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The Influence of the Physical Work Environment on Retail Employees

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Purpose: Despite repeated calls for research to explore the effects of the physical work environment on employees within the servicescape literature, gaps in knowledge remain. There is a need to understand the nature, influence, and impact of environmental stimuli (e.g. music, color) on employees. Extant research remains ambiguous on whether employees perceive individual stimuli within their work environment or perceive and interact with their physical work environment as a holistic experience. Our study explores the influence of environmental stimuli on employees within their physical work environment and the effect on their satisfaction and loyalty.

Design/methodology/approach: A two-stage approach was applied, with expert interviews followed by an employee survey which was analyzed using structural equation modelling.

Findings: Our research validates a holistic physical work environment construct, consisting of five dimensions: Color & Design, Cleanliness & Odor, Music, Lighting and Layout. We provide empirical evidence of the impact of environmental work stimuli on employee satisfaction, a relationship which is mediated by pleasure.

Originality: Firstly, we examine the neglected side of servicescape research; employees. Secondly, our findings support the view that employees do not perceive individual elements of their physical work environment as distinct and separate elements but rather perceive, and interact with, their physical work environment as an integrated whole. Evidence of how environmental stimuli at work increase employee job satisfaction is a key takeaway for retail practitioners focused on improving service experiences for all actors.

Keywords: Physical Work Environment, Employee Satisfaction, Employee Loyalty, Environmental Psychology, Servicescape

Type: Research Paper

Introduction

Since Bitner's (1992) seminal article on the servicescape, there has been considerable research on how servicescapes influence customer responses, however there is a distinct lack of corresponding interest in how they affect employees. Recently, there has been some attention given to one of these stimuli, music, and its effects on employees (Keeler and Cortina, 2020; Kniffin *et al.*, 2017; Landay and Harms, 2019). Despite this resurgence in interest, the servicescape literature is curiously silent on service employees and how they are affected by their physical work environment, with some notable exceptions (Payne *et al.*, 2017).

This paucity of research on employees is a missed opportunity for organizations as extant employee-focused research has demonstrated how creating pleasurable work environments may create higher levels of employee loyalty and commitment to the organization (Budie *et al.*, 2019; Evanschitzky *et al.*, 2012) and also positively impact employee behaviors and attitudes (Bitner, 1992; Kaminakis *et al.*, 2019; McElroy and Morrow, 2010). Increasing satisfaction with the physical work environment enhances employee productivity and overall firm performance (Budie *et al.*, 2019; Keeler and Cortina, 2020; Kniffin *et al.*, 2017; Landay and Harms, 2019), through improved levels of service delivery (Lin and Lin, 2011; Tsai and Huang, 2002). Despite prior efforts we still lack a thorough understanding of how stimuli within the work environment affect employees' emotional responses such as mood (Landay and Harms, 2019) or employee job satisfaction, or indeed behavioral responses such as employee loyalty (Skandrani *et al.*, 2011). Our study, therefore, responds to repeated calls for research to explore the effects of the physical work environment on employees (Budie *et al.*, 2019; Kniffin *et al.*, 2017; Payne *et al.*, 2017; Redman *et al.*, 2011).

As a service management theory the Service-Profit Chain (SPC) (Heskett *et al.*, 1997; Hogreve *et al.,* 2017; Hogreve *et al.,* 2022) conceptualizes and validates what practitioners believe; that employees should be treated as internal customers (Jun and Cai, 2010), that employee emotional and behavioral responses influence customer responses (Heskett *et al.*, 1997) and that employees are considered essential actors that influence customers' perception of the firm's image and its' service proposition (Gorji *et al.*, 2021; Maertz *et al.*, 2007). Our research contributes to an enhanced understanding of the internal marketing activities of the SPC by integrating internal variables relating to employees such as workplace design, the physical elements that shape the general working environment, as well as employee satisfaction and employee loyalty (Hogreve *et al.,* 2017; Hogreve *et al.,* 2022) in a retail context (Briggs *et al.,* 2021).

The aim of this paper is to explore the influence of environmental stimuli on employees and the subsequent impact on employee attitudes within a customer-facing retailer. To investigate the influence of environmental stimuli on employees within their physical work environment, we employ the Stimulus-Organism-Response (SOR) model (Mehrabian and Russell, 1974) as our central framework. This is the dominant framework used within the Servicescape research (e.g. Chao *et al.*, 2021; Mari and Poggesi, 2013). Through this lens we combine perspectives from both the Servicescape (Bitner, 1992) and the Organizational Behaviour (OB) (Davis, 1984) literatures. We contribute to the servicescape literature by redirecting Bitner's (1992) servicescape framework to focus on employees as the units of analysis. Additionally, we contribute to the OB literature which has predominantly focused on large office-based environments (Elsbach and Pratt, 2007; Redman *et al.*, 2011; Stea *et al.*, 2015) by extending the research context to retail. Finally, we draw on Jacoby's (2002) reconceptualized SOR model. Combining these different insights informs our conceptual

model for this research, which adopts a holistic approach to the measurement of the effects of environment stimuli on employees.

Beginning with expert interviews with retailers and culminating with a survey, our two-stage approach results in a final model, representing a holistic construct of physical work environmental stimuli, consisting of five dimensions, Color & Design, Cleanliness & Odor, Music, Lighting and Layout, which was tested with frontline service employees in a retail grocery setting. Our empirical evidence explores the relationship between the physical work environment of employees and subsequent levels of employee job satisfaction and employee loyalty. Pleasure as an employee emotion mediates the work environment-employee job satisfaction relationship. Our study expands the limited employee-focused research on reactions to the physical work environment (Budie *et al.*, 2019; Lin and Lin, 2011; Tsai and Huang, 2002), and deepens our understanding of the influence of work environmental stimuli on customer-facing retail employees.

The paper is organized as follows. We provide a brief commentary on the Service-Profit Chain theory to position our research within services marketing theory. We then review the theoretical foundations of the environmental stimuli literature, the SOR model, which informs our conceptual model. We present our hypotheses and describe how the holistic measure of the physical work environment was developed and tested. The two-stage approach adopted is discussed. The nature of the sample, the survey design and the data collection steps are discussed in the method section. Our findings demonstrate how physical work environmental variables are related to levels of Employee Satisfaction and Employee Loyalty. The theoretical contributions of the research, managerial implications for retail practitioners, and future research directions are discussed.

