Effects of 'Fit' on Email Overload

Emergent Research Forum (ERF) Paper

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Introduction

An important consequence of the changing nature of work is that electronically mediated communication is a central attribute of the modern workplace. Studies suggest that white-collar workers (e.g. managers and professionals) spend about 40-60% of their day in such communication with co-workers (e.g. Dabbish and Kraut 2006), most widely through email (e.g. Barley et al. 2011). However, a key characterization of email is that it is associated with a number of negative aspects, most prominently 'email overload' (Whittaker and Sidner 1996), described as the individual's perception of being submerged by emails that s/he considers too numerous to handle (e.g. Dabbish and Kraut 2006).

Email overload has been the subject of much study because it is a theoretically interesting phenomenon in its adverse effects on key job aspects, such as job burnout, work overload, productivity, and job commitment (Barber and Santuzzi 2015; Brown et al. 2014; Mano and Mesch 2010; Reinke and Chamorro-Premuzic 2014, Jackson et al 2001). Yet it continues to be a practically vexing one because it has proved intractable to manage. As evidence of the latter, policies that many organizations have adopted, such as shutting down email servers after a typical 5pm close of day or penalizing after-hour email use, have not been well-received by all employees[1]. Further, people use email even if they don't want to (Barley et al. 2011) because they perceive it as being the 'default' medium of communication their colleagues use, leading to unwanted email use. All of this suggests that email overload may be influenced by a lack of fit between individuals' and their co-workers' communication needs. However, the email literature, while considering email use related and organizational antecedents of email overload (e.g. Barley et al. 2011; Dabbish and Kraut 2006; Mano and Mesch 2010), *does not examine antecedents related to the appropriateness or fit of email as a communication medium for and between different employees in the organization*. The objective of this paper is to thus answer the research question – ***how does the fit experienced by individuals regarding their use of communication technologies influence email overload*?**

The concept of fit with respect to the use of Information Systems (IS) has been examined as 'task technology fit', defined as the extent to which the features of a given technology are in accordance with the requirements of the task that use of the technology accomplishes (e.g. Goodhue and Thompson 1995). Drawing on fit studies in organizational behavior, we additionally conceptualize and define 'Person-Person Technology Fit' (PPTF) with respect to the use of IS for organizational communication. We then hypothesize the effects of both types of fit on email overload. In this research in progress paper, we present the literature background, hypotheses development and initial analysis results from analysis of survey data from 134 white-collar employees of a food products manufacturing organization in the UK, who regularly use email for workplace communication. Specifically, we report on the content, convergent and discriminant validities of the constructs that form our hypotheses. If the paper is selected, we will present at the conference, these and additional results based on ongoing analysis.

Literature Review and Theoretical Development

In this section, we first present literature background on email overload and task technology fit. We then draw from fit concepts in the organizational behavior literature to theorize the concept of Person-Person Technology Fit.

[1] https://www.ft.com/content/db43b57a-1fd6-3045-b299-fb4bb9b647f8#myft:saved-articles:page

Email Overload and its Antecedents

Studies show that individuals can have negative cognitive perceptions about email. Primary among these is email overload, defined as 'too much email' that is overwhelming to the individual (Dabbish and Kraut 2006; Whittaker and Sidner 1996). Individuals also perceive email as a stress creator (Barley et al. 2011) because it creates additional work requests (Bellotti et al. 2005). Such requests "cause people to shift gears and to add new tasks to their current stack." (Dabbish and Kraut 2006). Further, email is perceived as distracting because it interrupts. In addition to the time spent reading and managing messages, employees require, on average, 64 seconds to resume work after having been interrupted by an email (Jackson et al. 2001). Moreover, they often do not return directly to the same task, engaging instead in other activities (Mark et al. 2005) and taking considerably longer to complete the original task. Overall, email has been characterized as a "fire hose" (Barley et al. 2011). Individuals have been concerned about how to handle the sheer volume of email they receive and the extra work it creates.

Email use related antecedents of email overload include time people spent handling email (Barley et al. 2011), ambiguity/emotional content (Brown et al. 2014) of email messages, and frequency of checking (Mano and Mesch 2010). The higher the level of these factors, the greater the email overload perceived by the individuals. Organizational antecedents of email overload include the perceived importance of email for work in the organization (Dabbish and Kraut 2006), lack of organizational segmentation norms of keeping work and home lives separate, and quick response time and high work availability expectations (Barber and Santuzzi 2015; Fenner and Renn 2010). These factors place pressure on individuals to engage in higher extents of email use. The literature *does not examine antecedents related to the fit of email as a communication medium for and between different employees in the organization*.

