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Role of Technostress in Consumers' Behavioural Intention to use Augmented Reality Applications

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Abstract

Augmented reality (AR) can enhance the physical world by adding digital information a computer generates in real-time. The ability to provide (virtual) goods creates exciting opportunities for users to interact with the company and its products. Although the market for augmented reality technology is predicted to grow exponentially by the year 2030, and many businesses have already tried to use the technology to expand their operations, it is unclear whether AR can improve consumers' shopping habits and produce positive results like increased behavioural intentions to use augmented reality apps. This paper employs an experimental methodology to ascertain the causal effect of several AR applications on the University of the Punjab Institute of Business Administration students to fill the research gap statistically. Executive students have been selected as a suitable sample to uncover influences on behavioural intentions experimentally. Lastly, the retail-focused AR application is believed to affect behavioural intentions through high augmentation and interactivity, leading users to purchase AR apps. However, technostress was not a significant driver, having an insignificant mediating effect between augmentation, interactivity, and behavioural intention to use AR applications.

Keywords: Augmented reality, virtual technology, interactivity, technostress, behavioural intention, consumer behaviour. SOR Model

Introduction

In a world of emerging technologies, augmented reality (AR hereafter) has recently gained significant popularity. AR enables users to superimpose digital information onto the real world, creating a seamless integration[1]. [2]Described a hybrid experience merging physical reality with context sensitive virtual data; AR is harnessed for enhanced customer engagement through AR mobile marketing. [3]Define AR as a real time three dimensional (3D) model that enriches the view of the physical world on smartphone screens. Since Ivan Sutherland's pioneering head-mounted prototype in 1960, augmented reality has evolved substantially[4]. AR users can simultaneously experience their surroundings while immersing in synchronised sights and sounds tied to their 3D orientation[5]. AR's applications span diverse sectors, including healthcare, education, gaming, automotive, aviation, and marketing, shaping industries around existing offerings[6]. Coined in the early 1990s by Boeing scientists, AR's widespread use burgeoned[7]. Factors like the Global Positioning System (GPS), technological innovation, cost reductions, global internet adoption, and increased portability have improved AR's value[8]. As indicated by Google Trends, a nearly 400% increase in AR's popularity over the past decade underscores its rising prominence. Industry giants such as Google, Amazon, Microsoft, Snapchat, Facebook, IKEA, Adidas, and Apple have ventured into AR solutions[9] [10].

Existing empirical research on consumers' perceptions of AR apps as a method for producing salient media features of AR technology yields conflicting findings. For example, a deep dive into the literature reveals a noticeable interest among researchers in deciphering how diverse media attributes vividness, usefulness, telepresence, and novelty culminate in desired outcomes such as positive brand attitudes, purchase intentions, consumer engagement, impulse buying, and usage intention[11] [12] [13]. Moreover, certain studies indicate that AR qualities impact users' attitudes and behavioural intentions when engaging with AR apps[14]. However, this journey has not been without its challenges. A consensus remains elusive among academics

regarding the technostress experienced by users of AR apps[15]. Considering the Stimulus Organism Response (SOR) model, a comprehensive understanding of the media attributes that contribute to stress and how they intersect to shape consumer behavioural intent is imperative. Such insights cater to multiple stakeholders, including academics, practitioners, and theorists, given the heterogeneous empirical findings and the growing interest of practitioners in AR marketing applications[16]. The practical implication is that practitioners can make more informed decisions about targeting, positioning, advertising, and engagement strategies. Theoretically, resolving this ambiguity would enrich the literature on AR marketing. In this pursuit, we have undertaken a quantitative analysis of empirical studies on AR apps in retail, focusing on the relationship between media properties, technostress, and consumer behavioural intention[17].

