



Creative Outcome of Employees in New Office Design: The Mediating Effect of Positive Work-Related Behavior

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ABSTRACT

A work environment can have both positive and negative, direct and indirect effects on employee performance in terms of creative outcomes and productivity. Open floors are the most common design form, giving businesses more flexibility in space layouts and taking up less space for each employee, thereby reducing real estate costs. This paper examines the impact of uncontrollable working conditions in open-plan offices on creative outcomes. The study examines the mediating role of employees' work-related behaviour in relation to social interaction and well-being at work. The Partial Least Square Structural Equation Model (PLS-SEM) was used for data analysis in this study. The respondents were 117 office workers in a creative multimedia company in Iran (Tehran). This study showed that open-plan offices improve employees, social interaction, and overall employee communication by increasing their closeness and reflecting a more democratic work culture. Team members support and motivate each other by sharing knowledge and communicating with each other. In addition, positive work-related behaviours in the form of positive feelings, well-being, and sharing of information and ideas should develop and foster connections between employees, which can lead to the facilitation of creative outcomes. Creative and innovative companies are aware of this fact, which is why they seek to develop their work environments and, in particular, use open workspaces to foster their creative outcomes.

Keywords: open-plan layouts, communication, creative outcome, positive work-related behaviour, well-being

1. INTRODUCTION

People come to work with different expectations that can affect and vary the workplace. Office design and furnishings play an important role in the lives of employees. Therefore, a well-designed office space where employees can collaborate and be creative and productive is highly valued. The concept of open-plan offices was introduced years ago as part of the new forms of work. There are different names for this type of office design, such as collaborative workspaces or flexible, activity-based workspaces. Nowadays,

open-plan offices are the new, cheaper way of office design, where only top management gets private office space. Open-plan offices require less square footage than traditional private offices and are more flexible. Evidence suggests that open workplaces allow for open and easy communication that allows workers to share information more quickly, easily, and informally. In effect, everyone sits at the same table, and workplace discussions can flow freely. In addition, open-plan offices are time-saving because employees can approach each other and ask questions instead of emailing or calling. On the other

hand, open-plan offices, by creating distractions, prevent employees from focusing on their tasks and can cause them other problems as well (Abdullah & Alibaba, 2020; Ayoko & Ashkanasy, 2020; Brennan et al., 2002; Minutillo et al., 2020; Perrin Jegen & Chevret, 2016). However, the popularity of such insights has not stopped the tendency of employers to favour, support and use open-plan workplaces.

In open design, all employees from different teams work together in one large, common area. One of the main reasons for creating open-plan offices is to improve internal communication and encourage creative thinking in the workplace. After all, when multiple employees are housed in the same space, their interaction is easier. This fact benefits both the employees on the same team and the interaction between teams. It has been found that employees who sit within 30 meters of each other share significantly more knowledge than employees who are farther away. In fact, proximity and more communication in the workplace can build friendships between employees and promote their overall well-being at work. On the other hand, some employees come with uncontrollable working conditions, such as the lack of privacy for private conversations, and need more control over their territory or workplace with this type of office design. In this sense, previous studies have shown that allowing employees to choose their own physical environment leads to better employee outcomes, better mood, and better social relationships (Brennan et al. 2002; Budiharso & Tarman, 2020; Galasiu & Veitch, 2006; Huang et al., 2004; Paciuk, 1990; Parker et al., 2013; Samani & Alavi, 2020; Samani et al., 2018; Vega et al., 2020; Veitch & Gifford, 1996). Previous studies propose that environmental control is needed to enhance social interaction and well-being (Brennan et al., 2002; Colenberg et al., 2021; Dmitrenko et al., 2020; Huang et al., 2004; Kim & de Dear, 2013).

