

DESIGNING TECHNOLOGY FOR BASIC PSYCHOLOGICAL NEED SATISFACTION OF EMPLOYEES

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Abstract

With the pervasiveness of remote and hybrid modes of working, technology plays a crucial role in carrying out work. The growing significance of technology at work brings about the need to design technology aiming long-term positive effects on employees. That necessitates the inclusion of the three basic psychological needs essential to wellbeing- autonomy, competence, and relatedness- as technology design criteria. The paper collects existing evidence for technology induced need frustration among employees. It then goes on to recommend guidelines for need-supportive technology design. The study, which draws on Self Determination Theory and the Motivation, Engagement and Thriving in the User Experience model, intends to equip technology designers with some points to ponder.

Keywords: Basic Psychological Needs, Autonomy, Competence, Relatedness, Technology, METUX, Remote Work.

1. INTRODUCTION

The Covid-19 pandemic made remote working a standard practice in organizations across the globe (Kniffin et al., 2020). Defined as “a flexible work arrangement whereby workers work in locations, remote from their central offices or production facilities, the worker has no personal contact with co-workers there, but is able to communicate with them using technology” (Martino & Wirth, 1990, p.530), remote working, thus, emerged as the new normal during the pandemic. Though its widespread adoption happened due to the pandemic, remote working gained traction in the past decades with the advancement in information and communication technologies, also known as ICTs (Allen et al., 2015). As per a 2011 Ipsos/Reuters poll, remote working was common in India, where over half of employees worked from home most of the time (Reaney, 2012). Lin and Kwantes (2015) observe that interactions within organizations, both among employees as well as between employees and management, are increasingly taking place through technology. Digital platforms like Google Meet, Microsoft Teams, and Zoom play a key role in facilitating communication among geographically distributed organizational members (Battisti et al., 2022).

Citing the popularity of remote working arrangements owing to the ensuing work-life fluidity, Smite et al. (2023) claim that it is impossible to completely eliminate remote working. A large section of employees prefers working from home at least two days a week, implying the demand for hybrid work. An employee engaged in hybrid work switches between remote work and in-person work, which enables her to experience the best of both worlds (Mogila et al.,

2021). A 2022 survey by Future Forum supports the above claim, with its finding that 49% of world-wide knowledge workers function in hybrid mode (Future Forum, 2022). Another 2022 study also records the desire of many employees to carry on with remote working beyond the pandemic (Mukherjee & Narang, 2022). Along the same vein, Hern & Kollwe (2020) observe that most workers at Google favour working from home, either partly or fully, with many even willing to afford consequential salary reductions. The growing demand for hybrid work can be attributed to the benefits that come with it. Hybrid workers can choose their location of residence considering living expenses and proximity to their own community (Yoosefi Lebni et al., 2021). This will make the workplace a delightful space to work from. All these will result in work becoming a pleasurable experience for employees, thus contributing to the organization's profits (NeJhaddadgar et al., 2020). Furthermore, Barrero et al. (2021) reason that the shift towards non-discrimination of remote employees and a rapid rise in ICTs catalysed by COVID- 19 have resulted in the popularity of remote working. Organizations have to make use of various digital tools to support hybrid work, so that employees can interact seamlessly. A study by Hopkins and Bardoel (2023) recognizes technology that facilitate videoconferencing, online collaboration and asynchronous communication as essential to hybrid working. The aforementioned studies signify the role of ICTs in the present and future workplace. Therefore, it becomes imperative to design ICTs such that they bring out the best in employees and organizations.

While remote work and ICT use do offer benefits, they come with certain drawbacks. During the pandemic, many wellbeing initiatives were implemented to counter the negative wellbeing effects of working from home (Chaturvedi & Singh Rathore, 2021). Stress associated with technology use is referred to as technostress (Ragu-Nathan et al., 2008). Reidl et al. (2012) and Srivastava et al. (2015) contend that technostress is capable of draining employees emotionally and lowering firm performance. The argument is in line with the findings of Maier et al. (2015). Gupta et al. (2022) and Wang et al. (2020) also observe diminishing cognitive abilities and psychological resources among long-term users of work-related ICT, who have little choice.

The extent of stress from ICT use is determined by whether the employee views ICT as a demand or as a resource (Ninaus et al., 2021). The authors of another 2021 study posit that employee performance and wellbeing can be enhanced by considering the suitability of the technology for the relevant task, during technology design (Abelsen et al., 2023). The focus on wellbeing- supportive technology design signifies the incorporation of wellbeing metrics in the design of ICTs, which brings to the fore the three basic psychological needs that are essential to well-being (Deci & Ryan, 2000; Peters et al., 2018). The three needs are autonomy, competence and relatedness, the satisfaction of all of which is fundamental to experiencing wellbeing. The current paper explores the problems arising from work-related ICT use that are capable of hindering basic psychological need satisfaction of users. Further, it investigates how technology interfaces can be designed to support basic psychological need satisfaction of ICT users in the context of work. The paper draws on Self Determination Theory (SDT) and Motivation, Engagement and Thriving in the User Experience (METUX) model to achieve these objectives.

