During the interviews, staff at department (Y) spoke about the technology as a means to connect with the other side. A male staff member stressed this point, “All the men here pushed for video conferencing so we could include our sisters over there, and allow them to participate in our meetings. We wanted to hear their opinions on everything going on in the department. We wanted them to have a voice”. Staff at department (Z) revealed a different technical frame. In the VC meeting, the females sat quietly watching their male colleagues on the screen as if they were watching a “show”. A female staff who was particularly quiet in the meeting led on to this perception. “You see [the men], see their impressions, understand their feelings while you watch them. It’s exactly as if you were with them. The only negative here is that, while we see them, they don’t know what we’re doing here”. The mannerisms of the male side was also in line with this, as their discussions were amongst themselves during most of the meeting. Of course these men were aware of the females’ “presence”, but this awareness was more to do with having observers rather than participants on the female side.

**Regionalised Interaction Settings (Video-Conferencing)**

The case of video-conferencing exemplifies how technology can be used to conjure up an interaction setting for a group of people who are unable to meet physically. In a strict segregated environment such as Saudi, the barriers to this are cultural, and there is no real physical hindrance to prevent men and women meeting face-to-face. In the physical world, staff meetings within each department occur in an interaction setting that is regionalised as segregated and separate. This is evident in both the form and character of the settings, which dictate that women do not enter the interaction zones of men and vice versa.

With VC, however, technology allows for an interaction setting that is accessible from two different physical locales by means of a virtual space. It merges two interaction zones together to form a culturally neutral setting in which men and women can get together and interact in groups. This merged virtual setting is regionalised as mixed-gender, although the cultural limitations are still present given that females participate with audio only. Still, the ability to meet with the opposing branches has done much to familiarise the two sides with each other, and has helped integrate practices, as has been reported by the majority of the staff we spoke with.

As is evident in the VC examples above, the use of the same technology does not entail we end up with similar enactments or modes of regionalisation. Although the same configurations are used in both cases, with the same physical setup of the meeting room, we find the character of each meeting varies:

1. **Staff meeting at department (Y):** The character of this VC setting can be described as a *back region*. The meeting is private, only open to staff from the department. Faculty members acted in a way that deviates from traditional gender norms. This is discerned firstly from the democratic nature of the meeting, and the ethos of equal participation between genders. Secondly, the attitudes toward the opposite gender were collegial, with no exaggerated formalities. Thirdly, the head of department pushes the limits further with the comments he directed at one of the females, jokingly suggesting they travel together to a conference. In Saudi, this type of comment is usually
seen as crossing a cultural line. Interviews with faculty members who attended the meeting confirmed this view, as a number of them felt “he had gone too far”. So although the others might have been disapproving of the head’s actions, this shows the autonomous nature of behaviour characteristic in back regions.

2. Staff meeting at department (Z): The character of this VC setting can be described as a **front region**. Similar to dept. (Y), this meeting is also private, however, traditional gender norms are strictly adhered to. This was apparent in the classic roles prevailing the meeting: men interacting with each other, females observing quietly, or participating in a meek manner. The setting is also distinguishable as front region, as there were hints of monitoring or “policing” to maintain segregated norms. This was revealed in the actions of faculty from both sides. Firstly, the conservative female who spoke admonishingly to the female head, asking why video from the male side was needed. Her comment was clearly cautionary, and meant to show the attendees that she did not wholly approve of the VC setting, and felt that viewing video of the men’s side was inappropriate. The response she received from the other female, and the fact that video was eventually transmitted, shows that others did not share her view. Secondly, the male head was setting the tone of the meeting as extremely formal between genders. This was evident when a female made a joking comment. His response was to ignore this, and reply to her in a curt manner.