Open workplaces reduce environmental boundaries, leading to more team and group work among residents and better use of space. In this regard, some studies recommend that open-plan offices facilitate collaboration among employees who are in close proximity to each other (which is considered an advantage of this type of workplace design) (Brennan et al., 2002; Kim & de Dear, 2013; Lee & Guerin, 2009; Lee & Brand, 2005; Navai & Veitch, 2003; Samani & Alavi, 2020; Veitch et al., 2007). In contrast, other studies proposed

that open-plan workstations do not facilitate collaboration, communication, and social contact group works among employees (Birnholtz et al., 2007; Brennan et al., 2002; Jo & Jeon, 2022; Kim & de Dear, 2013; Passero & Zannin, 2012). As previously mentioned, there are many issues associated with open office design, such as excessive noise, lack of privacy, the presence of others, increased workload, social issues, and distraction from myriad environmental conditions (Ayoko & Ashkanasy, 2020; Baldry & Barnes, 2012; Banbury & Berry, 2005; Duval et al., 2002; Jahncke et al., 2011; Jeon et al., 2022; Rashid et al., 2009; Roelofsen, 2008; Vega et al., 2020). In addition, these distractions often lead to negatively affecting individuals' satisfaction (both environmental and job satisfaction) (Lee & Brand, 2005; O'Neill, 2008), enhanced physiological stress (Chen et al., 2020; Lee & Brand, 2010; Rasila & Rothe, 2012), and have a negative effect on individual's outcome (Baldry & Barnes, 2012; Carnevale, 1992; Chen et al., 2020; Davis et al., 2011; Elsbach & Pratt, 2007; Hua, 2007; Jeon et al., 2022; Lee & Brand, 2010).

The term "workplace" is an appropriate combination of place, equipment, and technology that can support and facilitate the nature of work and maintain employee work-related behaviours, satisfaction, productivity, and loyalty (Rice & Mitchell-Ketzes, 2003). It is also essential to say that many of the work environment problems and solutions for promoting creativity are very similar to those for promoting positive work-related behaviour. Evidence shows that positive work-related behaviour in the workplace not only promotes employee creativity but also promotes employee comfort, well-being, and safety. In this vein, Dul and Ceylan (2010) described that positive work-related behaviour in terms of positive mood in the workspace could mediate or moderate the relationship between the work environment and creativity and the relationship between the health, safety and comfort of the work environment. Moreover, the aim of human factors and ergonomics in the work environment is to design a workplace for positive human work-related behaviour and overall outcomes (Park et al., 2021; Volery & Tarabashkina, 2021).

The psychological comfort proposed by the Environmental Comfort Theory links psychosocial characteristics to environmental design and workplace management. This connection occurs through the concepts of territoriality, privacy and control (Vischer,

2007). The sense of territory, both individual (e.g. office and workplace) and group territory (e.g. team and group), affecting the quality of conversations are the main and key elements of psychological well-being. As shown previously, humans declare their territory through the design and personalisation of space, which includes marking their territory and establishing their own social connection and ability to control their environment (Chen et al., 2020; Fischer et al., 2004; Lee et al., 2015; Morrison & Smollan, 2020). Therefore, in situations where individuals can control aspects of their work environment, this condition can positively affect their social interaction and lead to a more creative outcome.

Careful attention to the workplace design is a beneficial activity to promote employees' positive work-related behaviour and outcome. In this condition, employees feel valued by the management and organisation (El-Zeiny, 2012; Höppe & Martinac, 1998; Schilleci, 2022). Thus, the role of the work environment and its characteristics in influencing employees' positive work-related behaviours is noteworthy. In addition, satisfaction with the work environment plays an important role in positive work behaviour, well-being and employee performance. As previously mentioned, well-being and emotions (both positive and negative feelings) also play an important role in an individual's creative outcomes at work (Amabile et al., 2005; Fredrickson & Losada, 2005; Volery & Tarabashkina, 2021).

Consequently, the design and physical aspects of the workplace can promote or inhibit individual social interaction and overall creative outcomes. This study was conducted in the offices of Fakhre Tousehe Sanat (FTS) Group, a creative multimedia company in Tehran. The results of the study show that moving from a private office room to an open-plan office where employees sit around a table in the main hall (in groups of 4 to 6 people) has a significant impact on employees' creative work behaviour by improving communication and social contact. In addition, most of the offices in this study were landscaped.

