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Consumer environment stimulation: Are consumers aware of manipulation?

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Abstract

This study examines consumer behavior responding to environmental stimuli in original and manipulated online environments. This study aims to modify, alter, or affect independent variables in an experimental study design to gain new insights. The independent variable examined in this study is e-servicescape. We involved 85 participants worldwide to respond to the e-servicescape on the Spotify music platform. The e-servicescape environment stimuli consist of ambient factors, spatial layout and functionality, signs, symbols, artifacts, financial security, and interactivity. The quasi-experiment was implemented and found that consumers exhibit different behaviors and respond better to a pleasant environment rather than a manipulated one. The findings of this study are an early indication for companies to present a pleasant environment for consumers in a service environment.

Keywords: e-Servicescape; environment stimulation; experiment; manipulation

Introduction

In the context of the application of technology and information, our study investigates the effect of different environments on a website on consumer behavior. This phenomenon was also raised by [Kock and Chatelain-Jardón \(2011\)](#) about the emotional processes that arise in consumers when they see the website as a shopping environment. Furthermore, designing a pleasant website will make it easier for companies to carry out marketing functions in influencing consumers' emotions, attitudes, and intentions towards the products offered. The emergence of this phenomenon was also experienced by [Szalma \(2014\)](#), [Ho and Lu \(2014\)](#), [Qu \(2015\)](#), [Kim and Yun \(2018\)](#), and [Kim et al. \(2019\)](#) where an attractive website design will affect user psychology and attract consumers to pay attention to the product.

Some of the problems and challenges in environmental psychology theory research are that some research rests on underlying assumptions about human perception, which are not fully understood. This condition is described by [Proshansky and Fabian \(1987\)](#) as an interdisciplinary field that is difficult to define and has solid goals. Based on this condition, our novelty of this study is that it investigates the effect of environmental stimuli on consumer behavior in an online service environment where contributes to environmental psychology theory. Discussing this theory also deals with the process of bonding between people and places which is also called with place attachment ([Low & Altman, 1992](#); [Williams et al., 1992](#)) and sense of place ([Hay, 1998](#)). [Low and Altman \(1992\)](#) and [Moore and Graefe \(1994\)](#) argued that place attachment and the amount of time spent in a place will cause the emergence of emotional attachment ([Smaldone, 2007](#)). However, place attachments in the context of environmental psychology cannot specifically describe the situation and shopping environment of customers ([Smaldone, 2007](#)); where it is accommodated by the concept of servicescape ([Bitner, 1992](#)) and also e-servicescape ([Papadopoulou et al., 2000](#)).

Moreover, service providers have adopted the notion of the Servicescape as a way of guiding and managing service quality. The term "Servicescape" refers to a concept that emphasizes the importance of the physical environment in which a service operation occurs ([Booms and Bitner, 1981](#)). This study tries to find out whether consumers can feel the difference in the environment and the stimuli provided by the

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company to them. Concerns regarding manipulation are not new (Sigall and Mills, 1998); the issue is not that optimal practices are unknown, but that they are frequently neglected.

The revelation of the arguments is needed to see consumer responses on shopping environment, where several previous studies been done (Kim, 2002; Kumar and Benbasat, 2002; Kim and Benbasat, 2003; Wang and Emurian, 2005). Kim (2002) provides the factors that influence consumer value perceptions in traditional mall settings and online environments. Kumar and Benbasat's (2002) research links website design elements and communication capabilities with of Para-social presence (PSP). Another study conducted by Kim and Benbasat (2003) found the important implications for internet store managers and marketers, as the framework can be used to evaluate and improve trust-related arguments used in internet stores. Meanwhile, research by Wang and Emurian (2005) finds that the key elements of online trust and their importance in building trust. This situation raises the emergence of research gaps that must be filled. The objectivity of this argument is the key to providing research certainty about how companies should prepare a shopping environment that is in accordance with consumer psychology; where it contributes to managerial and technical preparation to build website prime quality. In other words, their studies have not closed the research gap by revealing the not maximized-potential for online shopping by Kim and Benbasat (2003), products that do not look luxurious (Kumar and Benbasat, 2002), and visual appearances that are not attractive (Kim, 2002; Wang and Emurian, 2005). This is what prompted this study to compare consumer responses to a neutral and pleasant website display. Even Google.com (2022) mentions that users get frustrated when they see a poorly designed website with the term "bounce rate" where they just visit the website without doing any exploration. This study tries to close the gap by observing consumer behavior towards the e-servicescape dimension on the website.

With the empirical findings, our study contributes to the importance of initiating the manipulation of the study object before conducting larger-scale testing. In other words, manipulation is important in experimental research for determining if it works or fails in an experiment that is about to be conducted. Moreover, to be sure, according to Fayant et al. (2017), 75% of recent polls of social psychologists believe checking manipulation are required in a well-designed experiment. Some even contend that removing it from studies is a significant disadvantage (Simons et al., 2014). Doing these actions will provide an opportunity to test and try ideas in a particular environment before providing support or judgment on the assumptions we have. As a result, researchers will find it easier and more solid in constructing research arguments.

Literature Review

E-Servicescape

The term "e-servicescape" refers to the online factors that affect a marketer's website, including website design, functionality, and overall virtual environment (Harris and Goode 2010). It is used to describe the virtual environment in which online services are provided, as well as the overall online shopping experience. With the continued growth in popularity of online shopping, it is crucial for e-tailers to prioritize consumer opinions and continually improve their website functionality and service offerings (Deloitte, 2013). The e-servicescape has been the subject of many studies, which emphasize the importance of understanding the ways in which consumers shop in different mediums, from physical to virtual. These studies highlight the need for e-tailers to develop an effective online purchasing environment that will meet consumers' needs and expectations, ultimately leading to increased satisfaction and loyalty. The online environment behavior, colloquially referred to as the e-servicescape, has developed in various ways (see, for example, Tankovic and Benazic, 2018; Teng et al., 2018; Dassanayake and Senevirathne, 2018; Huang et al., 2022).

