RESEARCH ARTICLE

DOI: 10.54392/ajir2533

Asian Research Association

ASIAN JOURNAL OF INTERDISCIPLINARY RESEARCH

Interface Design and Employee Well-being in the Digital Workplace: The Role of Basic Psychological Need Satisfaction

M. Asha [a,*], N. Ajith Kumar [a]

[a] Department of Commerce and Management, School of Arts, Humanities and Commerce, Amrita Vishwa Vidyapeetham, Kochi, India.

*Corresponding author Email: asha.mathewkt@gmail.com

DOI: https://doi.org/10.54392/ajir2533

Received: 16-04-2025; Revised: 17-07-2025; Accepted: 09-08-2025; Published: 01-09-2025

Abstract: With digitalization, there is a growing need to address the well-being impact of digital tools used in the workplace to ensure the well-being of employees. Guided by the Motivation, Engagement, and Thriving in User Experience framework for well-being supportive technology design, this study examines the relationship between the interface and behaviour spheres of technology. This research aims to find how and whether basic psychological need satisfaction in the work domain is influenced by the need satisfaction experienced from interacting with work management digital tools (like slack). By intersecting Human–Computer Interaction and organizational psychology, the study adopts an interdisciplinary approach to examine how interface design influences individuals' well-being in the workplace. Data collected from 418 IT employees were subjected to Structural Equation Modelling with Amos. With interface relatedness emerging as the strongest predictor, the results show that autonomy and relatedness satisfactions in the interface sphere of work management digital tools have a significant positive influence on users' basic psychological need satisfaction at work, while competence satisfaction has no significant influence. The study suggests that designing work management digital tools with features that particularly support autonomy and meaningful relationships with colleagues will enhance employees' psychological experience in the workplace and thereby their well-being. The non-significant effect of interface competence may be considered an indication of the need to explore the mediating effect of the task sphere in future research. Overall, the study underlines the need for careful design of work management digital tools to ensure employee well-being in the workplace.

Keywords: Basic psychological needs, METUX, Employee well-being, Digitalization, Technostress

1. Introduction

Workplaces in the present era have undergone a sea change due to digitalization, which refers to "the growing use of information and communication technology in every area of our lives" (Cijan et al., 2019). As technology is often developed with the intent to enhance efficiency and convenience (Calvo et al., 2016), digitalization has resulted in better productivity and flexibility in the workplace through digital tools that allow teams to work together virtually (Dabić et al., 2023). However, there are numerous adverse effects. While the flexibility in work brought about by digitalization gives employees the freedom to choose the time and place of work, it curbs their freedom to switch off from work even outside working hours, thus increasing co-workers' expectations of availability as well as work-family conflict (Towers et al., 2006).

The recent "State of Emotional Wellbeing Report 2024" conducted in India by 1to1help testifies to this assertion. The report states that apart from a meagre 3%, most corporate employees struggle to establish limits on screen usage. This struggle to handle the evolving demands of information communication technology (ICT) use causes stress known as technostress (Ragu-Nathan et al., 2008), which is a "state of arousal observed in certain employees who are heavily dependent on computers in their work" (Arnetz and Wiholm 1997). Technostress leads to undesirable consequences in users- frustration, morale decline, demotivation, job dissatisfaction, diminished organizational commitment, and a feeling of being overwhelmed by work (Brod, 1984, as cited in Ragu-Nathan et

al., 2008; Tarafdar et al., 2011). Prolonged use of work-related ICT is associated with psychological ill effects, which is also attributable to employees' lack of choice regarding its use (Gupta et al., 2022; Wang et al., 2020).

The adverse psychological outcomes of ICT use have brought about the discourse on technology and well-being. Peters et al. (2018) put forth the Motivation, Engagement, and Thriving in User Experience (METUX) Model that acts as a framework for well-being supportive technology design. The METUX model is an extension of the Self Determination Theory (SDT) to the context of technology use. According to SDT, a person's psychological well-being is contingent upon three essential psychological nutriments- autonomy, competence, and relatedness- also known as basic psychological needs (Deci & Ryan, 2000). Well-being cannot be attained unless these nutriments are satisfied. Autonomy is characterized by voluntary behaviours that align with a person's interests; it is devoid of any form of coercion. Competence need is satisfied when one perceives oneself as being capable of performing well in important life domains, and it is supported in environments that provide optimal challenges (Ryan & Deci, 2017).