2. LITERATURE REVIEW

2.1 Work Environment and Employees' Perception

The conditions and environment that employees encounter in office buildings affect their work-related behaviours (well-being, satisfaction, and social interaction) and overall outcomes (Knight & Haslam, 2010). In this regard, the work environment must be designed to motivate the people who work in it to behave better and achieve better results. Positive emotions and feelings help individuals cope with difficult and challenging conditions. The work itself and the work environment significantly impact individual well-being, which is well documented in the psychological literature and studies. Well-being and overall positive work-related behaviours play an important role in people's creativity (Amabile et al., 2005; Fredrickson, 2001). The feelings of the individual result from the relationship between their general mood and their well-being. Indeed, well-being plays a fundamental role in the creation of successful societies.

Emotions and well-being play an important role in fostering creativity in the workplace, as shown by empirical studies in the field of creativity (Amabile et al., 2005; Tang et al., 2021; Volery & Tarabashkina, 2021; Zhou & George, 2001). The importance of a subclass of positive emotions, which includes love, joy, happiness, and well-being, is mentioned in the broaden-and-build theory of positive emotions. Based on this theory, someone who is positive or happy has a better ability to be creative than someone unhappy or negative (Fredrickson, 2001). Therefore, it is possible to say that positive work-related behaviour in the workplace positively improves individual creative outcomes.

Due to the rapid growth of organisational development, problems related to the work environment can now be seen as endless challenges. In fact, problems related to workplaces are becoming more and more evident as work increasingly shifts from physical manufacturing to mental manufacturing (Gajdzik & Wolniak, 2022; Luck, 2003). In addition, the mental production of innovation is important to the success of organisations. It is enhanced by individuals' ability to design their physical environment to meet their personal and work needs. Thus, it can be assumed that the work environment and individual perceptions of the

workplace are key factors in an individual's work-related behaviours and outcomes.

Some important and serious aspects must be considered to create an efficient and healthy workplace. The environment of the workplace has several levels of meaning and value. Although the workplace itself does not elicit actions or behaviours, it can generally facilitate or diminish preferred behaviours and influence the energy and time users spend completing their tasks. Previous studies have shown the link between office interior design and employee health and well-being (Çağatay et al., 2017; Carlopio, 1996; Colenberg et al., 2021; Jo & Jeon, 2022; Kristanto et al., 2016; Leather et al., 2003; Lee & Brand, 2005; Schilleci, 2022). However, the effects of the new office design in the form of open-plan offices on employees' creativity and positive work behaviour at the workplace are hardly considered. A workplace's overall design and its influence on users is a very important concept. However, this influence is not only related to how people feel but also to their work performance, engagement, and creation of new knowledge (human capital) within the organisation. Therefore, studying the environmental characteristics and design of the workplace and human response is an important and essential area that needs more attention.

2.2 The Role of Uncontrollable Work Environment to Affect Employees' Work-related Behaviour and Creative Outcome

Environmental psychology and environmental behavioural studies (EBS) are two areas that deal with humans and their environment. They generally study the interactions between people and their everyday and socio-physical environment (Bonnes & Bonaiuto, 2002; De Young, 2013; Gifford, 2007; Walsh et al., 2000). These everyday environments include the home, workplace, school, and other community settings where people spend their time. The main theme of current workplace development is to consider the physical and social characteristics of the environment as an applicable system for creating better working conditions for employees' work lives. The environmental conditions employees experience in office buildings play an important role in meeting the needs of employees and promoting their satisfaction, well-being and productivity at work. Studies of organisational behaviour have found that the physical environment of the workplace can

affect employees' well-being, satisfaction, productivity, creativity, and motivation at work (Dul et al., 2011; Hameed & Amjad, 2009; Kupritz & Hillsman, 2011; Lee & Brand, 2005; McGuire & McLaren, 2009). In office design, there are different types of design, traditional and modern, including open-plan offices. Workplace design can affect employees' perceptions of work, work-related behaviours, and overall outcomes (De Croon et al., 2005). Within a workplace, tasks, social relationships and interactions, and the physical environment are some of the most important factors influencing organisational performance and functioning. In addition, studying the physical environment, which indirectly indicates equality and facilitates interpersonal contacts and relationships, is possible in organisations that value creativity.

