GENDER-SEGREGATED WORK IN SAUDI ARABIA: A STRUCTURATIONAL PERSPECTIVE ON TECHNOLOGY AND CULTURAL CHANGE

Research-in-Progress

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Abstract

This paper aims to present a cultural analysis of collaborative technologies in the workplace. It examines gender-segregated work in Saudi-Arabia, and presents two contrasting cases of IT usage that act either to enable or constrain cultural change. Using Structuration Theory, the study exemplifies the dynamic and detailed analysis this lens can provide to cultural IS research. The study also examines Giddens' theorising on the regionalisation of social interactions in time-space. By applying this in the IS context, the study attempts to provide a better understanding of the contextuality of electronically mediated communication.

Keywords: Organisations, Collaborative technologies, Culture, Structuration Theory, Gender-segregation

Introduction

The rapid changes in internet and networking technologies of the past two decades have led analysts to ponder their potential effects on national cultures. Today, different countries are adapting information technology (IT) to suit their local needs, and it has long been the interest of IS research to understand and compare these adaptations. Oddly enough, very few studies investigate IT's impact on cultural values and norms, with focus mainly being on culture influencing IT usage patterns (Leidner and Kayworth 2006). The studies that have explored this examine only macro level themes (Madon 1992, cited in Leidner and Kayworth 2006) or conduct cross-cultural comparisons (Walsham 2002); rarely looking at micro level changes occurring in a specific culture.

With regards to technology and change, IS research has accumulated a number of competing traditions. Social constructivism (Latour 1988; Law 1992; Pinch and Bijker 1984) has been invaluable in understanding enrolment processes, wherein social groups attempt to gain support for technological projects, and shape usage through collective negotiations. Structurational models (DeSanctis and Poole 1994; Orlikowski 1992; Orlikowski 2000) based on Giddens (1979; 1984) have also been highly influential, and are noted for their dynamic view of technology at work (Jones and Karsten 2008).

Yet, as Walsham (2002) points out, IS cultural studies tend to rely on Hofstede-type approaches which are, in his view, limiting in a number of respects. Hofstede's (1984) work puts much emphasis on cross-cultural differences without accounting for variations within a specific culture. It also presents a static view of culture at work, and does not attend to themes, such as conflicts among groups. Walsham proffers the structurational perspective as an approach that could potentially resolve these shortcomings.

Of course, there is a complexity involved with studying work and culture, irrespective of the analytical tools used. For one thing, cultural influences can be difficult to distinguish from managerial influences, and what is seen as cultural rigidity may actually be the outcome of management processes. The issue is further complicated where technology is concerned, as the realm of interaction is extended to electronic domains. Within these domains new forms of work patterns emerge that could have bearings on culture, either by reaffirming accepted social practices or acting counter to them. The question is, if change does occur, does it find its way to physical world encounters, or does it remain exclusive to the virtual?

The case of gender-segregated work in Saudi Arabia highlights the issues that emerge from the meshing of work, culture, and technology. In Saudi, segregation is practiced due to a mixture of cultural and religious norms[1], as interaction between unrelated genders is confined to their respective social and public spheres (Pharaon 2004). This separation permeates all areas of life including the workplace, and we find that men and women work in separate facilities, both in the public and private sector (Al-Kahtani et al. 2005; Baki 2004). Ironically, organisational structures in Saudi dictate a high degree of coordination between genders. Administrative units are typically set up to consist of two branches, male and female, with work being coordinated through mediated communication.

In the past, communication had been carried out through letters, telephone calls, faxes, and closed circuit TV (CCTV) meetings[2]. However, the late '90s brought about new practices following the wide dispersal of information and communication technologies (ICTs) (Al-Saggaf and Weckert 2004). Increasingly, we find IT being used to alleviate the complications of separate work environments, through inducing more formal and perhaps informal interactions via email, groupware, video-conferencing, and instant messaging (IM). Yet many of these uses may be seen to conflict with cultural/religious values. What is

[1] At the root of these norms lies the notion that a woman 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. In Saudi, this is seen as adhering to Islamic teachings, however, the practices of other Islamic countries differ considerably. It could be said that this conditioned interaction is a more "Saudi" specific application of religious teachings, which is based on a strict interpretation of Islamic laws.

