



The Exploration of the Effect of Atmospheric Music on Employees' Vigilance and Sustained Attention in a Hospitality Establishment: the Case of JW Marriott's Smack Dab Bar in Hanoi, Vietnam

Nam Anh Pham (Alex)

HTMI, Hotel and Tourism Management Institute, Switzerland

Abstract

In these recent decades, the act of listening to atmospheric music is being emphasised by the majority of establishments and working professionals with the intention of positively driving employees' work performance and well-being. However, regarding the hospitality industry, the majority of researches in recent decades is only equipped with empirical evidence to assist the cognitive effect of listening to music on customers' perspective, but not from employees' perspective, especially on their level of sustained attention. The aim of this research paper is to explore the effect of atmospheric music on employees' vigilance and sustained attention in JW Marriott's Smack Dab Bar. Three theoretical frameworks are used in this research in order to support the achievement of this aim, which are sustained attention and vigilance, musical tempo and mode and the Iso Principle. A quasi-experiment was utilised which are based on the structured and blinded observation of 8 frontline employees during their rush hour shift working in JW Marriott Smack Dab Bar. The discussed findings has shown that the level of sustained attention can be improved through the creating more arousal in work environment with the conscious use of music and its elements (tempo and mode). Moreover, it was found that a higher level of attention could be achieved when a fast tempo in major mode song is played regardless of their age, gender, musical genre and their musical preference. Furthermore, a faster tempo in major mode piece was discovered to positively impact extroverted personality and vice versa. Lastly, it was found that vectoring effect to a desired emotional and arousal state to reach optimal attention level can still be achieved without applying the stage of synchronisation in Iso Principle. In conclusion, the use of music as a background element does have a positive effect on influencing and guiding the level of sustained attention and vigilance in individuals.

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Chapter 1 Introduction

1.1. Background information

The existence of music has been playing an inevitable role in our everyday lives. Followed by the enormous and rapid global expansion of media, we are continuously exposed to music through various means of commercial context such as television, streaming platforms, movies

(Speer, 2011). According to Brown & Brown (1997), the dominance of musical information in the life of an individual could be discovered vastly among numerous cultural backgrounds due to its natural appealing factor to people's emotion and their ability to attain and retain information and knowledge. Moreover, in these recent decades, the act of listening to atmospheric music is being emphasised by the majority of establishments and working professionals with the intention of

positively driving employees' work performance and their well-being (Bradely, 1997), which may also be applicable to the currently-expanding hospitality industry. As many statistics have shown, the hospitality industry has continuously been growing and gradually becoming one of the biggest and most diverse industries globally. As reported by UNWTO (2017), the number of international departures has doubled from approximately 600 million to over 1.4 billion in the year 2016. This has directly triggered the development of a global network of hospitality service providers. A contribution to this significant growth could be seen from the region of South-East Asia (Mandal and Vong, 2016). And as a country located in this region, Vietnam is also a part of this rapid expansion as it has been recorded, by the UNWTO (2020), in recent years, with the highest growth in tourist arrivals. Moreover, to make the industry more appealing, the Vietnamese government is working on changing infrastructure projects and especially, the night economy (bar and lounges). This is the place where the use of music is massively integral not only to the guests but may also be for the employees.

1.2. Rationale of the study

This evident domination of music has raised inspiration for many researchers to investigate and study its effect on our psychological processes (Wilson, 2018). However, with regard to the hospitality industry, the majority of published research in recent decades is only equipped with certain empirical evidence to assist the cognitive effect of listening to music on customers' satisfaction and behaviour (North and Hargreaves, 2017). For instance, Mandila & Gerogiannis (2012) had conducted research on the effect of music on customers' behaviour in the region of Larissa with a case in point of Two Coffee Bars as the focal point. Additionally, a similar viewpoint was also studied and discussed by Lin (2009) and Morrison et al. (2010). However, since the term hospitality is an established dependent relationship between both ends of the business spectrum; the host employee and the guest (King, 1995), therefore, an equal understanding of the musical effects on these two aspects are critical in enhancing the overall experience in the hospitality industry. Most of the studies with respect to musical effect are supported only with hypotheses or weak empirical evidence which are limited to only one dimension of music (Miller, 2010; Roschk et al., 2017). Particularly, there are insufficient resources on the psychological effect of music from the hospitality employees' perspective, especially on their level of sustained attention. Hence, for this sole reason, the author was inspired to conduct this research for the purpose of exploring the

effect of atmospheric music in hospitality establishments with a particular focus on its effect on the employees themselves regarding their sustained attention and vigilance. Moreover, this may open up various opportunities to enhance employees' productivity and efficiency at their workplace.

1.3. Research aims & objectives

The aim of this research paper is to explore the effect of atmospheric music on employees' vigilance and sustained attention in JW Marriott's Smack Dab Bar.

To achieve this aim, there are three objectives which will be explicated in this study:

To determine the relationship between the characteristics of atmospheric music and employees' musical preference.

To study the key psychological factors contributing to vigilance and sustained.

To assess the benefits and drawbacks of atmospheric music on employees' vigilance and sustained attention.