Finally, relatedness is experienced when people have meaningful relationships that make them feel important and nurtured, and recognize them as significant contributors. Drawing on SDT, the METUX model uses the three needs as criteria for determining to what extent a digital technology supports users' well-being (Peters et al., 2018). Well-being is increasingly being recognized as a technology design criterion. In 2016, the Institute of Electrical and Electronics Engineers (IEEE) established the IEEE Global Initiative to lay down ethical guidelines for technology designers to use well-being metrics in design (Chatila et al., 2017). The three psychological needs discussed above have especially featured in technology studies. Zhang (2008) recommends support of autonomy, competence and relatedness of users as a foundation for design principles. While personalization of technology is an example of autonomy supportive design, interfaces that provide optimal challenge and give timely positive performance feedback support competence, and those that orchestrate interpersonal interactions and represent social connections strengthen relatedness. Rogers & Mitzner (2017) discuss the potential role of technology in supporting the elderly's autonomy and relatedness needs via designs that cater to individual needs rather than following a one-size-fits-all approach. In the context of virtual learning, Chiu (2021) asserts that digital environments that provide choice of resources and flexible class hours (autonomy), optimal mental effort (competence), and synchronous classes and interactions (relatedness) boost student engagement in learning. In general, digital design practices for supporting autonomy, competence and relatedness are laid out by Peters (2022), which include giving logical reasoning for actions, making the interface easy to use, and providing ways to express gratitude to others.

Peters & Calvo (2023) present a synthesis of varied digital contexts that demonstrate the relationship between support for autonomy, competence, and relatedness and user well-being. A study on software developers shows that different types of ICTs used at work may support different basic psychological needs depending on the tool's major purpose and functionality (Wong et al., 2025). The METUX model can thus enable technology designers to enhance the digital experience by ensuring users' need satisfaction and, in turn, their well-being. What distinguishes the METUX model is that it takes into account need satisfaction in the different levels at which a technology is capable of influencing its users' well-being; these levels are known as spheres of user experience. There are 4 important spheres, namely, interface (need satisfaction during direct engagement with technology interface), task (need satisfaction from performing the task supported by the technology), behaviour (need satisfaction while engaging with the core activity enabled by the technology), and life (overall need satisfaction in life because of technology use).

Notwithstanding the significance of these 4 spheres, the present study focuses on only the interface sphere and behaviour sphere, with the aim of exploring the relationship between need satisfaction in the interface sphere and need satisfaction in the behaviour sphere in the context of ICT use at work. This will give insights into how and whether the need-satisfying features of ICTs give way to need satisfaction at work, since the behaviour that the technology supports in the present context is work. These insights are crucial in understanding employee well-being in the digital workplace. The task sphere was omitted partly due to concerns regarding respondent fatigue from a lengthy survey, and challenges with identifying and defining a particular task, as employees use digital tools to fulfil varied tasks. Moreover, the METUX framework maintains that the spheres are not strictly separated by boundaries and need not follow an order (Peters et al., 2018). Hence, this study chooses to focus on the interface and behaviour spheres, interactions between which are also supported in broader literature. Referred to as interface autonomy, interface competence, and interface relatedness in this research, the fulfilment of each basic psychological need in

the interface sphere is contingent upon the interface or user experience (UX) design and the degree to which it provides choice and control, ease of use, and opportunity for connecting with others in a meaningful way, respectively (Peters et al., 2018). Basic psychological need satisfaction (BPNS) at work is the extent of autonomy, competence, and relatedness support experienced by individuals in their work domain (Olafsen et al., 2021).

As stated by the METUX framework, BPNS in the interface sphere acts as a "gateway" to need satisfaction in other spheres (Peters et al., 2018). Extant research regarding sources and consequences of technostress also indicates an association between interface and behaviour spheres. Tarafdar et al. (2011) refer to the sources as 'technostress creators', each of which is described next. 'Techno-overload' is characterized by heavy influx of information that is beyond an employee's capacity for effective management, recurrent interruptions (for instance, in the form of messages/notifications) that lead to distractions, and the pressure to multitask, all compromising autonomy in the interface sphere. 'Techno-invasion' is the condition of constant connectivity and ensuing intrusion of employees' personal time, which again thwarts interface autonomy. 'Techno-complexity' refers to the perception of an ICT as complex to use and difficult to learn, while 'techno-insecurity' is marked by insecurity about one's ability to use the technology effectively, both of which lead to users' competence frustration at the interface level. 'Techno-uncertainty' is associated with rapid technological changes and frequent adaptation to new applications at work, which makes the employees feel unstable, thus affecting their autonomy and competence satisfaction in the interface sphere. Tarafdar et al. (2011) also explain the workplace effects of technostress. Techno-overload, techno-complexity, and techno-uncertainty create the employee perception that the job is too challenging and that there are too many tasks, which suggests frustration of autonomy and competence needs at work. Further, techno-invasion diminishes employees' control over work schedules and techno-uncertainty, along with techno-complexity, limits employees' choices regarding the conduct of technology-mediated work, all of which jeopardize autonomy at work. The tight work schedules caused by techno-overload thwart autonomy at work and leave employees with few avenues for innovation at work, which affects competence need satisfaction. Employees can also become prone to making errors at work while facing constant changes in digital applications and the associated techno-complexity, leading to competence frustration at work. Due to techno-overload, they are also constantly exposed to irrelevant information that diverts them from performing important tasks and hinders their agency over time management, thereby contributing to autonomy frustration at work.

