

## Chapter 13

# DeMuse: Music Mood Application

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### Abstract

In these modern days, conflicts, negative revolution, suicides and other common crime had been occurred in the worldwide. After several studies and investigations, it have been found out the one of the root cause – stress. Although stress can make someone to improve work performance and awareness, the desperate situation would happen if someone unable to cope with it. To decrease this kind of unfavourable situation from continuing, several method had been proposed such as listening to music, physical activities, doing desired activities, surfing, and others. In this project, music will be the main concern as distress purpose. Here, a product of this project will be named as “DeMuse”. In addition, DeMuse will be presented in health and fitness category of mood music based mobile application. In order to complete DeMuse, it will carry out the identification of the features for the particular mobile app (DeMuse), identification of the music and mood categories respectively. DeMuse will then equipped with the general features of music application and meditation purpose. Besides, it also contains the properties of organizing favourite music and theme. In the development of DeMuse, a methodology named Mobile-D methodology is being applied. From this methodology, it might help us to make sure that a detail analysis to be done, every single functionality that needed will not be missed out, and increase the efficiency of work distribution and time spending. After that, several prototype might release in order to test by the target users, and hence building a strong interaction bond with users, so that a complete and successful DeMuse able to satisfy the communities. The expected outcome of this project would be an android based music mood application which named as “DeMuse”. With this app, it might greatly help in decreasing and eliminating the tension, unsatisfaction, and others negative feelings of users in their daily life. Thus, this project hope that DeMuse can be one of the alternative way to relief stress.

### Introduction

Stress can be felt or experienced from the environment, physiological, social stressors, and thoughts. Some of stressor’s example, there are financial demands, conflicts among people, family issues, and others that could influence all aspects of human daily behaviour and human functioning respectively. In order to decrease the stress level among the society, music is one of the choices. Listening to different types of music can decrease healthy issues that caused by high level of stress hormones (Barrios-Choplin, 1998). However, one music is not enough to satisfy a worldwide. Lee (2014) stated that how could someone from different cultural background listening to the same music in moods that are different with others. Hence, the relationship between music and moods that are acceptable will be the main concern in this project.

### Music – The Impact on Stress

As an individual, the sources of negative stress are mainly come from several fields such as academic, relationship problems, and career exploration (Cheng, 2009). This negative stress would give a great impact on three individual’s aspects which are behavioural, physical, and psychological problems.

Naseem (2010) stated that an individual with a positive thinking is enough to cope with the stress faced in their daily life more efficiency. McGrath (2004) had defined that “positive thinking is a term of overall attitude that is reflected in behaviour, thinking, feeling, and speaking.” Many researchers found out that the positive thinking, positive behavioural qualities, positive feelings and emotion is great enough to provide some beneficial effects in solving the personal physical and psychological problem (Fredrickson 2001; Seligman & Csikszentmihaly, 2000). There is a relationship between the stress and the positive thinking. Naseem (2010) defined the positive thinking as the experienced positive emotion frequently, with optimism, a bright hope, and happiness. According to Ong (2006), an individual stress reactivity could be moderated and determined by the number of daily positive emotions occurrences. Meanwhile, positive emotion able to neglect the negative effect of negative emotion on individual cardiovascular function (Fredrickson & Levenston, 1998). Tugade and Fredrickson (2004) also made a further explanation that there are the existence of strong bond among positive thinking and affect with distress and prediction of healthy outcomes. Hence, compare to negative thinkers, a positive thinker able to look at a stressful situation in less threatening and thus handle it in more effective ways.

In order to maintain a positive mood to cope with the stressful situation, music is one of the choices to get rid of negative mood. Obviously, music often used to change the emotion status or become better, and also afford to make certain people in accomplishing the current works (Chami, 2003). Based on several studies, Kent (2006) found out the ability of music to function as a stress management tools. Patients were decreasing the anxiety and stress level, and a lower blood pressure result was showed during the patients listening to music in order to wait for surgery subjectively (Kent, 2006).

### **Relationship Between Music and Mood**

One of the related study is done by Sorenson (2008). This study aimed to show that listening to music is greatly enhancing and increasing the ability of athletic performance, motivation level, arousal regulation, and also the emotion level. Focusing on the relationship between music and moods, music is enough to draw the attention of athlete away from the feelings of fatigued, at the time that athlete is listening to the music in personal physical activities. Similar to the finding from Wales (1986), which is about the music type of increasing upbeat or fast tempo per minute was able to lower the feelings of fatigued, anger and irritable, and depression and sadness. By lowering these negative feelings, the exercise performance of participants could increase significantly. Karageorghis and Terry (1997) also found out that most of the sport psychologists would like to advise athletes listening to music for mood regulation during the preparation of the competitions. From the aspect of arousal regulation, Gfellar (1988) suggested that if likely to increase the arousal level, then listening to music that could encourage in releasing out and competing at a high, intense level. Whereas listening to music that makes someone to feel relaxed or calm down would lower the arousal level.