Chapter 2 Literature review

2.1. Introduction

Considering the aim of this research, which is to examine the effect of atmospheric music on employees' vigilance and sustained attention, the author will therefore, in this chapter, be discussing various concepts, theories and models related to this aim. The purpose of the theoretical background is to determine different relevant concepts, theories and models that could be later linked and applied to achieve the research's aim. For example, different terms and concepts of sustained attention and vigilance are discussed as well as the concept of music tempo and mode and some of its psychological effects. These concepts would then also be linked with the discussion on how music and music characteristics can be used to achieve or induce changes in the emotional state through the iso principles. Besides, in order to fully achieve the paper's aim, it is also crucial, in addition, to include previous findings of studies that have connected and implemented these concepts and theories in the many different fields in order to gain an objective viewpoint on the research.

2.2. Theoretical framework

2.2.1. Sustained Attention and Vigilance

Attention, as pointed out by Eysenck and Keane (1995), is the process of concentration on a particular matter. As well, it was mentioned that attention is a phenomenon that consists of complex neurological and psychological

processes and exists in various forms (Dayan et al., 2000). Attention can be categorised into the following four classifications: sustained attention, selective attention, divided attention, and alternating attention. While 'sustained attention' is placed as the spotlight of this research, it is defined as the degree to which an individual could maintain their attention and alertness to external stimuli over an extended time period (Warm, 1977, 1984, 1993; Davies and Parasuraman, 1982; Ballard, 1996). A more in-depth definition of this term was also proposed by Robertson et al. (1997) as the ability to sustain precise responses over a period of time amongst both demanding or monotonous tasks and as highlighted by Degangi and Porges (1990), there are various stages¹ included in sustained attention. Furthermore, 'sustained attention' is also commonly used in a synonymous way with the term 'vigilance' (Parasuraman, 1998). However, on the other hand, animal behaviour scientists and psychiatric clinicians utilise the term 'vigilance' with a different orientation referring to the level of attention towards possible threats and dangers (American Psychiatric Association, 1994). Additionally, this usage of 'vigilance' is the most aligned to its primary definition as per the English dictionary, which has stated it as "the state of being alertly watchful, especially to avoid danger" according to Merriam-Webster (2021).

The original concept of sustained attention can be traced back to 1984 initiated by Mackworth, who, during the Second World War, pioneered the research on radar operators. Moreover, psychologists and cognitive neuroscientists frequently relate sustained attention specifically to the term 'vigilance decrement', which was established as the decline in efficiency levels on task of radar operators over a time period was observed through Robertson's investigation (Davies and Parasuraman, 1982; Matthews et al., 2000; See et al., 1995; Warm, 1984, 1993, 2008). Furthermore, a factor that mainly influences vigilance decrement is often not related to the decrease in capabilities such as stress, but rather more because of the under-arousing nature of sustained attention or vigilance task at hand (Robertson et al., 1997; Manly et al., 1999). Additionally, tasks that require sustained attention are usually repetitive in nature, which is typically non-stimulating (Warm et al., 1996, 2008)

While various aspects of attention such as focused attention, shifting of attention, control of attention and divided attention are equally important, the aspect of sustained attention is closely associated with alertness systems.

¹ attention-getting, attention holding and attention-releasing

According to Nebes and Brady (1993) as well as Posner and Petersen (1990), 'alertness' can be utilised under the term tonic alertness, which will also be used in equivalent to vigilance and sustained attention (Sokolov, 1963).

2.2.2. Musical Tempo and Mode

According to Dixon, Goebel and Cambouropoulos (2006), beats and tempo are well-defined in the settings of a musical score as the pulse, which is the rhythmic foundation in general music notation, which indicates when the timing of a note is measured. From a musical perspective, the tempo is specifically termed as the pacing of periodical beats which occurs at an equal interval measured as BPM² (McAuley, 2010; Sadie and Tyrell, 2001). Moreover, as perceived by Drake (1998), tempo determines numerous human behaviour and is dependent on the functioning of an intrinsic established system. Therefore, as pointed out by Rigg (1940), Hevner (1937) and Kellaris & Kent (1991), tempo is a crucial tool in determining human behaviour and response to music along with many researchers in the field of psychology, musicology and consumer behaviour. For instance, it is considered as the means of communicating emotions, such as the state of being happy, fear or anger is commonly associated with fast music or vice versa (Gagnon and Peretz, 2003; Dalla Bella et al., 2001). Nonetheless, these associations are not guaranteed to induce the according moods. In addition to that, it was also stated by Husain et al. (2002) that musical tempo has no impact on an individual's mood, and the manipulation of tempo is commonly known to be restricted to only stimulating certain shifts in arousal level (Balch and Lewis, 1996). Furthermore, it is also highlighted by Hargreaves and North (2008) that a higher possession of potential arousal is presented in faster and louder music.

