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THESIS SUMMARY

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**THE IMPACT OF AIRPORT ENVIRONMENT
ON PASSENGER EMOTIONS AND BEHAVIOUR**

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I. Background and research objectives

I.1. Introduction

Past research suggests that the behaviour of shoppers is influenced by the atmospherics of the environment they are in, for example store ambience, design, behaviour and appearance of personnel. Servicescapes have been defined as the “*objective physical factors that can be controlled by the firm to enhance (or constrain) employee and customer actions*” (Bitner, 1992, p. 65). Environmental psychologists have proposed a Stimulus-Organism-Response taxonomy, where the environment (*stimulus*) has an impact on the emotional state of consumers (*organism*) (Donovan & Rossiter, 1982). Changes to the emotions, in turn, mediate the behavioural *response*, which could be to either “avoid” (stay for a shorter time, purchase less items, etc.) or “approach” the environment (stay for longer, purchase more than planned etc.) (Mehrabian & Russell, 1974). Although subsequent studies confirmed that behaviour is also influenced by cognitive and physiological processes, their impact is much lower than those of emotions in highly arousing environments (Kim & Moon, 2009). A number of studies into the pivotal role of emotions has been conducted over the past 40 years (Bohl, 2012; Ezeh & Harris, 2007; Turley & Milliman, 2000). There appears to be agreement that shoppers experiencing higher pleasure are more likely to browse, affiliate with others and stay longer in an environment. However it has been stated that high levels of arousals can lead to avoidance behaviour (Donovan & Rossiter, 1982). Contrary to that, higher excitement (high arousal paired with high pleasure) was shown to increase desire to stay in and intention to return to a shopping mall (Wakefield & Baker, 1998).

Airport retail environments are such high arousal environments: Passengers moving through the departure halls of international airports can feel excited about an upcoming holiday, or because air travel takes them out of the daily routine. Others could feel intimidated by strict regulations and security, or feel lost in what is an unusual environment for many. All are under a certain time constraint, which may lead to perceived time pressure (Bowes, 1998). In fact, passengers may experience a combination of these, with anxiety or stress increasing when they experience unforeseen events (such as an unexpectedly long queue), and reducing again when they have successfully coped with such stressful situation. Practitioners have therefore argued that retail outlets are most valuable when they are located in areas where passengers have low levels of stress but high excitement (Crawford & Melewar, 2003; Schölvinck, 2012). Indeed, airport shops generate significant returns nothing short of prime city centre locations and shoppers have a high likelihood of buying on impulse (Omar &

Kent, 2001). This thesis is motivated by the apparent lack of academic research confirming and explaining these relationships. Results are not only applicable to the aviation industry, but to any retail setting where shoppers are under time pressure (before end of lunch breaks, closing time, or close to Christmas), or opening hours are limited (e.g., ferries, ports and train stations, sports stadiums).

I.2. Research objectives

The aim of this dissertation is to verify if the effect of servicescapes on consumer behaviour and evaluation of a store as postulated by environmental psychologists (Donovan & Rossiter, 1982) does also apply to the time-pressured, high arousal environments in airport retail areas. Of particular interest are the mediating effects by consumer pleasure as well as stress.

- Does the airport retail environment influence consumer emotions, and – in turn – have an effect on their shopping behaviour?
- Do these emotions also influence shopper's post-hoc evaluation of the store and the shopping experience?
- How strong is the influence of in-store personnel compared to the physical factors of the store on consumer emotions in airport retailing?
- Can consumer emotions be operationalized with a two-dimensional construct representing pleasure/happiness and acute (short term) stress?

Because customers of airport retail stores are typically multi national, and verbal scales measuring emotions may lead to significant inequality across nationalities, a relatively rare non-verbal instrument was applied and results critically discussed: Pictures of facial expressions representing one of seven basic emotions were used during a survey, based on the empirical finding that natural basic emotions are universal and understood in the same way across cultures (Ekman & Friesen, 1971; Matsumoto, et al., 2012). A secondary objective was therefore to assess the validity of this scale in multinational research.