The Service-Profit Chain

The SPC, one of the most prominent theoretical models within services (Heskett *et al.*, 1997; Hogreve *et al.*, 2017; Hogreve *et al.,* 2022) provides a comprehensive framework that informs companies how to enhance firm performance through internal and external marketing activities. Within the internal marketing perspective of the SPC, variables relating to employees such as workplace design, including work environment and physical design, which is increasingly important for scholars and managers, remain under researched (Hogreve *et al.,* 2022). Internal marketing relationships within the general working environment are complex and causal relations between employee's satisfaction, loyalty and productivity appear less clear than the traditional SPC suggests (Hogreve *et al.,* 2017; Hogreve *et al*., 2022), warranting additional research.

Environmental Stimuli Literature

The SOR model (Mehrabian and Russell, 1974) has provided the dominant framework for researchers to understand the influence of environmental stimuli. Within this model, Environmental Stimuli (S), such as ambient conditions (Bitner, 1992) or physical structure (Davis, 1984), influence the Organism (O), for example, emotional responses including pleasure (Landay and Harms, 2019), employee satisfaction (Brunetto *et al.*, 2012) or customer satisfaction (Evanschitzky *et al.*, 2012), which in turn influence Responses (R), for example, behavioral responses such as employee loyalty (Budie *et al.*, 2019) or customer loyalty (Brüggen *et al.*, 2011). Stemming from the SOR model, the environmental stimuli literature has evolved in two clear directions that are central to our study: firstly the 'physical work environment' research, (Carlopio, 1996; Davis, 1984) which has been employee focused, and secondly 'servicescape' or service environment research (Bitner, 1992) within the marketing discipline, which has traditionally been customer focused. We briefly review the core tenets of

each stream of research to highlight the contribution each has made to the development of the conceptual model underpinning our research design.

In the first stream of research, stemming from the OB literature, Davis (1984, p.282) called for research "to examine how the physical environment can be modified to support more efficient [employee] behavior". Davis (1984) suggested that the physical work environment influences employee behaviors and proposed that environmental stimuli could be classified into three main dimensions: (1) physical structure, (2) physical stimuli, and (3) symbolic artefacts. As this employee-focused literature has evolved, studies have tended to focus on office environments when exploring elements of the physical work environment (McElroy and Morrow, 2010) rather than customer facing environments. Typically, these studies examine the influence of spatial layouts and partitions within offices, working within cubicles, adjustability of office equipment or air conditioning systems, as well as the effects of lighting, and noise on employee reactions (Elsbach and Pratt, 2007; Redman *et al.*, 2011; Stea *et al.*, 2015).

The second stream of research emanates from the work of Bitner (1992) which is one of the mostly widely cited frameworks on the effects of environmental stimuli within the marketing discipline. Within this stream of research, Bitner (1992) models the impact of the physical environment in which the service process takes place proposing three environmental dimensions: (1) ambient conditions, (2) space/function and (3) symbols and artefacts, which share similarities with Davis's (1984) dimensions. Whereas Bitner's (1992) environmental dimensions were initially developed for use in both customer and employee focused research designs, as research in the area evolved the framework has predominantly been applied to explore the impact of environmental stimuli on customers, rather than employees, as the unit of analysis (Brüggen *et al.*, 2011; Chao *et al.,* 2021; Orth *et al.*, 2012)

However, we contend that Bitner's (1992) environmental stimuli which have been shown to greatly influence customers in research to date (Morrison *et al.*, 2011; Roschk *et al.*, 2017), can also be applied to investigate employee perceptions of their physical environment, as initially intended by Bitner (1992). For example, research on music (Dubé and Morin, 2001), lighting (Summers and Herbert, 2001), odor (Gulus and Bloch, 1995), and color (Roschk *et al.*, 2017) has provided considerable insights for designing (customer) environments. OB researchers have successfully imported stimuli such as music into research designs exploring the impact of music on employees within their work environment (Landay and Harms, 2019; Payne *et al.*, 2017) and support the contention that Bitner's (1992) environmental stimuli can be applied to research designs examining employee reactions to their physical work environment.

Conceptual research model and hypothesis

We develop a conceptual model for understanding the employee's emotional and behavioral responses to physical work environmental stimuli. We draw from Bitner's (1992) and Davis's (1984) environmental stimuli dimensions and findings from a substantial stream of extant studies focused on physical service environments to create a holistic construct. Music, i.e. that is the musicscape framework (Oakes, 2000), is one of most frequently studied stimuli on customer responses (Andersson *et al.*, 2012; Herrington and Capella, 1996), with limited, but growing, research on employee responses (Keeler and Cortina, 2020; Payne *et al.*, 2017; Skandrani *et al.*, 2011). Music is often studied with odor (Mattila and Wirtz, 2001; Morrison *et al.*, 2011) and has been examined with Color (Lin, 2010). Like music, odor, known as the scent framework (Gulus and Bloch, 1995), has been viewed as a stimulus that can be easily changed and has attracted research interest in recent years (Biswas and Szocs, 2019). Color has been researched on its own (Verhoeven *et al.*, 2006), as well as being researched with lighting

(Spies *et al.*, 1997). There has been significant research combining these stimuli in a customer facing context (Ezeh and Harris, 2007; Hooper *et al.*, 2013; Kandampully *et al.,* 2022; Lin, 2016), and although limited there is some work in an employee context. For example, Kearney *et al.* (2013) and Kaminakis *et al.* (2019) considered how a range of environmental stimuli affected both customers and employees. Through combining stimuli and their effects, we draw on Jacoby (2002) and their extended SOR reconceptualization. Based on these streams of research, we propose a holistic configuration of the physical work environment consisting of the following seven stimuli which have been frequently discussed in the literature: music, color, odor, design, lighting, layout and cleanliness.

Environmental Stimulus (SOR link)

It can be difficult for managers to fully appreciate the key role that the work environment plays in influencing employee satisfaction within service environments (Bangwal and Tiwari, 2019; Payne *et al.*, 2017). Managing employee job satisfaction and associated employee performance is a key area where managers seek insights and guidance (Landay and Harms, 2019). As employee satisfaction focuses on the employee's attitude towards the job and is a general degree of happiness towards that job (Huang and Gamble, 2015), understanding how environmental stimuli such as music or color evoke an affective response in employees is vital. A limited number of studies have focused on these issues with Payne *et al.* (2017) and Landay and Harms (2019) highlighting that music could generate a positive affective response in employees, whilst Parish *et al.* (2008) argued that the combination of different stimuli positively influence employee's satisfaction. Drawing from this literature we propose the following hypothesis:

H1 Employee Satisfaction is positively influenced by physical environmental stimuli