Ambient

The term of "ambient circumstances" refers to the physical or environmental factors that can influence how people perceive and respond to their surroundings (Baker, 1987; Baker et al. 1988). In the context of service environments, such as a retail store or a website, ambient circumstances can impact customer behavior and overall experience. Moreover, Bitner (1992) defined ambient circumstances as the physical components of a service environment that can stimulate the senses and influence customer behavior. In the virtual environment, ambient circumstances refer to the ambient conditions on a website that can trigger positive emotions in users (Harris and Goode, 2010; Tankovic and Benazic, 2018). These conditions can include visual elements, such as the design, layout, and colors used on the website, as well as auditory elements like music or sound effects. Positive ambient conditions can create a pleasant user experience and increase the likelihood of a customer making a purchase or returning to the website in the future. Overall, understanding the role of ambient circumstances is important for businesses to create a

positive customer experience and increase customer satisfaction and loyalty. By considering the impact of the physical and virtual environment on customer behavior and emotions, businesses can design service environments that are more effective and engaging for their customers.

Spatial Layout and Functionality

Bitner (1992) proposed that spatial layout and functionality are essential components of physical servicescapes that influence customer behavior. Spatial layout refers to the physical arrangement of equipment, furniture, and machinery, as well as the size and shape of the service environment. In the e-servicescape, spatial layout and functionality are transformed into design aspects, such as the overall structure, space usage, and navigational functions on web pages (Jeon and Jeong, 2009). Tankovic and Benazic (2018) note that while significant strides have been made in understanding physical servicescapes, the online context has been largely overlooked, due to a lack of research and surveys examining the online purchasing environment. This neglect is concerning given the internet's growing significance as a sales channel for many businesses.

Signs, Symbols, and Artifacts

It is impossible to exaggerate the relevance of artifacts in physical surroundings. Signs, Symbols, and Artifacts are necessary environmental things that communicate with consumers less overtly than signage do, conveying implicit messages about the location's overall image to customers. Additionally, Jeon and Jeong (2009) stated that the interior artifacts on exhibit enable consumers about the qualities of the service provider, who caters to certain customer groups. According to the opinion of some scholars that this element should not be allowed to exist in the online world. This element is based on the idea developed by Bitner (1992), and as such, it is a significant influence in the retail environment. Harris and Goode (2010) stated that signs, symbols, and artifacts is no longer to used in online environment contact because it is more important to deploy financial security.

Financial Security

This issue has developed as a result of the increase in the number of customers who do online transactions while purchasing. Harris and Goode (2010) stated that the term "online financial security" refers to the degree to which customers see a website's payment operations and general policies as secure or safe. Financial security may serve as a possible deal breaker, preventing online transactions from being completed or at least slowing them down. Tran and Strutton (2020) believed that financial security may operate as a deal breaker, preventing or delaying the execution of online transactions. In the same context, Tran and Strutton (2020) continues his explanation by arguing that financial security online refers to the way consumers perceive the website's security, safety precautions, payment procedures, and convenience of payment for consumers.

Interactivity

Jeon and Jeong (2009), Tran and Strutton (2020), Lee et al. (2016), and Keng and Ting (2009), all have different perspectives on what interactivity means in the virtual world. According to Jeon and Jeong (2009) in the online environment, interactions are restricted to those that occur between customers and businesses when they seek information on a website. Even Tran and Strutton (2020) termed interactivity with the capabilities of the technology to insert product videos and remind consumers about the availability of interactive website features. Thus, Lee et al. (2016) view interactivity as a functional feature of e-servicescape. In other words, it is how users can engage with a website through different functions and features. Keng and Ting (2009) describe interactivity in the virtual world as "machine interaction," which is the degree to which consumers can engage with a website by browsing, searching, or giving comments. Thus, it is important to see interactivity in the online environment, as it allows users to engage with a website and its features, seek information, and receive reminders about available products or services.

Environment Manipulation

In this paper, the consumer shopping service environment is described by e-servicescape theory that explores the environmental perspective of customer service in the virtual world (Santos, 2003; Vilmayavet and Rafaeli, 2006; Jung and Pawlowski, 2014) to have virtual experience (Li et al., 2001; Chiou, et al., 2008); where their studies did not explore environment manipulation. According to Ruble (2017) experimental manipulation is defined as the process by which researchers intentionally modify, alter, or affect the independent variables, known as treatment variables or factors, in an experimental study design with the goal of learning something new. In this study, the independent variable that we examine is e-

servicescape. According to [Wirtz \(2018\)](#) designing a service environment can make consumers feel happy or relaxed, help them find their way in complex service environments and shape their perceptions of quality and important outcomes such as purchase behavior, satisfaction, and repeat purchases.

Moreover, environmental manipulation is also recognized by some researchers as a key initiative to explain complex consumer behavior to make it easier to understand. Several studies suggest the importance of manipulation to see perception ([Riem et al., 2017](#)), social presence ([Hassanein and Head, 2007](#)), facial expressions ([Isabella and Vieira, 2020](#)), and website experiments ([Cyr et al., 2010](#)). In our opinion, to measure and look more closely at consumer behavior, manipulation needs to be done in more detail. The authors maintained ethical considerations during their manipulation by using a persuasion approach, allowing participants to have autonomy and decision power before filling out the questionnaire.

Research Method

Research Design

The research design in this study is experimental research, where we started by making a series of manipulations on the variables we wanted and checking whether the manipulations worked well or not. The context of manipulation in this study is about an online experiment that examines the effect of website stimulation on consumer response. Next, we manipulate a website and display 10 images of neutral images website and 10 images of pleasant images website, where the neutral image is the manipulated and the pleasant image is the actual website. The Spotify music website and music player were chosen as contexts for this study because they provide an opportunity to investigate the effects of different levels of response to the stimuli of the service environment. To see consumer responses, we use e-servicescape variables such as ambient; spatial layout and functionality; signs, symbols and artifacts; financial security, and interactivity will be manipulated and tested.