[2] Note that the physical layout for these meetings is an audio/video transmission from the male side, with only audio from the female side.

termed "gender-mixing"[3] is considered taboo, especially if this mixing is one-on-one or unmonitored. Therefore, communication technologies that encourage culturally inappropriate interactions are frowned upon. So for example, cross-gender staff meetings mediated by video-conferencing are encouraged because of their public settings, while IM between genders is frowned upon due to the lack of third party monitoring.

By exploring the Saudi work environment, this research hopes to shed light on the cultural implications of technology use in organisations. To do this, we examine qualitatively two contrasting cases of IT usage that act either to enable or constrain cultural change. The structurational lens is used to present a detailed account of change processes, and to help understand why these changes are sometimes undetectable or confined to specific groups. It also provides a more nuanced view that includes the other social structures acting alongside technology and culture, such as management and/or broader institutional structures.

Structuration Theory, Segregated Work, and Collaborative ITs

Anthony Giddens' (1979; 1984) Structuration Theory (ST) is a theory that describes social life or society; its constitution, inner workings, and endurance or mutability. In this view, social analysis is undertaken by examining social systems and social structures. Social systems are seen as social practices which are recursively reproduced by individual and/or collective actors in a social group. Structures, which are properties of social systems, are defined as the rules and resources that actors reflexively draw upon in their social practices. In other words, actors draw upon the stocks of knowledge that determine how they conduct themselves as members of this social system, and draw upon the resources that enable them to take action within this system. In ST, the ongoing dynamic process of producing and reproducing social systems is termed structuration.

The central principle of ST, and perhaps the most significant, is the duality of structure—and consequently the duality of social life—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. The duality of structure implies that "the structural properties of social systems are both medium and outcome of the practices they recursively organize" (1984, p.25). Giddens provides a "more concrete form to the duality of structure" (1979, p.81), by describing the dimensions or 'modalities' of structuration: facilities, norms, and interpretive schemes. These modalities can be considered the channels through which social structures are enacted (Orlikowski 2000).

ST has been used extensively in IS research to delineate its more social aspects (Jones and Karsten 2008). Although Giddens' work rarely touches upon technology, IS specific models have been developed, most notably Orlikowski's (2000) practice lens. Building on earlier models (1992), Orlikowski attempts to present a non-dualistic account of technology and organisations. Technology is seen to enable and constrain human action, while human action simultaneously shapes and draws upon this technology in interaction. An important shift from previous research is the view that social structures are not embodied within the technology, but rather emergent from people's recurrent interaction with it. The notion of embodiment is problematic because it portrays structures as being material; when Giddens originally conceptualised them as being virtual, existing only through their instantiation in action.

In the practice lens, technology use, or "technologies-in-practice" are examined as social structures enacted by human agents, i.e. with a distinct set of facilities, norms, and interpretive schemes. Analysis of these structures involves examining user groups to understand their views and application of the technology. Furthermore, technologies-in-practice are seen to induce change only through mobilisation in reciprocal human action, at which point they become "reified and institutionalized" (2000, p.411).

Orlikowski's model highlights how ST can be beneficial in studying culture and IS, as culture is seen as one of the many social structures influencing, and being influenced by, a technology-in-practice. In our study on Saudi, we look at "cross-gender collaboration with IT" as a technology-in-practice in which

[3] Gender-mixing is used to describe face to face encounters between unrelated members of the opposite sex. It is also used when referring to what is considered inappropriate/informal association between genders, and extends to mediated forms of communication.

cultural norms legitimate interaction and prohibit certain forms. By examining practices pre and post implementation, we hope to determine whether a change in technological facilities can "gradually and imperceptibly [shift]" these norms and bring about change (1992, p.405). Also, similar to Walsham (2002), we exemplify the advantages of using ST in a cultural study.

In addition, we also discuss ST's concept of regionalisation within the IS context. Regionalisation describes the contextuality of social interactions and the patterning of behaviour based on different zonings of time-space. Giddens provides a useful example:

"[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).