The method that Sorenson (2008) applied was triangulation method. It is a great method that combine several methods of data in order to increase the reliability or credibility of study. The study samples were five Caucasian and two African American descents of National Collegiate Athletic Association (NCAA) Division I collegiate athletes, among aged group of 18 to 23. One of the method known as “Interview Protocol” section, which asking the experience of athletes of the relationship between music, and sport or competition (before, during, and after). To decrease the error, another method was applied, the “transcribing”. This is a method that require an audio tape to record the conversation section. A “Phenomenological reduction” method was used to eliminate the irrelevant information throughout the conversation. And a method named “verifying the elimination of the data” has been applied in order to provide the final edited version of conversation to participants for validation. After that, a method named “Releasing meanings”, which included several smaller methods such as “Forming categories”, “Identifying the themes”, and “Describing the themes” has been applied to separate and categorise the relevant information obtained.

## Mobile Application for Distress Purposes

According to Google, the most popular mobile application in the year of 2014 was the category in terms of health and fitness (Boxall, 2014). This is a concluded result after collected the data from Google Play Store, and health and fitness categorised applications have been chose after conducted an end-of-year rundown. Since the meditation and stress relieved type mobile application is being categorised in the theme of health and fitness, a mobile application named DeMuse would be developed throughout this project, with the analysed result of features and relationship between music and mood.

## Analysis and Result

### a. Quantitative Method using Questionnaire

A set of questionnaire is the quantitative method used on the target samples, in order to obtain and record some useful information on the particular issue of interest (Kirklees, 2014). Based on the view of Roddy and Allsop (2006), the reason questionnaire known as one of the effective analytic way is that the condition of face-to-face and target sample to complete the questionnaire section independently could be achieved. And hence, this condition turns to construct a structured interview basis. Indeed, this would promise a list of worded and structured questions in the priority of balancing the requirements asked, either in paper or electronic form. Based on the study of Kirklees (2014), the "piloting questionnaire" will be the most qualified and suitable questionnaires' style. This is because the only target was came from a university, named UMS. At the same time, the samples that stayed in the range among 19 to 24 aged groups will be an element that take into consideration. Thus, these specification were the meaning of piloting properties doubtlessly, which consider small group of respondent samples. This method will be operated in paper form. In the process of face-to-face reviews, the rate of misunderstanding error would be minimized as well as responding time. In addition to increase the accuracy of result, a number of different faculties in UMS will be involved.

### b. Data Collection

According to the results of the quantitative methods applied on 148 study samples, almost all respondents felt that music greatly affects respective emotional status. Target samples believed that music only would benefits daily activities and life. This phenomenon also could be explained by the study of Barrios-Choplin (1998) on the relationship among different music types and different mood status based on the Personal Feelings Survey (PFS) results, which indicated that a same person could be stayed in different varieties of emotional status after listened to different music genre. Meanwhile, respondents would like to listen to certain music in order to switch respective emotional status to the positive level. Since Ong (2006) stated the existence of the relationship between positive emotion and the way in minimizing negative stress level, related questions would be applied on the study samples in order to understand respective musical behaviour. Based on the study of Barrios-Choplin (1998), the study samples could affect respective emotional status when listening to the music. According to the data collection, the effects of the relationship between music and mood in the aspect of emotional memories, someone to feel conveyed, and someone tends to physically move; the similarity is that the agree option voted as the highest number. In this case, these trends are greatly showed that different music types with different tempo or beats per minute (bpm) would affect the level of physiological effects applied on the body. Music with fast tempo, 120 to 130 bpm could increase heartbeat rate and blood pressure, whereas music with slow tempo, 50 to 60 bpm could decrease heartbeat rate and blood pressure (Edworthy and Waring, 2010). In the aspect of physical movement, previous research recommended that the higher the music tempo, the higher the physiological arousal level and hence causes an increment of active rate (Karageorghis, Jones, and Low, 2006).