II . Applied methodology

II.1. Data collection and analysis

Before the quantitative study, a qualitative preliminary study was conducted in order to gain a deeper understanding of the topic under investigation, confirm the main phenomena, understand the most relevant relationships as well as managerial perspective of the drivers of

consumer behaviour. The author completed semi structured interviews lasting 1-1.5 hours with senior managers representing ten of the 50 largest European airports, which were subjected to content analysis. Results identified the most important stimuli of customer emotions in airport retail stores, gave insight into the dominant emotional states as well as relevant marketing output measures.

The store selected for the field work of the quantitative study is the main Duty Free store located at Budapest Airport in Hungary, a 1400 sqm shop opened 24 hours serving departing passengers and airport staff. The store offers perfume, cosmetics, liquor, tobacco, fine foods, confectionary, clothes, toys and other gift items (Moodie, 2011). The store is located immediately behind the central passenger screening area, requiring all departing passenger to pass through (walk-through concept). Following a quota sampling method, interviewers intercepted passengers entering the airport from August 23rd 2013 to September 8th 2013, and recruited only participants with at least 70 minutes left until departure aged 18-65. Respondents were then asked to process as normal, and report to the interviewers at the entry (to record time) as well as at the exit of the store, when a full interview was administered. 974 data sets were collected, but because this study required some awareness of the store environment, passengers who did not stop to look around in the duty free store were excluded, resulting in N=294.

II.2. Research model

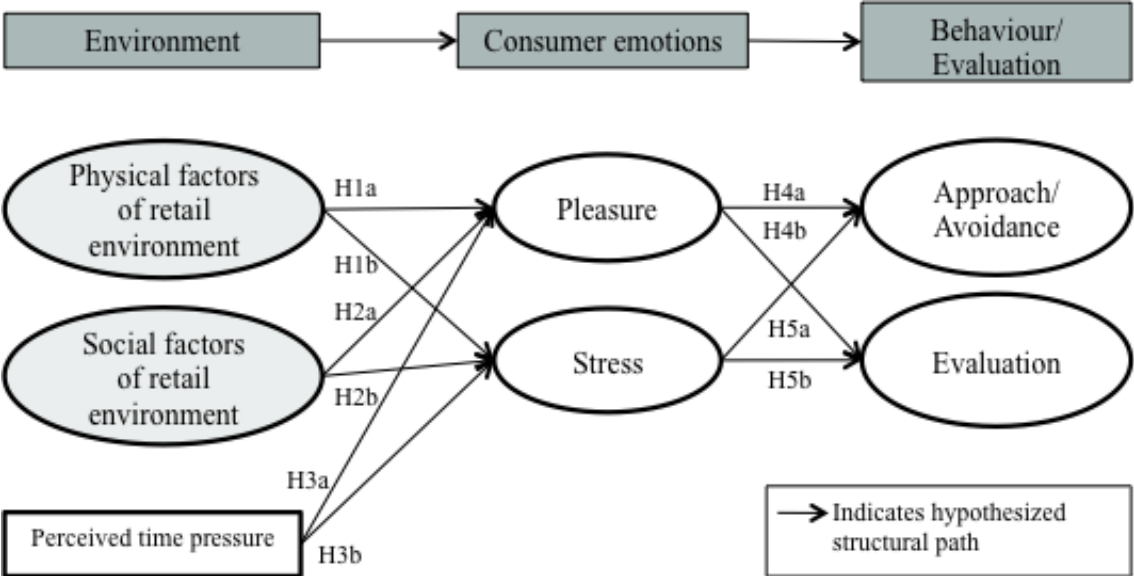
We have developed a conceptual model, which explains the effect of the physical and social aspects of a store's environment onto customer's approach behaviour as well as affect towards the store, mediated by the emotions of shoppers. It was not intended to be an overarching model covering all factors explaining buyer behaviour at an airport. Most notably, we do not dwell on the cognitive and physiological reaction of customer to the store environment and retail offers, because literature related to airport retail has repeatedly stated that emotions play a dominant role in in-store decision making (Crawford & Melewar, 2003; Omar, 2001; Schölvinck, 2012; Volkova, 2009). The hypothesised cause-effect relationships displayed in Figure 1 are grounded in both relevant literature as well as results from the qualitative study.