**Towards a Performative View of Regionalised Technical “Spaces”**

The previous discussion on technical settings provides an interesting way to characterise virtual interactions, whether considering complex information systems or networking tools. The study of regionalisation in IS can extend existing structurational views that neglect materiality, and help move beyond descriptions of technical capabilities and constraints. It also grounds virtual interactions as occurring in time-space bridging the physical-digital divide, and adding a more tangible dimension of materiality. Granted, the prospect of finding new ways to incorporate materiality into IS narratives has been the focus of Sociomaterial studies. In the following, we hope to demonstrate not only the importance of acknowledging materiality, but also hope to show that Structuration Theory can add significant insights to this line of inquiry. We do this by first presenting views from ST on regionalisation, and how it is linked to power dynamics in organisations. We then examine the concept of ‘Performativity’, and merge this with our structurational discussion to define technical settings of interaction—as emergent, contextually regionalised, and performative. Finally, we exemplify this with a discussion of our empirical cases.

**The Character of Technical Settings (Modes of Front/Back Region)**

An important element in ST is the way in which it incorporates time-space into social theory. For Giddens, this highlights “the practical character of daily activities”, along with the physical constraints on members of society, all of which contribute to the structuring of social conduct. While this view has its roots in time-geography studies, ST moves beyond the idea that time-space serves only as a constraint, emphasising how it also contextualises interaction, and is implicated in the generation and distribution of power.

Netto (2007) adequately posits the centrality of time-space in ST, and finds that—from Giddens’ writing—institutional analysis could benefit from theorising how practices are mediated and transformed across time-space. “Giddens believes that contexts of social interaction are positioned in time-space – coordinated connections of “locales” (settings of interaction) used chronically and largely tacitly by agents to sustain meaning in communicative acts” (Netto 2007, p.53).

Giddens suggests that power dynamics can be revealed by examining modes of regionalisation in locales, such as character and form. For this purpose, he explains at length how an understanding of front/back regions helps us become more attuned to power struggles in organisations. Back regions, specifically, are seen as critical to the balancing of power in asymmetrical relationships (Nadan 1998), i.e. critical to what he terms the ‘dialectic of control’. “All forms of dependence offer some resources whereby those who are subordinate can influence the activities of their superiors. This is what I call the dialectic of control” (Giddens 1984, p.16). He goes on to elaborate that, in situations where behaviour is strongly sanctioned and monitored, subordinated groups can use back regions as a resource to regain some control.
We can now try and understand this in relation to organisational IT use and virtual front/back regions. If we take the use of groupware technologies, for example Lotus Notes. In many cases, the intended outcome is to encourage collaboration in a manner that is visible to all, but also monitored by management. The types of interaction that are visible are generally expected to be in line with managerial policies, and can be considered front region interactions. Based on the dialectic of control, this groupware can also provide a resource for those being monitored (subordinate workers). Within the confines of the software, workers can gain access to, and privately message, members who were previously unreachable, for reasons such as hierarchy or geographical distance. These resulting confined technical settings can be characterised as back region, where communication can be used to work around the system, share knowledge, or provide any other means to empower these workers.

Hence, the study of interaction settings is significant from a structurational view, providing the “missing link” in terms of how individual actions or agencies work to structure and are structured by society. “The key-question of how an agency reproduces structural properties of the social system is somehow contained in ‘how far the situated practices studied in a given range of contexts converge with one another in such a way that they enter directly into system reproduction’... (Giddens 1984, p.xxi)” (Netto 2007, p.52). In other words, when there is a convergence in practice found in a multitude of contexts (regionalised settings), it can be said that these practices display structural properties. Further still, a contradiction in practice across different contexts—such as a disparity between front and back regions—can be an indication of resistance, struggles among social groups, and a sign of impending change.

**Technical Settings as Performative “Spaces”**

The idea of contextually emergent settings of interaction posed by Giddens provides a fruitful agenda for studying themes of power and change in ICT use. However, given the ontological issues relating to materiality in ST, it is necessary to elaborate on the “nature” of material agency, its mechanisms and modes of operation. How can it be described or adequately defined? From a structurational view, agency is only considered from a humanist vantage point. “Agency is defined, following Giddens (1984) as ‘the capacity to make a difference,’ i.e. to act in a way which produces outcomes. From this perspective, therefore both machines and humans can be said to exercise agency” (Rose and Jones 2005, p. 28).