Employee satisfaction can be thought of as a pleasurable or positive emotional state in relation to the job. By extension we can assume that employee behaviors will be influenced by the level of Pleasure they experience within their working environment (Van Katwyk *et al.*, 2000). We draw on Russell's (1980) Pleasure-Arousal-Dominance (PAD) model of affect framework as a theoretical lens to conceptualize employee's emotional response of pleasure within their work environment. The focus of research to date has been on the 'Arousal' and 'Pleasure' dimensions of the affect framework (Dubé and Morin, 2001; Kumar *et al.*, 2017; Morrison *et al.*, 2011; Quartier *et al.*, 2014). The Dominance dimension tends to be seen as less significant (Russell, 1980). Within a retail setting it is likely that Arousal levels will be higher for employees when serving customers rather than when they are idle. As a result, the work environment is less likely to have a significant effect on Arousal levels as Arousal in this context is likely attributable to the nature of the service interactions rather than to physical environmental stimuli. Landay and Harms (2019) discuss the relationship between mood and positive emotions and suggest that future research should consider the link between environmental stimuli and affect components such as mood or emotions and their influence on employee behavior. We therefore focus on the Pleasure component of the PAD framework. Skandrani *et al.* (2011) discuss the positive influence of the service environment on the emotional response of Pleasure. A similar result was found in Kearney *et al.* (2013), and more recently Kaminakis *et al.* (2019) also found a positive relationship between the work environment and pleasure. Mehrabian (1998) found a strong positive relationship between pleasure and employee satisfaction, and this was confirmed by Lee *et al.* (2011). As a result, we hypothesize as follows:

H2: Employee Pleasure mediates the influence of physical environmental stimuli on Employee

satisfaction

Employee loyalty has received a great deal of attention within the literature (Currivan, 1999; Kumar and Shekhar, 2012; Maertz *et al.*, 2007). Employee Loyalty includes whether employees are committed to their roles or are actively looking for new jobs and assumes employees feel responsible for their work (Eskildsen and Nussler, 2000). Understanding Employee Loyalty is a primary concern for firms, particularly retail organizations where interaction between employees and customers is an important part of a store's offering (Maertz *et al.*, 2007). Within the literature it has generally been accepted that Employee Satisfaction will lead to employees staying longer in their jobs (Bangwal and Tiwari, 2019; Heskett *et al.*, 1997; Homburg *et al.*, 2009; Yurchisin and Park, 2010). As a result, the following is hypothesized:

H3 Employee Loyalty is positively influenced by Employee Satisfaction

The role the work environment plays in influencing Employee Loyalty has not been adequately explored in a retail setting. While individual elements of the servicescape (Harris and Ezeh, 2008), as well as a global measure of the servicescape (Hooper *et al.*, 2013) have been found to provide a direct effect on customer loyalty intentions, our understanding of the employee links is still limited. Therefore, it is important to examine how the physical work environment influences employee loyalty (Redman *et al.*, 2011). Within servicescape research, a direct link between environmental dimensions and customer loyalty has been found to be significant (Harris and Ezeh, 2008; Hooper *et al.*, 2013), with Harris and Ezeh (2008) highlighting the need for further research to look at a holistic configuration of the servicescape and its' influence on loyalty. Employees spend longer in the physical environment and

considering prior research, it is likely that they will leave if the environment is problematic

(Kniffin *et al.*, 2017; Landay and Harms, 2019; Payne *et al.*, 2017). For example, Yurchisin

and Park (2010) looked at store image attractiveness (relating to physical

attributes/characteristics of the store) and found a positive relationship with both job

satisfaction and loyalty, which resulted in employees being less likely to voluntarily leave their

roles. As a result, it is reasonable to hypothesize that:

H4: Employee Loyalty is positively influenced by physical environmental stimuli

Figure 1 depicts the hypotheses to be tested.

<Insert Figure 1 here>

Methodology

Approach

This study focuses on managers and employees, in a retail grocery service environment, as the

units of analysis. A two-stage approach was developed. In stage one, interviews were

conducted with the Head of Retail Operations for the franchise and four grocery retail

managers. In a similar vein to Homburg *et al.* (2009), our interviews were primarily conducted

to inform the questionnaire, to be deployed in stage two, and were based on a carefully

developed interview guide that included topics relating to company background, service

environment, general atmosphere, employee, and customer behaviors. Before conducting the

interviews, the five interviewees were sent a copy of the pilot questionnaire to review and

discuss at the interview. Notes were taken and the interviews were recorded.

The objectives of these expert semi-structured interviews (Solarino and Aguinis, 2021) were

threefold; first, to gain insight and understanding about the most appropriate terminology to use in the questionnaire. Kenhove and Desrumaux (1997) conducted interviews to collect relevant service environment items for their questionnaire – they chose the most relevant items for their questionnaire based on the literature and their qualitative research. Second, any new items or constructs that the managers considered important for the research would be reviewed in the literature to identify the most important areas for further research. Third, to identify and obtain feedback on the suitability of the questions being asked to the employees in the questionnaire. Based on the thematic analysis of the interviews, some wording was changed in the pilot questionnaire before it was tested e.g. the term 'working' was incorporated into some of the questionnaire items. Given that previous research in the literature had not been employee focused, it was essential to gain an understanding of the appropriateness of the terminology for this research. These three objectives formed a robust foundation for the development of the survey instrument.

Data Collection Procedure

Data were gathered from employees of a franchised grocery retail operator using a paper-based questionnaire for stage two. Like Theodoridis and Chatzipanagiotou's (2009) study, this research collected data in 15 grocery retail franchises. The stores were chosen based on in-depth discussions with the Head of Retail Operations of the franchise. The service process, service environment and the functionality components of the physical environment were the same across all stores. We collected 130 responses across the 15 stores within the greater Dublin area in Ireland. Employees filled out the survey within the store environment. It was important for the employees to fill out the questionnaire within their working environment, so that they gave an accurate response about the physical work environment that they were in at the time. Wakefield and Blodgett (1994, p. 50) indicated that 'subjects are in a position to

observe and experience the servicescape directly and to offer more valid responses' if surveyed inside the service encounter. Full access to the stores, their owners, management, employees, and customers, was permitted by the franchisor. Informal discussions with other franchise operators within the region and their employees strongly suggest that the set of stores studied was representative of a large portion of the network.

Due to some partially completed questionnaires, 11 questionnaires were taken out of the analysis. This resulted in 27 managers and 92 till operating employees taking part in the research. No significant differences were found between the managers and employees on the variables of interest thus they were pooled for further analysis. The total sample size was similar to that used in research carried out by Robertson and Huang (2006), who used a sample size of 120 office workers to examine their levels of satisfaction with work design. Table 1 outlines the respondent profiles.