The long-established commercialisation of augmented reality has dramatically altered how people currently carry out tasks, primarily due to the technological and COVID-19 pandemic shift; however, consumers continued to shop online than before the pandemic due to their experiences. According to[18], in the next five to ten years in the USA, industry analysts predict that the adoption of AR technology will increase significantly, with healthcare holding the highest hopes. Moreover, the results demonstrate a notable rise in AR usage in the Architecture, Engineering, and Construction (AEC) sector between 2017 and 2019. [19] Analysed how augmented reality (AR) will enhance Nigeria's criminal justice system.[20] Studied the effects of AR-based laboratory testing in Germany, and augmented reality (AR) seems ideal for providing information during testing since it may combine both actual and virtual lab activity. Gains in conceptual understanding via cognitive load learning were only visible for the lab activity supported by AR technology. [21]Discovered that telepresence on AR and product information could influence customer purchasing decisions in a favourable way in Indonesia. Surprisingly, there was no discernible difference in purchasing choices between traditional websites and brick-and-mortar stores, two alternative purchase channels that show that female customers are more likely to concentrate on the things they wish to buy than on the technology and medium of purchase.[22] Explored the visualisation of the information

revolution; he highlighted immersive 3D techniques like Augmented Reality (AR), which are especially well-suited for these uses than 2D information. Spatial augmented reality (SAR) is the most effective method for visualising distilled data on the status and administration of a smart city, such as Dubai's intelligent city system. According to [23]The nations that investigated augmented reality and gamification integration into education the most were the United States, Spain, Portugal, Greece, China, Taiwan, and Malaysia. Most studies were released in 2020. Most research addressed STEAM-related topics and issues that students encounter daily, concentrating on higher education as the educational stage.

Pakistan has a consumer base that is constantly expanding, but marketers are not making the most of technology's potential to improve product visibility. Mobile communication became necessary as soon as people connected to wired links [24]. He further suggests that this generation is the most well-known mobile generation, with a vast coverage area and the capacity to accommodate many customers. This significant growth towards digitalisation in Pakistan has made marketers more concerned about their efforts towards efficient consumer relationship management. Now, Pakistan is one of the promising and fastest-growing e-commerce industries, having more than 500 call centres and IT firms, and their numbers are also steadily rising[25]. Technology consumption is relatively new for Pakistan shopping retailers as they used to buy and sell through brick-and-mortar traditional styles[26]. Another reason for this technological shift is the widespread COVID-19 pandemic, making everyone rely on smartphones; whether shopping for groceries or fashion, booking a cab or banking payments, everything turned into this little device by sitting at home[27]. Moreover, as the pandemic evolved, the information used to support decision-making changed with its progress, and the information's function and necessity for pandemic management grew with time. Therefore, it's crucial to comprehend the type of services, products and information accessible at various points of touch in this post-pandemic era in Pakistan[28].

According to the[29] study from mobile data and analytics platform App Annie, Pakistan is ranked 12th among the major mobile markets by app downloads, as they reported 2.604 billion app downloads in 2021, raising from 2.05

billion in 2020 and 1.61 billion in 2019. At the beginning of 2023, with 36.7 per cent internet penetration, there were 87.35 million users in Pakistan. Also, with 133.98 billion hours spent on apps in 2021, up from 104.4 billion in 2020 and 73.98 billion in 2019, Pakistan ranks sixth among the top mobile markets[30]. Moreover, as of January 2023, 71.70 million people in Pakistan, or 30.1% of the total population, were active on social media. Eighty-five per cent of Pakistan's population, or 191.8 million active cellular mobile connections, were in the country in 2023.

Table 1. Telecom Indicators Pakistan in 2023 (PTA, 2023)

Metric	Number	Percentage
Internet Users in Pakistan	87.35 million	36.70%
Social Media Users in Pakistan	71.70 million	30.10%
Cellular Mobile Connections in Pakistan	194.8 million	82.50%
Mobile Broadband Subscribers	125.41 million	52.79%
Broadband Subscribers	128.3 million	54.13%

In Pakistan, AR technology's use is in its early stages, with limited acceptance and adoption. Several reasons contribute to this situation. Firstly, a lack of awareness about the potential benefits hampers AR's adoption. Secondly, research gaps exist in understanding the acceptance of mobile AR apps in developing nations. Thirdly, incomplete development of crucial AR components may deter adoption, especially in emerging cultures. Lastly, the absence of regulations governing AR's development and usage might influence consumer disinterest, particularly in AR shopping apps[28].