Further, techno-insecurity leads to job insecurity, feeling threatened by co-workers' expertise with ICT use, and a lack of knowledge sharing due to a fear of being replaced, thereby causing competence and relatedness frustration at work.From the technostress literature, it can be deduced that technostress sources may be viewed as indicators of need frustration in the interface sphere of a technology, and that these need frustrations in turn act as antecedents to technostress effects, which are indicators of need frustration in the behaviour sphere of the technology (work domain in this context). As the minimization of need frustration is a prerequisite for achieving need satisfaction (Vansteenkiste & Ryan, 2013; Chen et al., 2015), the technostress literature, which suggests that reducing technostress sources (reducing interface need frustration) will result in diminished technostress effects (diminished need frustration at work), thereby signals that need satisfaction in the interface sphere shall lead to need satisfaction at work. Taken together with the METUX assertion, extant literature thus makes a case for examining the relationship between need satisfactions in the two spheres- interface and behaviour. The current paper investigates how BPNS in the interface sphere of any work management digital tool- interface autonomy, interface competence, and interface relatedness- influences employees' BPNS at work. Work management digital tools are "software products and services that apply workflow structure to the movement of information as well as to the interaction of business processes and human worker processes that generate the information" (Gartner, n.d.). It is hypothesized that:

H1: Autonomy need satisfaction in the interface sphere of a work management digital tool has a significant positive association with BPNS at work.

H2: Competence need satisfaction in the interface sphere of a work management digital tool has a significant positive association with BPNS at work.

H3: Relatedness satisfaction in the interface sphere of a work management digital tool has a significant positive association with BPNS at work.

Figure 1 depicts the conceptual framework. Since each one of the interface needs reflects distinct user experiences, and employee well-being in the workplace is a function of their overall basic psychological need satisfaction at work, this research will help in providing nuanced insights into how the design of work management digital tools can support employee well-being at work.

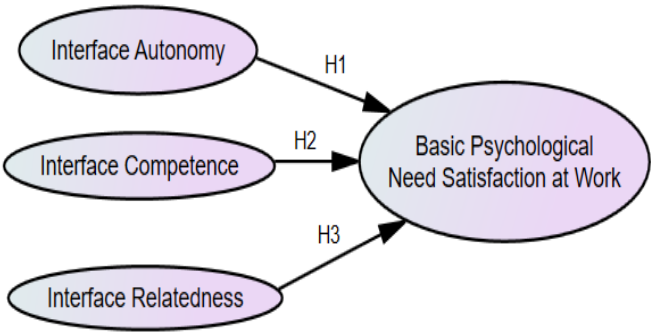

Figure 1. Conceptual Model

2. Methods

2.1 Sample

The sample consisted of 418 software developers from Technopark, the largest IT hub in Kerala, India. The respondents were recruited through purposive sampling. Purposive sampling enabled the selection of only those participants who used work management digital tools such as Slack every working day, to carry out work-related tasks. The HR personnel of two such IT firms were contacted based on their use of those digital tools, who shared the electronic survey among suitable employees. Respondents were asked to report the work management digital tool that they use at work. Participation was voluntary. This may have introduced self-selection bias, as respondents are likely to have special interest in work management digital tools. However, this may be considered less consequential since the study aims to investigate the experience of active users of such tools. Industry-specific constraints influenced the sampling approach. Access restrictions due to organizational approval requirements made random sampling infeasible. Additionally, employees in IT sector are routine users of digital tools and have high digital literacy, which may affect the generalizability of the study to other sectors. The work management digital tools reported in the study included Jira (n=193), Azure DevOps (n=47), Microsoft Project (n=39), Slack (n=27), Kanban Tool (n=8), and others (n=104). 59.3% of the sample were aged 30-40 years, 61.7% male and 24.9% had more than 12 years of experience in the IT industry. While most employees used the tool for up to 4 hours a day (79.7%), a significant number used it for more than 4 hours a day (20.3%).

2.2 Instruments

The Technology-Based Experience of Need Satisfaction- Interface (TENS- Interface) scale, with subscales for measuring interface autonomy, interface competence, and interface relatedness was employed (Peters et al., 2018). Two items from the relatedness subscale were removed based on expert review in order to prevent respondent fatigue owing to the scale length. The assessment of BPNS at work was done using the Basic Psychological Needs Work scale, with subscales for measuring autonomy, competence and relatedness satisfactions in work domain (Olafsen et al., 2021), after removing an item from each subscale to avoid respondent fatigue. Items were slightly reworded to ensure understanding of regional respondents. All the refined scales have a Cronbach's value > 0.7, thus showing good reliability. The full scale employed in the study is provided in Supplemental Digital Material 1.

2.3 Data Analysis

While structural equation modelling (SEM) was done using IBM SPSS Amos 22.0, other analyses were done using SPSS Statistics 25.0. Following principal component analysis, items IA1, IA2 and IC1 were removed from further analysis as they loaded differently from other items in their corresponding scales, which indicates inadequate representation of underlying constructs (see Supplemental Digital Material 1). To assess the model fit, a CMIN/df value less than 5 (Gürbüz & Şahin, 2014), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values not less than 0.92 (Hair et al., 2010), Root Mean Square Error of Approximation (RMSEA) value not exceeding 0.08 (Karagöz, 2021), and a maximum Standardised Root Mean Square Residual (SRMR) value of 0.08 (Hair et al., 2010) were considered acceptable.