<Insert Table 1 here>

Measures

This research focused on combining individual components of the service environment to develop a holistic representation of the construct. It is important to note that Bitner's (1992) original paper does not differentiate between employee and customer environments. Therefore, it was judged theoretically sound to examine similar in-store service environment components that have been previously validated in empirical research and subsequently conformed with our interviewees in stage one. Items from several customer-focused questionnaires (Harris and Ezeh, 2008; Hightower *et al.*, 2002; Kim and Moon, 2009) were adapted to develop the measures for this holistic service environment construct, due to the lack of empirical quantitative research in an employee context. The items involved related to cleanliness (4

items), color (3 items), design (5 items), layout (5 items), lighting (3 items), music (3 items), and odor (3 items). A minimum of three items per sub factor were used, in keeping with best practice in structural equation modelling studies. This resulted in 26 items to measure the service environment construct as a second-order construct with seven sub-factors.

According to Menon and Kahn (2002) a dimensional approach to explaining emotions has been found to be reliable. Donovan and Rossiter (1982), Donovan *et al.* (1994) and Tai and Fung (1997), using the Mehrabian and Russell (1974) model, took a dimensional approach in their research. Pleasure extends along a single dimension from Extreme Displeasure to Extreme Pleasure. These items were also used by Newman (2007) and Lin (2016). The Employee Satisfaction factor was measured using validated measures from previous research. Homburg and Stock (2004) used a six-item factor to measure job satisfaction and Homburg *et al.* (2009) used a three-item factor for job satisfaction. This research used an Employee Satisfaction measure consisting of eight items drawn from these studies. Employee Loyalty has also been extensively researched in the literature and generally relates to commitment to the organization. Currivan (1999) used a four-item factor, Paulin *et al.* (2006) used a three-item factor and Gelade and Young (2005) also used a three-item factor. Taking these scales together and removing duplicate items, the Employee Loyalty construct developed for this research contained five items. All items were measured on a seven-point Likert scale. This research also controlled for gender, and age of the employees, and store size was also controlled for, as measured by total floor area.

Analysis

Structural Equation Modelling (SEM) was employed to examine the proposed model, using Anderson and Gerbing's (1988) two-step approach to estimate the measurement model prior

to developing the structural model. In this two-step process, the measurement model stage involved Confirmatory Factor Analysis (CFA) to develop the holistic configuration of the service environment, and test the measurement of Employee Satisfaction and Loyalty, and then a structural model to understand relationships between these key constructs.

Initially, this research examined the physical work environment construct as a single factor model in line with extant literature. All 26 items were loaded on the physical work environment construct and the model was run in MPlus. However, the fit statistics were poor (χ^2= 729.956, df = 230, p-value = 0.0000, RMSEA = 0.129, CFI = 0.779, TLI = 0.756, SRMR = 0.067) thus showing that a single factor was not appropriate to measure the holistic configuration (Bagozzi and Yi, 1988). The research then modelled the holistic construct as a second order model with seven factors but again this had poor results (χ^2= 550.182, df = 223, p-value = 0.0000, RMSEA = 0.106, CFI = 0.856, TLI = 0.836, SRMR = 0.064). Each of the seven factors was individually analyzed and issues were found with nine of the individual items in terms of poor loadings and cross-loadings. This was somewhat expected given that our measures, although validated in stage one with retailers, were adapted from customer-based research. The color and design items were found to form a single sub-factor, which was named Color & Design. Likewise, the cleanliness and odor items formed a single sub-factor however this can be partially attributed to two negatively worded items in the cleanliness scale which did not load well. Furthermore, given that the research was conducted in a retail outlet that sells food, Cleanliness of the store would be expected to have a very close tie to odor.

The fit of the measurement model was acceptable (χ^2= 208.262, df = 114, p-value = 0.0000, RMSEA = 0.080, CFI = 0.929, TLI = 0.915, SRMR = 0.050) using standards from papers that also carried out second order factor analyses (Hooper *et al.*, 2013). Table 2 shows

the final items that were used after initial analysis, their standardized loadings, and their reliabilities as measured by their composite reliability (CR) and average variance extracted (AVE) scores. Evidence of convergent validity was that all factor loadings were greater than 0.6, the t-values were significantly greater than two, and each loading was greater than double its standard error (Anderson and Gerbing, 1988). CR and AVE values were calculated for each construct (Bagozzi and Yi, 2012). All AVE and CR estimates were greater than 0.6, and all AVE values were over 0.5 (Bagozzi and Yi, 2012; Fornell and Larcker, 1981), except for the AVE for Music, which was 0.491, providing very good evidence of convergent validity, though as this value was very close to 0.5, Music was retained in the model. The items in the five factors were then averaged and this average was used in the final structural model as sample size did not permit simultaneous estimation of the second order model within the structural model.

<Insert Table 2 here>

As per Anderson and Gerbing (1988), the next step was an overall measurement model. One item was removed from the Employee Satisfaction factor as it had a poor loading most likely due to it being a negatively worded item. One item was removed from the Pleasure scale due to a low loading. The final measurement model had a good level of fit (χ^2= 324.374, df = 203, p-value = 0.0000, RMSEA = 0.071, CFI = 0.936, TLI = 0.927, SRMR = 0.061). To assess discriminant validity, the square roots of the AVEs were assessed against the inter-construct correlations (Fornell and Larcker, 1981) as per the diagonal of Table 3. All were higher than the inter-construct correlations demonstrating evidence of discriminant validity, except for the high correlation between Pleasure and Employee Satisfaction. However, this was to be expected given the affective nature of the satisfaction construct. Due to the key informant

strategy used the possibility of common method bias was assessed. The use of established scales and proximal separation served to reduce the risk of common method bias (Podsakoff *et al.*, 2012). A variety of methods have been developed to test for common method bias, but an established approach is the marker variable method (Lindell and Whitney, 2001; Williams *et al.*, 2010). The perception of price competitiveness by employees was used as a marker variable, as it was not expected to correlate with any of the key constructs. A discounted correlation matrix was created (Lindell and Whitney, 2001). This approach suggests that common method variance is not a major issue in interpreting results when correlations in the discounted correlation table do not lose significance or change signs (Lindell and Whitney 2001; Williams *et al.*, 2010). The highest difference was 0.007 with no movement in the directionality or significance of any of the zero order inter-construct correlations.