Task Technology Fit (TTF)

The concept of fit with respect to the use of IS for a particular task has primarily been discussed as 'task-technology fit' (Goodhue and Thompson 1995). Task-technology fit (TTF) is the degree to which a technology assists an individual in performing his or her organizational tasks. It is the correspondence between task requirements, individual abilities, and the functionality of the technology. TTF has been investigated with respect to the use of specific applications, such as quantitative information analysis in managerial tasks (Goodhue 1998), group decision support systems (Zigurs and Buckland 1998) and knowledge management systems, and to specific organizational contexts such as virtual teams (Maruping and Agarwal 2004).

Conceptualizing Person-Person Technology Fit (PPTF)

However, when considering workplace communication applications, we note that these are social technologies that mediate the interaction *among* multiple employees. Hence, considerations of fit, in addition to that between the task and the technology, should also address the matter of matching the communication preferences of employees vis-à-vis one another. In this connection, the organizational psychology literature is illuminating, in its conceptualization of a person-group fit, as the compatibility between an individual and his or her workgroup (Kristof 1996). This is a relatively underexplored concept. Pertinent to our study, Shin (2004) suggests this type of fit as an important consideration in teams that communicate primarily through technology. We therefore suggest the concept of PPTF as the extent to which the individual perceives that s/he is familiar with the preferred communication applications of colleagues and communicates with them using the relevant applications, and vice versa.

Hypotheses Development

Based on our initial theorization of fit with respect to use of IS as an antecedent to email overload, we next frame our research hypotheses linking the two fits considered above, TTF and PPTF, with email overload .

TTF in respect of a particular IS or application is associated with beneficial outcomes such as improved performance of the individual for the task to which the IS is applied, and system utilization (Goodhue 1998). TTF is also an important determinant of whether systems are believed to be more useful, more important, or easy to use (Goodhue and Thompson 1995), which generates positive attitudes and beliefs about the system (Dishaw and Strong 1999). That is, if the IS provides a good fit with the task, users

should perceive that it is useful for that task and should have a positive attitude about it. Drawing from this logic, it is possible to suggest that when the individual perceives email to have a high fit with his or her communication needs they would use it to beneficial communication related outcomes. Further, they would have a positive attitude toward it. Thus, the perceived email overload, which is a negative attitude toward email, would be low. Research suggests that it is not the email application per se, but whether or not individuals use it to effectively address their communication needs with colleagues, that contributes to email overload (Barley et al. 2011; Dabbish and Kraut 2006). Thus, we frame Hypothesis 1 as:

H1: The higher the extent of Task Technology Fit, the lower the extent of Email Overload.

Subjective norms such as peer influence and supervisor influence affect the use of IS (Taylor and Todd 1995). Similarly, in the case of use of communication applications, effective communication between individuals relies on common ground (Clark and Brennan 1991), that is, collaboratively constructed norms and assumptions that support their interaction. Effective human communication observes social rules. Individuals tend to conserve their cognitive resources and thus seek to develop mutual communication patterns that are predictable (Ramsay and Renaud 2012). There is evidence, for example, that employees' smartphone use is influenced by their colleagues' use (Derks and Bakker 2014). Email is fundamentally an interpersonal communication application (Dabbish and Kraut 2006) and recent studies (Stich et al. 2017) show that when colleague's preferences of their choice of communication applications differ, email overload is experienced. A high PPTF would indicate that the individual is aware of their colleague's preferences for communication, and would not use email by default. They would use other appropriate media such as document sharing and video conferencing applications, thus reducing use of email. Thus, the incidence of unwanted email use would be less, leading to less email overload:

H2: The higher the extent of Person-Person Technology Fit, the lower the extent of Email Overload.

Methods

We collected data from employees from one food manufacturing organization who extensively use email and other IS applications for organizational communication. Our respondents were white-collar workers from different departments including marketing, communication, sales, finance, and supply chain. We received an email list with 151 employees the organizations' HR department and sent a link to the survey. Employees were informed that participation was voluntary and that their responses would be treated as confidential. 134 valid responses (see Table 1 for key demographic characteristics) were returned (34.3% male/65.7% female), representing a response rate of 89%.