2. BASIC PSYCHOLOGICAL NEEDS

Self Determination Theory (SDT) puts forth three human needs that must be satisfied for any individual to experience psychological wellbeing (Deci & Ryan, 2000). According to SDT, wellbeing experienced by individuals in an organization is concomitant with the satisfaction of all three basic psychological needs experienced by them within that organization. Autonomy refers to the need for carrying out one's activities at one's own behest (Deci, 1975). The need for autonomy is satisfied when one is able to do things willingly (Deci & Ryan, 1987). People feel autonomous in environments that exert zero pressure and provide flexibility. Whether an individual perceives the environment as enhancing autonomy or as diminishing it is quite relevant. Competence is the need for performing fairly demanding tasks successfully (Skinner, 1995). Competence needs are met when a person is successful in important domains (Ryan & Deci, 2017). Competence need is thwarted wherever there is little opportunity for learning, and mastering skills and when beset by formidable challenges. Relatedness refers to the need for caring and being cared for by significant others (Baumeister and Leary, 1995). Relatedness need is satisfied when a person views herself as helpful to others (Ryan & Deci, 2017). Further, an individual's sense of belonging in a community bolsters relatedness.

3. TECHNOLOGY AND BASIC PSYCHOLOGICAL NEEDS

Motivation, Engagement and Thriving in the User Experience (METUX) model draws on SDT to lay down the conditions for need-supportive technology design, viz., autonomy, competence and relatedness (Peters et al., 2018). Since technology interface is the point of interaction between user and the technology, this paper focuses on the design of need supportive technology interface. According to the METUX model, a user experiences autonomy support during technology interaction when the technology offers features to control settings and make ample selections, as well as when it enables the user to do everything as desired. Among autonomy frustrating aspects of technology interface are intrusion in to personal time and its control over the user. The need for competence is met when the user feels capable and confident to use the technology, as well as when there is ease of use. Complexity of interface and challenges faced while learning to use the technology thwart the user's competence. A technology with features that help the user connect with other users and maintain good relationships, thereby also giving a sense of belonging in a community, enhances the user's relatedness. The relatedness need is unmet when the technology offers none of the above. Technology is, thus, capable of supporting and frustrating basic psychological needs of its users. Extant literature provides sufficient evidence for need frustration caused by technology use.

3.1. Autonomy Frustration from Work-Related Technology Use

The most prevalent source of autonomy frustration is the intrusion of technology in to users' personal life. Round-the-clock work connectivity enabled by ICT leads to an increase in working hours (Ragu-Nathan et al., 2008), thus invading family time. There is also expectation to respond to work assignments even during non-working hours (Powell & Greenhaus, 2010). Wang et al. (2017) and Green et al. (2020) contend that using technology to work remotely

makes it challenging for the employee to detach from the job even at night and on holidays. A post-pandemic study also states that ICT-enabled remote work results in longer working hours (Enaifoghe & Zenzile, 2023).

There are other ways in which technology use at work thwarts employee autonomy. Constant exposure to communication via ICT not only makes employees vulnerable to distractions, but also holds them responsible for discerning relevant from irrelevant communication (Rennecker & Godwin, 2005). Further, frequent notifications and messages from ICTs pressurize employees to complete tasks in shorter time (Ragu-Nathan et al., 2008). Sometimes, employees are unable to use the technology to do things they want due to incompatibility between their requirements and technology's capability (Sun et al., 2009; Soja & Soja, 2020). Virtually connected employees are often deprived of breaks, with online meetings taking place one after the other (Jaiswal & Arun, 2022). This jeopardizes workers' agency over time and their legitimate need for recess, thus hindering autonomy. Yao et al. (2023) find instances of postponement of work-related tasks among employees who are mostly connected to work via ICT, which signals employees' lack of control over their actions.

3.2. Competence Frustration from Work-Related Technology Use

ICT users may doubt their ability to use the technology, fearing its complexity. Ragu-Nathan et al. (2008) observe this phenomenon of competence frustration in organizations. Soja & Soja (2020) also cite the above problem as a reason for employees' reluctance to use technology. Remote workers can feel higher dissatisfaction of competence needs as they often learn the technology by themselves, leading to less confidence in their ability to use it (Garfin, 2020; Molino et al., 2020). The scanty nature of information passed via ICTs makes comprehending it quite tiring, demanding greater skills than that required in other forms of communication (Chadee et al., 2020). Incompetence of technology is another problem (Green et al., 2020) that is capable of thwarting the competence needs of employees. Aged workers are especially prone to competence frustration from ICT use, as they find it difficult to adapt to any changes in technology (Gupta et al., 2022). The labour involved in learning a digital work platform is also a key factor. Greater the labour involved, lesser the inclination towards the technology (Sahut & Lissillour, 2023).