With this definition, along with an augmented view of structure that includes a pre-existing material institutional context in addition to the social, Rose and Jones (2005) suggest the viability of incorporating technical agency within a structurational framework. To modify the view of structure, the authors draw on Storper’s (1985) critique of Giddens, although they mainly focus on the issues concerning materiality. In addition to materiality, this critique also points our attention to another arena in which structures should be considered “more real” than ST permits: the discursive arena of institutions. In order to develop the idea of performative technical settings, we shall elaborate further on this.

Storper finds that Giddens acknowledges only the role of nondiscursive knowledge in practice, while not paying due attention to discursive strategies exercised by dominating groups. He argues for a “relative autonomy of discourse” (Storper 1985, p. 421): “[S]tructures are more real, in yet another respect, than Giddens admits in his notion of instantiation: in addition to the real durée of the material, there is the intentional discursive arena of institutions” (Storper 1985, p. 421). Storper’s main insights are to do with the necessity of considering discursive practices as both implicated in the construction of society, and having a historical (institutional) existence.

Due to the limitations in ST’s treatment of material agency, and the minimal role it gives to discourse and ideology, it may be useful to turn to the literature on sociomateriality, particularly its concept of performativity. While the term has been used in humanities and social sciences since the 1950s, it has been gaining importance over the last two decades in fields such as STS (Science, Technology, Society) (Lamontagne 2012), gender and identity construction, and economics. In the following, we give a brief overview of the term, before moving on to its relevance for this study.

The concept of performativity has been employed differently within different fields, and is often used in conjunction with Goffman’s notion of performance. For Judith Butler (1993; 1999), performativity is used to illustrate the prescriptive nature of discursive practices on gender construction. She argues that a person’s gender is not pre-given or fixed, but rather performed. This performance is seen to replicate or cite dominant discourses and accepted gender norms, and is performative because it acts as a signification
and enactment of gender (Gregson and Rose 2000). “[P]erformativity must be understood not as a singular or deliberate “act”, but, rather, as the reiterative and citational practice by which discourse produces the effects that it names” (Butler 1993, p. 2).

Butler’s conceptualisation of performativity has at its roots both linguistic and political influences, as she draws on J.L. Austin’s (1975) work on performative utterances, as well as Foucault’s (1979) views on the normalising effects of disciplinary power. To better grasp this concept, a simpler, more basic definition can be inferred from the following excerpt, where she distinguishes between performance and performativity: “To say that gender is performative is a little different because for something to be performative means that it produces a series of effects. We act and walk and speak and talk in ways that consolidate an impression of being a man or being a woman” (Butler 2011). In other words, performativity is not the mere performance of gender. Rather, it is the effect that a given culture’s “doing” of gender has on its collective psyche. Through repetition, this specific performance comes to signify and re-inscribe gender, in a way that conforms to this culture’s discourse.

As influential as Butlers’ ideas have remained, her theory of performativity has received much criticism. Her ontological view of the social agent has been noted to be abstract, and therefore neglectful of any contextual, reflexive agency (Nelson 1999). Also problematic, as Michel Callon (2006) points out, is the denial of the role of materiality in her narratives on gender construction. In his view, linking performance to performativity is what has led Butler and others to these “culturalist excesses”, in which the corporeality of the body is not considered as part of the social (p. 24). Callon’s interest is in the performativity of scientific knowledge. He explores this mainly in relation to economics theories and models, which are postulated to mould the financial markets they describe. He finds that, a discourse is said to be performative “if it contributes to the construction of the reality that it describes” (p. 7).

To develop his concept of performativity (or performance), Callon relates the notion of interiority/exteriority, as opposed to the truth/non-truth paradigm. Science, discourse and texts in general, are all actively involved in the process of actualizing their worldviews into existence. These texts are considered just as much a part of the worlds they help constitute, as are material elements. Callon finds that both the material and the discursive form socio-technical ensembles or agencements. “Agencement has the same root as agency: agencements are arrangements endowed with the capacity of acting in different ways depending on their configuration. This means that there is nothing left outside agencements: there is no need for further explanation, because the construction of its meaning is part of an agencement” (Callon 2006, p. 13). This means that performativity is the power inherent in the ensemble, which acts autonomously, with no need for exterior intervention.