The retail environment stimulates consumers by appealing to their senses. The store's ambient temperature has shown to influence interpersonal attraction of people (Griffitt, 1970) and approach the area (Baker, 1987). An appealing design and layout/easiness to move around have had a positive effect on emotions and behaviour in a study in a restaurant setting (Jang &

Namkung, 2009). Appropriate interior lighting of a store positively influences behaviour and the evaluation of a store (Areni & Kim, 1994; Wakefield & Baker, 1998). Furthermore, the staff's appearance and behaviour influence consumer feelings, as proposed by Bitner (1992) and others (Hutton & Richardson, 1995; Turley & Milliman, 2000).

Dependent variables in the model is behaviour, which builds on the approach/avoidance concept put forward by environmental psychology (Mehrabian & Russell, 1974): Approach behaviour is the intention to return to the store, to stay longer if possible, and to look around and explore the store. Also, a desire to affiliate and talk to others in the store resulted in a higher approach score. Avoidance is defined as the opposite of approach. The evaluation of the store consisted of two items: liking of store environment and enjoying of shopping.

Figure 1: Proposed model of environmental effect on store patronage



Source: own data

II.3. Hypotheses and applied testing methods

To test the above hypotheses, we applied structural equation modelling. This method is preferred to test causal relationships between latent variables, which are grounded in theory (Backhaus, Erichson, & Weiber, 2011). Also, a main objective was to verify if the proposed

model is stable and has a good fit, therefore we preferred AMOS due to the wide range of overall goodness of fit indicators. Before testing, each measurement model was verified for its goodness of fit, and internal consistency of measures as well as construct validity assessed in turn. In general the measures used performed acceptably well. Physical factors of the environment as well as two out of three items of the social factors reached good item reliability, with staff helpfulness performing worse than expected. Composite reliability of the two constructs were acceptable. Pleasure and stress showed good high split half reliability, and correlated with other measures as expected. However, respondents had some difficulties in fully understanding the meaning of pictures showing negative emotions (such as fear, disgust etc.) as they showed extreme facial expressions, unlikely to be shown in such a high safety, clean, formal environment. More validation studies are required before results can be fully generalised. Approach/avoidance measures and evaluation of the store were sufficiently reliably based on the alpha coefficient. For each measure, the discriminant, face and nomological validity was tested and discussed.

We also tested cross national construct equivalence and measure equivalence as well as reliability across countries. With the exception of the measure ‘helpfulness of staff’, no significant differences between cultures could be detected. By way of explanation, one may argue that a salesperson offering advice could be perceived as friendly by one culture, but intrusive or annoying by another. Despite this, this was an acceptable result, especially because the main objective was not to understand differences across cultures, but to apply measures unaltered across nations.

Table 1: Summary of the hypotheses tested

Hypothesis	Proposed causal relationship		
H1a	Pleasure	<---	Physical factors
H1b	Stress	<---	Physical factors
H2a	Pleasure	<---	Social factors
H2b	Stress	<---	Social factors
H3a	Pleasure	<---	Time pressure
H3b	Stress	<---	Time pressure
H4a	Approach/Avoidance	<---	Pleasure
H4b	Evaluation	<---	Pleasure
H5a	Approach/Avoidance	<---	Stress
H5b	Evaluation	<---	Stress