Age	Below 26	17.9%	**Education**	Secondary	9.0%
	26 to 35	32.8%		Further	17.2%
	36 to 45	36.6%		Undergraduate	11.9%
	46 to 55	11.2%		Graduate	41.0%
	56 to 65	1.5%		Post-graduate	20.9%

Table 1. Sample Characteristics

Email overload was measured using a combination of items from Renaud et al. (2006), Brown et al. (2014) and Sumecki et al. (2011). Task technology fit (TTF) was based on Goodhue and Thompson (1995). PPTF being a new construct, we developed the items for it. See Table 2 for items, means, standard deviations and reliabilities. The results of the exploratory factor analysis show three factors accounting for 76.6% of the total variance and therefore good discriminant and convergent validities (see Table 2).

Ongoing Analysis and Conference Presentation Plans

We present our preliminary analysis done with SPSS below. Ongoing analysis is focused on measurement models and hypotheses testing, which we will present at the conference. The constructs in our model show good discriminant and convergent validities. This is an important validation and encouraging finding, given that we (1) developed one new construct – PPTF; and (2) drew from two diverse and *previously theoretically unconnected domains* for our other two constructs – TTF and email overload.

Item	Mean	Standard Deviation	EFA		
			PPTF	TTF	EMO
Person-Person Technology Fit (PPTF) (Reliability = 0.72)					
My colleagues do not know which communication medium I prefer to use. (PPTF1) ***–reverse coded***	3.01	1.20	0.822		
I do not know which communication medium my colleagues prefer to use. (PPTF2) ***–reverse coded***	2.86	1.08	0.899		
My colleagues send me documents through email when they could better use another communication document sharing software (e.g., SharePoint, portal, ERP, Skype for Business). (PPTF3) ***–reverse coded***	2.58	1.27	0.575		
Task-Technology-Fit (TTF) (Reliability = 0.91)					
My company provides me with technologies that are not useful for communicating with colleagues. (TTF1) ***– reverse coded***	4.17	1.06		0.922	
My company provides me with technologies that are not useful for my work. (TTF2) ***–reverse coded***	4.14	1.10		0.921	
Email Overload (EMO) (Reliability = 0.84)					
I face email overload at work. (EMO1)	4.07	1.33			0.872
I find email distracting. (EMO2)	4.34	1.78			0.815
I find email to be a source of stress. (EMO3)	3.92	1.36			0.859
Note: Likert scales ranged from 1=*strongly disagree* to 6=*strongly agree*. Loadings below 0.4 are not displayed.					

Table 2. Measurement Items of Fit Constructs and Email Overload, Their Mean, Standard Deviation, and Reliability (Cronbach's Alpha), and Exploratory Factor Analysis (EFA)

Expected Theoretical Contribution and Implications for Practice

Our study makes two theoretical contributions. The first contribution is to the literature on email overload. This literature has primarily considered antecedents of email overload such as the content and frequency of email and organizational norms regarding email use (Brown et al 2004, Dabbish and Kraut 2006). We introduce two new antecedents of email overload – TTF and PPTF. TTF directs attention to the fact that a high-perceived fit of email applications with the individual's communication tasks will likely be associated with low email overload. The concept of PPTF considers that individuals' mutual preferences with regard to the use of communication applications can also reduce email overload. These concepts of 'fit' are theoretically novel because they highlight the importance of a 'match' between the individual's task characteristics and email, and between colleagues' mutual preferences for using email. These ideas have not been considered in the literature. Our second contribution is to the literature on IS related fit. This literature has so far considered only the fit between *task and technology*. We theoretically advance this literature by introducing the new concept of PPTF. This is a socially oriented fit that signifies *technology related fit between individuals* rather than between the individual and the technology. Future research can extend our study by examining the antecedents and other outcomes of these two constructs.

For managers, email overload has been a consistent and festering problem that has eluded effective ways of countering. While we do not suggest that the concepts of TTF and PPTF are the only solutions, we do point managerial attention to these ideas, which do not find evidence in current organizational policies for email use. In considering the findings of our research, organizations struggling with email overload may benefit from implementing policies that develop, measure and manage TTF and PPTF in the workplace.

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