Callon differentiates between a number of modes of performativity, which, taken as a whole, comprise different facets of the concept. This does a great deal to demystify its meaning. Discourse is seen to be actualized into a reality by acting as (a) a self-fulfilling prophesy, (b) a prescription, or (c) a physical expression. The first mode, prophesy, materializes because of the belief systems of the actors involved, who act upon statements they regard as truths, thereby bringing (feasible) statements into being. Prescription, while being similar to prophesy, involves mediated mechanisms, such as institutional practices that instil, and articulate discourse into reality. Finally, expression acts as just that, a physical manifestation of discourse, which acts to both symbolise and re-inscribe it.

This view of performativity bears resemblance to Karen Barad (2003), which has gained prominence in sociomaterial studies. Her agential realist account promotes a “relational ontology”: the inseparability of material and discursive practices implicated in the materialization of phenomena. As for agency, this too is inseparable from phenomena, and is only discerned from within “intra-acting ‘components’” (p. 815). Barad’s view comes from the hard sciences, and she illustrates it through the practices of laboratory experiments and the use of apparatuses. She argues that an apparatus is an inseparable part of the phenomena it measures. It does not impose anything on, or inscribe materiality, but rather it intra-acts with it, enacting an agential cut, that draws specific boundaries between apparatus and phenomena. The outcome of intra-action is not determined by any one component (apparatus or material phenomena), but by both in a “congealing of agency” (Barad 2003, p.822). Her account gives matter its due recognition, and in so doing, she critiques Butler’s view of performativity as “iterative citationality”, defining it instead as “iterative intra-activity” (Barad 2003, p. 828).

Lastly, we turn to research by Gregson and Rose (2000) from the field of human geography, which takes
Butler’s gender performativity narrative, and applies it to the performance of social practices within geographic spaces. The authors maintain the connectedness of performance and performativity “through the saturation of performers with power” (p. 434); power that creates subject positions (for social actors) and also creates the very spaces in which performances occur. Similar to Giddens, the study rejects the idea of pre-given interaction spaces. “These `stages' do not preexist their performances, waiting in some sense to be mapped out by performances; rather, specific performances bring these spaces into being. And, since these performances are themselves articulations of power, of particular subject positions, then we maintain that we need to think of spaces too as performative of power relations” (Gregson and Rose 2000, p. 441). In this sense, performances produce a series of effects, and so too do their spatialities.

We analyse virtual interactions in the same light. As practices occurring in emergent technical settings that are regionalised, performatively constituted, and infused with power. To do this, we extend Giddens’ notion of locale to examine virtual spaces, within which time-space is constituted by means of ICTs. The technical configurations in ICTs are used to constitute interaction zones, and to provide context and meaning. This creates a virtual setting, a fusion of material properties and human action, with its own set of behavioural patterns and discourses. This setting, however, is not simply a container for interactions or a static backdrop. It is performative. At the most basic level, to say that technical settings are performative means they produce an effect. Through the active engagement of human and material agencies, these settings materialise, bring something into the interaction context, and are actively involved in the construction of the practices they mediate. Their performativity rests on numerous factors: the discourses they come to express, prescribe, or “prophesise” through enactment; the (reflexive) human and material agencies that come to cite this enactment; and the locally emergent meanings that materialise from the specific agential intra-actions (cuts).

Hence, our understanding of performativity is not confined to any one of the previous theorisations discussed, but instead, encompasses a mixture of their varying insights. To exemplify this, and demonstrate how a discussion of regionalisation and performativity can shed light on virtual interactions, we return to our cases on segregated work and ICTs:

**Technical Setting 1: Instant Messaging**

The IM interactions in administration (A) were characteristic of back region settings. The privacy of the chat setting brought about interactions that were more sociable, but also deemed appropriate by the workers. As such, the regionalisation of IM allowed the work team to challenge existing gender norms, and regain some power from superiors and societal influences. Power to act autonomously, and interact in a way that was in accordance with their ideological leanings. The performativity of the IM setting can be described as being an expression of an interaction space used to integrate work between genders. The use of IM for collaboration, the very enactment, creates this interaction space that comes to represent or ‘express’ the crossing of segregation boundaries. In other words, it creates a space in which the dominant discourse on gender relations is subverted. However, the reclusive nature of this enactment means that chances of it being seen by other workers and mimicked are limited, and so too its performativity to bring about widespread change. The material properties of the IM application—chat box settings, text, auto-h, and emoticons—was used by the workers to “constitute the meaningful content of interaction”, i.e. to provide context to the setting. These properties represent the material agency in IM, which allow specific types of interactions and exclude others. This was evident in the unique exchanges that took place in IM between genders. The intra-action between human agencies and material properties of IM enacted an agential cut that led to communication being informal, and liberal. This differs from the intra-action between the same human agencies with a different medium, the telephone, resulting in formal and conservative communication.

**Technical Setting 2: Video-Conferencing**

The regionalisation of the two VC settings (departments Y and Z), and the power dynamics enacted within them, served to either uphold and reproduce existing gender norms, or challenge and deviate from them. Power was found to be residing with:
1. Autonomous actors (in back region settings): In the VC meeting at dept. Y, the character of the VC setting was back region, as evident in the unrestricted nature of interactions. Staff members deviated from institutional norms, and followed their own rules of associating with the opposite gender. The overall mood of the meeting was of equal opportunity and collegiality between genders. Turn taking was carried out to ensure that attendees from both sides participated. This means that, although power remains with dominating groups (university administration, religious institutions) that prohibit face-to-face meetings, this virtual setting gives workers some latitude to follow their own ideologies.

2. Normative authority (in front region settings): In the VC meeting at dept. Z, the setting was characterised as front region, with behaviour conforming to institutional gender norms. The mood of the meeting is in accordance with Saudi tradition, as the men interacted amongst themselves, while the women observed quietly and spoke when called upon. Also, the monitoring of these events by authority figures (male head of department, female conservatives) maintained norms of segregation. In this case, power still remains in the hands of dominating conservative groups.

To describe the performativity of VC, we reiterate the circumstances of its implementation, as being advocated by the ITC to integrate male/female branches and promote more inclusion of the female side. The discourse used to promote this was performatively actualized into a reality, by acting as a self-fulfilling prophecy, a prescription, and an expression of the vision the ITC had for improving segregated work. Prophecy was evident in the ITC’s campaign to convince workers that the use of VC would alleviate the complications of segregated work. ITC members had a “belief” that this technology would break gender boundaries and improve women’s status, and this is the discourse they propagated. Prescription followed, as upper management jumped the bandwagon and began applying policies, such as requiring a compulsory number of females in staff meetings, and ensuring that events were held in conjunction. Finally, these VC sessions—their physical enactment—served as an expression of this discourse. The more these sessions took place, the more they became a signification of “gender collaboration”, and the more they were reflexively cited. Attempts to subvert dominant discourses on gender were made in the back region example (dept. Y), while the front region example (dept. Z) was found to re-inscribe this discourse.

Discussion

Our case on gender segregated work and ICTs is ideally suited to illustrate the performative aspects of virtual spaces. In other areas of the world, these mediums have taken on different meanings and uses, but in Saudi they represent a very specific cultural enactment. Although IM and VC may appear to be just another form of communication, it is important to note that, without these technologies, Saudi men and women would not be able to interact in this way, not in the physical sense. These technologies are used to “extend” geographic space, and create a culturally neutral setting in which the prevailing discourses on gender communication are challenged and subverted. Consequently, from our case analysis, we found gender work norms to be enacted differently in the virtual sphere, with the ethos of separation and inequality between genders transpiring more and more into a cooperative ideal.

In constructing the narrative for this study, the concept of performativity has helped us fully appreciate how virtual spaces brought about change to the phenomena under study. In our view, an interaction space is performative if it contributes to the social practices and discourses enacted within it. We have found that one way to understand this performativity is through the lens of regionalisation. The regionalisation of space is not pre-given. Its contextuality only begins to emerge through the enactment of social practices, and is then recursively reproduced or changed. In the IT enabled spaces we examined, the material properties of the technology provided an opportunity to regionalise virtual space differently from physical space and other forms of mediation. Consequently, new practices have emerged, and more importantly discourse has begun to change, i.e. the ideological discourse on acceptable gender collaboration.