[Hinkelmann and Kempthorne \(2007\)](#) define an experiment as a method that is used to either support or disprove a hypothesized outcome. Experiments offer insight into cause-and-effect relationships by showing what happens when a specific element is changed in a controlled environment. Even if the goals and size of experiments vary considerably, the procedures used and the reasoning used to analyze the findings are always the same. Experimental research, as defined by [Babbie \(1998\)](#), is a kind of study that is extensively used in the design of scientific research projects. Statistical inference is the primary approach for investigating causal (cause/effect) relationships and exploring the link between one variable and another. According to [Babbie \(1998\)](#), the hypothesis testing or deductive research approach is used to confirm or deny hypothesis that have been generated by the researcher in order to address a certain issue or problem.

Design of Experiments

The design of experiments includes any information-gathering activities in which variation is present, regardless of whether the variation is completely within the control of the researcher or not ([Pearl, 2000](#)). Most of the time, the experimenter is interested in the impact of a procedure or intervention (the "treatment(s)") on certain items (the "experimental units"), which may include humans. As a result, design of experiments is a subject that has a very wide range of applications across all of the natural and social sciences disciplines ([Box et al., 2005](#)).

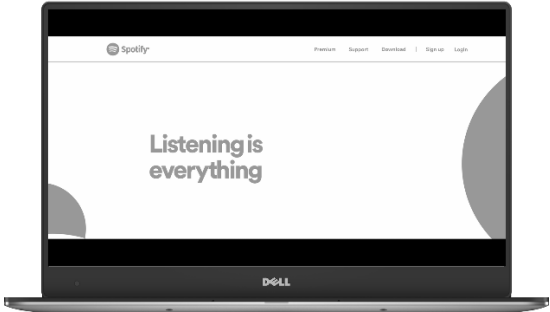


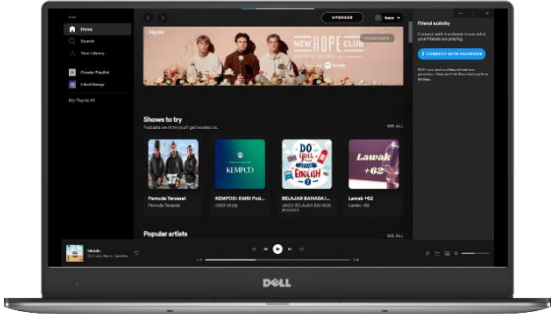

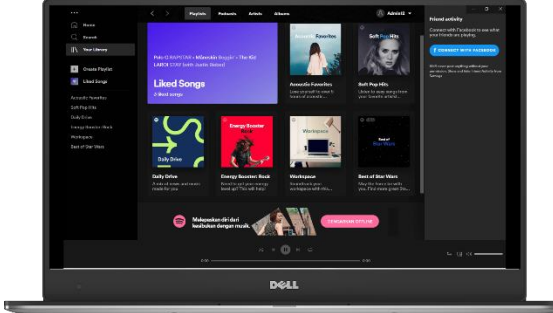
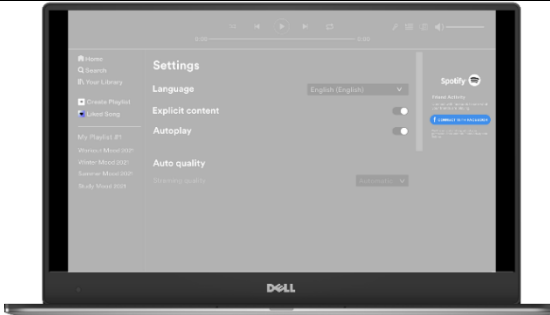

Experimental design uses independent variables to identify the connection between an observed event (the dependent variable) and a variable whose values are controlled or chosen by the researcher ([Pearl, 2000](#); [Box et al., 2005](#)). In a situation like this, researchers are attempting to uncover evidence that indicates that values of one independent variable influence those of a second independent variable (that which is being measured). The independent variable may be modified as needed, and its values do not constitute an issue that has to be explained in an analysis, but are simply accepted as they are in practice. However, the dependent variable is generally unable to be manipulated directly by the researcher ([Pearl, 2000](#); [Box et al., 2005](#)). Controlled variables are equally essential to detect in experiments since they can be controlled. This refers to the variables that are maintained constant in order to avoid their having an impact on the effect of one variable on another (the dependent variable).

Manipulation Checks

[Carlsmith et al. \(1976\)](#), [Aronson and Carlsmith \(1968\)](#) and [Mills \(1969\)](#) expressed the same point of view by stating that manipulation checks should be considered as a separate measure designed to determine whether the experimental treatment was successful in producing the internal states that represented the conceptual variable. Control checks are defined as a measure utilized in the construct addressed by an experimental modification according to their original concept. This is the same point of

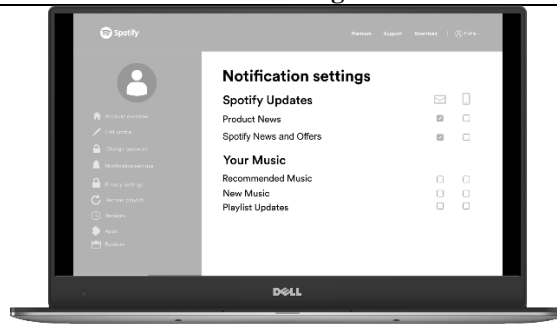
view as other scholars such as [Wilson et al. \(2010\)](#), [Haslam and McGarty \(2019\)](#). A further point of contention was made by [Sigall and Mills \(1998\)](#), who claimed that manipulation checks are a phrase used in the practical world to evaluate assumptions about changes in experimental circumstances. According to academics, differing perspectives on the concept of manipulation checks must be understood as an extra measurement under certain circumstances, with various measures being used properly on something that is unknown and is intended for evaluation, among other things.