3. Results

Table 1 presents the results of the descriptive analysis, revealing acceptable skewness and kurtosis values suggestive of normality. Respondent characteristics are recorded in Table 2**.**

Table 1. Descriptive Statistics and Normality

	Mean	Std. Deviation	Skewness	Kurtosis
InterfaceAutonomy	3.778	0.688	-0.303	-0.480
InterfaceCompetence	3.899	0.816	-0.517	-0.488
InterfaceRelatedness	3.647	0.856	-0.264	-0.257
WorkAutonomy	5.275	1.274	-0.837	0.539
WorkCompetence	5.756	1.087	-0.896	0.543
WorkRelatedness	5.569	1.162	-0.941	1.030

Table 2. Sample Profile

Characteristic	Group	Frequency	Percent
Age	20-30	115	27.5
	30-40	248	59.3
	40-50	53	12.7
	50-60	2	.5
Gender	Female	160	38.3
	Male	258	61.7
Service in IT Industry	Less than 3 years	54	12.9
	3-6 years	100	23.9
	6-9 years	63	15.1
	9-12 years	97	23.2
	More than 12 years	104	24.9
Digital tool used	Jira	193	46.2
	Microsoft Project	39	9.3
	Azure DevOps	47	11.2
	Kanban Tool	8	1.9
	Slack	27	6.5
	Other	104	24.9
Tool usage	Less than 1 hour per day	99	23.7
	1-2 hours per day	99	23.7
	2-3 hours per day	73	17.5
	3-4 hours per day	62	14.8
	More than 4 hours per day	85	20.3

The construct validity for interface autonomy, interface competence, interface relatedness, work autonomy, work competence, work relatedness, and BPNS at work was assessed using a second- order confirmatory factor analysis (CFA). The measurement model fit was also evaluated (see Figure 2 for the measurement model). The CFA results proved convergent validity of all constructs (given in Table 3). All constructs had acceptable factor loadings above 0.4. (Stevens, 2002). Average variance extracted (AVE) values were satisfactory with all figures exceeding 0.5 (Hair et al., 2010), except for the construct interface relatedness with AVE=0.417. Notwithstanding the slightly low AVE value, the construct and items are retained since the factor loadings of all items are acceptable (above 0.48), and the construct has a composite reliability greater than 0.6 (0.676). The convergent validity of the construct is deemed acceptable in such cases (Fornell & David, 1981). However, this limitation is recognized, and future research may consider refining the interface relatedness scale to address it. The model fit the data adequately, as indicated by the fit indices given in Table 3. Further, all constructs met the Fornell-Larcker criterion for discriminant validity (see Table 4).