The current study intends to advance the literature by analysing the variables that affect consumers' behavioural intentions to use AR shopping apps. However, to my knowledge, no comparable research has been conducted in Asia and Pakistan[26]. Meanwhile, developed countries have been the focus of most related literature research on adopting AR technologies and applications[27]. However, not much research has been done in developing countries. As indicated, relatively little study has been done on how AR technology and applications are adopted in Pakistan[31]. Little research has

been done on the topic in this world region, particularly when examining the uptake of mobile AR shopping apps[26]. Therefore, this study tries to investigate and comprehend the elements responsible for the uptake of mobile AR apps in Pakistan. As a result, this kind of study fills in a research gap in the existing literature. Overall, the current study adds to our understanding of this new field of study, especially regarding contexts in developing countries, while also strengthening our vision and recognising our limitations[32] [33] [34]. This investigation is particularly relevant since the research on AR in commerce has gained momentum during this period. The ensuing sections comprehensively detail sample selection, study methodologies, and analytical approaches.

I. Theoretical Review and Hypothesis Development

Augmented Reality (AR)

Augmented reality (AR) is a type of technology that allows virtual objects to be immersed in the natural environment using augmented reality technology via mobile application[6]. Augmented reality permits the addition of another layer of the virtual world to the physical world[9] [35]. A computer or smartphone camera allows users to explore their surroundings with virtual objects projected on them[31] [36]. Many businesses, however, lack the expertise and capacity to enhance interactive customer experiences that may reach and fully engage their customers[8]. It is necessary to understand how AR marketing differs from other marketing techniques in that it creates and provides immersive customer experiences. The extensive methodology offered in this paper will give readers a deeper understanding of user experiences, attitudes, and behaviours in AR contexts[37] [38]. Numerous AR characteristics are described in the existing literature, including interaction, augmentation, vividness, novelty, spatiality, physical control, and contextual embedding[6] [7] [39]. Augmentation and interactivity are two critical characteristics of AR applications that predict consumers' behavioural intention to use AR apps[2] [40].

Stimulus-Organism-Response (S-O-R) Model

Stimulus-Organism-Response (S-O-R) framework successfully describes behavioural intentions caused by several stimuli and cognitive components. The S-O-R model's adaptability makes it possible to examine a wide range of internal and external stimuli like emotions, beliefs, perceptions, and attitudes,

incorporating experiential or non-experiential organisms interpreting responses like behaviour and intentions[41]. This model has been tested in a variety of consumer behaviour studies, including the impact of the store environment on impulse buying behaviour[42] cost effects, country of origin, and production preference for organic food[43], users behaviour in smartphones market[44], online customer behaviour, as well as the contexts of tourism and hospitality research[45] [46]. Environmental psychology is the origin of the SOR model, which has formed the foundation for research on consumer behaviour throughout the years[47]. The SOR model's main idea is that people's internal (O) affective assessments are influenced by a stimulus (S), which prompts them to either approach or stay away from a stimulus (R).

Augmentation (AUG)

The ability to overlay the real world with the virtual environment is augmentation[7]. Augmentation is the technology that improves or overlays virtual content, such as text and visual content, over the natural world, providing comfort in purchase decisions on smartphones, laptops, and other devices[34]. AR-based apps give a "para-authentic" direct experience by integrating digital content into reality to deliver deeper sensory information about the product and enable real-time interactions[15]. As a result, the augmentation of augmented reality apps works as a stimulus that allows customers to see how things fit into their environments or themselves. The augmented experience, offering unique and compelling features, has the potential to positively influence users' perceptions of the app's value, utility, and usability. Based on the SOR model, they have developed the idea of augmentation as a conspicuous media property that produces delightful usage intention for users of AR-based apps[34]. The key concept of augmentation is approaching[48] definition of service augmentation, operationalised through simulated physical control (i.e., the capacity to make natural movements with the product) and environmental embedding (i.e., the visual incorporation of digital content into a person's real-world environment). It leads to users' heightened intentions to embrace and incorporate the AR app into their routines. As such, a hypothesis emerges that a positive relationship exists between augmentation and users' behavioural intentions, with the augmented

features acting as catalysts for increased intent to use the AR app; thus, we hypothesise.