As indicated earlier, a large percentage of employees agreed with the fact that a suitable working environment characterised by less noise, appropriate temperature, etc., in the office building promotes and supports their positive work-related behaviour and overall creative outcome at work. Therefore, favourable working conditions can also positively influence their behaviour, well-being, and social interaction with the work environment. According to Miller (2005), the level of creativity in the workplace is higher when there is a positive social climate. Therefore, social climate and interaction play an important role in fostering individual and collective creative ideas and mindsets and overall creative outcomes. Several theorists have also suggested that communicating ideas and information should encourage creativity (e.g., Amabile, 1996; Woodman et al., 1993). Social contact, cooperation and communication in the workplace should promote the individual's potential, creativity and performance (Colenberg et al., 2021; Schilleci, 2022). One of the key factors in the adoption of open plan offices was to develop and promote teamwork and communication among employees, and along with these two, to promote creativity; therefore, this type of office design is very popular in the creative industry to promote creativity and overall innovation in the workplace.

Positive work-related behaviours in the workplace (in terms of social interaction among employees and well-being in this study) have the potential to stimulate change in the workplace. It can foster positive

connections among employees, leading to breakthrough ideas and innovations and facilitating creative outcomes. Social interaction refers to the extent to which individuals communicate with each other, which should lead to a balance between stability and knowledge sharing and promote dynamism, creativity, and innovation. Employees need to socialise and have effective conversations in the workplace. In fact, effective conversation and communication among employees is an important component of successful organisations. Good communication skills in the workplace enable employees and the employer to work better and achieve higher and better results (creatively and productively). However, the importance of good social interaction and communication in an organisation is often ignored or disregarded. This situation can cause serious damage to the company, e.g. reduced productivity, waste of company resources, conflicts in the workplace and hindering creativity and profit.

Exhibit 1 shows the relationship between uncontrollable work environment (lack of personal control, presence of others, lack of privacy, uncontrollable noise), social interaction and creativity in open-plan offices

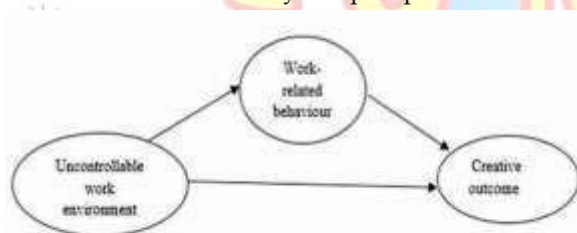


Figure 1. Relationship between uncontrollable work environment, work-related behaviour (in terms of well-being and social interaction and communication) and creative outcome in open-plan offices

In two well-known theories of creativity, namely the component model of creativity (Amabile et al., 1996) and the interactionist theory (Woodman et al., 1993), researchers assume that factors in the work environment, such as managerial support and social influences from group cohesion and interaction result are two notable conditions for fostering creativity. Perry-Smith and Shalley (2003) pointed out that theoretical and empirical studies in the field of creativity have addressed well-being and social relationships (in terms of interaction and communication) that affect creativity in general. However, little attention has been

paid to the effects of interaction with different people on communication and overall creativity.