Thus, the regionalisation of a technical setting is an essential aspect of its performativity. To explore this further, it is necessary to make a distinction between structure and context. Technical settings are context-laden spaces created using technical (material) configurations of a technology. Structure is what guides the creation of different contexts. Based on the interplay between structure and agency,
regionalised spaces are created with differing forms of performativity. Agency is seen here as both human and technical, the result of the entanglement of human intentionality/schemas/interpretations with technical properties/features/technology's "capacity to make a difference".

In our examples, back regions took on more subversive forms, creating performative spaces that challenge gender discourse. Front regions were also performative but in a more citational, mimetic sense, reproducing the dominant discourse of segregation. In case 1, a new discourse was enacted in IM spaces, that of closely integrated and collegial work between opposite genders. With case 2, VC meetings brought about multiple and diverse enactments. In our observation of dept. (Y), gender relations played out in a way that differed from segregated physical space, as there was an air of equality and fairness that was simply non-existent before using the technology. The male side put in every effort to facilitate female participation, and the females reciprocated with equal enthusiasm. Also, there were instances in the meeting where there were attempts to test the waters by challenging traditional norms, such as the incidents of teasing and joking between genders. These instances can be seen as attempts to subvert discourse. Our observations at department (Z) revealed the other extreme and a different enactment. The VC setting still brought about changes in gender group dynamics, as it enabled the two sides to meet routinely. However, there was an obvious effort to maintain the status quo, with members from both sides keeping proceedings in check, and ensuring that participants still conformed to traditional Saudi conservatism. So the performativity here is one that reproduces the segregated norms of physical space.

The contrast between the two VC settings in departments (Y) and (Z) points our attention to issues of local emergence and the interplay of human and technical agency discussed by previous studies (Jones 1999). Both departments basically used the same technology to facilitate their staff meetings. Materiality in these technologies in practice—the technical configurations, meeting room layouts, disabling of video on female side—was the same. However, regionalisation and the enactment of gender relations were almost opposite. As previously mentioned, we find this is due to differences in ideological schemas and the resulting technical frames prevalent in each department. The moderate/liberal staff at department (Y) viewed VC as a means to promote collaboration between genders. Conservatives in department (Z), on the other hand, viewed the new technology with their old frames of reference, i.e. a technology that allowed women to observe men working rather than fully participate with them. Consequently, these staff members used VC to continue carrying out the roles of male leadership and female subordination. Hence, the VC examples exemplify how technology exerts part of the agency in each enactment, while the other is determined by human perceptions, intentions, ideologies, and so forth.

Conclusion

The significance of digitally mediated communication has been a longstanding issue in organisation studies. In this paper we have drawn on two theoretical streams, from structuration and sociomaterial studies, to explore the spatialities of information technology. The two concepts ‘regionalisation’ and ‘performativity’ have been particularly useful in understanding how interaction settings or spaces mediated by IT not only contextualise social practices, but also play a role in power dynamics and change in organisations. We have attempted to demonstrate that examining these two concepts together provides a deeper analysis, which takes into account both human and material agencies.

It is our view that the significance of space in processes of structuration has been overlooked by previous IS research, even prominent structurational models, such as adaptive structuration theory (DeSanctis and Poole 1994) and the practice lens (Orlikowski 2000). Their work took on the important task of importing structurational principles to the IS context, and led to a better understanding of structure and agency in technology practices. And while temporality has been explored in these studies—especially Orlikowski’s work that examines practices over time—spatialities and concepts relating to interaction settings have still remained an unexplored theme. Also, we believe the focus on technical capabilities/constraints in past studies provides only a fragmented view on spatialities, while performativity delves deeper.

In conclusion, it is hoped that our research provides an additional level of analysis to structurational studies, and shows ST’s potential to contribute to on-going discussions on materiality and agency. The sociomaterial lens of regionalised settings has allowed a better understanding of digital communication in our cases. We also present a number of findings on ICT use in organisations, which can benefit future research concerned with organisational behaviour, cultural issues, and digitally mediated environments.
References