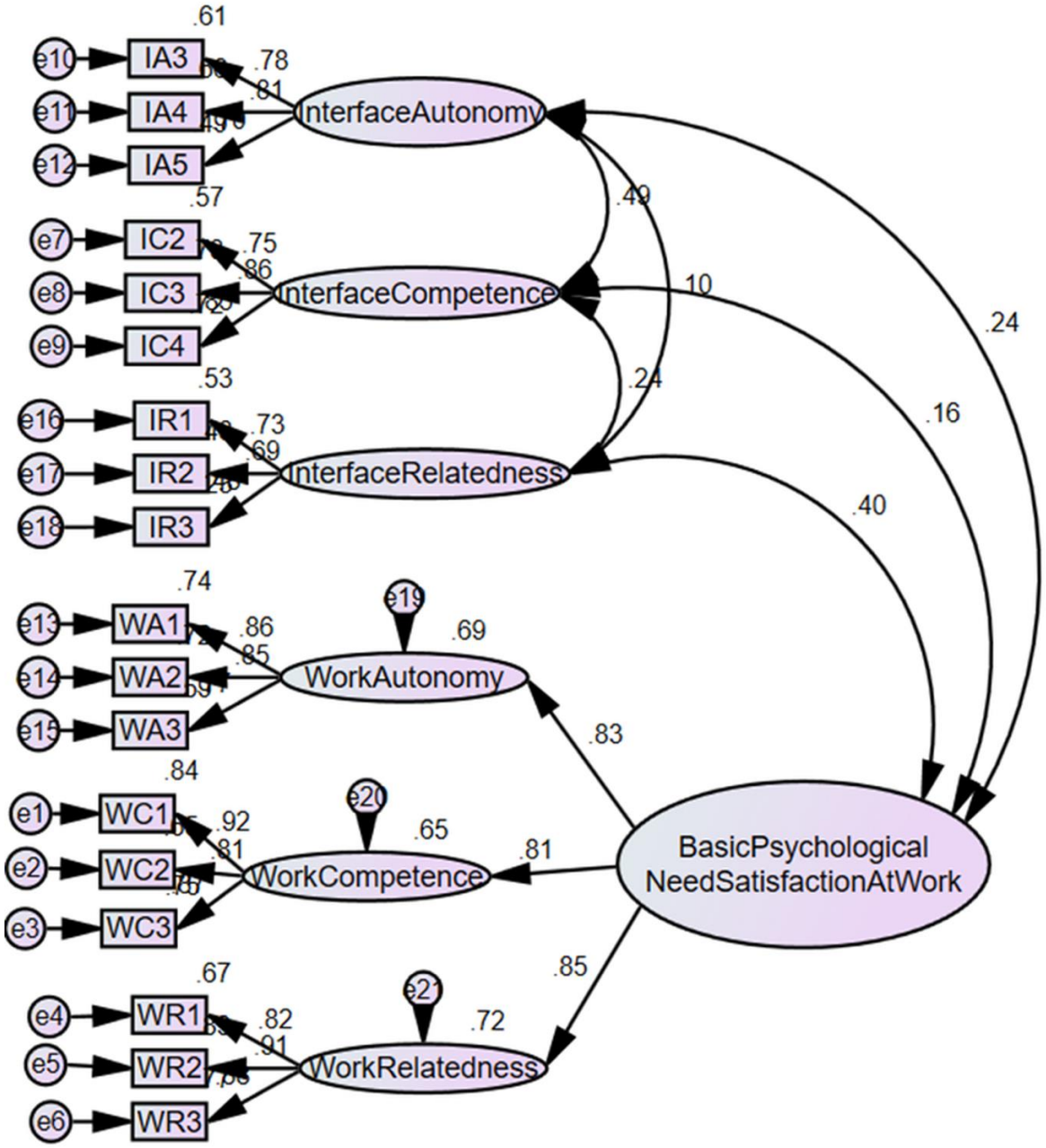

Figure 2. Measurement Model

Table 3. Confirmatory Factor Analysis

Construct	Standardized Factor Loadings	p-value	AVE	Composite Reliability	Model Fit Index				
					CMIN /df	CFI	TLI	RMSA	SRMR
Interface Autonomy	0.701- 0.811	<0.001	0.587	0.810	3.26	0.93	0.92	0.07	0.07
Interface Competence	0.753- 0.857	<0.001	0.675	0.861					
Interface Relatedness	0.483- 0.730	<0.001	0.417	0.676					
Work Autonomy	0.767- 0.858	<0.001	0.675	0.861					
Work Competence	0.805- 0.918	<0.001	0.757	0.903					
Work Relatedness	0.817- 0.912	<0.001	0.756	0.903					
Basic Psychological Need Satisfaction at Work	0.806- 0.831	<0.001	0.688	0.869					

Table 4. Fornell-Larcker Criterion for Discriminant Validity

Variables	1	2	3	4	5	6
WorkCompetence	**0.870**					
WorkRelatedness	0.688	**0.870**				
InterfaceCompetence	0.163	0.138	**0.822**			
InterfaceAutonomy	0.224	0.160	0.486	**0.766**		
WorkAutonomy	0.680	0.727	0.094†	0.216	**0.822**	
InterfaceRelatedness	0.306	0.365	0.233	0.098	0.322	**0.646**

Note: Figures in bold are the square root of the AVE values.

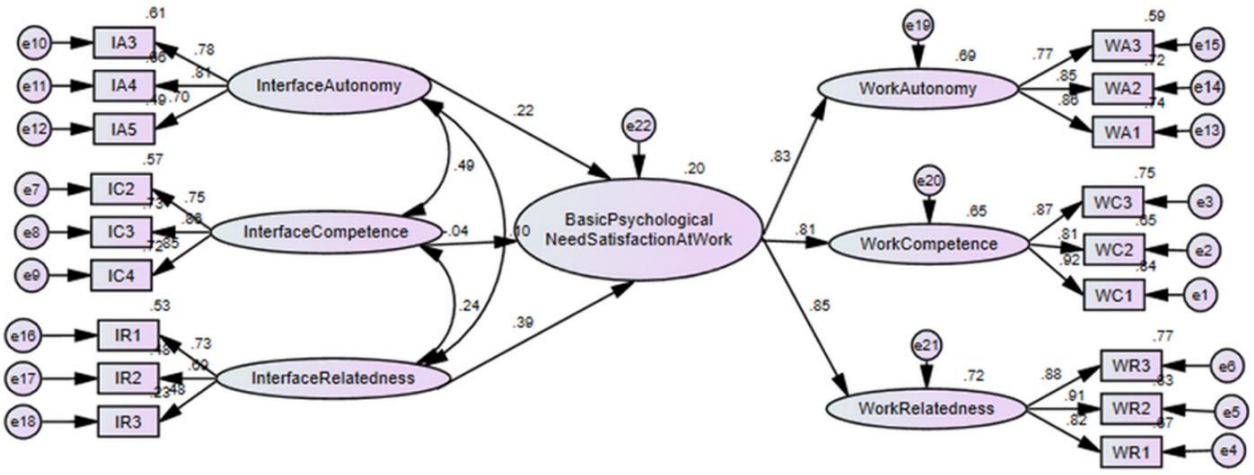

Figure 3. Structural Model

Table 5. Structural Model: Path Estimates and Goodness of Fit

Path	Estimate	p-value	CMIN/df	CFI	TLI	RMSEA	SRMR
BasicPsychologicalNeedSatisfaction at Work<---InterfaceAutonomy	.216	0.002	3.26	0.93	0.92	0.07	0.07
BasicPsychologicalNeedSatisfaction at Work<---InterfaceCompetence	-.036	0.596					
BasicPsychologicalNeedSatisfaction at Work<---InterfaceRelatedness	.390	<0.001					

An analysis of the structural model (see Figure 3) that depicted the conceptualized relationships in the study revealed an acceptable model fit as indicated in Table 5. The path coefficients (Table 5) showed that interface autonomy and interface relatedness significantly enhance BPNS at work, whereas interface competence has no significant influence. Hence, the first and third hypotheses (H1 and H3) are supported, while the second hypothesis (H2) is invalidated.