<Insert Table 3 here>

Results

Following Anderson and Gerbing (1988), a structural model was specified using Figure 2 as a guide, excluding H2 (the mediating hypothesis) and including the effects of the control variables where significant. This model showed a good level of fit (χ^2= 229.598, df = 147, p-value = 0.0000, RMSEA = 0.069, CFI = 0.943, TLI = 0.935, SRMR = 0.067). This model showed strong links between the physical environment and Employee Satisfaction (β =0.577, p =0.000) providing support for H1, and as expected between Employee Satisfaction and Employee Loyalty (β =0.685, p=0.000) providing support for H3. No significant effect was found between the service environment and Employee Loyalty (β =0.133, p=0.237) thus showing a lack of support for H4.

The next stage of the analysis included the relationships required to test the mediating

effect of Pleasure (H2). This model showed a good level of fit (χ^2= 374.688, df = 245, p-value = 0.0000, RMSEA = 0.067, CFI = 0.932, TLI = 0.924, SRMR = 0.073). Figure 2 shows the SEM model with the standardized loadings. Pleasure fully mediated the relationship between the service environment and Employee Satisfaction, as both paths were significant (β=0.652, p=0.000; β=0.770, p=0.000) and the direct link between the service environment and Employee Satisfaction was no longer significant (β =0.045, p=0.634). Size had a significant negative effect on both perceptions of the service environment and Employee Loyalty thus suggesting that smaller stores have higher levels of service environment perceptions and higher levels of Employee Loyalty. Age had a negative effect on Employee Satisfaction suggesting that older employees were less satisfied. Unlike Huang and Gamble (2015) no significant effect for gender was found.

<Insert Figure 2 here>

While a holistic physical environmental construct is intuitively appealing as employees experience these stimuli together, it is also possible that each individual dimension has its own unique effects and thus bringing them together is masking the effect of individual stimuli. We ran five separate models (without the mediating hypothesis H2) to assess this. Each model took one dimension of our holistic construct in turn. The relationship between the individual physical stimuli (i.e. Color & Design, Cleanliness & Odor, Music, Lighting and Layout) and employee satisfaction was significant at the one percent level in all cases, though it should be noted that these values were lower than the value for the holistic measure which encompasses all stimuli. Values ranged from a low of 0.362 for Music to a joint high of 0.518 for Cleanliness & Odor, and Layout. In our main model, the relationship between the physical stimuli and loyalty was non-significant. This was borne out by our analysis of the individual dimensions

except for Cleanliness & Odor. This is perhaps unsurprising as employees will not want to stay in a workplace that is not clean or has a bad odor. The fit of the five models was slightly worse than the main model with only the Music based model performing slightly better. On balance, of the six models tested (the holistic plus the individual five dimensions), the holistic model was the better performer. This analysis was repeated for the full model including the mediating effect of pleasure (H2) with similar outcomes.

Discussion

The aim of this paper was to explore the influence of environmental stimuli within the physical work environment on employees and the subsequent impact on employee attitudes, specifically employee job satisfaction and employee loyalty. Our paper offers several contributions to the literature: the validation of a holistic physical work environment construct for employees; the impact of this physical work environment on employee emotional and behavioral responses; and how Pleasure mediates the relationship between the physical work environment and employee satisfaction. We deal with each of these in turn.

Firstly, a holistic measure of the physical work environment directly applicable to employees is a key finding of this paper. Retail organizations expend significant resources to design their service offerings to attract customers and often do not consider how these decisions affect the employees that work there. Our results provide evidence that employees within retail settings perceive their work environment as an integrated whole, rather than as individual or singular environmental dimensions. We find that employees perceive their work environment as consisting of five distinct but inter-related aspects: Color & Design, Cleanliness & Odor, Music, Lighting and Layout. Our empirical test of this holistic configuration of the retail environment performed well, validating the idea that employees do not perceive individual

elements of their working environment as single entities but rather perceive their environment as a holistic experience which subsequently affects their emotions and attitudes at work. As highlighted by Ezeh and Harris (2007, p.70) in discussing servicescapes the same principle can be applied to our understanding of employees in that "it is expected that such integration of multiple elements will increase the scant knowledge base on the global configurations of servicescapes" i.e. physical work environment.

This research also adds to the evidence of the importance of the physical work environment confirming insights that use other methods such as experiments (Parish *et al.*, 2008) or qualitative designs (Payne *et al.*, 2017; Skandrani *et al.*, 2011). Further analysis demonstrated that the holistic physical work environment performed better than the individual stimuli in predicting employee satisfaction and that other than in the case of Cleanliness and Odor, there were no significant effects on Loyalty. The Music dimension of the model also performed well and validates increasing research attention focused on music and work performance in recent years (Keeler and Cortina, 2020; Landay and Harms, 2019). This has important implications about how SOR itself is conceptualized. Critiques about the linearity of SOR (Jacoby, 2002) note that the different stimuli and organism may overlap. Our holistic servicescape concept is a step in addressing this critique of the SOR.

Secondly, in terms of the influence of the physical work environment on employee attitudes, we found a significant (p < .001) and positive direct link between environmental stimuli and Employee Satisfaction, supporting H1. We provide direct evidence that environmental stimuli have a direct effect on employee satisfaction which is a key outcome variable for retailers. There is some evidence that individual stimuli, such as music can have this effect (Keeler and Cortina, 2020; Landay and Harms, 2019). For example, Payne *et al.*

(2017) found that management recognized the impact of music on employees in terms of music being able to alleviate problems of high staff turnover and low levels of engagement, through providing Employee Satisfaction and enjoyment. However, this is one of the first studies to show that the physical environment, as a holistic concept, has a significant effect on employee satisfaction.

Thirdly, our empirical results also demonstrate that this relationship was fully mediated by Pleasure, supporting H2. Whilst the direct effect on satisfaction is no longer observed in the presence of the mediator there is a very strong indirect effect (net significant effect of 0.533) demonstrating the importance of the relationship. Both coefficients of the mediating relationship were strongly significant showing the importance of emotions in the Physical Environment-Employee Satisfaction link. This finding builds on recent research which has explored how the work environment positively impacts levels of employee pleasure (Kaminakis *et al.*, 2019).

In addition, our results indicated that H4 was not supported, as our study did not find evidence of a direct relationship between the work environment and Employee Loyalty within our sample. This missing connection was unexpected given that previous research, albeit with customer samples (Harris and Ezeh, 2008; Hooper *et al.*, 2013) in similar environments have indicated the existence of a positive relationship. We did find evidence that Cleanliness & Odor had a significant relationship indicating the potential importance of this issue for retailers. Within our study this result may be a matter of valence, as the employee perception of the work environment may need to be extremely positive or negative in order to impact loyalty directly.