Musical mode was also mentioned in relation to tempo as an important characteristic of music that influences listeners' moods (Juslin and Sloboda, 2010). Sadie and Tyrell (2001) have also proposed a definition for musical mode which is the variable that indicates the interval of each performed note within a scale or a chord. Furthermore, Bowling (2013) has extended its definition as the grouping of tones and its association utilised to generate melodies. Many researchers have categorised musical mode into two main typologies, the major and minor mode. Particularly in Western tonal perception, valence dimension is linked with musical mode, for instance, major mode is commonly involved with

² B.P.M: Beats per Minutes

happiness, whilst minor mode stimulates the state of sadness (Hevner, 1936; Deliège & Sloboda, 1997; Webster & Weir, 2005; Sloboda, 2005). Followed by that, Fredrickson & Branigan (2005) has stated that mood and emotional state can have an effect on an individual's level of attention. Specifically, negative emotions were observed to have an attenuating effect on their thoughts and flow of actions, while positive ones widen them and their attention scope. However, Hoshino (1996) has also mentioned that in Japanese listeners, the affective perception induced by major mode is rather different than those stimulated by minor mode. Additionally, music performed in major mode was also reported by Dove (2009) as a factor that could potentially drive communication at a greater satisfaction and productivity level. Nonetheless, it was also argued that anxiety level is not affected by the usage of major mode based music (Blood and Ferriss, 1993).

2.2.3. *The Iso Principle*

In the modern literature world of music therapy, the iso principle is often being referenced, along with other related concepts. The exact source of the iso principle still remains rather unknown as its existence has been since the starting point of musical expression and is referred to as a musical performance aspect (Stewart, 2016). The original definition³ of the principle could be traced back to 1944 when it was first proposed by Altschuler. He explained that the word "Iso" means "equal to" in Greek, it means the musical tempo and mood have to be firstly in 'iso' connection with the 'mental tempo' and mood of the patient (Altschuler, 2001). Even though Altschuler (1948) depicted the iso principle to be a technique or concept of mood management, this aspect of the principle is sparingly used (Heiderscheit and Madson, 2015). Besides Altschuler, numerous historical figures had studied the influential factor of musical characteristics on individuals' emotional and mental states (Goldschmidt, 2020). A case in point would be in the study of Pythagoras where a similar method was used for the purpose of violent juveniles through the manipulation of musical mode in the 5th Century BCE (Strunk, 1998; Gouk, 2001). There are many other terms being used synonymously to the iso principle in respect of their definitions namely Shatin (1970) and Thaut (2005)'s mood vectoring, the iso-moodic (Heal & Wigram, 1993; Saperston, 1995; Donald & Pinson, 2012) and entrainment music (Donald & Pinson, 2012). However, in this paper, the author will particularly refer to the term 'iso principle'. A further discussion by Altschuler

³ the utilisation of music in synchronisation with the mood and mental tempo of an individual.

mentioned the crucial role of musical elements, especially tempo and emotional valence. In his writing, he has reviewed the importance of musical tempo and the patient's 'mental tempo' and furthermore found that when musically approaching a depressed patient, sad music was more effective than happy music and fast music was performing better with patients undergoing mania. According to this discussion, Altschuler's focus was on synchronising with a patient's current state through music. Thereby, it led to his later expansion of the principle⁴.

Until the present day, regardless of its popularity as a therapeutic technique, music therapy researchers have not yet come to terms with the completed definition of iso principle. Daniel Goldschmidt, a student pursuing the degree of Master of Music at Colorado State University, wrote a thesis where he listed a table of different definitions of iso principle throughout the years from 1944 to 2018. Goldschmidt (2020) has highlighted that there have been over eighteen variations since Altschuler's 1944 original definition of the iso principle. Nevertheless, these variations still revolve around the concept of applying music to synchronise with an individual's current state and then altering certain musical elements to guide them to a desired state. However, apart from the similarity in the general idea of its definitions, there are numerous distinctions in terms of the state being modified (e.g. mental tempo, mood, behaviour, physiological responses, arousal state, energy level) and the musical elements modified to guide the desired change (e.g. tempo, volume, mode, complexity, accompaniment, metre) (Goldschmidt, 2020).

2.3. *Review of existing empirical research*

2.3.1. *Applications of music on sustained attention*

Wokoun (1963) has attempted to study the performance of vigilance tasks with background music as an implemented variable. In this specific study, fourteen subjects were assessed using Stoelting disjunctive reaction time task, in which eight stimulants will be given in an hour session. Subsequently, two sounds were produced as the background element, which is the continuous noise generated by a small fan and music played from a specially programmed Muzak tape recording. As a result of this study, Wokoun found that the performance of subjects interacting with noise while working showed no significant change during the hour. Nonetheless, subjects assessed with background music being

⁴ The process of guiding patients from their initial to another mental state through the use of musical elements (Alschuler, 1954)

played have a better and faster response during the final two-thirds of the hour compared to their first hour (Wokoun, 1963).

Along with Wokoun, Kiss and Linnell (2021) have also conducted another study on the performance of sustained-attention tasks. However, they had their approach on examining the effect of background music on different states of attention (mind-wandering, task focus and external distraction states) with a foundation on the non-linear connection between arousal and performance.