4. Discussion

The research sought to determine how far the interface design of digital tools used in the workplace influences employees' basic psychological need satisfaction experienced at work. Taking guidance from the METUX model, the study specifically probed the relationship between BPNS experienced while engaging with the tool's interface and BPNS experienced while engaging with the behaviour the tool intends to support, which is work in the context of work management digital tools. A SEM analysis revealed valuable insights that rendered partial support to the hypotheses in the study.

The inquiry revealed that autonomy satisfaction and relatedness satisfaction in the interface sphere lead to BPNS at work. While both the interface needs have a significant influence, relatedness has a stronger influence. The finding aligns with the assertion that it is human nature to seek belongingness (Baumeister & Leary, 1995). Further, some survey results also corroborate the finding. According to the Workplace and Employee Survey 2024 (WebMD Health Services, 2024), colleagues were identified as the leading reason for younger employees (18-44 years) to stay in an organization, surpassing other factors like workload and work flexibility. Similarly, Gallup data (Patel & Plowman, 2022) revealed a strong relationship between good relationships at work and overall satisfaction in the workplace. The significant relationship between autonomy satisfaction in the interface sphere and need satisfaction at work suggests that work management digital tools that support user autonomy during interaction with the interface will enhance their BPNS at work (behaviour sphere). This corroborates the work by Tarafdal et al. (2011), which posits that the degree of autonomy experienced during technology use can have a broader impact on BPNS experienced in the work domain. Overall, the significant results offer partial support to the assertion that need satisfaction in the interface sphere paves the way for need satisfaction in other spheres (Peters et al., 2018). However, competence satisfaction, which is marked by the user's perception that they are competent and successful in using the digital tool, and that the tool is easy to use and learn, has no significant effect on their basic psychological need satisfaction at work. One possible explanation is that users' perceptions of their own competence with the tool and the tool's ease of use do not manifest as confidence and/or overall BPNS in behaviour settings. This insignificant result is in line with a METUX- based study on digital learning tools that finds no significant relationship between interface sphere and behaviour sphere (Jeno et al., 2021). It is also possible that the task-level need satisfaction (task sphere in METUX model) may mediate the relationship between interface and behaviour-level need satisfactions- that is not examined in the current study as discussed earlier. A conceptual diagram depicting this pathway for future research is given in Figure 4. However, Jeno et al. (2021) find no empirical support for such a mediation effect among degree students using digital learning tools. It could be that such individuals who are adept at technology use may not perceive their competence with digital interfaces as significant enough to influence their behaviour-level experience. The SEM analysis also reveals that 20% of the variance in basic psychological need satisfaction at work (R^2=0.2) is explained by the research model.

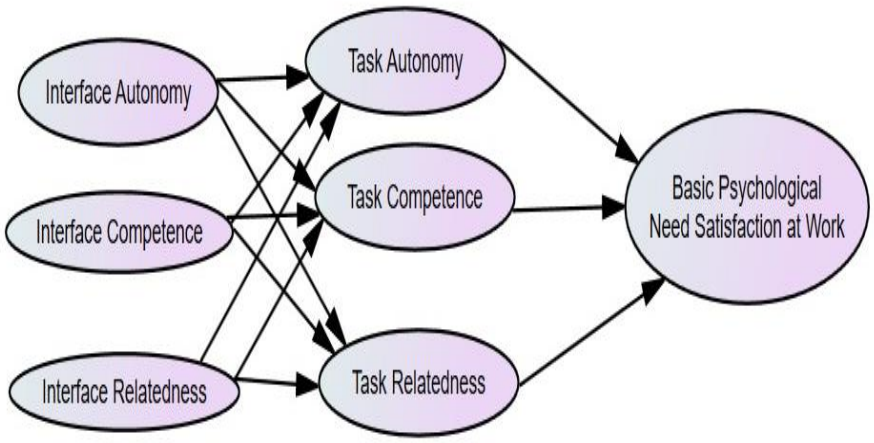

Figure 4. Proposed conceptual model for future research

Although small, the explained variance strengthens the METUX framework's contention that need satisfactions across spheres interact with one another and therefore, need satisfaction in the behaviour sphere may be influenced by other spheres, such as task, apart from the interface sphere. This assumes practical relevance in that digital tool design must focus on broader factors beyond the interface level design to contribute to the overall user experience and well-being.