Hypothesis 1: There is *a significant relationship exists between augmentation and behavioural intention to use AR apps.*

Technostress (TS) is anxiety or adverse psychological effects brought on by using technology, information, and communication systems[49]. Previous research has argued even while technology can produce positive results, it is vital to analyse how people will embrace and use these AR applications before deciding whether they will be valuable tools for users in the long run[49] [50]. Numerous studies have found a statistically significant association between technostress and a person's propensity to shop online in the modern era. Digital operations' TS is sometimes described as a multi-dimensional notion and is frequently categorised as the assumption of underlying hazards when more and more technology is used. Studies[51] [52] have shown that users believe using an AR app for shopping is less efficient and more time-consuming, and these perceptions influence their usage intention in a way that deters them from doing so. Only a few studies have investigated the precise stressors of mobile app usage and users' technostress. [52] Looked at the stressors associated with business personnel using mobile communication after hours. They explored that life intrusion, social instability, and work-home conflict are the vital causes of workers' technostress that negatively predict their life satisfaction. According to the researcher, no study has examined the causes and effects of technostress caused by increased university students' usage of technology and AR apps. Students are a unique group who use technology and AR apps frequently[49]. By looking into these associations, it might be possible to comprehend better students' AR app technostress and behavioural usage intention intervention. Based on these arguments, we hypothesise.

Hypothesis 2: *A significant relationship exists between augmentation and technostress.*

Interactivity (INT)

Interactivity refers to how much a user can alter the material in real-time, increasing user involvement[48]. Higher levels of interactivity are typically manifested in control, customisation, and a more excellent range of navigation

possibilities.[7] Posed interactivity as the ability of a technology system to facilitate easier interaction and involvement with the subject or content. Interactivity is the extent to which users may move, rotate, and zoom in and out on a 3D image of a product using AR, which increases user interaction with the products[2].[53] claimed that interaction in AR context refers to the consumer's capacity to manage what they perceive in a fusion of the natural and virtual worlds; when people want to be associated with AR technologies, interaction results.

Consequently, the behavioural intention to use AR app technology would only occur if the prospective users perceived it offers features and benefits that are even more popular online shopping apps like VR or 2D. Additionally, literature is evident that AR's interactivity offers consumers benefits, which eventually leads to inspiration while examining the influence of AR on customer engagement towards their behavioural intention[10]. However, the findings of numerous types of research regarding technology acceptance and online shopping apps have also concluded that INT does not significantly influence AR app usage intention[7].

Hypothesis 3: *There is a significant relationship between interactivity and behavioural intention to use AR apps.*

It is proposed that while high interactivity towards the AR app may generally contribute to higher behavioural intentions, the presence of technostress could potentially mediate this relationship[50] [54]. Technostress might act as a dampening factor, hindering the translation of interactivity into solid behavioural intentions to use the app[55]. In the current study, a person's technostress is evaluated by looking at their level of discomfort and irritation while interacting and perceiving the utilisation of real-time environment technologies on mobile via an AR app. Interactivity using AR apps has drawn academics' attention more recently because of its widespread use and unsettling effects[54] [34]. According to studies by [50] [51] [52], highly interactive AR app has a negative effect on user's technology-associated stress.

Additionally, several studies discovered that using AR technology with high levels of interactivity is likely to cause technostress[49] [55]. This study is the first to study the effect of interactivity on the technostress on the student's

psychology while using AR technology in shopping apps. In the light of discussion, the present study proposed a hypothesis that:

Hypothesis 4: There is a significant relationship between interactivity and technostress.

Technostress (TS)

The term "technostress" was first used by Brod in 1984 [56], who described it as a contemporary sickness of adaptation brought on by a failure to adjust to new computer technology healthily[57]. According to[58], Bord mentioned that the main symptom of technostress is worry, but it can also manifest as perplexity, fear, and technophobia. Technostress is anxiety or adverse psychological effects brought on by using technology and information and communication systems[49]. Past research has shown that users believe using an AR app for shopping is less efficient and more time-consuming, and these perceptions influence their behavioural intention in a way that deters them from doing so [51] [52]. Technostress was also defined as "the stressful users' experience because of application multitasking, constant connectivity, information overload, frequent system upgrades and the ensuing uncertainty, constant relearning, the ensuing job-related insecurities, and technical issues related to the organisational use of ICT" [32]. According to [48], technostress impacts physiology by triggering cognitive and affective brain functions. The human brain frequently examines these environmental stimuli subconsciously following the perception of stressors. That resulted in their hesitant attitude towards the AR app, significantly negatively affecting behavioural usage intention.