Table 1. Neutral and Pleasant Images of Website Stimulation

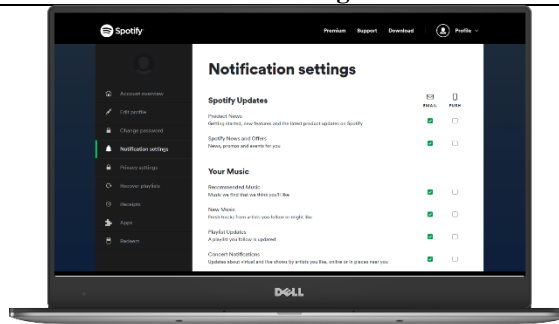
Neutral Images	Pleasant Images
Ambient	
	
	
	
Spatial layout and functionality	
	

Consumer environment stimulation... (Nuralam)

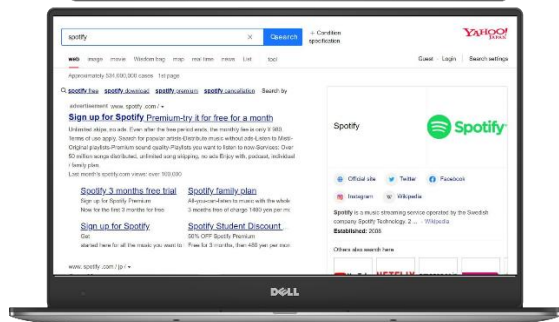
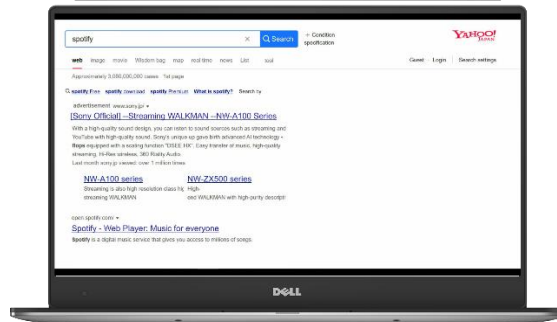
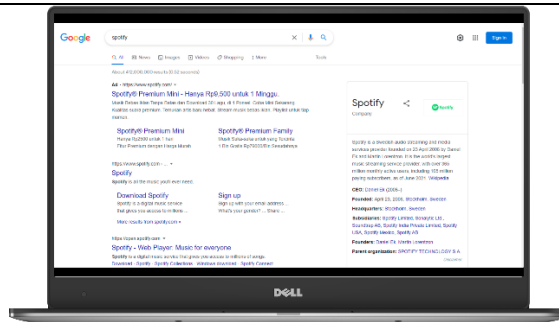
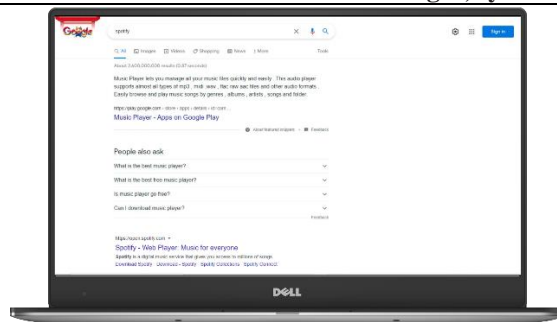
Neutral Images



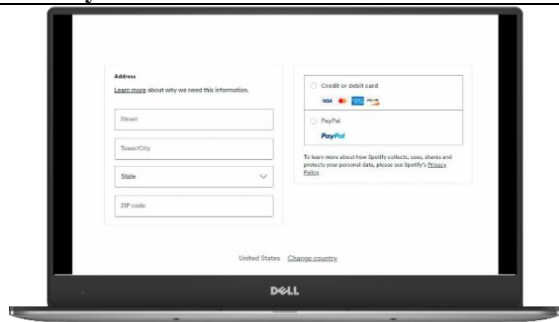
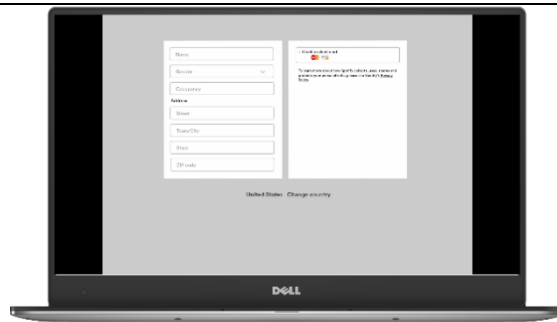
Pleasant Images



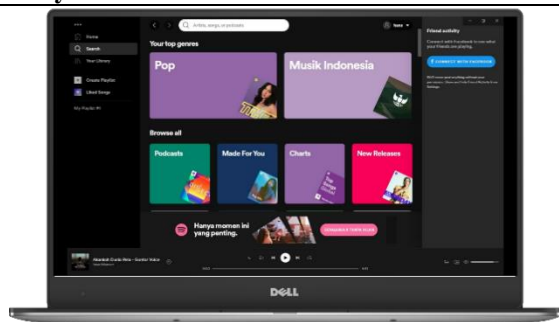
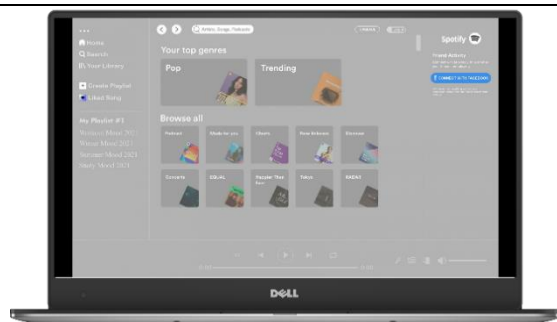
Signs, symbols and artifacts