In this study, a low-arousing sustained-attention task, which is a variation of the Psychomotor Vigilance Task formerly used by Unsworth and Robison (2016), was conducted on forty students in two environments - both with their self-selected, preferred music played as a background element and in silence. As the measures of performance's reaction time (RT) and the attentional state's subjective reports were collected, the results displayed that background music enhanced the state of task-focus through the reduction of mind-wandering state but anyhow, external distraction state was not affected through the process. Kiss and Linnell (2020) have also added that reaction time (RT) in on-task (task-focus) states were shorter in comparison to those in off-task state (mind-wandering and external distraction). Nevertheless, reaction time (RT) measured in the environment with background music was not significantly reduced compared to silence (Kiss & Linnell, 2021).

Furthermore, the effects of music application on sustained attention have also been examined on young children in the context of auditory distractions. For instance, Wolfe and Noguchi (2009) have investigated how music affects sustained attention in 5-year-old infants through verbal and motor response required tasks.

Within this case, 76 kindergarten students were randomly appointed to one of four groups, which are spoken story with or without distraction and musical story with or without distraction. Thereafter, they asked the children to listen to the story, whether sung or spoken and then identify the particular 'animals' and 'actions' which were mentioned. Consequently, the result displayed that the performance of those children who listened to a musical story in a distracted condition was considerably better than those listening to a spoken story in the same condition (Wolfe and Noguchi, 2009).

2.3.2. Studies on the usage and effect of the Iso Principle

According to Gouk (2009), the original study with patients conducted by Altschuler was considered to be scientific proof in its time. Nevertheless,

Goldschmidt (2020) has added that empirical studies on the presence and effectiveness of the iso principle in Altschuler's time were scarce. Additionally, there were numerous efforts put into defining the term iso principle, however, Goldschmidt (2020) has highlighted that only three studies have utilised and examined its effects, one was by Shatin (1970), another by Lee (2005) and the last was by Heiderscheit & Madson (2015).

The first study by Shatin (1970) has its focal point on investigating the step-by-step change in mood through the use of the 'vectoring power of music'. Within this study, 74 college students were asked to sit in an auditorium, then listen to a record player. Four musical extracts were then played and after every extract, they were asked to rate each by how their mood was shifted from their initial state according to the four spectrum of mood or, the answer 'none of these'. The selected musical extract were all classical pieces, of which, three were instrumental and the rest were choral with the duration of each extract being two minutes. Each of the four presented emotional spectra had an intended possible result of its starting and ending emotional state, for instance, sad to happy, restless to tranquil, bored to active and alert, alert and active to elevated and majestic and 'none of these'. Eventually, the results suggested that each musical extract induced the accurate intended shift in emotional state. Therefore, this has led to the conclusion that musical extract can produce a vectoring effect on listeners' moods (Shatin, 1970). However, this study seems to have neglected the first step and also the most important stage according to Altschuler's 1944 definition of iso principle, which is the process of music matching to an individual's current emotional state.

The next empirical study which was conducted by Lee (2005), however, has a different approach on examining the effect of iso principle. In their paper, Lee (2005) has made a comparison between the sedative effects of recorded relaxing music and iso-principle-informed live music for patients under palliative care in hospital settings. Nonetheless, their explanation of the implementation of iso principle in the above mentioned setting was not provided in the paper except for Altschuler's definitions itself. Lee (2005) discovered that live presented iso principle-informed music displayed to be more effective than recorded relaxing music in terms of patient's grading of pain, however, not the pulse rate. Additionally, it was also discussed in their paper that live presented music provides various supplementary values regarding human connection that might have had a positive effect on our sedative effect (Lee, 2005).

The last study by Heiderscheit and Madson (2015) focused on the treatment of patients undergoing depression, eating disorder and anxiety. In this particular study, the patients cooperated with the interventionist to generate a playlist consisting of the patients' preferred recorded music. They have created a grading system with two measuring scales of emotional indicators, for example, depression to hopefulness, in which, one scale will be concerning the musical elements of the music itself, and the other will be considering its message (e.g. lyrics). The results gathered will then be consequently used to produce a data-based and chronological-organised playlist with the intention of shifting patients' emotional state from one to another.

2.4. Background to the primary research context

According to Constantin et al. (2019), the tourism industry in Vietnam accounted for a significant share in their GDP, which had an increase of almost 3% (6.3% - 9.2%) from 2015 to 2019 (Nguyen, 2020). Nguyen (2019) has also pointed out that in November 2019, Vietnam had attracted 16.3 million international tourists, a rise of 15.4% over the previous year. In 2019, after inserting various efforts in the tourism sector, Vietnam was ranked 63th out of 140 countries globally and acquired a significant growth of seventeen steps from 2011 (WEF, 2019). Therefore, Vietnam has been, in recent years, identified as a developing tourism market (Hampton et al., 2018) and has continuously been listed in the top seven most improved countries (UNWTO, cited in Vietnam National Administration of Tourism, 2020). As the capital city of Vietnam, Hanoi has also been involved in this development. As a well-known tourist destination with various timeless historical sites, pagodas and temples, Hanoi's number of visitors has increased from 12.3 million in 2010 to 19.7 million in 2015 (Hanoi Department of Culture, Sports and Tourism, 2016). This growth has led to the hotel business in Hanoi having a strong short-to-medium-term outlook (STR, cited in Hospitality Net, 2019). The reported ADR and RevPAR has shown an increase of, respectively, 10.1% and 14% throughout the first two months of 2019 (ibid). However, among the 224 hotels in Hanoi, the market still consists mainly of smaller hotels with approximately 75% of all hotels with over 50 to 100 rooms and 60% of all hotels with less than 50 rooms (ibid). Nevertheless, its hotel market will proceed to draw international brands (e.g. Eastin, Fairmont, Four Seasons, Lotte) with a predicted amount of 1300 rooms, which is 48% of its future supplies by 2023 (Phi, 2021). Along with these brands, according to Hospitality Net (2013), Marriott International has also marked its achievement in expanding into Southeast Asia