Similarly,[51] explored the effect of five stressors of technostress on employees' behaviour: technological overload, technological invasion, technological complexity, technological insecurity, and technological uncertainty.[59] Explored the technostress relationship with e-retailers intention to the adoption of cryptocurrency considering technology involvement and found that negatively influencing the behavioural intention to adopt cryptocurrency, aligning with the results of solid overlap of TAM and SOR used in the study[60]. Since the results of technostress and behavioural intention to use are still inconsistent and there aren't many studies that look at how technostress

impacts the consumers' behavioural intention in the field of augmented reality application, we hypothesise:

Hypothesis 5: *There is a significant relationship between technostress and behavioural intention to use AR apps.*

The Mediating Effect of Technostress

Brod invented the word "technostress" in 1984, which describes the mental condition in which a person fails to manage technology healthily[56]. The phrase "stress or psychosomatic illness caused by daily computer use" has also been used to describe it (Oxford Online Dictionary, 2018). Numerous academics have looked at technostress in the use of mobile apps. They discovered that users' technological stress is positively predicted by obsessive use of mobile apps[61] [50] [54] [58]. Few researchers have looked at the precise stressors that contribute to consumers' technostress when using augmented reality (AR) apps[62] [57]. They looked at the stressors associated with business personnel's use of AR apps or to make shopping like IKEA and play games like Pokémon Go after hours[14]. The relationship between the two key attributes of augmented reality apps, augmentation and interactivity, is influenced by the presence and mediation of technostress, with higher technostress levels potentially weakening the impact of augmentation and interactivity on users' behavioural intent to adopt the AR app and the vice versa[63]. However,[64] examined the influence of technostress in the context of college students using their AR apps for e-learning purposes. The results showed that technostress had no significant impact on usage intention. As a result, the research on the influence of technostress on the relationship between augmentation and interactivity with behavioural intention is contradictory. University students now widely use AR apps as valuable instruments for shopping, learning, communication, and entertainment[2]. Technostress and its connections to consumer behavioural intention to use AR apps have been thoroughly studied in IS research[65]. [66]Studied the effect of technostress inhibitors on the perceived acceptance of sales force automation and sales performance using the UTAUT model. However, researchers have operationalised this as the inability to manage the information required to combat augmented reality app technology. Thus, it is crucial to comprehend

how technostress affects consumers' behaviour towards AR app usage intention. Hence, we temporarily hypothesise,

Hypothesis 6a: *Technostress mediates the relationship between augmentation and Behavioral Intention to use AR app.*

Hypothesis 6b: *Technostress mediates the relationship between interactivity and Behavioral Intention to use AR app.*