Giddens discusses regionalisation in relation to Goffman's (1959) dramaturgy analogy[4], reiterating the notion that human interactions vary depending on their locale or setting. Yet he stresses that the differentiation between front and backstage behaviour should not be understood in terms of actors playing a role and concealing their "true selves", as this portrays people as being deceptive and fake. Instead, front and back regions are reconceptualised as zones of interaction, where individuals can alternate between autonomous and normative modes of behaviour, to serve as a form of *"psychological distancing between their own interpretations of social processes and those enjoyed by 'official' norms" (Giddens 1984, p.126).*

So what does regionalisation mean for cultural practices and communication mediums, particularly ICTs? Given their numerous platforms, it would be interesting to explore behavioural patterns in different zonings/regions of virtual spheres. For IS research, this has immediate implications, especially if we consider some other characteristics of electronic interactions. ICTs have often been noted to overcome physical and/or temporal constraints in organisations, thereby enhancing accessibility to others in different locations and time zones (Hayes 2001). Potentially, this increased accessibility, coupled with the notion of regionalised interactions, could mean a shift in work patterns and norms. How this relates to culture will be illustrated by the following cases on gender-segregated work in Saudi.

Methods

We use ethnographic methods of data collection, and conduct interviews and observations in a Saudi governmental, co-ed university. The fieldwork was carried out over a 1-year period by one of the researchers, a Saudi native with previous work experience at the university under study[5]. This experience, and the familiarity with the research context, is seen to enrich the data and provide an additional empirical resource (Allan 2006). A snowballing technique was used to locate participants, and identify cases of cross-gender teams. The majority of participants were Saudi citizens, and from differing age groups (between 26-60 years old). They ranged from deans/heads of administrations, heads of academic departments, managers, academic staff, and employees.

Observation sessions were restricted to the female campus, wherein women were observed collaborating with men, either from their offices or during meetings held in video-conferencing studios. Interviews were semi-structured; face-to-face with females, telephone with males. The interviews sought to uncover how

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[4] Dramaturgical analysis in sociology uses the metaphor of theatre to examine the constitution of the self. In daily life interactions, individuals are seen to present themselves as performers on a stage, managing encounters based on "audience" expectations and contexts of interaction (Robinson 2007). This form of analysis also differentiates between "front stage" encounters where the giving off a persona is more visible, and" backstage" encounters that are less formal and inhibited (Giddens 1984).

[5] The researcher is a Saudi female who has worked at the university for over (8) years, and held a number of administrative roles, including supervisor of the ITC (female branch) for (5) years. Over the years, she has played an active role in the phenomenon under study, and participated in numerous teams that entailed cross-gender collaboration.

different technologies were used for cross-gender collaboration, their perceived role and usefulness, as well as cultural attitudes (positive/negative associations, taboos, etc.). Overall, a total of (37) interviews and (9) observation sessions were conducted, each lasting between (1-2) hours. Observations were recorded by note taking, while interviews were audio recorded, transcribed, and translated from Arabic to English. From this data, we discerned (9) cases, (2) of which we present in this paper.

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. For clarity of presentation, we review the literature prior to the discussion of the research setting and our findings, although we examined it throughout this research as data collection and analysis indicated its theoretical relevance.

Case 1: Administration [A]

Administration A is an administrative unit that provides a number of academic and extra-curricular services to university students, academic staff and employees. It consists of two branches—male and female—situated in separate university campuses. Throughout the years, the unit has oscillated between the subordination and autonomy of the female branch. At present, the unit is headed by a male manager responsible for the general supervision of both branches; with a female manager to supervise the female branch, which consists of a coordinator, (7) service experts, and (2) secretaries. Work is carried out with a high degree of co-ordination between the two branches, but without face-to-face communication. We focus here on the work practices of the two managers (male/female) and the coordinator (female), who act as liaisons between branches. This team of three are our key sources for the following case.

Technology-in-practice (Pro-collaborative, Enabling Cultural Change)

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 and projects in the female branch. Communication can be carried out through various channels, e.g. formal letters, telephone and emails. Despite being strictly prohibited, the team interacts extensively through IM, as their preferred methods are a mixture of interspersed and sporadic telephone and IM conversations. Furthermore, and as a way to enhance this communication, the team makes use of a shared network drive which serves as an archive for different media files and software. For example, the coordinator describes how she collaborated with the male manager to produce their new budget for the coming year. After placing a draft of the new budget in a shared folder labelled 'Budget', she leaves him an IM asking him to look over the file and get back to her. A short while later he sends her an IM, telling her that he has seen the file and would like to go over it with her by telephone when she is not busy. After confirming that they are both free for a discussion, the manger telephones her and they begin working on it together. She explains:

"The share 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 capabilities of one medium help overcome the limitations of the other. Throughout the course of a given workday, the team use this ad-hoc method of communication to maintain a link with the counterpart branch. IM's asynchronous capabilities allowed them to determine the "presence" and availability of the other party, and it was also used to send quick messages and requests. The telephone was needed for more detailed and lengthy discussions. As for the shared drive, this was used to store as well as mediate information. In a sense, the three mediums served to create a virtual meeting space for the team, in which they could "see" the other party, communicate with them, and pull up different work material to discuss and collaborate on.