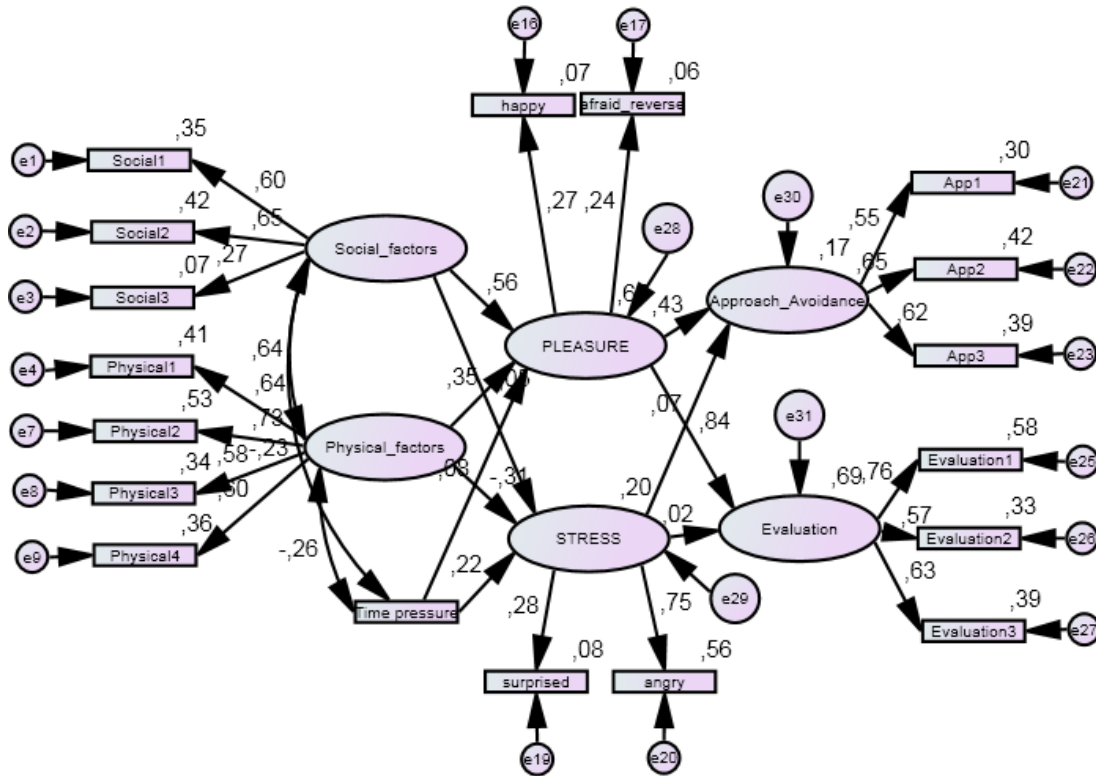
Source: own data

III . Results

III.1. Presentation of results of SEM

The results of the structural equation modelling was mostly satisfactory. The overall model had a good fit

Figure 2: Structural model and standardised path coefficients



source: own data

Absolute fit indices ($\chi^2/df = 1.912$, RMSEA=.056) test how well an a-priori model fits the sample data, and are acceptable (Wheaton, Muthen, Alwin, & Summers, 1977) (Hu & Bentler, 1999). The incremental fit index was acceptable at TLI = .838, which is acceptable according to some authors (Hooper, Coughlan, & Mullen, 2008). The Comparative Fit Index (CFI) with .870 was slightly below the required mark, probably due to the complexity of the model. In order to test hypotheses, we look at the significance and strength of causal paths. Six out of ten hypothesised relationship could be confirmed as being sufficiently strong (stand. path coeff. >2.0 at $p < .05$). We could not find empirical evidence for the effect of staff on stress, time pressure on pleasure, as well as stress on approach/evaluation.