5. Conclusion

The current study took guidance from the METUX model and SDT in exploring how far the interface design of work management digital tools fulfils users' basic psychological needs, not only while interacting with the tool (interface sphere) but also while at work (behaviour sphere). The findings bring the focus on relatedness- supportive interface design, as relatedness satisfaction in the interface sphere was found to have the strongest effect on need satisfaction at work. This signifies the burgeoning need for meaningful relationships in the workplace that is becoming increasingly digitalized. Though smaller, interface autonomy satisfaction exhibited a significant influence on BPNS at work, indicating that users prefer having control over the tool and not being intruded by it. The study offers practical insights for technology designers- ICTs used at work must foster user autonomy and workplace relationships at the interface level so as to support need satisfaction at the behaviour level, which is the work domain in this context. This may be realized by incorporating features that enable users to have meaningful interactions with colleagues, while providing them with sufficient choice and control. To foster autonomy, settings that allow customization of notifications, dashboards, and view can be beneficial. Users may be given the option to choose the type of notifications they receive and to set "do not disturb" mode. All app updates may take place without intruding the user, along with dissemination of information regarding the changes made. User interface may be kept clean with no clutter, and with only necessary content. Customization of on boarding based on user behaviours and roles can also support autonomy. To bolster interface relatedness, users may be given the option for replying via pop-up alerts, and for engaging in casual conversations through informal communication channels in the app. Moreover, encouraging deeper communication by restricting quick reactions (in the form of emojis) to real-time messages can support meaningful connections. Further, tagging features can make people feel seen and valued in virtual interactions. These are some practical implications for product managers and UX designers.

The generalizability of the study may be impacted by industrial, cultural and gender-based factors. As the study features IT employees whose digital proficiency is higher than less technology-intensive sectors, their perceptions of technology could differ from the rest. In addition, cultural factors relating to the Indian IT sector such as productivity orientation, blurred work-life boundaries, and subordination to authority may influence the employees' experiences of psychological needs differently in comparison to other sectors or countries. The sample also presents a gender bias, with 61.7% males, though this is a rough representation of the Kerala IT sector. Nonetheless, gender differences may be limiting the generalizability to gender-balanced sectors since gender affects how people engage

with and experience technology. Furthermore, the study is limited to the interface and behaviour spheres of work management digital tools, excluding task and life spheres. In the future, including need satisfaction in the task sphere as a mediating variable may result in the model accounting for a greater share of the variance in BPNS at work. This could even provide a model with a significant indirect relationship between interface competence and need satisfaction at work, as discussed earlier. Further, to understand the actual well-being impact of the technology, future research could extend to the life sphere of user experience. Replacing the current cross-sectional design with a longitudinal approach will also be helpful in gaining more insights. Future researchers may consider regions with distinct work cultures (e.g. Europe), where perceptions of autonomy, competence and relatedness may be significantly different. Additionally, research may be extended to employees from less technology-intensive sectors such as teachers and healthcare workers.

References

1to1help.net. (2024). *State of emotional wellbeing report.* https://www.1to1help.net/resources/state-of-emotional-wellbeing-report-2024

Arnetz, B.B., Wiholm, C. (1997). Technological stress: Psychological symptoms in modern offices. *Journal of Psychosomatic Research,* 43(4), 35–42. https://doi.org/10.1016/S0022-3999(97)00083-4

Baumeister, R.F., Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin,* 117(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Brod, C. (1984). *Technostress: The human cost of the computer revolution*.

Calvo, R.A., Vella-Brodrick, D., Desmet, P., M. Ryan, R (2016). Editorial for "Positive Computing: A New Partnership between Psychology, Social Sciences and Technologists". *Psychology of Well-Being,* 6(1), 10. https://psycnet.apa.org/doi/10.1037/0033-2909.117.3.497

Chatila, R., Firth-Butterflied, K., Havens, J.C., Karachalios, K. (2017). The IEEE global initiative for ethical considerations in artificial intelligence and autonomous systems. *IEEE Robotics and Automation Magazine*, 24(1), 110.

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R.M. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion,* 39(2), 216–236. https://doi.org/10.1007/s11031-014-9450-1

Chiu, T.K. (2022). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic. *Journal of research on Technology in Education*, 54(sup1), S14-S30. https://doi.org/10.1080/15391523.2021.1891998

Cijan, A., Jenič, L., Lamovšek, A., Stemberger, J. (2019). How digitalisation changes the workplace. *Dynamic Relationships Management Journal*, 8(1), 3–12. http://dx.doi.org/10.17708/DRMJ.2019.v08n01a01

Dabić, M., Maley, J.F., Švarc, J., Poček, J. (2023). Future of digital work: Challenges for sustainable human resources management. *Journal of Innovation & Knowledge,* 8(2), 100353. https://doi.org/10.1016/j.jik.2023.100353

Deci, E.L., Ryan, R.M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry,* 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Fornell, C., Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18(1), 39–50. https://doi.org/10.1177/002224378101800104

Gartner. (n.d.). *Workflow management*. https://www.gartner.com/en/information-technology/glossary/workflow-management

Gupta, M., Hassan, Y., Pandey, J., Kushwaha, A. (2022). Decoding the dark shades of electronic human resource management. *International Journal of Manpower,* 43(1), 12–31. https://doi.org/10.1108/IJM-11-2020-0512

Gürbüz, S., Şahin, F. (2014). *Research methods in social sciences*. Seçkin Publishing.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.