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 cross-gender 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 did not merely facilitate an increase in communication between genders, as it was also used by them to socialise more with one another. This was particularly evident during the observation of the female coordinator collaborating with the male manager. The two had been working together to update the administration's website using the mediums previously mentioned (telephone, IM, and shared drive). They began the day's work by having a brief telephone conversation, and the female coordinator was speaking in a reserved and formal manner. There was no exchange of any 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 for about five minutes on the phone, it was only when they logged on to IM that they exchanged pleasantries. The male manager began the IM session by greeting her and asking how she was doing. He then gave her some encouraging words, telling her she was doing an excellent job in making sure things were running smoothly at the female branch. The IM session also included the use of smileys (emoticons), and the two 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 they had only exchanged pleasantries through IM, and at first she was perplexed because she had never noticed this before. She then stated that this was probably what usually happens; a formal telephone call with no greetings or any type of social exchange, followed by an IM interaction that was more relaxed and less inhibited. This reserved mannerism over the telephone is not uncommon in Saudi, particularly with conservatives, who often prefer communicating discursively through letters or email. The giving off of less social cues in discursive communication is what deems them appropriate in comparison to the telephone, which involves more of the presence associated with face-to-face interactions (voice, laughter, …etc.). Interestingly, the lack of social cues—and consequently the need to compensate—may be the reason why the team were more sociable in IM interactions. This increase in sociability can be considered an unintended consequence of technology use.

The Regionalisation of Virtual Interactions

Upon incorporating a new technology into their work routines, actors begin developing mental frameworks to help guide future use (or non-use) of this technology. These frameworks, or schemas, are comprised of different knowledge, skills and attitudes (Gioia and Poole 1984). In case 1, the primary schema guiding usage is ideologically/culturally rooted, and therefore we focus on this schema while foregrounding others, such as organisational and task related schemas.

Within the university, it could be said that there are three prevailing attitudes regarding ICT cross-gender interaction: conservative, moderate, and liberal. These attitudes typify the general ideological schemas prevailing in Saudi, as they represent widely held classifications of individuals and social groups based on cultural and/or religious views. *The conservatives* adhere to extreme rules that are against gender-mixing. Their view is that communication can be carried out by formal methods alone. *The moderates* engage in communication but to a limited extent, as they partake in it for purely pragmatic reasons. In their view, genders can communicate with any medium, as long as this remains formal and appropriate. As for *the liberals*, this group encourages communication and interpersonal relations between genders, and promotes using a wide range of mediums. Liberals can be considered the change advocates and the technology enthusiasts.

Now the claim here is that individuals—in their use of a given technology—enact schemas contextually. The significance in this is not the enactment of multiple schemas, but in that these schemas are ideologically conflicting, if not opposing one another. To exemplify this, we examine how the team members enacted different 'cross-gender communication' schemas, which varied depending on:

1. The communication medium used: In their interactions with each other, the team members enacted different schemas when switching from one communication medium to another. This was evident in the observation session previously discussed. While on the telephone with the male manager, the female coordinator spoke in a reserved and formal manner, enacting a conservative schema. Yet once they switched to IM, the textual conversation was less formal, and included

pleasantries and smileys. Therefore, the schema enacted through IM can be characterised as moderate/liberal.

2. The social bandwidth of interaction: From the interviews and observations, the male manager was interacting on a daily basis with the females through IM in a proactive manner, and was using it not only to communicate, but as a means to develop a more collegial relationship with them. Yet 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"*. This indicates that the male manager enacted different schemas with two individuals. The first, in his interactions with the female coordinator, as he enacted a moderate/liberal schema, and proactively used IM to communicate and collaborate with her on projects. The other schema was evident in his interactions with the researcher, as he relayed his attitudes and experiences regarding communicating with females. The manager was reluctant to go into too much detail about IM, and his responses to questions about "electronic interaction" tended to underplay the use of IM and focus more on the shared drive and email. When the manager finally did discuss IM, it was to relay apprehensions regarding its social implications. This contradiction between discourse and action leads us to conclude that he was enacting a conservative schema with the researcher, and a moderate/liberal schema with his team members. In other words, his schema varied when dealing with people outside the team, i.e. in more public settings.