with its first opening of the JW Marriott Hotel in Hanoi. Moreover, an agreement has been made between Marriott International Inc. with the Vietnam-based real estate company Masterise Homes to further expand a dual-branded project in Vietnam with almost 4200 residential units including the two Marriott International brands; JW Marriott and Marriott Hotels in late 2024 (Caswell, 2021).

2.5. Conclusion

To summarise, besides the discussion of various concepts and theories related to sustained attention, music and its relevant psychological effects, various related applications of theories were discussed and put into comparison. From the previous studies found on the application of music on sustained attention and vigilance, the results had shown that background music has a positive effect on sustained attention and as well individual's response time and enhance the state of task-focus. As well, the discussion on the previous studies conducted by using the iso principles has shown positive results of an individual's mood changing in accordance to the manipulation of music. However, it can be noticed that there are only limited studies on these concepts and theories applied in the hospitality industry, therefore, it could be a topic that needs further research.

Chapter 3 Methodology

3.1. Research aim and objectives

The aim of this research paper is to explore the effect of atmospheric music on employees' vigilance and sustained attention in JW Marriott's Smack Dab Bar.

To achieve this aims, there are three objectives which will be explicated in this study:

To determine the relation between the characteristics of atmospheric music and employees' musical preference.

To study the key psychological factors contributing to vigilance and sustained attention.

To assess the benefits and drawbacks of atmospheric music on employees' vigilance and sustained attention.

For the purpose of accomplishing the aim of this study, the following hypotheses were formulated: H0: There is no significant difference in employees' vigilance and sustained attention scores when atmospheric music is played.

H1: Employees exhibit higher scores of vigilance and sustained attention when listening to music with a slow tempo in major mode compared to other types of music.

H2: Employees exhibit higher scores of vigilance and sustained attention when listening to music with a fast tempo in major mode compared to other types of music.

H3: Employees exhibit higher scores of vigilance and sustained attention when listening to music with a slow tempo in minor mode compared to other types of music.

H4: Employees exhibit higher scores of vigilance and sustained attention when listening to music with a fast tempo in minor mode compared to other types of music.

3.2. Research approach

According to the aim and objectives of the study, the author has selected a quantitative approach, specifically, applying the quasi-experimental design as the paper's purpose is to explore the employees' response mechanism to the manipulation of certain elements of atmospheric music at a workplace. Since the author's philosophy on this paper is from the positivism worldviews, it has, therefore, partly influenced the decision on utilising the quantitative approach due to the close connection between its nature as highlighted by Peterson and Gencel (2013). The quasi-experiment, apparently, also serves the purpose of testing causal relationships between the evaluated matters of the research topic (in this case is atmospheric music on the employees' response of sustained attention) (White and Sabarwal, 2014). It was also indicated that the quasi-experimental design is also used as a measurement instrument for the effectiveness of a treatment through assessing the results of participants - measured by a set of pre-specified indicators - after the intervention is being injected into the experiment (ibid). This usage of the quasi-experiment is, therefore, suitable for this research topic since the author is also examining the effectiveness of using atmospheric music as a treatment in stimulating sustained attention and vigilance within employees. Also to achieve this, cohort studies will be utilised, particularly, the group sequential design, which is a quasi-experiment type that enlist a group of people with some shared characteristics and they would go through observations and interventions at the same time (Thompson and Panacek, 2006). With the above-mentioned experiment type, the treatment's effectiveness will be illustrated more explicitly since extraneous factors are minimised hence they are observed in the same space and time. In addition, a pilot study would be conducted prior to the real experiment to give warnings on areas which could lead to failure of the research project (Teijlingen and Hundley, 2002).

3.3. Sampling

As highlighted by Investopedia (2020), sampling can be defined as the technique of selecting a representative fraction of the population so as to establish the population's characteristics and parameters through observation. In order to achieve the aim of this paper, the sample selected will be the frontline employees of the JW Marriott's Smack Dab Bar located in Hanoi, Vietnam, specifically, a sample group of 8 frontline employees will be observed in the conduct of this research. Kenny (1975) has emphasised the importance of having an untreated and treated group for the conduct of a quasi-experiment. However, with the single group cohort study, there will also be a phase of pre-treatment, where the treatment was not implemented, then post-treatment, where it starts after the treatment was intervened, therefore, the requirement will still be met with only using one experimental group. The sample will be observed during the evening shift for 2 hours from 7 to 9 p.m. as it is the peak hour and employees' task focus plays a crucial role during this time, which is beneficial for this study's aim.