Jeno, L.M., Diseth, Å., Grytnes, J.A. (2021). Testing the METUX model in higher education: interface and task need–satisfaction predict engagement, learning, and well-being. *Frontiers in psychology*, 12,631564. https://doi.org/10.3389/fpsyg.2021.631564

Karagöz, Y. (2021). SPSS-AMOS-Meta-Applied Biostatistics. *Ankara, Turkey: Nobel Academic Publishing*.

Olafsen, A.H., Halvari, H., Frølund, C.W. (2021). The basic psychological need satisfaction and need frustration at work scale: A validation study. *Frontiers in Psychology,* 12, 697306. https://doi.org/10.3389/fpsyg.2021.697306

Patel, M., Plowman, S. (2022). The increasing importance of having a best friend at work. *Gallup*. https://www.gallup.com/workplace/397058/increasing-importance-best-friend-work.aspx

Peters, D. (2022). Wellbeing Supportive Design – Research-Based Guidelines for Supporting Psychological Wellbeing in User Experience. *International Journal of Human–Computer Interaction*, 39(14), 2965–2977. https://doi.org/10.1080/10447318.2022.2089812

Peters, D., Calvo, R.A. (2023). Self-determination theory and technology design. https://doi.org/10.1093/oxfordhb/9780197600047.013.49

Peters, D., Calvo, R.A., Ryan, R.M. (2018). Designing for motivation, engagement and wellbeing in digital experience. *Frontiers in Psychology, 9*, 300159. https://doi.org/10.3389/fpsyg.2018.00797

Ragu-Nathan, T.S., Tarafdar, M., Ragu-Nathan, B.S., Tu, Q. (2008). The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information Systems Research,* 19(4), 417–433. https://doi.org/10.1287/isre.1070.0165

Rogers, W.A., Mitzner, T.L. (2017). Envisioning the future for older adults: Autonomy, health, well-being, and social connectedness with technology support. *Futures*, 87, 133-139. https://doi.org/10.1016/j.futures.2016.07.002

Ryan, R.M., Deci, E.L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press. https://psycnet.apa.org/doi/10.1521/978.14625/28806

Stevens, J.P. (2002). *Applied multivariate statistics for the social sciences* (4th Ed.). Lawrence Erlbaum Associates.

Tarafdar, M., Tu, Q., Ragu-Nathan, T.S., Ragu-Nathan, B.S. (2011). Crossing to the dark side: Examining creators, outcomes, and inhibitors of technostress. *Communications of the ACM,* 54(9), 113–120. https://doi.org/10.1145/1995376.1995403

Towers, I., Duxbury, L., Higgins, C., Thomas, J. (2006). Time thieves and space invaders: Technology, work and the organization. *Journal of Organizational Change Management,* 19(5), 593–618. https://doi.org/10.1108/09534810610686076

Vansteenkiste, M., Ryan, R.M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263–280. https://doi.org/10.1037/a0032359

Wang, B., Liu, Y., Parker, S.K. (2020). How does the use of information communication technology affect individuals? A work design perspective. *Academy of Management Annals,* 14(2), 695–725. https://doi.org/10.5465/annals.2018.0127

WebMD Health Services. (2024). *2024 workplace and employee survey results*. https://www.webmdhealthservices.com/wp-content/uploads/2025/03/2024-Workplace-and-Employee-Survey-Results.pdf

Wong, N., Cheng, N.-Y., Oewel, B., Genuario, K. E., Stoeckl, S. E., Schueller, S. M., Ahmed, I., van der Hoek, A., Reddy, M. (2025). "It's a spectrum": Exploring autonomy, competence, and relatedness in software

development processes and tools. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, 151, 1–19. https://doi.org/10.1145/3706598.3713250

Zhang, P. (2008). Toward a positive design theory: Principles for designing motivating information and communication technology. https://doi.org/10.1016/S1475-9152(07)00204-9

Authors' Contributions

M. Asha: Conceptualization, Methodology, Formal Analysis, Investigation, Writing - Original Draft. N. Ajith Kumar: Conceptualization, Methodology, Writing - Review & Editing, Supervision. Both the authors have read and agreed to the published version of the manuscript.

Does this article screen for similarity?

Yes

Ethics approval

No ethical clearance certificate is applicable for this present study.

Conflict of Interest

The authors have no conflicts of interest to declare. There is also no financial interest to report. The author certifies that the submission is original work and is not under review at any other publication.

About the License

© The Author(s) 2025. The text of this article is open access and licensed under a Creative Commons Attribution 4.0 International Licenses

Cite this Article

M. Asha, N. Ajith Kumar, Interface Design and Employee Well-being in the Digital Workplace: The Role of Basic Psychological Need Satisfaction. Asian Journal of Interdisciplinary Research, 8(3), (2025) 29-40. https://doi.org/10.54392/ajir2533