Virtual Back Regions

The contextually enacted schemas from the case can be seen as alternations between front and back region behaviour. In interactions that were more public or visible to others, the team members' schemas were in line with organisational/cultural sanctions, and of a conforming nature. These can be characterised as front region interactions. However, in the more confined and unmonitored virtual interactions, namely the IM chats, behaviour was autonomous and less inclined to follow norms. Therefore, we can consider the IM chats as back region interactions.

Furthermore, the back regions provided by IM enabled team members to tap into important resources for their work. For example, the male manager used IM in order to collaborate with the females (a resource), and maintain a connection that was vital for his work. In his role as supervisor of the female branch, he needed to be kept up to date about the activities and new events on the female side. As opposed to the front region interactions of the telephone, IM allowed the team to engage in a more flexible manner while increasing their accessibility to one another.

Case 2: Deanship [B]

The second case involves the work practices in one of the university's main deanships, which we refer to as deanship B. Deanship B can be described as centralized in its management, with strictly defined rules for members contacting each other. The deanship is comprised of male/female counterpart branches, with each branch consisting of a main office and three functional units. Each main office has supervisors in charge of all units, and each unit is headed by a unit manager. For this case, we interviewed (2) female supervisors, (5) unit managers (2 male, 3 female), and (3) unit workers (2 male, 1 female).

Despite there being corresponding male/female units, management has discouraged contacting the other side. Therefore, collaboration between genders is kept to a minimum. A number of reasons have been presented for this "limited communication between genders" rule. One was given by the female supervisor, who stated that she had banned all contact between her female staff and the males. She explained that, in the past, excessive contact had resulted in problems. For example, she relayed an incident in which some of the male employees had received raises to their salary, while the females had not. One of the males then contacted a female colleague and informed her of this, encouraging her and the rest of the females to speak up and confront management with the differences in salaries. This had caused conflicts between management and staff, and led the females to lose trust in their superiors. Therefore, the female supervisor was of the opinion that controlling communication would help minimize these types of conflicts in the future.

The female unit managers were displeased with this "limited communication" rule. They argued that collaborating was crucial to their work, especially since the male branch was considered headquarters, with much of the decisions and new projects originating from there. The female unit managers blamed the male side for this, and felt that they were not really concerned about what happened in the female branch. They explained that the men usually ignored their email requests and telephone calls, except in urgent situations. Although the decision to limit communication was issued by both male and female supervisors, the female unit managers were oblivious to this, and resented their male colleagues instead.

The male department presented a different perspective. The unit managers felt that the two branches were independent of each other, and that there was no need for communication between them. They felt that the women were competent, with plenty of experience in the field, and were therefore capable of running things on their own. The men also stressed that, contrary to what the women have reported, there was absolutely no contact between the two sides.

Technology-in-practice (Anti-collaborative, Inhibiting Cultural Change)

From the interviews, we have discerned two instances of cross-gender work with IT. We focus our attention here on one instance, an Oracle task management system designed specifically for the deanship. The system was implemented with the purpose of tracking service requests received by the deanship, which are to be carried out by the three units. Most importantly, the system enables management to monitor work that requires coordination between the male and female units. Each service request is entered into a recording sheet, and continually updated until it can be marked "task complete". The recording sheet includes drop down menus that detail information about the department requesting the service, employees delegated the task, as well as important dates and deadlines. However, the sheet leaves little space for comments or logging.

When asked about the Oracle system, a female employee reported she was quite happy to have this link to the male side:

"At least now we have this link with the men, this point of reference, to find out what's been accomplished regarding specific services we've requested. Before, we'd have to keep checking up with them, and reaching them by email or telephone was very difficult. This way we don't have to keep asking, have you finished this request? What have you done regarding so and so?".

On the negative side, she explained that the limited space for comments meant there was minimal interaction between the two sides. Also, more often than not, she had no idea who was reading her entries or filling in the sheets on the male side. Yet she still felt this was an improvement to the situation prior to using the system.