Indeed, people are more likely to commute if they feel they have control over their work environment and privacy, especially for confidential communications. Open-plan offices, on the one hand, reduce personal control and increase environmental distraction, which affects an individual's satisfaction with the environment and the overall outcome (Baldry & Barnes, 2012; Çağ˘ atay et al., 2017; Charles & Veitch, 2002; Hongisto et al., 2016; Hwang & Kim, 2013; Marquardt et al., 2002; Samani et al., 2017). On the other hand, there is increased positive work-related behaviour, such as positive cooperation, social interaction, and well-being of individuals. In fact, different types of work environments have different effects on employee well-being, relationships, and interaction (Brennan et al., 2002;

Hua, 2007; Park et al., 2021; Rashid et al., 2009). Open-plan office design develops individual social relations that are necessary for creativity because of the low level of privacy and may enhance their creative outcome (Amabile & Pillemer, 2012; Brachos et al., 2007; Green, 2020; Samani et al., 2017; Volery & Tarabashkina, 2021). In the world of work, if both the individual and the environment meet and satisfy each other's needs, there will be a match. This means a positive relationship exists between the individual and the environment. Thus, if the environment meets and satisfies the needs of its inhabitants, they will feel more optimistic. Environmental psychology and psychological theories state that positive emotions, well-being, and satisfaction can improve people's appearance, results, and creativity in their work environment (Diener et al., 2020; Fredrickson, 2004; Harter et al., 2003; Vischer, 2007). However, the relationship between individual perceptions of the work environment and work-related behaviours and overall creative outcomes requires further investigation. Therefore, this study contributes to the investigation of this relationship. Thus, it is important to know how changes in office design affect individual work-related behaviour and overall creative outcome.

3. MATERIALS AND METHODS

3.1 FTS Group

FTS Group, which was established in 2010, is located in Tehran. The company focuses on the production of commercials and short films. The company is located on the first and second floors of an office building and employs 124 people in addition to two secretaries, an HR and an office manager. The office includes five individual rooms and a hallway for the secretaries and the HR manager. Four rooms for the employees and one for the office manager. The employees were in groups of five in each room (except for one room with four employees). In each room, one person sat behind a single desk arranged around the room. In this seating position, the individual had visual privacy and less interaction with other employees.

Based on previous studies of the effects of open-plan offices on individuals' social relationships, communication, well-being, and creativity, the organisation and office manager of the FTS group wanted to know if the office environment and uncontrollable working conditions affected employees' work-related behaviours (especially social relationships, communication, and well-being) and creative outcomes.

3.2 Assessing Work Environment to Influence FTS Group

After the replacement of workplaces (conversion from private rooms to an open space layout), the workplace of the FTS faction was characterised by a completely open space layout (landscape). The open-plan workplace includes a hall, two private rooms for the office manager and HR, and a meeting room on each floor. Employees sat in a group of five in the main office hall around a single table. Compared to previous workplaces, employees have less individual control over aspects of the work environment (and their privacy and territory), which can also lead to environmental distractions. A cross-sectional survey was used to examine the impact of "the office environment in terms of open plan office to affect employees' actions (mainly social connection, communication and well-being) and creativity.

In this study. One hundred seventeen office staff from FTS Group participated in this study.

The survey included 23 items about the workplace and employees' perception of the working condition and five items about personal demographics. Contributors were asked to use a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree) in responding. Various factors play a

part in the mode of a distributed survey like perception about the uncontrollable working environment (lack of control, presence of others, lack of privacy, uncontrollable noise) (8 items), employees' work-related behaviour (social connection and communication (5 items), well-being (5 items)) and creative outcome (5 items) in open-plan offices. Survey items used in this study were also successfully measured in prior studies (Lee & Brand, 2005, 2010; MacMillan, 2012; Samani et al., 2017).

Table 1. Outer Loading

	Outer Loading		
	Uncontrollable Work Environment	Creativity	Work-related Behaviour
Uc 1	0.7094		
Uc 2	0.7612		
Uc 3	0.7325		
Uc 4	0.836		
Uc 5	0.837		
Uc 6	0.801		
Cr1		0.802	
Cr2		0.7153	
Cr3		0.8159	
Cr4		0.7572	
Cr5		0.7503	
Wo1			0.8004
Wo 2			0.835
Wo 3			0.8029
Wo 4			0.7794
Wo 5			0.7594
Wo6			0.773
Wo7			0.7438
Wo8			0.8011