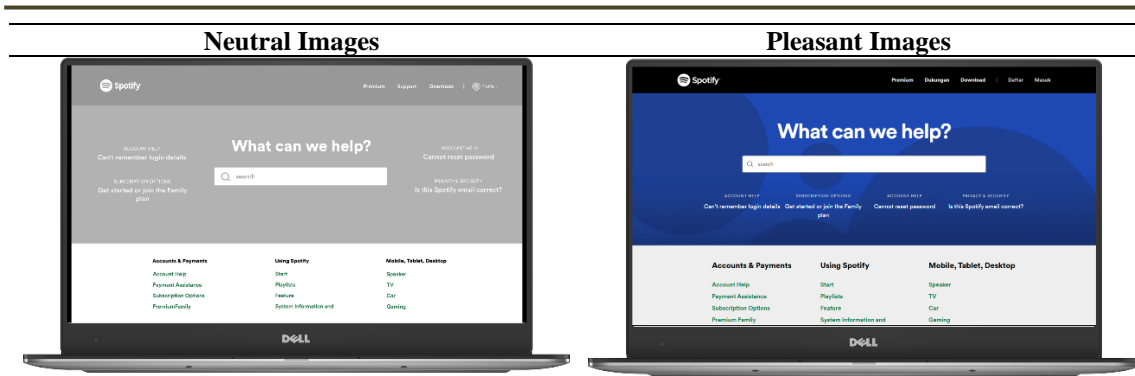


Financial security



Interactivity





A basic definition of manipulation checks is variable measurements that demonstrate whether or not the modified variable has the ability to influence other variables. Measurement of manipulation checks have been extensively utilized on problems that need concept validity testing; to observe and show that the operationalizations properly reflect the constructs that they are intended to represent, measurement of manipulation checks have been commonly used (Shadish et al. 2002). To summarize, evaluating the hypothesized variables that are anticipated to be directly affected by the manipulation, as well as variables that are predicted to be uninfluenced by the manipulation, may help to increase the construct validity of the study.

Statistical manipulation checks are used as internal analysis to determine if the independent variables are reliable and capable of supporting the hypothesis in a statistical analysis. For the reason that failures in hypothesis testing may be caused by two factors: improper manipulation or the application of the erroneous theory (Festinger, 1953; Carlsmith et al., 1976; Wilson et al., 2010). In brief, as long as the manipulation checks are measuring the construct represented by the independent variable, even if the manipulation is inefficient, the researcher will still be able to examine the expected association between the manipulation check measure and the dependent measure.

Treatment Manipulation

In experimental testing, the website is evaluated using a 5-point Likert scale, using question items pertaining to e-servicescape stimuli as the basis for scoring. We built a website where we displayed images of a neutral website and pleasant website. The webpage that we are interfering with is the Spotify website. We used websites to see how much influence website stimuli had on consumers' behavior. A website that we admire will feel like a neutral website, where it doesn't look as flashy and eye-catching as what the actual website looks like. This is in line with journals that analyze studies on customer behavior when visiting a website, by presenting a neutral website as a manipulative website, and the real website as a pleasant website (Sapronov and Gorbunova, 2021; Hassanein and Head, 2007; Thielsch et al., 2019). Non-Spotify users that take part in this experiment are assumed to have never accessed, seen, or utilized Spotify prior to taking part in this experiment. The selection of non-Spotify users as responders was done in order to avoid any prejudice in the evaluation of the website we developed and launched.

Data Collection

Data collection was carried out on the Prolific website (www.prolific.co), which is operated by an organization that provides an on-demand platform that connects academics with volunteers situated across the globe. In order to use the Google form as a tool, we must input the URL to the Google form in our Prolific account before distributing it to possible participants all over the globe. If the information provided into the Prolific account corresponds to the intended number of samples, then Prolific will cease collecting data for the remainder of the time period.

We categorize our sample as Spotify non-users, and we expressly state that this survey is intended for them in the first place. When establishing the Prolific service, we consider factors such as participants' active usage of English and have conducted a minimum of 10 Prolific surveys without being rejected. Non-probability sampling is deemed suitable for this study due to the difficulty of quantifying the whole non-Spotify user population and the inaccuracy of available data (Reynolds et al., 2003; Zikmund et al., 2011). Numerous circumstances need the use of convenience sampling. To begin, convenience sampling is a critical component of this study because it allows for the testing of theory. Additionally, convenience sampling is a simple technique for limited budgets and time periods, particularly when population data is unavailable (Zikmund and Babin, 2010).

Sample Size

There are many techniques for estimating the sample size that have been proposed in the literature. At the manipulation checks, [Ejelöv and Luke \(2020\)](#) examined that the use of sample sizes in the pilot and main studies was different. Additionally, [Ejelöv and Luke \(2020\)](#) used a minimum sample size of 17 pilot studies and a minimum of 25 main studies. In contrast to the opinion from [Fayant et al. \(2017\)](#) which in the manipulation checks study used a sample of 49. Surely, the usage of samples number is influenced by the size of the population and how much it can increase the confidence of the researcher and the statistical power of the research. Thus, in this study we used a sample of 85 participants. The sample was selected based on the conditions that the researcher wanted, such as age, use of language (English), and not the user of the object of research that we studied. The selection of this number is based on the literature review; empirical research that has been done; and to increase the confidence of researchers.

Procedure

We manipulated the apparent of the website to neutral approach. Under this condition, the respondent will feel they are in actual website with slight differences. We made 10 images connected by hyperlinks and sections representing e-servicescape variables. The sections are made accessible using the main menu located at the bottom of each page. After, looking and examining manipulation website, participants will answer questionnaire about their feeling regarding online service environment. We used 5-point likert scale in independent variables (e-servicescape). Website items that will be manipulated such as color, font size, menu/logo position, numbers of menu, and detailed information.

According to [Redish \(2007\)](#) and [Yang et al. \(2005\)](#), manipulation can take the form of web content containing detailed information such as the length of the information; the length, clarity, and simplicity of sentences; the order of the summary and the entire information; and the attractiveness of the title are all examples of web content manipulation. For our part, we alter the aesthetics of a website such that participants are assigned to one of two aesthetic levels: low (neutral) and high (pleasant). The four principles of visual organization, namely proximity, alignment, repetition, and contrast (PARC), were followed by the high-level (pleasant) websites ([Lee and Koubek, 2010](#); [Williams, 2015](#)). The high level was further conveyed by using a strong contrast of background and text color, as well as an attractive font style ([McCracken and Wolfe, 2004](#)). In addition, the low-level (neutral) websites did not adhere to the PARC concept and they were diametrically opposed in terms of color contrast between the backdrop and text (no contrast). As a result, we restrict our attention to classical aesthetics ([Lavie and Tractinsky, 2004](#)) rather than expressive aesthetics in order to prevent excessively complicated manipulations.

