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Information artefacts in practice: institutional context and self-awareness in enactment of collective affordances

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Summary

This paper aims to explore the importance of designer's perception of the user's/practitioner's habitus (institutional context) and how this perception misalignment with the user's habitus (institutional context) in the case of information artefacts (configurational in nature) brings forth collective affordances and introduces new forms of self-awareness to potential interruptions. Our discussion introduces two theoretical contributions. First, by exploring the specialised practices related to information artefacts in particular institutional context of Iran, we highlight the role of the designer's perception of the user's/practitioner's institutional context in appropriating these artefacts and actualising 'collective affordances'. Second, by looking at the appropriation processes of these configurational information artefacts, we describe how the misalignment of this perception with that of the user's/practitioner's institutional context initiate the new forms of self-awareness among practitioners.

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Introduction

The burgeoning discussions of sociomateriality have been the centre of organisational and Information Syestem (IS) studies (Leonardi, 2013a). Sociomaterial perspective, moving away from views of technological determinism or social determinism, considers that the social and material are entangled in practice (Orlikowski, 2007, Orlikowski, 2010). In order to understand this entanglement, several scholars (Fayard and Weeks, 2014, Robey et al., 2012, Faraj and Azad, 2012), in their nuanced discourses, gave proposed the concept of affordances as a useful lens to understand the dynamics of the constitutive entanglement of the social and the material in organisational practices. Although Fayard and Weeks (2014) and Jung and Lyytinen (2014) have usefully pointed out the socio-cultural environment of the users, the role of socio-cultural context of practice deserves further exploration, particularly with regard to information artefacts (Kallinikos, 2011), which mainly involve with storing, processing and communicating information. By presenting a multiple case study conducted in specific institutional environment of Iran, we discuss how users (practitioners) in one institutional environment practice collective affordances while appropriating information artefacts. In our discussion, we draw attention to how the way that designers of information artefacts perceive the users'/practitioners' habitus (institutional context) plays a role in their practice and how misalignment between the designers' perception and practitioners' habitus leads to enactment of collective affordances and new forms of self-awareness.

Theoretical background

Introduced by Gibson (Gibson, 1979), the concept of affordances was entered to discourses on technology most remarkably by Norman (1988, 2013). While Gibson's definition of the concept emphasises the relational nature of affordances, Norman's (1988) definition considers affordances as inherent properties of the artefact that are embedded by designers. However, other researchers established the understanding of affordances as being relational in nature (Hutchby, 2001, Stoffregen, 2003). This understanding parallels with Norman's latest work which define the concept as "a relationship between the properties of an object and the capabilities of the agent that determine just how the object could possibly be used" (Norman, 2013, p.11). Thus, this relational view of affordances is particularly relevant in bridging the social and the material (Leonardi, 2013b, Treem and Leonardi, 2012, Leonardi, 2011).

Leonardi (2013b) in his empirical study of affordances draws attention to the organisational context of technology use and users' distinct goals as important factors that shape the way that they appropriate technology features and consequently actualise different technology affordances. In this regard, Leonardi (2013b) introduced the concepts of 'individualised affordances', 'collective affordances', and 'shared affordances' (p.752). 'Individualised affordances' are actualised as one individual enacts the technology distinct to others in her social group. 'Shared affordances' are common among all members of a social group. 'Collective affordances' refer to the affordances that are enacted collectively by members of a social group and enable them to fulfil the work that otherwise may not be possible. According to Leonardi (2013b), the occurrence of 'collective affordance' is more likely when the work is highly specialised and the use of the technology features by group members to establish a configurational structure diverge from each other.

