Auditory Perception Modes and Effects on Meditation: Case Study of Thai Cooking Sounds*

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Abstract

Meditation is a method that effectively helps relieve stress. However, a distracted mind can hinder the meditation practice. Therefore, sounds play a significant role in human behavior, and each individual's perception can create different feelings or environments. So far, there are no fixed rules or guidelines on such creations or sound selection to support meditation. With this in mind, the aim of this research is 1) to study the significance of sound in meditation, 2) to analyze the factors of sound in meditation, 3) to present efficient sound modes for meditation using the components of Thai cooking sounds case study, and 4) to provide efficient meditation sound modes for testing and qualitative assessment by collecting data of the Top Ten Thai food as ranked by BBC Good Food.

The research findings revealed: 1) Auditory perception modes during meditation differed from regular auditory perception, which is primarily supported by visual data. During meditation, practitioners close their eyes to eliminate data or stimuli; however, auditory data cannot be completely eliminated. 2) Sounds also aid meditators in visualizing more easily, making them a key factor in meditation. 3) Regarding efficient sound modes for meditation, the analysis of twenty sound samples showed that the most effective ones contain speeds or rhythms between 50 - 60 bpm, with keynote sound components below 200hz. It is advisable to avoid sound bandwidths between 300 – 1000 Hz, as sounds in this range are well perceived and can stimulate complex data processing and thinking, which should be essentially avoided. 4) The effects of the sound modes which were tested sound components of Thai cooking, and qualitative assessment through sample tests confirmed that these sounds can be used and support meditation.

Keywords: Auditory Perception; Modes; Effects; Meditation; Thai Cooking Sounds

Introduction

Due to ongoing world rapid changes, both in terms of technological development that has caused a change in various areas such as education, economy, politics, and the society; along with conflicts and competitions, all humanity has to struggle for survival, causing them

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not to have time to talk with their family members. But worse, the COVID-19 outbreak, and the international disease control measures led to mandatory self-quarantine, causing a lack of sociability. Or the economic effects that caused unemployment overnight. These all cause an ongoing increase in stress and a larger number of patients with depressive disorder.

Stress is an emotion, and a feeling of being pressed. Cumulative stress can affect daily life, e.g., insomnia, anxiety, introversion, or depressive disorder. In the worst case, it causes emotional disorders, pessimism, and behavioral change that finally affect daily life. There are several methods of stress relief such as mindfulness activities, e.g., watching movies, listening to music, or cooking. Thailand is currently developing guidelines on alternative treatment for depressive disorder or "Mindfulness based therapy and counselling." It is to use Buddhist psychology that mainly focuses on meditation and mindfulness for therapy by concluding and changing religious doctrines into simple psychological languages by Wongpiromsan (2000), Chief Advisor at Department of Mental Health.

Meditation is one method proposed for enhanced depressive disorder relief, by practicing mental and physical meditation under calm and stress relieving conditions bringing mental balance and physical well-being. However, anxiety caused by internal or external factors is a key obstacle to meditation.

Sounds are energy; they can be heard constantly in our daily life. Although we cannot see them, we can feel them (LaBelle, 2015). Sounds are a key part of human perception; they can show or create feelings and emotions. There is no wonder why they always used in all types of media, i.e., movies, animations, exhibition, or even user interface on mobile phones and websites for storytelling that finally leads to metaphors or signs that create contexts and stories in our mind as per the receivers' ideas (Emmerson, 1986).

When referring to the perception of Gibson (1987), that stated the brain will interpret or refer to what it obtains, and that data must contain basis or knowledge of a certain issue. Therefore, this research exemplified sounds that were widely known among people of all genders and ages, i.e., the stories of sounds used in cooking. Apart from our familiarity with Thai food, it is also regarded as one of the key identities to show Thainess to the world.

ASMR is a neural perception responding to auditory perception when we feel relieved or relaxed after hearing and listening. Those sounds can be whispered or thunderous. Most are natural sounds. The ones commonly found are cooking sounds, rain sounds, sea sounds, or natural repeated rhythms. ASMR is abbreviated from autonomous sensory meridian response. The research article of Giulia Poerio states that ASMR in her experiment helped reduce the heart rate and also helped the samples feel relieved and calm (Poerio, 2016).