Participants

This trial enrolled 85 non-Spotify users. The target demographic consists of genuine online users who are at least 18 years old. A little reward of around £ 5.14 (815) per hour will encourage involvement. We design our experiment into several steps. *Step one*, participants volunteer their self in the experiment, they are directed to fill a short set of demographics background using Google Form. *Step two*, participants finishing demographic background, they are asked to click the experimental link which is directed to Spotify manipulation website with neutral approach. In this step, participants are told to spend as much time as they require to have feeling about website environment. *Step three*, examining the neutral appearance of the neutral website, participants are instructed to click on it to proceed to step three. In this step, the experiment asks the participants to respond to our questionnaire, which involves filling out the observable variable (e-servicescape). *Step four*, participants are asked to click the next step which direct to the actual Spotify website with pleasant approach. In this step, participants are told to spend as much time as they require to have feeling about website environment. *Step five*, participants are instructed to click on it to proceed to the last step. In this step, the experiment asks the participants to respond to our questionnaire, which involves filling out the observable variable (e-servicescape).

Result and Discussion

Demographic Information of Participants

The data dominated by female respondents and age below 25. From the data, it can be seen that the area of residence is dominated by participants living in North America. Also, it can be seen that the employment status is dominated by respondents who have full-time jobs.

Validity, Reliability and Normality Test

It is a metric that indicates the degree to which an instrument's reliability and validity have been established. An instrument is considered to be valid if it is capable of measuring what it is intended to

measure or if it is capable of revealing suitable data from the variables under investigation. The degree to which the data gathered does not depart from the description of the variable in issue is shown by the high and low validity of the instrument. For additional information, see the Table 4. Correlating each component or variable with the overall factor or variable using correlation (r) product moment may be used to evaluate the validity of a model. The following are the test criteria that may be used to accept or reject the hypothesis of a valid statement or not:

Table 2. Independent Variables Details Manipulation

Variable	Neutral Images	Pleasant Images	Source
Ambient	<ul style="list-style-type: none"> • Non-PARC (Proximity, Alignment, Repetitive, Contrast) • Minimum background and text color design 	<ul style="list-style-type: none"> • PARC • Colorful background and text color design 	Harris and Goode (2010); Tankovic and Benazic (2018)
Spatial layout and functionality	<ul style="list-style-type: none"> • No detailed information • Minimum background and text color design • Limited personal set-up 	<ul style="list-style-type: none"> • Detailed information • Colorful background and text color design • Broad personal set-up 	Tankovic and Benazic (2018)
Signs, symbols and artifacts	<ul style="list-style-type: none"> • Not top position of searching • No company profile • Mentioning other music platform 	<ul style="list-style-type: none"> • Top position of searching • There is a company profile • Not mentioning other music platform 	Jeon and Jeong (2009)
Financial security	<ul style="list-style-type: none"> • Unclear information • Additional unnecessary menu • Long information • Limited choices of payment 	<ul style="list-style-type: none"> • Clear information • Secured concern menu • Short information • Broad choices of payment 	Harris and Goodie (2010); Tran and Strutton (2020)
Interactivity	<ul style="list-style-type: none"> • Small icons • Minimum background and text color design • Non-aligned menu 	<ul style="list-style-type: none"> • Proportional icons • Various background and text color design • Aligned menu 	Keng and Ting (2009); Tran and Strutton (2020)

$H_0 : r = 0$, there is no valid data at the error level (α) 5%.

$H_1 : r \neq 0$, there are valid data at an error rate (α) of 5%.

The null hypothesis (H_0) is accepted if $r_{\text{value}} < r_{\text{table}}$, and vice versa the alternative hypothesis (H_1) is accepted if $r_{\text{value}} > r_{\text{table}}$.

Validity testing is carried out using the SPSS version 21.0 and the product moment correlation method, which provides the value of each statement item in relation to the total question item score. In general, the validity test that we conducted on participants on two different website conditions resulted in a sig value. $r < 0.05$. These results indicate that each item on the variables that we use in the next test is proven to be valid.

Performing a reliability test on a measuring instrument or test to evaluate the degree of stability, consistency, and accuracy of a measuring instrument or test is used to determine the extent to which the measurement is generally constant when repeated measurements are performed. This test is designed to evaluate the degree to which a person's responses are consistent or steady over the course of many questions. The alpha reliability coefficient value is used as the basis for the reliability testing method. If the value of the alpha reliability coefficient is higher than 0.7, then the variable is considered reliable, according to the decision-making criterion. From Table 5, it can be observed that the value of Cronbach's alpha is higher

than 0.7 for all variables. All of the variables utilized in the study are reliable, based on the conditions previously stated

Table 3. Demographic Information of Participants

Demographic	<i>n</i>	%
Gender		
Male	14	16
Female	71	84
Age		
< 25	53	62
25-34	22	26
35-44	6	7
45-54	4	5
Area of Residence		
Asia Pacific	9	11
Europe	2	2
North America	65	76
Middle East & Africa	9	11
Employment Status		
Full-Time	30	35
Part-Time	21	25
Unemployed (and Job Seeking)	13	15
Other	21	25

This test is used to assess whether or not the data are regularly distributed. If the test data are normally distributed, one of the prerequisites for doing parametric statistical analysis is satisfied. The test procedure is carried out by the *Kolmogorof* test, with the following conditions:
Hypothesis used:

H₀ : data has normal distribution

H₁: the data has an abnormal distribution

If the value of sig. (*p-value*) > 0.05 then H₀ is accepted, which means normality is met.

From the results of the normality test in Table 6, the value of the *Kolmogorof Smirnof* test with a significance value (*p*) for the Neutral Website variable has a sig. value. > 0.05, then H₀ is accepted and it can be concluded that the data used has a normally distributed distribution. However, for the Pleasant Website only the Spatial Layout & Functionality variable is normally distributed. Based on these results, the Paired t-test was only carried out on the Spatial Layout & Functionality variable, because it had a normal data distribution on the Pleasant and Neutral Website. While the other variables were tested non-parametric using the Wilcoxon test.