3.4. Data Collection

Since the aim of this study is to assess any possible effects of music on employees' attention, which could lead to their overall productivity at work, the experiment group will be assessed through the differences in their level of attention when working on tasks and actions toward customers while having music played as background, and none. The designed list of music used consists of 4 categories (fast tempo with major or minor mode and the same applies with slow tempo) in order to fully assess its effect through a wider variety of music. Out of the 2 hours of observation, the designed list of music will only be played in the background during the second hour whereas in the first hour, there will be no music played. The differences observed (if there are any) would then be clearer through this experimental sequence (from untreated to treated). A semi-structured observation will be applied in this study (Zina O'Leary, 2017). As Tugwell et al. (2017) have implied, quasi-experiment should be 'blinded' (subjects are not notified about the experiment) to avoid any factors affecting internal validity. The researcher with 2 other acquaintances will, therefore, observe the whole experiment anonymously as a customer with a list of prepared guidelines and indicators for observation. Additionally, cameras will also be set up for a much more overall observation of unexpected or unplanned occurrences in the experiment later on.

3.4. Data Analysis

After the data has been collected, the author will first be utilising descriptive statistics. This would mainly be used to organise and summarise the “raw” scores collected for each indicator prepared in the data collection phase after having observed the sample group (Kaur et al., 2018). Within this statistical approach, the measure of frequency distribution would be applied. It is the process of obtaining the number of times each specific score appears in the sample group’s data set (Cooksey, 2020). The mere purpose of acquiring this result is to interpret the underlying trend of the collected data set. However, to further support this method, it is also recommended to measure the central tendencies of the entire data series, specifically, the mean. The perk of utilising this measure is its account of all observed data acquired in its calculation process (Wildemuth, 2017). However, according to Nicholas (1999), the mean could lose its strength when there are discrete outliers values. Therefore, the standard deviation can also be measured to observe how much the collected data deviates from the average (the mean). Then, paired samples t-test will be used to compare the means of the sample group between the pre-test and post-test phases to extract the differences. Moreover, as mentioned by Cohen (1990), the main attraction of research is in any type of effect size measurement itself, not the P values (the mean or standard deviation). Hence, Cohen's d statistics will also be used to determine the difference between the means of two different intervention groups, in the case of this paper, the means of one group between pre and post-intervention (Sullivan et al., 2012). This will ultimately assist in obtaining information on the magnitude of the research findings and its generalisability through the use of means and standard deviation that has been mentioned above (Diener, 2010).

3.5. Validity

As defined by Heale and Twycross (2015), validity is the degree to which the notion in quantitative research is properly assessed. There are many types of validity that should be taken into consideration and for this specific paper, as it is being designed as a quasi-experiment, internal and external validity will be assessed. Internal validity refers to how much the observed changes in the dependent variables are directly correlated with the independent variables (Baldwin, 2018). If the correlations observed are not related to any extraneous and surrounding sources, the research

could be considered to have high internal validity. Moreover, Campbell and Stanley (1966) have also stated that internal validity is the “sine qua non” when operating in experimental design. However, due to the complexity of human behaviour in the social experiment that comes with this specific research, more effort would be required as well as the need to override other explanations for the changes in behaviours (e.g. environmental condition changes and participants’ developmental changes) (Cook and Shaddish, 1994). On the other hand, external validity is referred to as related to “generalisability”, which is also defined as the degree to which the research result can be applied to other settings or a broader population (Handley et al., 2018). Furthermore, Cook and Campbell (1979) has later subdivided it into statistical conclusion validity⁵ and construct validity⁶ respectively to internal and external validity. Therefore, these extensions should also be considered to increase the validity of this study.

3.6. Ethical Issues

As stated by Fouka et al. (2011), the major ethical issues regarding the conduct of research are as follows: informed consent, respect for anonymity and confidentiality and respect for privacy. Following this statement, the author would also be applying it to this specific study. To start off, as we are conducting a quasi-experiment where natural observation is necessary (Tugwell et al., 2017), it is not possible to request consent from the employees in this study. However, as the study is only about observing the employees' reaction during their working hours, therefore, it does not affect their personal time. Nevertheless, consent for this research to be conducted would still be requested from the manager. Furthermore, as it is still important to be able to identify each employee for ease of the experiment, pseudonyms of employees would be used in this research instead of employees' real names to avoid breaching confidentiality. Moreover, no personal information (name, birth date, interest, etc) will be requested from the employees. Also, the result of observation will only be shared among the author himself and 2 other acquaintances conducting the study.

3.7. Limitation

Theofanidis et al., (2019) have stated that limitation concerns any possible weaknesses within the study itself which are often out of the

⁵ Statistical conclusion validity refers to the proper application of statistical techniques to determine the existence of a causal link. (Perez, 2012)

⁶ Construct validity refers to the degree to which the measure precisely assesses what is initially intended to, operationally. (Findley et al., 2021)

author's control. It could regard the chosen design for the research or the limitation within the statistical method itself.