Customers at airports may perceive time pressure and anger when processes are delayed or take longer than expected (Taylor, 1994), which can influence emotions and behaviour in a store visited afterwards. Airports are also high pleasure environments, which have been linked to an above average likelihood of impulse shopping (Thomas, 1997). This is in conflict with some studies, which postulate that high arousal can reduce the impact of retail environment on behaviour (Donovan & Rossiter, 1982; Foxall & Greenley, 1999). Based on the qualitative pre-study it was proposed, that emotions relevant in airport duty free stores can be captured along two dimensions, termed pleasure and stress. In using a picture-based instrument, the data established a clear link between the environment of a store, emotions experienced by patrons and their behaviour and evaluation of the store. Customers who rated the airport duty free store environment positively also experienced higher levels of pleasure and lower levels of stress when leaving the store. The effect of social factors (sales staff) on emotions is 60% stronger than that of physical factors (store ambience and design), which stresses the importance of the sales staff in airport retail concepts. There are studies which ignore social cues (eg., Berman & Evans, 1995), or only consider social stimuli by other customers (e.g., crowding research, Eroglu & Machleit, 1990; Li, Kim, & Lee, 2009). Bitner (1990) showed that professional attire of service staff can increase customer's attribution and satisfaction. Baker et al. (1992) showed that social cues being present in a store increase arousal. Baker et al. (1994) proved that appropriately and friendly store personnel greeting customers improved perceived service quality. However, Turley & Milliman (2000) suggest that more research is needed to understand this dimension of the retail environment. Even the classic servicescape model (Bitner, 1992) handles employee behaviours as a consequence of the physical environment. In her definition of the Servicescape, all "objective physical factors that can be controlled by the firm" (Bitner, 1992, p65) are included, however in her view this does not extend to behaviour and appearance of staff. Note that the role of flight crew uniforms in influencing passengers' anxiety on an airplane was noted over 40 years ago, but not empirically tested (Kotler, 1973). This study assumes that staff appearance and behaviour is set by the company as an element of the service marketing mix and therefore models social factors as antecedents of customer emotions.

Both the quantitative as well as the qualitative study confirm significant effects of the store environment on emotions, with the physical environment being related to both pleasure and stress, while the social environment only could be linked to pleasure. Previous studies confirm that happiness and pleasure can be positively influenced by the physical environments of malls (Wakefield & Baker, 1998), individual store décor and design (Baker, Parasuraman,

Grewal, & Voss, 2002; Spies, Hesse, & Loesch, 1997) and lighting (Areni & Kim, 1994), for example. Our study found that design and ambient factors belong to the same dimension, whereas Wakefield & Baker (1998) assert that they have differential effects on consumer responses. Their study was set in a multiple store environment (a mall), and therefore may have resulted in a higher variance than our study, which is limited to one store. Several authors have stated that design and ambient factors have different effects on consumer responses (Baker, 2002). However, our data suggests high intercorrelation and treats physical factors as a single dimension. This is in line with findings by Wakefield & Baker (1998) who measured mall atmosphere using 12 items, and equally collapsed all items into a single construct, confirmed by a factor analysis with good model fit.

This study confirms that emotions influence consumer behaviour and opinion. The link between pleasure and behaviour as well as evaluation was significant, in line with past research; Chebat et al. (1995) found that pleasure had the strongest influence on approach. The measurement model chosen to measure stress did not confirm the hypothesised effect on evaluation and behaviour. To date, little research has been done in this area in retail marketing. Most current stress research focuses on permanent or repeated acute stress after being exposed to ongoing disturbing stimuli (Folkman & Lazarus, 1980; Larsson, Kempe, & Starrin, 1988; Mark, Robertson, & Caputi, 1997; Moksnes, Moljord, Espnes, & Byrne, 2010), work-related stress (Newton, 1989; Wheaton, 1990) or commuter stress (Evans & Wener, 2006; Hennessy, 2008; Wener, Evans, Phillips, & Nadler, 2003). The type of stress discussed here can be described as short-lived, acute stress. For example, stress during college examinations correlates highly with state anxiety and time urgency (Friend, 1982), which is also the case with both our measures of stress (picture scale and single-item verbal scale, see Pearson Correlation in Appendix). However we could not confirm any change in behaviour or evaluation as a consequence. One reason could be that shopping under time pressure leads to more planned pre-shopping, as was shown in a study among Christmas shoppers with self-imposed deadlines. This study also suggests that as Christmas gets closer, price sensitivity does not change, although feelings of *regret* after purchase do occur with some consumers (Miyazaki & Carolina, 1993). Also it has been shown that time pressure leads to customers changing preferences, switching brands, or failing to buy intended products (Dhar & Nowlis, 1999; Nowlis, 1995; Park, Iyer, & Smith, 1989; Wright & Weitz, 1977), however no studies could be located, which suggested a change of evaluation of the store itself. It is possible that at airports, the stress experienced is accepted (and maybe anticipated), and although being in a higher state of arousal, passengers still enter stores and affiliate with people in the same way.