The head female supervisor—who had authorised the "no communication rule"—was also pleased with the system. She explained that it was mainly for monitoring purposes. The male supervisor could now be kept up to date about the females' work simply by logging on to the Oracle. To her, this also meant that there was an increase in her team's visibility, as their hard work and efforts could now be "observed" by the male supervisor. When questioned about her reasons for restricting communication between genders, she stressed that this had nothing to do with negative cultural implications:

"It's just not necessary. The girls have absolutely no need to contact the men. They have me here, and I'm authorised to contact the male supervisor to relay any problems. Everything else is handled through the system. Why would there be any need to contact them?".

Our interviews uncovered other instances of cross-gender collaboration, such as the use of remote networking tools, but these were only acknowledged by the female employees. The male employees denied these claims, insisting that work was coordinated solely through the branch supervisors, who serve as middle managers between the two sides.

IS and Managerial Control: Sustaining Front Region Interactions

In case 2, the schemas guiding cross-gender collaboration are rooted in managerial attitudes. These attitudes are related to the *integration* or *disintegration* of work practices between the male and female branches. The general supervisors enacted a disintegration schema, as they prohibited direct cross-gender

communication. Along with these two supervisors, the Oracle system also helped maintain separation by gatekeeping, and rendering direct communication unnecessary. Interestingly, this technology-in-practice reinforced cultural norms of segregation, although its actual motivations were driven by managerial efforts to monitor and control employees.

From the case analysis, it is evident that any cross-gender interactions that do occur through Oracle are formal and front region. This is ensured by management through the monitoring function ingrained in the system. In spite of regulations, the females did attempt to communicate through other mediums, but were met with rejection from the male side. This can be seen as an attempt to enact an integration schema, and interact in back regions to access a resource, i.e. a link to the male employees located at deanship headquarters.

Discussion and Conclusions

The previous cases illustrate the level of detailed analysis a structurational lens can bring to cultural IS research. Orlikowski's technology-in-practice model helped guide the analysis, by identifying and accounting for cultural changes that resulted from technology use. In case 1, the ad-hoc system led to an increase in the team's collaboration, and facilitated more interpersonal interactions. This echoes past structurational research by Karsten (2003), which examines how ICTs are implicated in the interdependence of work relationships and work tasks. The study found that the situatedness of mediated communication and its simulation of co-presence can offer an alternative means for social integration. Furthermore, the persistence of this integration, and its endurance across time-space, is seen to be enhanced by shared archives, which can be drawn on to inform present and future work practices.

The first case also allowed us to explore the concept of regionalisation in relation to ICTs. Similar to physical encounters, electronic interactions were found to be zoned differently in virtual time-space. The team members' behaviour and schemas differed depending on a number of contextual factors. Cross-gender encounters in the more reclusive settings of IM were less formal and allowed the team to deviate from their traditional practices. These IM sessions were characteristic of back region encounters, and cultivated many of the changes we observed. However, the reclusiveness of these encounters may also be what has hindered a wider scope of change. Among the university members interviewed, we only found (3) other teams that reported practices similar to case 1.

Giddens (1984) elaborates in-depth on back regions, describing them as critical to the balancing of power in asymmetrical relationships (Nandan 1998), i.e. critical to 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 explain that, in situations where behaviour is strongly sanctioned and monitored, subordinated groups can use back regions as a resource to regain some control.

In case 2 we are shown the opposite, in that strict managerial policies act to deter back region encounters between genders. The task tracking system implemented by management supplements these policies, and acts to formalise any communication between branches. In this sense, interactions between genders were brought front region, especially since it was common knowledge that the system was being monitored by supervisors. It is worth noting that, this ability to formalise communication, disturb power balances, and increase visibility has been demonstrated by past research on ICTs (Hayes 2008; Hayes and Walsham 2000). In addition, case 2 draws attention to possible misconceptions. Research often conceptualises culture as an independent variable, evolving separately from other organisational phenomena. What is needed is a view that is attuned to the mutual shaping of culture and management. For our case on Saudi, this means that although gender-segregation originates from culture, it is now a managerial issue that is continuously shaping and being shaped by managerial processes.

In conclusion, as this is a research-in-progress, future plans to develop the study include examining other ICTs that are implicated in changes to the Saudi workplace. The data collection phase has been completed, and we have numerous cases on video conferencing and its use to facilitate administrative meetings between genders. By examining this technology-in-practice—how it is perceived and used among diverse groups—we hope to shed further light on the concepts and themes presented in the study.

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