Empirical Result

After obtaining respondent data, only the “Spatial Layout & Functionality” stimulus has data with a normal distribution; while other stimuli such as “Ambient; Signs, Symbols & Artifacts; Financial Security; and Interactivity” does not have a normal data distribution. The normality of the distribution is affected by the number of samples we collect; accordingly, it requires 2 different tests to determine whether the hypothesis is accepted or rejected. In normal data distribution, we use paired t-test and in non-normal data distribution we use Wilcoxon test. The paired t-test and the Wilcoxon test both resulted in the null hypothesis being rejected. In general, however, with small sample numbers, the assumptions of the e-servicescape stimuli t-test may not be fulfilled, as shown by the results of this study. In this situation, using a non-parametric test is generally the safest option. The t-test, on the other hand, has higher statistical power than the Wilcoxon test assuming the assumptions of the test are fulfilled.

Table 4. Variable Validity Test

Items	Pleasant Website		Neutral Website	
	r value	Sig.	r value	Sig.
Spotify is visually attractive (A1)	0.771	0.000	0.854	0.000
Spotify uses visually appealing graphics (A2)	0.887	0.000	0.882	0.000
Spotify is aesthetically appealing (A3)	0.853	0.000	0.878	0.000
Spotify design is innovative and creative (A4)	0.845	0.000	0.778	0.000
Spotify is very entertaining (A5)	0.837	0.000	0.760	0.000
Spotify provides enjoyment (A6)	0.686	0.000	0.650	0.000
Spotify provides useful navigational aids (SL1)	0.885	0.000	0.832	0.000
Spotify is easy to navigate (SL2)	0.797	0.000	0.863	0.000
Spotify's e functions on Spotify are easy to operate (SL3)	0.789	0.000	0.833	0.000
Spotify is user-friendly (SL4)	0.833	0.000	0.756	0.000
Spotify visual information is easily accessed (SL5)	0.845	0.000	0.795	0.000
All relevant information on Spotify is easily available (SL6)	0.838	0.000	0.767	0.000
Spotify technical details about menus can be easily accessed (SL7)	0.781	0.000	0.733	0.000
Spotify is tailored towards me (SL8)	0.694	0.000	0.747	0.000
I feel that Spotify is designed for me (SL9)	0.749	0.000	0.761	0.000
Spotify's services are often personalized to me (SL10)	0.678	0.000	0.714	0.000
If we type keywords, Spotify is easy to find in the search engine (SS1)	0.804	0.000	0.890	0.000
If we type meta-tag words, we found Spotify easily in the search engine (SS2)	0.845	0.000	0.897	0.000
If we type catch phrases, will draw internet browsers' attention (SS3)	0.802	0.000	0.827	0.000
Payment procedures take a short time to complete on Spotify (F1)	0.730	0.000	0.702	0.000
Online payment process is reasonable (F2)	0.772	0.000	0.828	0.000
Paying for goods is straightforward on Spotify (F3)	0.792	0.000	0.821	0.000
Spotify has efficient payment procedures (F4)	0.854	0.000	0.788	0.000
The payment facilities of Spotify are easy to use (F5)	0.833	0.000	0.860	0.000
I have no security concerns about buying things from Spotify (F6)	0.754	0.000	0.746	0.000
Spotify seems security conscious (F7)	0.765	0.000	0.735	0.000
Spotify enables me to view the music in different ways (I1)	0.868	0.000	0.744	0.000
Spotify has a search tool which helps me find what I want (I2)	0.778	0.000	0.737	0.000
Spotify helps me to compare music and genres (I3)	0.823	0.000	0.819	0.000
I feel that this is a very engaging app (I4)	0.872	0.000	0.886	0.000
I believe that Spotify is a very dynamic one (I5)	0.895	0.000	0.776	0.000

Moreover, our main Hypothesis is “there is no difference perception between neutral approach website and pleasant approach website” (H_0). Based on Table 7, the results of the paired t-test and Wilcoxon we can conclude that the result of Ambient, Spatial Layout & Functionality, Signs, Symbols & Artifacts, Financial Security, and Interactivity variables testing shows all the value of sig. are 0.000, 0.002, 0.000, 0.033, and 0.014 respectively $\leq 5\%$, then H_0 is rejected. Therefore, it can be concluded that there is a difference between the pleasant website and the neutral website with a higher median and mean (average) on pleasant website. The results of this study strengthen the opinion from [Simon \(2001\)](#) who said that the contribution to consumer perceptions of a website is determined by design elements such as colors, images, and shapes. As [Pan et al. \(2004\)](#) also related it to communication theory related to website interfaces.

Table 5. Variable Reliability Test

Reliability	Cronbach's Alpha		Status
	Pleasant Website	Neutral Website	
Ambient	0.896	0.888	Reliable
Spatial Layout & Functionality	0.929	0.925	Reliable
Signs, Symbols & Artifact	0.726	0.840	Reliable
Financial Security	0.888	0.889	Reliable
Interactivity	0.900	0.852	Reliable

Table 6. Normality Test

Item	N	Kolmogorov-Smirnov Z	Assump. Sig. (2-tailed)	Status
Pleasant				
Ambient	85	1.572	0.014	Non normal
Spatial Layout & Functionality	85	1.238	0.093	Normal
Signs, Symbols & Artifacts	85	2.159	0.000	Non normal
Financial Security	85	1.513	0.021	Non normal
Interactivity	85	1.441	0.031	Non normal
Neutral				
Ambient	85	0.831	0.495	Normal
Spatial Layout & Functionality	85	0.740	0.644	Normal
Signs, Symbols & Artifacts	85	1.239	0.093	Normal
Financial Security	85	1.267	0.081	Normal
Interactivity	85	1.107	0.173	Normal

Table 7. Manipulation Checks Result

Dependent Variable	Pleasant			Neutral			Paired t-test & Wilcoxon test	
	M	SD	Mean	M	SD	Mean	t / Z	p
Ambient	4.50	0.60	4.42	3.83	0.80	3.81	5.213 (Z)	0.000
Spatial Layout & Functionality	4.40	0.69	4.23	4.00	0.78	3.91	3.220 (t)	0.002
Signs, Symbols & Artifacts	4.67	0.58	4.43	3.91	4.00	4.00	3.692 (Z)	0.000
Financial Security	4.57	0.51	4.45	4.29	0.62	4.26	2.127 (Z)	0.033
Interactivity	4.40	0.70	4.29	4.00	0.71	4.06	2.455 (Z)	0.014

This study uses environmental psychology theory as a basic theory in looking at patterns of relationships, reactions, and attitudes of individuals when they are in an environment. This theory takes into account both physical and social-psychological factors, such as the presence of others or one's social position, that may influence behavior in a particular environment (Gifford, 2014). Environmental psychology has theorized and researched different views of the relationship between people and places. Two terms, place attachment (Low and Altman, 1992; Williams et al., 1992) and sense of place (Low and Altman, 1992), have been used to describe people's emotional connection to their surroundings (Cantrill, 1998; Hay, 1998; Shamai, 1991; Williams and Stewart, 1998).