Another explanation is that acute stress felt during the check-in and security screening process may be very short-lived and no longer influence behaviour in the duty free store. The qualitative study showed that several airports (including the location of the fieldwork of this study) place an 'orientation zone' just before the entrance of the duty free store, which offers place to sit down, groups to meet, and much information including airport maps and flight information screens. This is supposed to reduce stress levels before entering the retail area, and therefore respondents may still remember and report stress levels as were in the near past, however in-store behaviour was not affected. Next, there have been suggestions that store choice is affected by time pressure (Dhar & Nowlis, 1999). Because this is the largest store, and located immediately in the path of the passenger, time pressure could in fact lead to a higher likelihood of shopping in this store rather than those, which require searching or diverting from the shortest path to the gate. This could be investigated in a future study involving more stores in the same environment.

Also, the design of the store (as well as staff uniforms) is distinctly different from that of security screening, therefore one could argue that customers are not allocating any 'blame' for negative experiences to the store. This would explain why the evaluation of the store and shopping experience was not moderated by stress and only by emotions along the 'pleasure' dimension. Another reason could be effects of the item 'anger' which is part of the stress measure. Anger can also increase approach. This would be in line with complement theory (Carver & Scheier, 1990), which suggests that approach and avoidance do not only relate to positive and negative emotions. In fact, brain research found that people with higher dispositional anger have increased approach motivation and decreased withdrawal motivation. Anger can cause high levels of activity, which is focused and directed (Harmon-Jones & Allen, 1998). One could argue that the duty free store plays an important role in coping with stress, as the staff in the store can give orientation and answer questions, but also shopping could be motivated by attempts to distract from or counterbalance feelings of anger (Arnold & Reynolds, 2012).

The measures and constructs used for this study were shown to be equivalent across countries, which is important. Airport related research often involves a large number of countries without the possibility to develop separate measures or constructs for each, therefore the measures used in this study are likely to also work in other countries.

III.2. Methodological contributions

This study is contributing to research methodology in several ways. Firstly, it applies a scale based on facial expressions to measure emotions in order to eliminate the possibility for measure variance across cultures. The ‘stress’ construct was less stable than the *pleasure* construct, which had good reliability, suggesting that it is possible to use picture-based scales to assess emotions. The scale was highly correlated with other scales assumed to measure the same concept (Russell, Weiss, & Mendelsohn, 1989) and in general showed good validity. While the emotions shown were recognized by a high proportion of respondents correctly (Samuelsson, Jarnvik, Henningson, Andersson, & Carlbring, 2012) they may have appeared extreme (especially the negative emotions), and resulted in less variance than desirable. However, based on our knowledge, this is one of the few attempts so far to measure the effect of retail environments on customer emotions using picture scales, and a contribution with relevance to those researchers considering to use graphic scales for measuring emotions. Visual imagery offers the benefit that pictures are more memorable than words (Lutz & Lutz, 1978). Also retrieval of information in parallel is predominantly not verbal, whereas sequential information processing is a process that is more verbal (Paivio, 1975). We have shown, however, that there are numerous issues when applying a picture scale in practice, and caution needs to be exercised when generalising results.

Also, we have contributed to the discussion of stress measures. While arousal and activation has been measured frequently in the past, acute stress is more often measured by identifying stressors rather than the emotional reactions. We proposed a construct consisting of the two basic emotions *surprise* and *anger*, which conceptionally and empirically is similar to the short-termed acute stress typically associated with air travel. We have also assumed that emotions are best measured with two dimensional constructs, however our review of the literature suggests that in airport environments, dimensions should not be positive/negative (Izard, 1977) or pleasure/arousal (Donovan & Rossiter, 1982), as the important emotion of stress is not sufficiently represented.