Firstly, the sample size utilised for this research study should be taken into consideration. This could directly affect the generalisability of the result extracted towards the broader population. Additionally, no comparison groups are used in the design of this research, which could also lead to the possibility of not being able to conclude fully the effectiveness of the treatment. However, as mentioned in the data collection section of this paper, the use of comparison groups is not ideal as there would be a difference in conditions compared to the treatment group (different day/shift). Lastly, there would be uncertainty in the baseline data of the participants. This stems from the fact that the collection of participants' initial moods could not be executed so as to maintain the 'blinded' quality of the quasi-experimental design. Hence, the definitive causal effect of the treatment could not be concluded.

Chapter 4 Discussion

4.1. Introduction

This chapter will mainly be a compilation of assumptions used in the concluding of this paper. Since the exposure of music has always been growing and expanding (Speer, 2011), it has raised inspiration for many researchers to investigate and study its effect on our psychological processes (Wilson, 2018). But however, there were not many researches done from the perspective of employees in a hospitality setting. Therefore, the author will be discussing the assumed outcomes of each objective created in this paper through critically connecting and examining the existing findings gathered in the literature review and the empirical research.

4.2. To study the key psychological factor contributing to vigilance and sustained attention

As mentioned above in the literature review, the factor that mainly influences the decrease in sustained attention - vigilance decrement is often not related to the decrease in capabilities such as stress, but rather more because of the under-arousing nature of sustained attention or vigilance task at hand (Robertson et al., 1997; Manly et al., 1999). Additionally, tasks that require sustained attention are usually repetitive in nature, which is typically non-stimulating (Warm et al., 1996, 2008). When looking at the case of JW Marriott Smack Dab Bar, the tasks carried out by the employees are generally quite repetitive and routine-based as their requirements for consistency are high, especially for the frontline employees (service production procedure, mise-

en-place,...). Moreover, as previously mentioned in the paper, with the conscious use of music and its characteristics (tempo and mode), an individual's arousal level can be increased (Husain et al., 2002) and this increase is positively correlated with attention capability (Matthews, Davies & Holley, 1990). Therefore, it is assumed that the level of sustained attention of JW Marriott Smack Dab Bar's employees can be improved through the enhancement of the overall work environment that stimulates more arousal with the conscious use of music and its elements (tempo and mode).

4.3. To determine the relationship between characteristics of atmospheric music and employees' musical preference

According to Kellaris and Kent (1991) and Juslin and Slobod (2010), musical tempo and modes are believed to be essential for determining various human responses and behaviours. Moreover, as mentioned in one of Kiss and Linell's (2021) studies, preferred background music does have a positive effect on sustained attention observed through various outcomes of shorter reaction time in on-task focus state. With this applied in the case of JW Marriott's Smack Dab Bar, the musical preferences of their employees and its tempo and mode could also influence their response to the proposed treatment in this paper. As mentioned by Gagnon and Peretz (2003), Dalla Bella et al. (2001) and Dove (2009), the use of a faster musical tempo together with major mode could increase overall arousal level, induce a more positive mood and drive greater communication and productivity level. Moreover, it was also inferred that a positive emotional state can improve an individual's flow of thoughts and actions and attention level on the task at hand (Fredrickson and Branigan, 2005; Tse et al., 2010). Additionally, according to Sloboda et al. (2001), the fact that the music was chosen or not by the listener could largely influence their emotional response to the music. From here, it might be assumed that attention level may increase with any music played at any tempo or mode if it is of the JW Marriott employees' music preference.

However, as indicated in another study by Dobrota and Ercegovic later in 2014, both males and females have presented, which was also consistently observed from previous studies, a higher preference for musical excerpts with a faster tempo in major mode over a slower tempo in minor mode with no regard to their age and genre of music played (LeBlanc and Cote, 1983; LeBlanc et al., 1988; Thompson, Schellenberg and Husain, 2001). Therefore, with the above applied to the case of JW Marriott's employees, it could be assumed that when a fast tempo in major mode musical excerpts is played, a higher level of

attention could be achieved from the employees themselves regardless of their age, gender, the musical genre played and their musical preference.

However, personality traits could also be a factor that might affect their music preference in terms of arousal level in correlation to the state of optimal function. According to Hill (1975), with introversion traits, less arousal is required for them to function to their optimal level, whereas, for extraversion traits, it was indicated to be the opposite. Hence, it could be further suggested that Smack Bar's employees' personality traits, whether introverted or extroverted, should be considered in the choice of musical tempo and mode used. It may be assumed that a faster tempo in major mode piece should be used for employees with extroverted personality and a slower tempo in major mode ones for introverted employees.

4.4. To assess the effect of Iso Principle usage to improve employees' vigilance and sustained attention in the context of JW Marriott's Smack Dab

As described by Altschuler in 1944, Iso Principle is a method used to direct an individual's mood and internal state through the synchronisation of music to their current state then gradually change its elements accordingly to guide them to a desired state. The modified elements mentioned above would be tempo and mode as it was also stated by Altschuler (1954) that plays a crucial role in the use of Iso Principle. When looking at the case of Smack Dab Bar's employees, as previously mentioned, there will be difference in personality traits (introverted and extroverted) presented from each employees, hence, there will also be a difference in the requirement of arousal level of each employees in order to reach their optimal level of attention (Hill, 1975). Therefore, it may be suggested that the use of medium tempo in major mode is ideal to start the synchronisation process when the use of Iso Principle is being considered, since it acts as a medium between the two personality traits as mentioned above.