3.3. Relatedness Frustration from Work-Related Technology Use

Relying on technology to communicate and collaborate with colleagues can have a detrimental effect on co-worker relationships, thus negatively affecting relatedness. Virtual teams are characterized by a deliberate drop in individual performance (Lepsinger & DeRosa, 2010), which is attributable to a poor sense of belonging in the team. According to DeJong et al. (2016), digitally connected workers find it challenging to make trustworthy relationships at work. Employees' compromised sense of belonging in digital workplaces is apparent in extant literature (Mann & Holdsworth, 2003; Jaiswal & Arun, 2022). The study also points out the lack of camaraderie and group cohesion, which are usually bolstered by in-person contact, in such environments. Mental exhaustion from ICT use can lead to employees staying away from the workplace, as a means of survival (Chadee et al., 2020). This can have a cascading effect

on the employees' relatedness needs. Green et al. (2020) identify team work and relationship with supervisor as being jeopardized by technology use at work. Technology-mediated communication challenges the effective expression and regulation of emotions, which restricts social interactions in the workplace (Kniffin et al., 2021). Lal et al. (2023) discuss the limitations of technology-mediated informal interactions at work. High workload and ensuing excessive work-related use of technology make workers averse to further technology use. Workers are also apprehensive about online interactions, as the absence of physical interaction and accompanying facial/ bodily cues hinders open conversations. In addition, ICT-supported informal interactions are often planned and lack the spontaneity of face-to-face interactions.

Technology induced frustration of basic psychological needs among workers requires the attention of technology designers. It warrants the consideration of autonomy, competence and relatedness as criteria for designing technology interfaces. Moreover, extant literature mentions several sources of technostress that are closely linked with basic psychological need frustration. Berger et al. (2023) list some such sources of technostress: complexity of ICT, technology interruptions, technology intrusiveness, ICT-induced work overload and constant need to learn technology. Hence, building technology that supports basic needs is the way to eliminate technostress.

4. DESIGNING ICT FOR BASIC PSYCHOLOGICAL NEED SATISFACTION OF EMPLOYEES

The practical implications of the study are discussed here, which include guidelines for designing need-supportive technology in the context of work. By incorporating certain functionalities, technology designers can ensure autonomy support. Blocking of notifications outside working hours and provision for employees to apply restrictions on notifications will help to curb the intrusiveness of technology, to alleviate the pressure from technology and to avoid distractions. Integrating a scheduling app with the technology will allow the employee to have some agency over her time. Allowing downtime for technology during designated break time, coupled with reminders to take breaks from technology use at appropriate intervals, will ensure that employees get adequate rest. Giving control over what to view on screen will aid employees in focusing on their tasks at hand.

Ease of use is the main component of technology-related competence. This can be manifested in a number of ways. Using simple and friendly language that is easily comprehended is important. So is keeping relevant and legible text only. Ensuring that all calls to action are explicit will reduce confusions. Designers must also take into account the ease of learning the technology. Integrating interactive tutorials, walkthrough of important features and highlighting new features will be helpful. Minimizing the number of steps required to complete a task will also support competence need. Voice messaging and text correction features can counter the problem of inefficient communication, thus avoiding complications in comprehension and the ensuing competence frustration.

In order to support relatedness, the technology must facilitate easy interactions among workers. Offering features to tag relevant people in conversations, create group chats and send direct messages to anyone will be helpful. The technology must give opportunities for workers to help one another, with the functionality of sharing knowledge and gaining quick access to co-worker assistance with work-related tasks. Further, designing the interface to facilitate easy sharing of praise and gratitude among colleagues is important.

5. CONCLUSION

The study underscores the significance of integrating basic psychological needs in the design of ICTs. There is no denying that technology use at work helps to improve the performance and productivity of employees. But, technology use at work presents problems as regards employee wellbeing, through the frustration of basic psychological needs of employees. Therefore, for technologies to have better impact, they must be designed with the goal of employee wellbeing as well, and hence, with the goal of basic psychological need satisfaction of employees. The author makes recommendations for need-supportive technology design in the context of work. In addition, the study implies that organizations must assess the extent of need support provided by the technology that they intend to use or is already in use. The paper assumes relevance in the wake of the pandemic-induced remote/hybrid work culture that is continuing to be in demand in post pandemic times. Furthermore, it contributes to the digital well-being movement that is gaining momentum. As people, including the general public as well as technology experts, become increasingly aware of digital risks, the study gives impetus to discussions around the safe design of technology.

Declaration of Interest Statement

The authors report there are no competing interests to declare.

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