The survey questionnaire was manually distributed to 124 employees and two offices (except the HR and office manager) workers during working hours. Of the initial 124 responses, 117 surveys were found to be complete and trustworthy for data analysis, yielding a response rate of 91%. Of the participants, the majority were male (63%), and others were female (37%); 87% of employees were between 32 to 46 years old. In addition, the majority of participants had a master's degree (more than 50%), and about 47% of 5 latent variables using a multi-item scale. The final results of "convergent validity" after all exclusions are shown in Table 2 (factor

loading greater than 0.70 is acceptable). Although external loads between 0.40 and 0.70 should be considered for elimination; yet, elimination only makes sense if it results in an improvement in Composite Reliability or AVE. As indicated, the desired level of convergent validity for AVE is 0.50. In this context, two (out of eight) indicators of an uncontrollable work environment and two (out of ten) indicators of work-related behaviour were eliminated from the analysis. Thus, the nineteen elements in the conceptual model were retained for further analysis.

respondents had been with the FTS Group for more than four years.

4. RESULTS

Structural equation modelling (SEM) was used to examine the hypothesised model of the study. The measurement model of the current study contained 23 measured items and The matrix's main diagonal of the AVE coefficient of each construct, standard deviations (Brennan et al. 2002), scale reliabilities (CR), and correlations that are used in this study are displayed in Table 2. Based on the results of the study, there is a significant correlation between the dependent and independent variables and limited collinearity between the independent ones

Table 2. Means, standard deviations, reliabilities (CR), and correlations for reflective indicators

Variables	Mean	SD	AVE	CR	Discriminant Validity (Fornell-Larcker)		
					1	2	3
Uncontrollable work environment	4.37	6.758	0.569	0.856	0.778		
Creative outcome	4.51	6.110	0.690	0.894	0.452	0.752	
Work-related behaviour	5.06	5.409	0.533	0.896	0.497	0.636	0.789

Table 3. Direct Relationships

Hypothesis	Suggested Relationship	Path Coefficients	T-Value	Confidence Interval		P-Value	Support
				Low	Up		
H1- Uncontrollable Work Environment → Creative outcome	+	0.201	3.221	0.141	0.273	0.000	Yes
H2- Uncontrollable Work Environment → Work-related behaviour	+	0.387	6.241	0.312	0.471	0.000	Yes
H3- Work-related behaviour → Creative outcome	+	0.292	3.377	0.230	0.309	0.000	Yes

Note: The symbolises the arrows representing relationships.

Table 4. Mediator Analysis

Hypotheses	Indirect Effects	T-Value	Confidence Interval		Support
			Low	Up	
H4- uncontrollable work environment → Work-related behaviour → Creative outcome	$\beta_3 = 0.126$	2.843	0.097	0.151	Yes

4.1 Hypotheses Testing

As shown in Table 3, the three relationships between the latent variables in the structural model reached statistical significance. The direct relationships for all hypotheses reached satisfactory levels (t-value more than 1.65, for significant levels). In this study, the social interaction entity variables were hypothesised to mediate the relationship between uncontrollable work environment and creative outcome. To assess the mediating hypothesis, bootstrapping techniques (with 5000 resamples) and the full model PLS algorithm were used to obtain the path coefficient and its significant level (Wong, 2013). Hair et al. (2014) point out that the following formula estimates the path coefficient for indirect effects or mediators:

Path coefficient for indirect effects (β) = $\beta_{XM} \times \beta_{MY}$

This finding supported the mediating effect of work-related behaviour in the context of an uncontrollable work environment and creative outcome (Table 4).