Implications for Theory, Knowledge, and Practice

Our study design and empirical evidence make five key contributions to theory, knowledge, and practice. Firstly, we contribute to Service-Profit Chain research by deepening knowledge of the internal activities within firms and identifying implications for managers that can inform their internal marketing strategies (Hogreve *et al.,* 2017). We respond to calls for additional research on the physical design of the work environment on employees as an internal SPC variable (Hogreve *et al.,* 2022). We also address recent calls for SPC related research contextualized within a retail trade context (Briggs *et al.,* 2021).

Secondly, we contribute to the dual streams of research which we have drawn from in developing our model; the OB literature relating to work environment research (Davis, 1984) and the servicescape research of Bitner (1992). We extend the OB literature by testing and validating the environmental dimensions identified within the context of retailing. Previous research has generated a volume of office focused studies (Elsbach and Pratt, 2007; Redman *et al.*, 2011; Stea *et al.*, 2015) and has largely excluded non-office-based work environments, such as those where customer-facing retail employees work. In comparison to office environments, we contend that retailing presents a distinctly different working environment for employees from that of an office-based setting. Retail also presents a distinct employee experience of work, one often characterized by long, irregular, and anti-social working hours coupled with higher levels of employee-customer interactions, potentially over an extended period, and under supervision. Our empirical research contributes to physical work environment research by extending the research context to the retail sector and by exploring the perceptions of non-office-based employees in relation to their work environment and its' impact on their behavior. Our research also builds on and expands existing servicescape

research by employing Bitner's (1992) environmental stimuli within employee-focused research and demonstrating how these stimuli influence employees.

Thirdly, our conceptual development of a holistic measure of physical work environmental stimuli contributes theoretically to the limited employee-focused research on reactions to the physical work environment (Lin and Lin, 2011; Tsai and Huang, 2002). Unlike previous research studies which have focused predominantly on researching the influence of individual elements of environmental variables on employees (Baron *et al.*, 1992; Keeler and Cortina, 2020; Landay and Harms, 2019; Payne *et al.*, 2017) our findings support the view that employees do not perceive individual elements of their physical work environment as distinct and separate elements but rather perceive, and interact with, their physical work environment as an integrated whole. Identifying five environmental stimuli as separate sub-factors within a holistic construct represents a conceptual contribution to the literature while expanding the empirical evidence base on the influence of the physical work environment on employees (Budie *et al.*, 2019).

Our fourth contribution is to practice; a key insight for managers is that by paying attention to, and managing, environmental stimuli, a pleasurable working environment which facilitates higher levels of employee job satisfaction can be curated. Achieving strong levels of employee satisfaction is a particular challenge for retail firms who often have employees engaged on part-time, shift, or anti-social hours (Verschueren and Nyssens, 2021). Realizing that alterations in the physical work environment can improve employee attitudes is a key take away for practitioners. In a sector where recruiting and retaining employees is often a challenge, improving levels of employee job satisfaction could lead to higher levels of employee retention and reduced employee turnover (Yurchisin and Park, 2010). A pleasant

work environment leading to increased satisfaction may also encourage employees to stay longer with the firm and to improved productivity levels (Heskett *et al.*, 1997; Homburg *et al.*, 2009; Parish *et al.*, 2008), all of which will impact retail performance.

Finally, achieving high levels of employee satisfaction is vital for retail firms where positive interactions, at the employee–customer interface, are crucial to competitiveness. Such positive outcomes can provide a strategic advantage to the retail business as employee satisfaction has been shown to positively influence employee responses and customer's perceptions, and to support social interactions (Evanschitzky *et al.*, 2012). Understanding employee behavior and how it is influenced by the retail work environment needs to be a priority for retailers and managers need to involve employees in the design/redesign, refurbishment, or remodeling of their retail stores. Such collaborative activities enabling employees to co-create a more pleasant work environment can cultivate employee satisfaction, potentially resulting in higher levels of employee loyalty (Homburg *et al.*, 2009; Parish *et al.*, 2008) and by extension higher levels of customer satisfaction and improved overall business performance (Heskett *et al.*, 1997).

Limitations and Research Directions

Although our study has implications for theory, knowledge and practice, like any study there are limitations in our approach. Our model is empirically tested using cross-sectional self-reported data and common method bias may be a concern (Podsakoff *et al*., 2012). However, we followed Podsakoff *et al.* (2012) in developing our survey instrument and conducted analysis to provide reassurance of the potential negative affect of such bias (Williams *et al*., 2010). Also hedonic and utilitarian services offer differing benefits to consumers (Kearney *et al*., 2021), and are likely to influence employees who work in these physical environments in

differing ways. Whereas this paper focused on a utilitarian (grocery) environment, hedonic environments, such as clothing retail stores or hospitality venues, may offer more stimulating physical environments for employees to work in. Examining hedonic environments, where the employee–customer interaction is also more intense than within a utilitarian environment (Kearney *et al.,* 2021), may offer further insight into the influence of physical work environments on these employees. We focus on Pleasure in this paper in line with much of the extant research. Future research, in more hedonic environments, could concentrate on the effects of Arousal and Dominance as they are comparatively neglected in studies of this nature.

Alternative approaches to researching the effects of environmental stimuli on behavior exist in addition to the SOR model applied within the research. For example, Stea *et al*. (2015) applied schemas to explore responses to environmental stimuli. Other research posits that in addition to the impact of the physical work environment, employee job satisfaction levels are likely to be significantly influenced by the personal characteristics of individual employees. The nature of the employee's contract and the length of time exposed to the physical environment may also impact their perception of their work. Ashkanasy *et al*. (2014) and Budie *et al.* (2019) combine personal and environmental variables in their physical work environment research. This represents an interesting avenue for future research which could be conducted within utilitarian and/or hedonic environments, contributing to a deeper understanding of the multi-faceted influence of the physical work environment on employees.

Conclusion

Early research by Davis (1984) and Bitner (1992) noted that a key advantage of work environmental stimuli, such as music, lighting, or layout, is that they are observable and thus can be managed: a view that is echoed across the OB and servicescapes literatures (Brüggen *et*

al., 2011; Keeler and Cortina, 2020; Orth *et al.*, 2012; Quartier *et al.*, 2014). From a management perspective, this research illustrates that whilst employees perceive a global work environment construct, there are various stimuli that employees differentiate between, i.e. Color & Design, Cleanliness & Odor, Music, Lighting and Layout, within the construct. Each of these could be carefully examined and designed by management to positively influence their employees, though it is how they are combined that is perhaps most important as shown by our support for a holistic construct. The implication for managers is that environmental stimuli that make up the work environment are a managerial tool that can be used in shaping employee behaviors like rewards or training. Environmental stimuli can be molded to suit employees and thus can greatly influence the levels of employee satisfaction and employee loyalty in service environments. More specifically, the ability to influence employee avoidance behaviors, such as ignoring communication with customers, hindering performance of a promise delivery, or avoiding service encounters with customers are fundamental motivations for organizations to pay attention to how they design their work environments. The ease with which some of these environmental stimuli can be controlled in service environments, such as grocery retail stores, allows managers to positively influence their employees and thus their customer experiences. Finally, having a clearer understanding of how to positively influence employees is crucial for managers seeking to improve their service offering.