III.3. Theoretical significance

The present study has provided clear support for the presence of effects of airport retail environment on customer behaviour and store evaluation. Shoppers in airport environments are likely to be exposed to time pressure of varying levels, and to be less familiar with the environment. At the same time, there could be high levels of excitement and pleasure as well as anxiety caused by the anticipation of upcoming air travel. Despite these conditions,

pleasure emerges as the dominant moderator of the effect of environmental cues on behaviour. The Mehrabian-Russel model also shows stable results in such extreme shopping environments. Staff appearance and behaviour are more important the store environment. Our results suggest that servicescapes can be analysed with a two-dimensional measure (physical and social factors). As expected, store evaluation as well as behaviour is influenced by the level of pleasure but not the level of stress. This could be because the stress measure used here picked up emotions which were felt before entering the store, however browsing activity led to stress reducing to a level where it did not affect shopping. This would confirm appraisal theory, if browsing and shopping distracted people and thus were a successful strategy of coping with anxiety.

III.4. Implications for practitioners

This study has a number of implications for airport operators as well as retail concessionaires. The effect of staff appearance and behaviour on customer emotions is stronger than the effect of the physical store environment, underlining its importance in the service industry. It has also shown that any stress experienced by customers (possibly due to previous stressors/stimuli, such as long queues) will still be reported at the exit of the first duty free store, but has no effect on behaviour or evaluation. This may be caused by the design of the interior as well as passenger flow, as there is an orientation zone before the store entry, which allows groups to gather, and individuals to obtain information about next steps and time constraints. The study therefore confirmed the success of this concept. Also the study underlines the importance of assessing and controlling store environments as they influence customer emotions. Feelings of pleasure can be directly linked to a higher likelihood of customers browsing and affiliating with sales staff. Perceived time pressure significantly influences pleasure, and therefore needs to be monitored and managed accordingly

Limitations and future research opportunities

III.5. Limitations

The quantitative study has a number of limitations. Data was collected in only one store, with unchanged environmental characteristics during the field time. This meant that variations in the perceived physical environment are likely to be mainly caused by perception of the customers. It would be beneficial to repeat the study in several other stores to achieve higher variance within measures. Also, passengers with little time before departure were not

recruited or dropped out of the study, therefore behaviour under extreme time pressure could not be addressed by this study. Findings are therefore only partly generalizable, and limited to customers arriving at least 70 minutes before departure to the airport. Measuring emotions using picture scales has been challenging, and results only partly satisfactory. While the construct pleasure has performed as expected in the conceptual model, stress did not, and therefore results may not be fully generalizable as a result of the lack of an established methodology of measuring emotions using picture scales.

III.6. Directions for future research

The number of phenomena which were identified in the qualitative pre-study suggests that more research is required to fully understand all cause-effect relationships explaining airport shopping. A number of specific extensions of the present approach are being suggested: Firstly, much of the data collected in the quantitative study was not yet analysed. Because respondents completed interviews at four different stages of the airport process, including the measures related to environmental cues, emotions, planned or actual behaviour, a longitudinal study into the effects of servicescapes over time should be next. Due to the complexity, there is few research into how environments located before a store influence behaviour in that store, for example, although this is highly relevant in multi-store environments, such as shopping malls.

Next, cognitive effects, such as perceived service quality and value, could be included as mediator variables in a future model. There are two conflicting views, one suggesting that cognition is a mediator of the effect of the environment on emotions, and another one that it mediates the effect of emotions on behaviour. Both alternative models could be tested and compared. Also, other moderator effects could be modelled, such as access to information/experience, or general satisfaction with life.

Also, the use of pictures to represent emotions has been only partly successful. It would be valuable to compare various concepts (video animations, combination of verbal/visual scales, verbal scales) with each other to determine the viability of picture scales for the future. One should consider designing less extreme pictures more relevant to the airport environment.

Lastly, we have found only little effect of multinational variance of the data, which is somewhat surprising given that uncertainty avoidance, for example, is suggested to be a main factor when differentiating between cultures (Hofstede, 2001, 2011). As this also appears to be an under researched area in retail and service marketing, we encourage further research

into the effect of culture on the impact of physical and social store environments on behaviour.

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