5. RESULTS AND DISCUSSIONS

This study contributes to understanding the effects of uncontrollable work environments on employees' work-related behaviours and creative outcomes. The model tested shows that work-related behaviours have mediating effects and thus explains how an uncontrollable work environment (in terms of an open-plan office) can affect employees' creative outcomes. Overall, these results support and confirm the conclusions of Chen et al. (2020) and others that the physical and social aspects of the work environment influence employees' work-related behaviours as well as their well-being, environmental and job satisfaction, and overall outcomes, including creative and innovative outcomes, productivity, and performance. (Al-Anzi, 2009; Carlopio & Gardner, 1992; Colenberg et al., 2021; De Been & Beijer, 2014; Heerwagen, 1998; Jo & Jeon, 2022; McGuire & McLaren, 2009; Oldham & Rotchford, 1983; Schilleci, 2022; Shafaghat et al., 2014; Tetteh, 2012). In general, offices have the ability to provide and offer workers a sense of personal control, and the form and model of offices can also affect workers' positive work-related behaviours, as well as social relationships, health, well-being, and satisfaction (satisfaction with the workplace and environment). Open-plan offices are basically introduced to promote collaboration, well-

being, and easy communication, which is essential for creativity.

Typically, open-plan offices are thought to facilitate collaboration and social contact by reducing physical distance and promoting teamwork and creative outcomes. In addition, the majority of employees indicated that the proximity of this type of office design made them feel socially active and connected to their colleagues. The result of descriptive statistical analysis in this research shows that 50% of Fakhr Tousehe Sanat (FTS) Group employees reported feeling comfortable in the new workplace (open-plan office design after relocation). More than 60% of employees reported having easy access to each other, and more than 45% said their current work environment was conducive to their creative output. The designers and programmers who work in open-plan offices at FTS, a creative multimedia company, therefore believe that their workplace improves their level of communication and social interaction, which can positively impact their creative outcomes. They, therefore, believe that more positive social interaction significantly affects their ability to be creative.

Indeed, people are more willing to commute when they feel they have control over their work environment and privacy, especially for confidential communications. Open-plan offices, on the one hand, reduce personal control and increase environmental distraction, which affects individuals' satisfaction with the environment and overall satisfaction. outcome (Baldry & Barnes, 2012; Çağatay et al., 2017; Charles & Veitch, 2002; Hongisto et al., 2016; Hwang & Kim, 2013; Marquardt et al., 2002; Parady et al., 2021; Rese, Görmär, & Herbig, 2021; Samani et al., 2017). On the other hand, there is increased positive work-related behaviour, such as positive cooperation, social interaction, and well-being of individuals. In fact, different types of work environments have different effects on employee well-being, relationships, and interaction (Brennan et al., 2002; Hua, 2007; Rashid et al., 2009). Based on the results of the recent workplace replacement study at Fakhr Tousehe Sanat (FTS) Group, more than 77.8% of employees reported positive communication and social interaction in their new workplace (an 8.5% improvement compared to their private office space). These results support the findings of a previous study explaining the impact of social climate and support on

individuals' physical and emotional well-being in various settings (Parady et al., 2021; Repetti, 1987; Rese et al., 2021; Tymon & Stumpf, 2003). As can be seen from this study, open-plan offices have a positive effect on employees' work-related behaviours, as well as on the ease of communication, social relationships, and well-being necessary for individual and group creativity and creative outcomes. Based on the above discussion and evidence, many creative organisations are implementing open-plan offices to take advantage of these benefits.

The results of this study show that an uncontrollable work environment positively influences employees' work-related behaviours related to well-being and social interaction. Many employees in the FTS group (approximately 63%) reported feeling satisfied in the open work environment despite being unable to control some workplace factors. In fact, they reported that the current uncontrolled work environment had no negative impact on their work-related behaviour and overall creative output. In the work environment, correspondence occurs when both the individual and the environment meet and satisfy each other's needs. This means a positive relationship exists between the individual and the environment. Thus, if the environment meets and satisfies the needs of its inhabitants, they will feel more optimistic. Environmental psychology and psychological theories state that positive emotions, well-being and satisfaction can improve people's appearance, results and creativity in their work environment (Diener et al., 2020; Fredrickson, 2004; Harter et al., 2003; Vischer, 2007).