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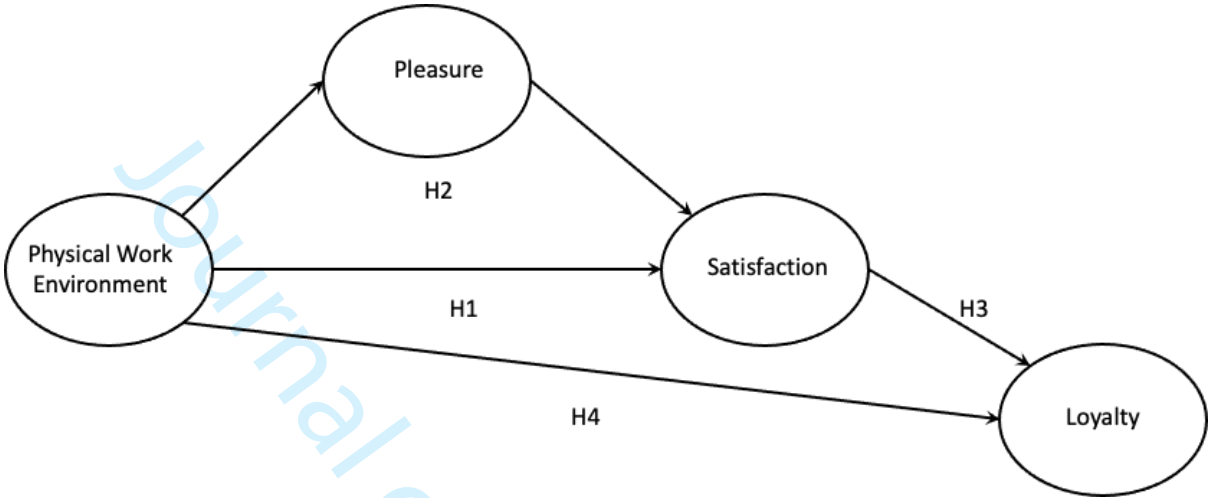
Figure 1: Conceptual Model

Figure 2: Full SEM model
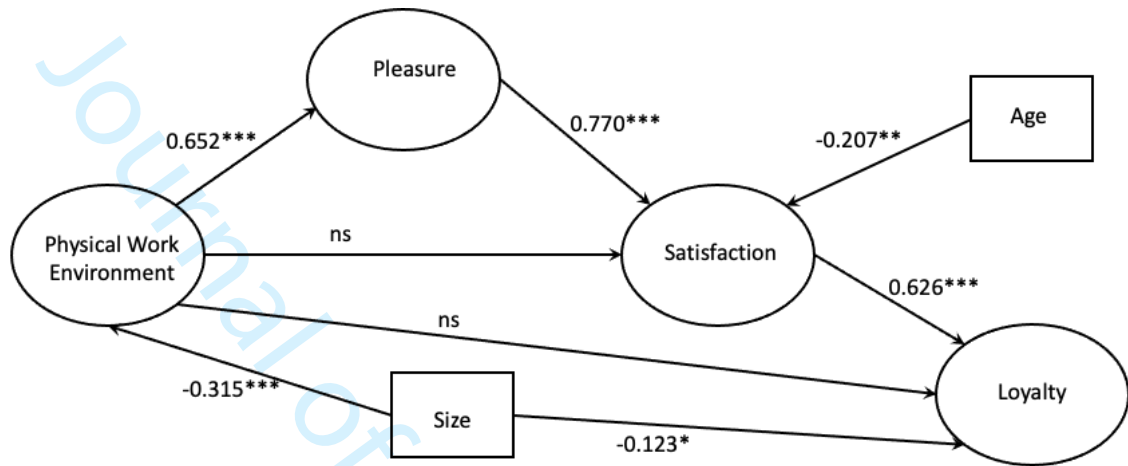
χ^2= 374.688, df = 245, p-value = 0.0000, RMSEA = 0.067,
CFI = 0.932, TLI = 0.924, SRMR = 0.073

*** p<0.001, ** p<0.01, * p<0.10

Table 1: Respondent Profiles

Gender		Age	
Male	40.50%	18-24	57.14%
Female	60.50%	26-35	22.69%
Work		36-45	7.56%
Full-time	57.98%	46-55	6.72%
Part-time	42.02%	56-65	5.89%

Table 2: Measurement Properties of scales, * indicates a change to an item appropriate to work context

Scale items	Reliability		
	Factor Loadings	Composite Reliability	Average Variance Extracted
Layout (Adapted from Kim and Moon, 2009)			
In this store, the aisles between the shelves are wide enough to pass through easily	0.665	0.788	0.554
It is easy to walk around this store and find what you are looking for	0.818		
The signs in the store provide adequate direction	0.743		
Design & Color (Adapted from Hightower *et al.*, 2002; Kim and Moon, 2009)			
The colors used create a pleasant atmosphere	0.874	0.889	0.574
The color scheme in the store is attractive	0.829		
The materials used inside the store are pleasing and of high quality	0.627		
The interior décor of this store is attractive	0.792		
The store understands that the design of its facility is important to me	0.655		
The interior design is visually appealing	0.737		
Cleanliness & Odor (Adapted from Harris and Ezeh, 2008)			
The store has clean aisles and exits	0.747	0.825	0.542
The store maintains clean food service areas	0.668		

The store has a pleasant smell	0.800		
The aroma in the store is fitting	0.724		
Music (Adapted from Harris and Ezeh, 2008)			
The music in the store is played at an appropriate volume	0.732	0.658	0.491
The music played in the store is appropriate	0.668		
Lighting (Hightower *et al.*, 2002; Jang and Namkung, 2009)			
The lighting creates a comfortable *working** atmosphere	0.876	0.867	0.765
The lighting is excellent at the store.	0.873		
Employee Satisfaction (Homburg and Stock, 2004; Homburg *et al.,* 2009)			
Generally Speaking, I am very satisfied with this job	0.845	0.932	0.664
I do not intend to work for a different company	0.683		
I like my job	0.911		
There are no fundamental things I dislike about my Job	0.771		
I like my job more than many employees of other companies	0.736		
I consider this employer as first choice	0.838		
I am generally satisfied with the kind of work I do in this job	0.894		
Employee Loyalty (Paulin *et al.,* 2006)			
Most of the time I am willing to put in extra effort so that the store remains a leading store.	0.841	0.903	0.654
I speak highly of the shop in which I work to my friends	0.800		
I feel proud to work at this store	0.925		
I would turn down a job with comparable pay and career prospects to stay at this store	0.652		
I care about the fate of the shop in which I work	0.800		