However, in another study by Shatin (1970), even though the first step of synchronising to an individual initial mood were neglected, the correct alteration of their arousal and mood were still observed. Therefore, with the above applied to the case of JW Marriott Smack Dab Bar, it may be assumed that the Iso Principle vectoring effect to a desired emotional and arousal state to reach optimal attention level can still be achieved regardless of whether the first music excerpt played might or might not synchronise the employees' initial emotional and arousal state.

4.5. Conclusion

In summary, through evaluating each objectives, there are various assumed outcomes that was concluded according to the existing research collected. Firstly, it can be assumed that the level of sustained attention of JW Marriott Smack Dab Bar's employees can be improved through the enhancement of the overall work environment that stimulates more arousal. Secondly, when looking at the relationship between the characteristics of music and employees' musical preferences, it was assumed that when a faster tempo in major mode musical excerpts is played, a higher level of attention could be achieved from the employees themselves regardless of their age, gender, the musical genre played and their musical preference. Together with the consideration of personality traits, it was assumed that a faster tempo in major mode piece should be used for employees with extroverted personality and a slower tempo in major mode ones for introverted employees. Lastly, when assessing the effect of Iso Principle usage in the context of this study, it was assumed that vectoring effect to a desired emotional and arousal state to reach optimal attention level can still be achieved regardless of whether the first music excerpt played might or might not synchronise the employees' initial emotional and arousal state.

Chapter 5 Conclusion & Recommendation

5.1. Conclusion

Music is and has always been playing a crucial role in various different aspects of every individual's life and when being in a therapeutic setting or anything in the same aspect, music listening has shown to possess numerous impacts on the life of individuals (Mark, 2005). The level of sustained attention and vigilance is determined to be one of the factors which could be affected by the act of music listening. There have been numerous variations on the definition of sustained attention and vigilance but overall, it has mainly been described as the extent to which a person's attention to external stimuli that could be maintained over an extended length of time (Ballard, 1996). Moreover, when reflecting on the hospitality industry, this element of attention may enhance the effectiveness and productivity of the employees at their workplace. The author had therefore utilised the concept of sustained attention and vigilance, musical tempo and mode and the Iso Principle to further explore its effect. Through the discussion of literature review and empirical researches mentioned in the paper, the author has drawn out various assumed outcomes when applied to the case of JW Marriott Smack Dab Bar's employees. To begin with, it was assumed that the level of sustained attention of JW Marriott Smack Dab Bar's employees can be improved through the enhancement of the

overall work environment that stimulates more arousal. Also, it was assumed that when a faster tempo in major mode musical excerpts is played, a higher level of attention could be achieved from the employees themselves regardless of their age, gender, the musical genre played and their musical preference. Connecting this with the consideration of personality traits, it was assumed that a faster tempo in major mode piece should be used for employees with extroverted personality and a slower tempo in major mode ones for introverted employees. Furthermore, when assessing the effect of Iso Principle usage in the context of this study, it was assumed that vectoring effect to the intended emotional and arousal state to reach optimal attention level can still be achieved regardless of whether the first music excerpt played might or might not synchronise the employees' initial emotional and arousal state. Therefore, in overall, the use of music as a background element does have a positive effect on influencing and guiding the level of sustained attention and vigilance in individuals. Therefore, a hospitality establishment may use this effect of music with reference to the Iso Principle and the effect of musical tempo and mode on arousal and emotional state to intentionally guide and improve the arousal and emotional state of their employees, which could then directly enhance their sustain attention and vigilance capacity, to improve their effectiveness and productivity. Additionally, hospitality manager may need to consider their employees' personality traits and the tempo and mode of the music in prior to its use to achieve the intended outcome of improved sustained attention performance. This effect of music does not only apply to the case JW Marriott Smack Dab Bar but also, it could be applied in other hospitality settings to further contribute to the overall growth of the hospitality industry itself.

5.2. Recommendations

As this paper focuses more on sustained attention and vigilance performance of the employees, future researchers can further expand and research deeper into the concept of the "zone". This concept has a high correlation with sustained attention and vigilance and also, it can be, to a certain extent, influenced by music itself. Moreover, the author would first suggest to use a larger sample size as in the case of this paper, it was only limited to 8 frontline employees due to the size of the establishments itself. Therefore, selecting a bigger establishment where number of employees per shift are much larger could be more beneficial to possess better generalisability to the result of the study. This could then lead to the author's next suggestion, which is the possibility to conduct this study in the context of other business unit in the hospitality setting such

as restaurants, front office, etc. As the benefit of a bar or lounges is the freedom in the music selection, however, for example in the context of a fine dining restaurant, the music selection can be often narrow since the effects of music should then be also considered from the guests' perspective. The results to this study could then later provide a much better transferability when being put in different business context. Lastly, as this current study is only limited to the location of Hanoi, Vietnam, it could also be done in another country or region, especially where their culture background has a larger difference compare to Vietnam. This could further provide a more expanded view on the effect of cultural background on this topic.

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