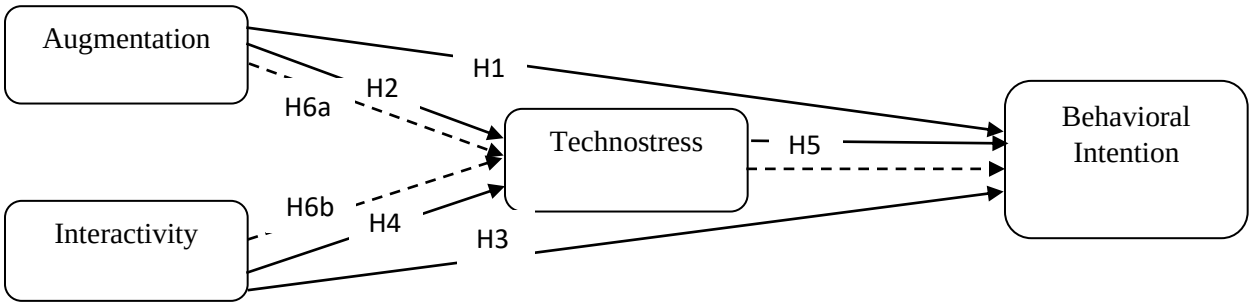

Fig. 1 Hypothesised framework

3. Research Methodology

3.1 Questionnaire Design, Measures, and Data Collection

This study aims to determine which elements influence consumers' behavioural intention to use augmented reality apps for shopping in a setting of a developing country, Pakistan. A four latent variables research model is created to achieve the goal of the current empirical investigation. The study will use a quantitative technique, which primarily needs data collection, to test the research model. The questionnaire was designed using questions that had already been verified and utilised in earlier published studies. A few items were reworded to fit the perspective of the current analysis by self-administration. The present study used an online questionnaire survey to collect data from the executive masters' students at the University of the Punjab, Business Administration Department. The Likert scale was utilised in this study, and items with a 5-point scale (1 being "strongly disagree" and 5 being "strongly agree") were used to operationalise each construct. Within 2 months, the researcher got 252 responses from the students after a

completely controlled environment setup, where the researcher showed and let the students use AR apps in their mobile phones within the lab, whether it be furniture AR app like IKEA, footwear AR app like Adidas, makeup AR app like Loreal Makeup, or eye wearable AR app like Lenskart, any of their choice. Table 2 shows the demographics of the respondents.

Table 2 Demographics

Profile	Frequency	Percentage
Gender		
Male	154	61%
Female	98	39%
Age		
18-24	93	37%
25-34	150	60%
35-44	6	2%
Above 44	3	1%
Occupation		
Student	74	29%
Business owner	45	18%
Job holder	124	50%
Housewife	6	2%
Others	3	1%

There were two sections of the questionnaire. The introduction and demographics were discussed in the first section, while the second section comprised all constructs and their related items. The technostress four-items scale was adopted from[67], for augmentation, the seven-item scale was adapted from[68] for interactivity, four-items scale was adopted from[69] and for behavioural intention to use five-items scale was adapted from[70] respectively.

Data Analysis and Results

Measurement Model

This study analysed the data and the relationships based on the measurement and structural models using Partial Least Squar-Structural Equation Modelling (PLS-SEM). This study used reliability, discriminant, and convergent validity to analyse the measurement model. Composite Reliability (CR) was analysed to assess the internal consistency reliability. Table 3 shows

that the values of CR for all the constructs were ≥ 0.708, which shows satisfactory composite reliability. Average Variance Extracted (AVE) was used to analyse the convergent validity of all the constructs. Table 3 shows that the AVE values for all the constructs were satisfactory, as the AVE values are ≥ the threshold value of 0.50.

Table 3. Validity and reliability for constructs

Constructs	Items	Loading	CR	AVE
Augmentation	AUG1	0.776	0.846	0.506
	AUG2	0.651		
	AUG3	0.793		
	AUG4	0.738		
	AUG5	0.708		
	AUG6	0.638		
	AUG7	0.660		
Technostress	TS1	0.842	0.873	0.652
	TS2	0.862		
	TS3	0.760		
	TS4	0.761		
Interactivity	INT1	0.760	0.774	0.595
	INT2	0.799		
	INT3	0.777		
	INT4	0.748		
Behavioural Intention	BI1	0.814	0.876	0.656
	BI2	0.833		
	BI3	0.842		
	BI4	0.827		
	BI5	0.727		

Discriminant validity explains that the constructs are unrelated and not reflected by each other. The current study used the Heterotrait-Monotrait (HTMT) ratio to assess the discriminant validity, as HTMT identifies 95% discriminant validity. Table 4 shows that the data is discriminant validated as all the values are less than the threshold value of 0.8 [71] [72].

Table 4 Heterotrait-Monotrait (HTMT)

	AUG	BI	INT	TS
AUG				
BI	0.712			
INT	0.832	0.728		
TS	0.140	0.110	0.094	

Structural Model

After assessing the measurement model, the next step is to examine the structural model. This study also examined the multicollinearity. Table 5 shows that all the VIF values are less than 3.3, indicating no multicollinearity issue[73].