This study is novel because it investigates how environmental stimuli affect consumer behavior in an online service environment, contributing to the field of environmental psychology. The study also identifies independent variables that should be considered when conducting experiments with multiple participants, and suggests that companies should create pleasant service environments for consumers. The concept of place attachment does not fully capture the shopping environment of customers (Smaldone, 2007), which is better described by the concept of servicescape and e-servicescape.

Based on the Table 7, this study found that manipulation on the website affects the perception of a website by consumers. This is in line with study from Valdez and Mehrabian (1994) where saturation, hue, and brightness of color have potential affect to personal perceptions, reactions, or even behavioral

intentions. Yang et al. (2005) and Redish (2007) also stated that manipulation of websites can have effects on individual when the content displayed presents simple and clear information. This study is intended to provide opportunities for internal analyzes when treatments fail. Besides allowing us to examine the effectiveness of the manipulation, this study allows us to see correlations between variables and test the validity of the hypothesis, even if the manipulation is not effective, in future research.

Furthermore, website manipulation on images regarding Ambient, Spatial Layout & Functionality, Signs, Symbols & Artifacts, Financial Security, and Interactivity is based on visual organization (PARC) (Lee and Koubek, 2010; Williams, 2015); where consumers think that a pleasant website is better than a neutral website. The results from the Table 7 support the study of Cyr et al. (2010) who said that visuals on websites are related to the theory of psychological reversals on one's emotions. In their study, Madden et al. (2000) and Cyr et al. (2010) also said that the perceptions of experimental participants were different because they were influenced by cultural factors which would judge website visuals as "friendly, peaceful, calming, too neutral, or pleasant". Gaining validation in the manipulations we perform in the study is important. This needs to be done in order to gain the confidence of researchers in the sustainability of the research to be carried out. The manipulation in this experimental study contributes to the improvement of the quality of the study.

This study contributes to the initiation before doing real experiments in future research. In other words, it provides us with the opportunity to test ideas in a specific environment before making judgments about certain things we assume. We also believe that experimental research results will provide more specific results through a combination of different experimental situations; and can be applied to situations similar to the practical steps of the organization. Furthermore, we can identify the cause and effect of a hypothesis; in-depth reviews can be through experiments in analyzing a relationship. However, the most important thing is that experimental research is an ideal first step to build an argument and constructive research model by gathering more ideas in conducting research.

Conclusion, Suggestions and Limitations

In general, we have done focuses on our efforts to see consumer reactions when they are in two dissimilar situations; and when they feel the difference. Also, we found that treatment carried out in an online service environment (e-servicescape) can lead to the emergence of stimulation in consumers. This is because companies that manipulate, design, and manage positively on their websites have a positive effect on consumers. Consumers can feel that a pleasant environment contributes "feeling and perception" to an object they see. Creating a service environment has the potential to influence consumers' emotions positively by making them feel content or at ease, aiding them in navigating through intricate service settings, and molding their perspectives regarding quality and crucial outcomes like buying decisions, contentment, and future purchases. This is important to do as an evaluative step on the existing system or the initiation of a new program in order to provide a sense of comfort to consumers.

The study is to ensure that companies create a shopping environment that aligns with consumer psychology. This will enable the research to provide more certainty and reliability about the kind of shopping environment that companies should create, and in turn, help managers and technical teams to prepare and build high-quality websites. In other words, by adopting an objective approach, the research can contribute to the development of effective strategies that will enable companies to create a shopping environment that is aligned with the needs and preferences of their consumers. This study's empirical findings highlight the significance of establishing the manipulation of the study object as an initial step before carrying out larger-scale tests. This can help ensure the accuracy and reliability of the results obtained and provide a strong foundation for further research in the field. By emphasizing the importance of this approach, our study contributes to advancing the methodology and practices employed in empirical research.

We can see how websites or applications on smartphones periodically update the appearance, menu, how consumers interact, payment methods, or responsiveness when consumers use them. If it creates a bad and unpleasant environment, it has the potential to frustrate consumers. Thus, creating a comfortable environment for consumers will be one of the ways in which companies strive to satisfy consumers. It is suggested that manipulation on the website has an effect on certain perceptions of consumers. Consumers respond to their tendency to choose a website with a pleasant appearance rather than a neutral appearance. These results prove that consumers will choose a website with a good and pleasant appearance; accordingly, it becomes the basis of consideration for further research to conduct studies related to this matter.

This study has limitations on the online environment of Spotify, as a music streaming service provider, where the true online service environment can be found in the context of wholesale, banking, tours and travel, education, recreation services, and tourism. The dimensions of stimuli that focus on e-

servicescape images focus on consumer emotions, where the cognitive process on the other hand also has an influence on consumer behavior.

Based on our discussion, there are several potential research agendas that can be pursued in the future. One possibility is to investigate the role of individual factors, such as personality traits and culture, in shaping consumers' responses to environmental cues. Additionally, further investigation into the role of time and experience in shaping place attachment and sense of place could be a fruitful area of study. Finally, research could focus on developing and testing interventions aimed at improving consumers' experiences in service environments, such as designing more pleasant and accommodating e-servicescapes. By exploring these and other research questions, environmental psychology can continue to contribute valuable insights to our understanding of the complex interplay between people and their environments in service contexts.

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