Mental relief can help meditation efficiently because meditation cannot be done with an anxious mind. Therefore, atmosphere sounds partly help imagination and meditation (Guided Meditation). Those sounds valuably support effective meditation.

Meditation by visualization is a method that makes meditators think about different relieving environments and situations. Sensory stimuli can be used, e.g., odors, images, touches, or sounds as aforementioned. Therefore, the researcher was interested to study efficient auditory perception modes on meditation; and to into present the efficient modes of meditation.

Objectives of the research

1. To study the significance of sounds in meditation.
2. To analyze the factors of sounds in meditation.
3. To present efficient sound modes on meditation by using the sound components of Thai cooking case study.
4. To bring efficient sound modes to meditation for testing and qualitative assessment.

Research Methodology

For the methodology in this research, besides academic papers, ideas from related works, and theories, qualitative research was used where the data was obtained by surgery and a field study with in-depth interviews with the samples by using purposive sampling as per the following six steps.

Step 1: This research studied related theories and research papers by analyzing and synthesizing factors that focused on significance and the factors of sounds affecting meditation.

Step 2: Conducted documentary research of the theory of sounds, auditory perception behavior, and related works.

Step 3: Analyzed popular sound samples currently used for meditation, referred from the set of top twenty meditation sounds, as ranked by Spotify.com.

Step 4: Collected sound samples from Thai cooking, referred from the Top Ten Thai Foods as ranked by BBC Good Food. Then, analyzed and separated the components by sound recording. Each step was divided into each minor component for the convenient steps of device creation and methodology, i.e., sound testers such as package software for sound analysis, frequency measurement device, and sound components for physical differentiation (Pitch, timbre, intensity, and duration) and component differentiation, referred from the theory of soundscape.

Step 5: Created workpieces to measure the effects of the sound modes. This step was an experiment to bring the sound modes obtained from Step 4 for creating six auditory artworks.

Step 6: Concluded and presented the results as a qualitative assessment from in-depth interviews and observation of the visitors.

Research results

According to the study of the factors and effects of sounds on meditation, the results concluded under the objectives:

Objective 1: The study on the theory of perception and significance of sounds in meditation related to responsiveness of all entities around humans by the five senses, e.g., eyes, ears, nose, tongue, and skin. All data obtained were processed and analyzed by the brain into a certain meaningful thing (Emmerson, 1986). Basically, meditation should be done in an airy space. Meditators ought to sit in a cross-legged position, with hands placed over each other, eyes closed, and regular breathing, while other senses are controlled by meditation principles. Eyes must be closed to block viewing. Therefore, sounds are the key data perceived by the brain.

Objective 2: Basic meditation principles mainly give precedence to mindfulness without anxiety. Therefore, heard stimuli must be removed for efficient meditation. According to the examples of cooking sounds based on the theory of soundscape (Southworth, 1969), sound components can be divided into three parts:

1. Keynote sounds: Sounds that happen all the time and continuously in that certain space. They can be predicted, with steady rhythms, e.g., the sound of boiling water, the sound of oil in a pan, the sound of steam, the sound of gas, or the sound of burning coals.

2. Sound signals: The sound of a turning point in a certain situation, in a certain space, e.g., chopping, cutting, or putting ingredients into a pan.

3. Sound marks: A unique sound in a certain space, e.g., the sound of a mortar for papaya salad, the sound of grating coconut, or the sound of cracking chicken skin by using heat.

If considering the theory of soundscape, sound signals are the variable that brings stimuli and causes data processing by brain. It is a key part to make visualized stories clear and can be continued.