Positive work-related behaviours (in terms of well-being, social interaction, and communication) in the work environment can positively impact individual and group creative outcomes in the creative economy. It can be concluded that easier and more open communication and social interaction between employees leads to more creative outcomes. Many employees in the FTS group indicated that they feel more creative in their new workplace (72%), which encourages them to interact more socially. According to Amabile's Component Theory (1997), the presence of some factors in the workplace can enhance and encourage overall employee creativity. Environmental characteristics also affect employees' positive feelings and social interactions. The component theory of creativity is a comprehensive

model of the social and psychological components required for an individual to perform creative work. The theory is based on a definition of creativity as the production of ideas or outcomes that are both novel and suited to a specific goal. Therefore, more positive social interaction in the workplace increases the level of creative outcomes in creative industries. It can be concluded that a positive social climate and interaction play an important role in improving individual creative outcomes and overall innovation in the workplace. The design of open-plan offices promotes individual social relationships, which are necessary for creativity due to the low level of privacy, and can improve their creative outcomes (Amabile & Pillemer, 2012; Brachos et al., 2007; Green, 2020; Samani et al., 2017).

The result of this study (see above) is supported and explained by previous studies and theories. As previous research has shown, social events and relationships among workers in the work environment can be facilitated or constrained by some environmental characteristics such as the layout and size of spaces, flexibility, and proximity of the workplace (Budiharso & Tarman, 2020; Chen et al., 2020; Duval et al., 2002; Kim & de Dear, 2013; Minutillo et al., 2020; O'Neill, 2008; Vega et al., 2020; Veitch et al., 2007; Veitch et al., 2003). The fact is that people cannot walk through partitions or talk through walls, which means that private spaces and cells can limit their movement and collaboration (both physical and social). So, they confirmed that open-plan office design promotes social contact, collaboration, and communication in the workplace, which are critical to employees' collaboration, well-being, and satisfaction, as well as their overall creativity and creative outcomes. McLure Wasko and Faraj (2000) took environmental satisfaction and communication as two significant items for measuring social interaction and knowledge-sharing among co-workers in the work environment. Theorists in the field of creativity suggested that positive feeling, well-being and communication of information and ideas should develop and enhance creativity among individuals and groups at work (Amabile, 1996; Perry-Smith, 2006; Woodman et al., 1993; Zhu et al., 2022).

6. CONCLUSION

This study aimed to improve the understanding of how office design changes can be used to promote

positive work-related behaviours and creative employee outcomes. In general, one of the central and significant issues in open-plan office design is the level of environmental problems and distractions. Architects often look for evidence of the relationship between the effects of environmental features on individual behaviour and outcomes (creativity and productivity) at work. The results of this study suggest that it is important to pay more attention to the physical factors and elements of the workplace to highlight their importance and promote positive work-related behaviours and creative outcomes among employees. Workplace design that promotes accessibility and visibility for employees has been shown to increase their positive work-related behaviours, well-being, collaboration, and overall performance. In addition, the results of this study will further enhance understanding of the role of individual perceptions of workplace environmental features and work-related behaviours, as well as overall creativity at work.

Overall, the results of the study at FTS Group state that redesigning the work environment to better meet employees' needs can improve their positive work-related behaviours and overall results. This insight can help managers see the value of designing the work environment and the importance of workplace equipment in motivating employees. Therefore, it is in every organisation's interest that their interior designers and managers pay close attention to the design of their workplace and how employees feel about it.

7. LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDY

The purpose of this study was to better understand the relationships between uncontrollable work environments in the open work environment that affect employees' work-related behaviours and creative outcomes. In this regard, future researchers need to consider other environmental and personal elements that can also play an important role in enhancing creative outcomes. Based on the findings of this study, it is likely that positive work-related behaviours, such as social contact and communication, which can be achieved through workplace conditions, play an important role in enhancing individuals' creative outcomes. Consequently, further research would be valuable to show whether open-plan office design can

improve positive social contacts and communication, enhancing work-related behaviours and creative outcomes. The focus of this study was on a private Iranian multimedia creative agency; future studies should also focus on other types of workplaces in other companies and countries.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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