Table 5. Collinearity statistics VIF

	AUG	BI	INT	TS
AUG		2.27		2.27
BI				
INT		2.291		2.27
TS		1.02		

Table 6 shows the direct relationships among independent and dependent variables. The results show a significant relationship between augmentation and behavioural intention with ($\beta = 0.364$; t-value = 4.538, and p-value $\leq$ 0.05). The relationship of augmentation and technostress was also significant with ($\beta = -0.256$; t-value = 2.366, and p-value ≤ 0.05). Moreover, the relationship between interactivity and behavioural intention was also significant ($\beta = 0.336$; t-value = 4.081, and p-value ≤ 0.05). Similarly, interactivity and technostress also have a significant relationship with ($\beta = 0.204$; t-value = 1.680, and p-value ≤ 0.1). This shows that H1, H2, H3, and H4 were accepted. Besides, the table shows that H5 was rejected. Table 6 shows that the relationship between technostress and behavioural intention was insignificant, with the p-values > 0.005. and t-values < 1.645.

Table 6 Direct Hypothesis Results

Hypothesis	β-value	t-value	p-value	Decision
AUG -> BI	0.369	4.668	0.000	Accepted
AUG -> TS	0.001	0.006	0.995	Rejected
INT -> BI	0.323	3.978	0.000	Accepted

INT -> TS	-0.14	1.08	0.280	Rejected
TS -> BI	-0.079	1.407	0.160	Rejected

The current study also explored the mediating effect of technostress among the relationships of augmentation, interactivity, and behavioural intention. Table 7 shows the results of the relationships, which show that technostress is not significantly mediating among the relationships. So, the hypotheses H6a, and H6b were rejected.

Table 7 Mediating relationships

Hypothesis	β-value	t-value	p-value	Decision
AUG -> TS -> BI	0.006	0.377	0.706	Rejected
INT -> TS -> BI	-0.005	0.33	0.741	Rejected

Conclusion

This study explored the relationship between augmentation, interactivity, technostress, and behavioural intention. The study also examined the role of technostress as a mediator. The results revealed a significant positive relationship between augmentation and behavioural intention, and the results are in line with previous research such as[48] [16] [34]. The result suggests that when users perceive technology as augmenting their capabilities or enhancing their experiences, they are more likely to intend to use it for their tasks or activities. Similarly, a significant negative relationship was found between augmentation and technostress. Previous research, such as[49] [50], also revealed the same results. The result implies that as technology augments users' abilities, it tends to reduce the levels of technostress they experience, possibly due to increased ease of use and effectiveness.

The study also identified a significant positive relationship between interactivity and behavioural intention, which indicates that higher levels of interactivity in technology applications are associated with a greater intention to use them for various purposes. While there was a relationship between interactivity and technostress, it was significant but less pronounced; past research also revealed the same results[50] [54]. This suggests that although increased interactivity may slightly contribute to technostress, it is less influential than other factors. Surprisingly, the analysis revealed no significant

relationship between technostress and behavioural intention. This unexpected result suggests that technostress alone may not significantly impact users' intention to use technology, indicating the need for further investigation into the factors that mediate this relationship. Future studies may also consider the importance of technostress and further examine this variable to a large extent, which may offer different, unique, or positive results.

Implications

The positive relationship between augmentation and behavioural intention underscores the importance of designing technology solutions that enhance users' abilities and experiences. Developers should focus on creating tools and applications that augment users' capabilities to increase their intention to use them. The negative relationship between augmentation and technostress highlights the potential of technology to alleviate stress related to its use. Organisations should implement strategies to reduce technostress by incorporating user-friendly features and providing training to mitigate technology-related stressors.

The significance of interactivity in driving behavioural intention emphasises the importance of user engagement and interaction design in technology development. Interactive elements in applications can boost user interest and encourage prolonged use. The lack of a significant relationship between technostress and behavioural intention raises intriguing questions. Future research should delve deeper into the mediating factors influencing this relationship, such as coping mechanisms, support systems, or individual differences among users. These findings could inform and refine existing technology adoption models, such as the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT), by incorporating augmentation and interactivity as crucial factors influencing users' intentions.

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