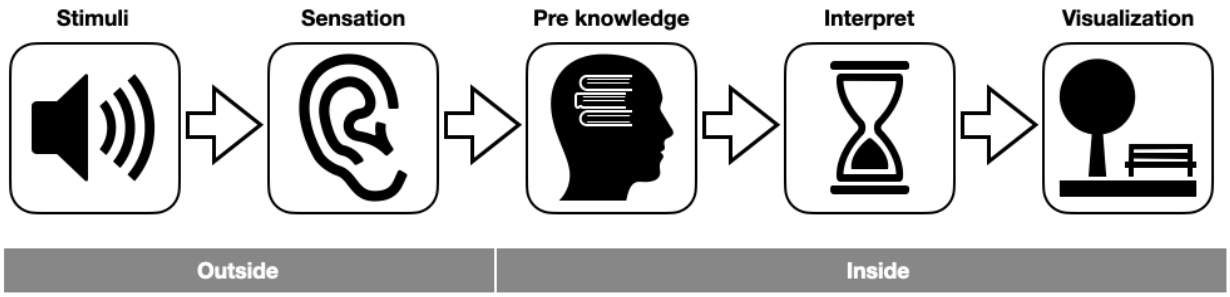
Objective 3: According to the analysis of the top twenty meditation sounds, their physical features were analyzed as follows. It was found that the mean speed and length of the workpieces was 189.55 seconds or 3.18 minutes, respectively. The mean of sound speed, referred from speed counting the music rhythms was 57.4 BpM. Note, the bandwidths of 300-1000hz were softer than others. The bandwidths below 200hz were frequently used, were most prominent, and were heard more clearly. For the sounds analyzed by the researcher, most contained various pitches. However, the most common pitches were low bandwidths around 200hz or lower, which were played continuously or nonstop for the whole workpieces. As for timbre, if analyzing by listening to the sound samples, they did not cause ear pain but were rather smooth and mainly the sounds from distant tones. Their pitches were not much different, with few bandwidths over 1000hz and usually functioned as interconnections. As for the duration, keynote sounds in most workpieces were long, usually gentle, and could be

predicted. New sounds gradually got louder or faded, leading to the length of those new sounds of around 3-5 seconds.

Objective 4: After obtaining efficient sound modes for meditation, the researcher created a set of workpieces under the ideas and sound modes of the sounds that the target group used to experience, i.e., a set of Thai cooking sounds, turned into the auditory art called "The Symphony of Thai Cooking," exhibited for one week in the Art Gallery at Ban Chao Phraya. According to the experiment, it was found that 80% of the visitors could listen to the workpieces from the start to finish and 75% of them understood the meaning of each certain sound. Five percent understood they were cooking sounds but were not sure about their meanings. The rest, 20% provided answers and suggestions from the listening visit: 1) They were under uncomfortable postures while listening. 2) There were incoming calls or disturbances from other visitors. 3) They were not familiar with the cooking sounds.

Therefore, it can be concluded that the visitors who could not listen to the workpieces until conclusion were disturbed by other uncontrollable perceptions or were inexperienced in Thai cooking sound. According to the interviews with 80% of the visitors who could listen until the end, along with the assessment by interview conducted by artistic and music experts, the following suggestions were gained: 1) The exhibition and the ideas used were interesting and could be applied in real situations. However, the variables should be controlled more during the presentation. For example, the exhibition area should be restricted to prevent disturbances from other factors, e.g., visitors' voices or the sounds of vehicles on the road.

The new body of knowledge



Auditory Perception Modes During Meditation

According to the above diagram, it can be seen that the external factors or sounds from various components were transferred to the ears and processed by the brain that referred to previous knowledge and experiences of the receivers for further interpretation, visualization, or meaning transfer.

Efficient auditory perception modes on meditation

According to the research on efficient sound modes for meditation, it was found that they were not fixed. However, some interesting notes and modes were found and can be applied for ideas to choose or create meditation sounds.

1. Sound repetition: If compared with music theories, it relates to rhythms or beats of general music. We can find examples of repeated sounds, as aforementioned, in the nature, e.g., the sound of the sea, the sound of rain, or the sound of the wind. If compared with the experiment in the case study, it can be exemplified as the sound of boiling water, the sound of burning coals, or the sound of oil in a pan. These sounds are basically repeated, with certain rhythms, and usually found in keynote sounds. They are predictable factors or stimuli and are significant for feelings and mind of meditators as references for focusing on their breath and the flow of visualization.

2. Sound marks: Or any sounds of which the origin can be recognized, for example, cooking sounds, e.g., mixing ingredients and papaya in a mortar for papaya salad, the sound of peeling shrimps; the sound of boiling water for spicy prawn soup; or the sound of crackling chicken skin.

3. Sound signals: These sounds are basically the key meditation sounds, and partly help create the sequence of a situation and perception of visualization in meditation. In other words, they are the sound of a situation in a certain space, e.g., the sound of putting ingredients into a pan or the sound of uncapping condiments; with the notices and factors as follows.