Fayard and Weeks (2014) proposed an integrative practice-based perspective of affordances that posits them as both dispositional and relational because this understanding enable researchers to explain organisational practices as comprising human actors and material artefacts that goes beyond the social and material dualism. While from its dispositional view,

affordances are inherent in the artefacts that are actualised when perceived, from its relational view, affordances emanate when an individual with certain goals, social and biological characteristics enact the "socially and materially constructed environment" (Fayard and Weeks, 2014, p.243). Although they usefully propose the notion of 'habitus' (Bourdieu, 1990) to complement the 'affordances' concept to understand the role of social structure in shaping practices; the role of socio-cultural or institutional environment on the perception of affordances and use of material artefacts is still not clear. This is because this institutional environment of users is distinct from that of designers who, according to Norman (2013), embed the features and affordances of the artefact (dispositional affordance). In this regard, we need to elaborate on the concept of 'organisational practice' to see how affordances are enacted and actualised in practice.

Following Yanow and Tsoukas (2009), we characterise organisational practice with the following three aspects: firstly, it is governed by rules (Knorr-Cetina, 2001, Schatzki, 1996) in a timely manner. Secondly, every organisational practice needs participants to have reached a certain level of standards and quality of operational knowledge. Finally, every specific organisational practice is set to achieve an objective which is not obtainable by other practices. Adopting a phenomenological lens (Yanow and Tsoukas, 2009) to organisational practice allows us to focus on a broad set of activities and the interplay of different social and material actors instead of highlighting individuals (Tsoukas, 2005), their single characteristics and positions.

Whilst different studies (Schatzki et al., 2001) have paid enough attention to the awareness level of different actors and participants in the practice, the collective affordances of artefact by these participants on their level of self-awareness has not attracted enough attention yet. Dreyfus (1991) notes self-awareness in practice is highly associated with stopping and interrupting it. He believes non-stop flow of a practice leads participants not to perceive themselves detached from it. Drawing on phenomenological view to practice, three types of interruption can be outlined: malfunctioning, temporary breaking down and fully breaking down (Dreyfus, 1991, Yanow and Tsoukas, 2009). They argue for every type of interruption, participants use specific type of coping. Knorr-Cetina (2001) shows that the instance of self-awareness starts by slight material malfunctioning as it can detach the participant from the context of practice. Dreyfus (1991, 2001) notes the instance of material breakdown which results in complete separation of materials and artefacts from practice and consequently proceeds to more knowledge of self by the participants as the role of the material is seen detached from the role of participant more clearly in this circumstance.

While these researchers have usefully discussed the breaking and interrupting of practice as a result of material malfunction or breakdown, they disregard how the distinction in socio-cultural and institutional context of technology designers and users can affect the way that the users perceive affordances and actualise 'collective affordances' especially in the case of configurational technologies such as information artefacts.

Methodology
This paper is part of a larger study that examines practices related to information artefacts in Iranian organisations. The data collected at the time of this writing is based on six organisational case studies. The details of the organisations have been summarized in Table 1. These organisations have been selected considering the following reasons. First, all organisations were based in Iran because societal and institutional context of Iran provides a unique setting for the purpose of this study. The lack of institutional linkage between Iranian organisational users and famous Enterprise Package suppliers in Western countries has made

Iranian organisations interesting cases for this research. Second, they include multiple industries to make our results analytically generalisable (Yin, 2009) at the societal and institutional level instead of at an industry level. Third, information artefacts are the main materials in their normal practices.

In this stage, we have conducted 25 semi-structured interviews with experts in IT departments with heavy use of enterprise packages and analytics across the six organisations. In order to get more insights into the practices of the departments, we chose to also analyse documents including reports on the implementation of technology and organisational profiles among others. In addition, interviews with independent enterprise package consultants in Iran's IT market have been arranged. In terms of analysis, the interviews have been transcribed and translated to English. First, we have extracted different instances of problems and difficulties which the interviewees experienced using appropriated and implemented enterprise packages in their normal practices to gain an initial interpretation of these malfunctions/breakdowns (Walsham, 2006). Second, in order to provide in-depth insight, the second order coding was conducted using NVivo 10 software.