Pleasure (Newman, 2007)			
Happy-Unhappy	0.801	0.890	0.620
Satisfied-Unsatisfied	0.839		
Contented-Depressed	0.663		
Hopeful-Despairing	0.791		
Bored-Relaxed	0.830		

Table 3: Correlations between latent variables

	Physical Work Environment	Pleasure	Satisfaction	Loyalty
Physical Work Environment	0.887			
Pleasure	0.651	0.787		
Satisfaction	0.546	0.824	0.815	
Loyalty	0.509	0.654	0.710	0.809

The score on the diagonal is the square root of the respective Average Variance Extracted value

8th of November 2022

Dear Dr. Bruce, Dr. Krolikowska and Dr Rooney,

Thank you for your email with the decision to recommend minor revisions for our paper.

Please find below a set of tables which takes your comments as Editor and those of the reviewers and provides a short response to each detailing where in the revised manuscript you will find the details of the changes we have made.

We hope that this revision is satisfactory and meets your expectations around the changes required

Kind regards

The Author Team

Editor Comment	Response
1. The problem for services marketing theory must be clear in the introduction and literature review. You mention in the introduction that many marketers believe that employees should be treated as internal customers but how does this study relate to services marketing theory?	Thank you for this point. Our study focusses on internal marketing activities within the Service-Profit Chain (SPC). We have added content which explicitly signposts the connection between the SPC and our research design and research variables. This clarifies that the reasoning within the paper draws from the well-known theoretical model of the SPC. In the literature review and contribution section of the paper we highlight the need identified by scholars for ongoing research on the SPC and how our study addresses research gaps identified. In the introduction section of the paper on page 3 the text now reads as follows (with new text highlighted): "As a service management theory the Service-Profit Chain (SPC) (Heskett *et al.*, 1997; Hogreve *et al.,* 2017; Hogreve *et al.,* 2022) conceptualizes and validates what practitioners believe; that employees should be treated as internal customers (Jun and Cai, 2010), that employee emotional and behavioral responses influence customer responses (Heskett *et al.,* 1997)

	and that employees are considered essential actors that influence customers' perception of the firm's image and its' service proposition (Gorji *et al.*, 2021; Maertz *et al.*, 2007). Our research contributes to an enhanced understanding of the internal marketing activities of the SPC by integrating internal variables relating to employees such as workplace design, the physical elements that shape the general working environment, as well as employee satisfaction and employee loyalty (Hogreve *et al.,* 2017; Hogreve *et al.,* 2022) in a retail context (Briggs *et al.,* 2021).
2: Likewise, this should be more explicitly mentioned in the literature review.	Within the literature review section we have added a paragraph on the SPC identifying the areas where research is being called for. We have added references on the SPC, one of which is a meta-analytic review of the theory. The new references which appear in the bibliography to support this section on the SPC are: Briggs, E., Devetti, S., and Kato, H.T. (2021). Linking Organizational Service Orientation to Retailer Profitability; Insights from the Service-Profit Chain. *Journal of Business Research*, 17, pp.271-278. Hogreve, J., Iseke, A., and Derfuss, K. (2022). The Service-Profit Chain: Reflections, Revisions, and Reimaginations. *Journal of Service Research*, 25(3), pp. 460-477. Hogreve, J., Iseke, A., Derfuss, K. and Tőnnjes, E. (2017). The Service-Profit Chain: A Meta-Analytic Test of a Comprehensive Theoretical Framework, *Journal of Marketing*, 81(3), pp. 41-61. The additional text in the literature review section on page 5 reads as follows: The Service-Profit Chain The SPC, one of the most prominent theoretical models within services (Heskett *et al.,* 1997; Hogreve *et al.,* 2017; Hogreve *et al.,* 2022) provides a comprehensive framework that informs companies how to enhance firm performance through internal and external marketing activities. Within the internal marketing perspective of the SPC, variables relating to employees such as workplace design, including work environment and physical design, which is increasingly important for scholars and managers, remain under researched (Hogreve *et al.,* 2022). Internal marketing relationships within the general working environment are complex and causal relations between employee's satisfaction, loyalty and productivity appear less clear than the traditional SPC suggests (Hogreve *et al.,* 2017; Hogreve *et al.,* 2022), warranting additional research.

2. The contribution your study makes to services marketing theory must be made clear in the discussion and/or theoretical contributions	We have added a paragraph on page 22 outlining the contribution of our study to the SPC. The text reads as follows with new text in colour: Implications for Theory, Knowledge, and Practice Our study design and empirical evidence make five key contributions to theory, knowledge, and practice. Firstly, we contribute to Service-Profit Chain research by deepening knowledge of the internal activities within firms and identifying implications for managers that can inform their internal marketing strategies (Hogreve *et al.,* 2017). We respond to calls for additional research on the physical design of the work environment on employees as an internal SPC variable (Hogreve *et al.,* 2022). We also address recent calls for SPC related research contextualized within a retail trade context (Briggs *et al.,* 2021).
3. Make sure the subheadings in the methodology section reflect the content in each subsection eg Approach, Sample, Data collection procedure, Measures, Analysis.	Apologies for this oversight on our part. This is now rectified in the new submission.

Reviewer 2

Given the content of the review, there is nothing to address

Reviewer 1

Reviewer 1 Comment	Response
pg 11, line 38, "was changed to" should be (I think) "was changed in"	Change made
pg 11, line 56 "data was" should be "data were"	Change made
I also found your use of initial capitals for terms such as "Music" a little confusing - my recommendation would be not to capitalize these words.	We followed standard procedures with capitalisation. It is normal to capitalise dimensions of constructs such as Music, Odor in these types of studies. The underlying concepts such are typically in lower case other than when they begin a sentence. We did notice that we were not as consistent as we would like in following this

	system so we have adjusted the text throughout to reflect this.
The statistics related to the sample need to be more accurate, consider include the two decimal places here and also consider presenting these in a table.	This is now in table 1. All statistics are to two decimal places.
I would consider breaking the very long paragraph on page 19 into shorter paragraphs - it is difficult to read as presented.	We have split this section into two shorter paragraphs. Thank you for your feedback.