Pitch

There are no fixed rules of high and low pitches. Even so, moderate and high bandwidths are mostly avoided.

Timbre

As aforementioned, timbre should be smooth, and does neither cause ear pain nor annoyance.

Intensity

It is about low pressure or dynamic of workpieces that should not be too wide and should not cause much fright while listening. According to the statistics obtained, the values were different but not over 10 db.

Duration

The length of sounds hugely affects listening. For example, sounds that gradually get louder will bring better anticipation to meditators.

There are many types of meditation practices in to Buddhism, two of them are Samatha (Tranquil) and Vipassana (Insight) meditation. While sound can be used in both practices as a supportive tool for developing concentration, mindfulness, and insight. However, the way sound is used varies based on the focus and purpose of the meditation. Samatha meditation places emphasis on developing concentration through the use of sound and

visualization as a focal point to bring the mind into a state of stillness and calm. Vipassana meditation.

Discussion

From the research result of the 1 objective, it was found that sounds were the key factor and affected meditation, because the perceptions of the meditator were limited. As a result, perception channels from the ears were the key variable for data processing by the brain.

From the research result of the 2 objective, it was found that the factor and sound components based on the theory of Southworth (1969) revealed sound signals as the key part causing stimuli. The components causing changed situations were stimuli for data processing by the brain. If there are too many factors or if it cannot communicate indeed, there may be obstacles for meditation. Another noted element was the sequence of sounds was another factor that music composers should give precedence to create understanding for visualization. If they cannot make meditators understand confusion or questions may happen during meditation.

From the research result of the 3 objective, it was found that efficient sound modes for meditation can be new knowledge and guidelines for interested persons or those who would like to choose or create new meditation sounds. They can also be alternatives or guidelines for sound composers or meditation media creators.

Last, From the research result of the 4 objective, apart from the experiment that met the objectives, suggestions were also provided by the experts and observation by the researcher. It was found that the sound components of Thai cooking obtained by field survey and data collection are not only for meditation sound creation, but the sound components can also be used for further development of other media. For example, they can be brought to support movies about Thai food or activities to publicize Thai identities and culture in the world.

Conclusions

According to the research, it was found that efficient sound modes for meditation included these factors of sounds, i.e., pitch, timbre, iintensity, and duration based on the criteria aforementioned.

As for the components and storytelling, the overall visualization for meditation keynote sounds, sound signals, and sound marks. Keynote sounds were the key component for perception and visualization of where meditators themselves at that moment were, supported by sound marks to strengthen visualization, along with sound signals to proceed with visualized situations.

Suggestions

According to the results, suggestions were provided by the researcher as follows.

1. The suggestions from the research

From the research result of the 1st objective, it was found that sounds were significant for meditation, because general meditation principles actually require limitation of almost total perception, except for the ears and nose that cannot be fully limited. Auditory perception can rely on earpieces or loudspeakers to remove those stimuli. Unfortunately, the odor perception cannot be set. However, common meditators usually avoid disturbing and undesirable odors.

From the research result of the 2nd objective, it was found that for the factors of meditation sounds, if those sounds were not too intense and could be predicted in a certain place or environment, they would neither disturb nor reduce meditation efficiency. However, what to be avoided were sounds that would change the current situation.

From the research result of the 3rd objective, it was found that efficient sound modes for meditation must contain sound speeds between 50 - 60 bpm. Keynote sound components should be below 200hz. Bandwidths between 300 - 1000hz should be avoided, because it is basically well perceived by human ears and quite undesirable.

According to the research on the last objective of testing efficient sound modes for meditation and qualitative assessment, it was found that the visitors understood the workpieces and provided good suggestions. However, they were disturbed by external and uncontrollable stimuli due to limitations, i.e., research budget and limitations of the gallery.

2. The suggestions for future research

2.1 Parts of the research answers were obtained by related theories, research papers, statistics, and results or previous research papers. If possible, future studies should be conducted with more specific samples.

2.2 For clearer results, the experiment should be conducted with sound components in other modes.

2.3 The sample size should be increased. Apart from feelings, in-depth interviews should also include gender, age, and occupation of the samples.

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