Table 1- Empirical cases

Organisations	Type of the business	Field (core activity)	Industry	Size of the organisation	Interviewees
Organisation A	Online Store	Selling electronic gadgets and products online	Online retailer	Small (15 employees)	Co-founders, SEO experts
Organisation B	University	Academic Education	Education	Large university (more than 5000 students)	Developers & researchers (who published university data on Linked open data cloud)
Organisation C	Online Publishing (App)	Providing Farsi books through an application on smart phones	Publishing	Small (20 employees)	Founder, Developers
Organisation D	Private bank	Providing banking and financial service in Iran	Finance and Monetary	Large bank with 159 branches in Iran (~ 2,300 employees)	CRM head, CRM experts, CRM developers
Organisation E	Manufacturing	Manufacturing automotive parts	Automotive	Large company (~ 5000 employees)	IT department head, System administrators, Developers, Finance department head
Organisation F	Retailer	Producing vegetable oil	Food industry	Medium company (~ 500 employees)	IT department head, System experts, Finance department head

Findings

The initial phase of data analysis demonstrates that all of the cases have faced different types of malfunctioning/breakdowns upon the appropriation and adaption of the Western developed applications (information artefacts). All of them could finally implement the applications and overcome the initial technology breaking down and malfunctioning, despite the lack of support from original artefact designers and suppliers. They employed local developers to assist them in implementing the technologies. These local developers provided them temporary solutions such as a Farsi interface to make use of these technologies. As most of these applications were closed-source and local developers did not appear to have the knowledge that the artefacts designers had, the solutions were not considered highly reliable. It was brought to our attention that these applications would often crash during their practices especially if the original designer released an update. For example, Organisation F told us that the release of Microsoft Windows patches had implication for their local applications, especially those which were based on MS SQL Server. The head of organisation F's IT department noted that their employees especially those whose practices are heavily relied on their systems are alerted to this breakdown.

Our findings suggest that the practitioners' experience of these incidents have caused them to perceive the number of incident would be more than normal, therefore, they could not see the artefact totally transparent in the context of their practices. All these six organisations have shown significant interest to use information artefacts from well-known designers rather than domestic ones due to the technological deterministic view that is prominent in Iran. But specific institutional context of their practices, lack of communication with the Western designers and consequently their often unexpected experience of technological malfunction have led to misalignment in their perception of the artefact with that of the designer. Similarly, all of case studies indicate that this perception of the appropriated technologies made them more aware of their own roles in the practice.

Discussion and conclusion

By exploring the specialised practices in using information artefacts in one particular institutional context, we build on the literature of affordances, especially the insightful work by Fayard and Weeks (2014) in considering 'habitus' as a complementary concept to integrative view of affordances. We also draw attention to the ways that differences in institutional environments (habitus) of these artefacts' designers and users (practitioners) bring forth the readiness of users (practitioners) for interruptions in practices and consequently self-awareness about their own roles even before occurrence of any interruptions. Thus, our findings in this stage suggest that:

a) While the 'habitus' or socio-cultural context of practice should be considered as complementary to affordances (Fayard and Weeks, 2014), the designer's perception of this 'habitus' or the socio-cultural (institutional) context of the users (practitioners) of the artefacts should be considered. This highlights Norman's (2013) consideration of the role of designers in the ways that users perceive affordances and enact them through practice (i.e. relational view of affordances).

b) The implication of this misalignment between user's (practitioner's) institutional context and the designer's perception of this context becomes more significant in the case of configurational artefacts (e.g. information artefacts) that can be used in various configurations (Leonardi, 2013b). Therefore, this misalignment in designer-user institutional context may cause the user to perceive, appropriate, and enact the materiality of the artefact differently from the intention of the designer and consequently actualise 'collective affordance' (Leonardi, 2013b).

c) The enactment and actualisation of collective affordance can, however, be reinforced by malfunctioning during implementation and afterwards. Our study shows that practitioners try to solve these issues by modifying the rules of the practice slightly to make the appropriated technology transparent in the practice. Although they may be successful in this process, the perceived meaning of technology which they have constructed from this situation keep them alerted to malfunctioning. Its implication would be a permanent self-awareness (Knorr-Cetina, 2001) of their own role in the practice.

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