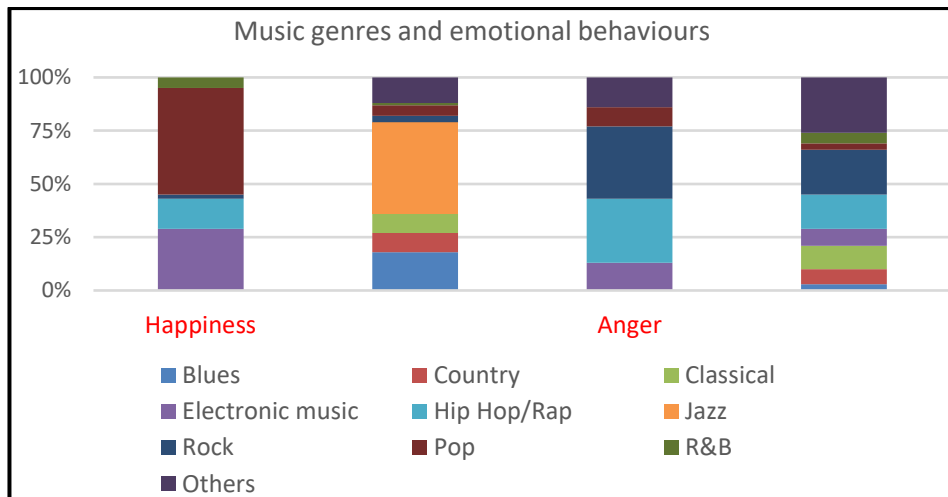


Fig. 1 Effects of Music Genres towards Emotional Behaviours

Furthermore, Barrios-Choplin (1998) stated that different variation of music genre could cause different emotional status. Based on the figure 1, there are 4 different mood behaviour stated, which are happiness, sadness, anger, and frustration. In the aspect of happiness status, most of the study sample chose pop music, which is 74 out of total 148. In the sadness aspect, jazz music occupied the highest number, which is 64 out of total 148; and then blues music in second, which is 27 out of total 148. Next, in the aspect of anger status, rock music achieved 50 out of total 148, in which ranked top. Lastly, there are quite a lot of respondent does not aware which music genre would annoy the feeling respectively. However, some participants feels that rock, and hip hop or rap music genre quite disturbing.

### Development of Music Mood Application: DeMuse

Figure 2 shows the main homepage of DeMuse. This page consists of a scroll view of mood category options. This section hold up four emotion representatives, which are categorised into happiness, sadness, anger, and frustration. Each of these categories contains those particular kinds of music that referred to the opinion of target subjects. These categories bring users to the particular interface that belongs to the emotion label respectively. Homepage of DeMuse contains four major buttons. The main four buttons, which are the “personal playlist”, “music playlist”, “package option”, and “settings”. These four buttons will switch different interface respectively. Figure 3 shows a list of music. This list allows users to click one of them in order to listen the music selected. The first click on the music would be the command of playing, and again next click on the same music would be the command of pausing. After clicked, there will be a pop up window with some buttons that labelled by different music genre (Figure 4). If users selected one of these buttons, such as pop category, then it will bring the users to another interface that contains music under pop category only (Figure 5). If users would like to choose music based on the mood category, users are require to select one of the four mood categories that labelled “Happiness”, “Sadness”, “Anger”, and “Frustration” at the main homepage. Take an example, after users clicked on the category labelled “Happiness” that shown in figure 6, it will switch users to another interface that music under “Happiness” emotion status.



Fig.2 The Main Homepage of DeMuse



Fig. 3 Music Menu Interface



Fig. 4 Pop-up Window of The Music Categories

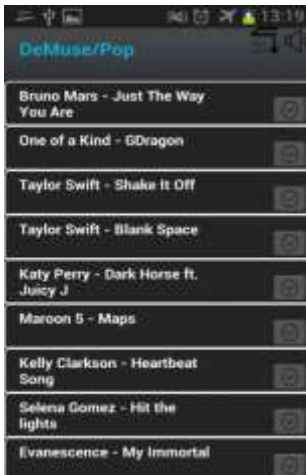


Fig. 5 Pop Music Menu Interface



Fig. 6 "Happiness" Music Menu Interface



Fig. 7 Selected Song Added Into Playlist

DeMuse allows user to add their favourite song into personal playlist offered. User needs to click on the insert button which appear at the right hand side of every single song. After clicked, DeMuse will tell user that the selected song is added into the playlist successfully. This insert button is not just exist in the music menu interface, but also every interface that is song lists provided. After finished the inserting activity, user needs to turn back to the main homepage and click on the “Personal playlist” button in order to access into the offered personal playlist (Figure 7). Every music and mood category interfaces, there is a Volume button provided at the top right location. It is a shortcut button for user to access into volume settings page in order to adjust the volume of DeMuse. Besides, user can click on the settings button and access into settings menu page in order to reach the volume settings interface. User can click on the first button within the settings menu page, which is labelled “Volume”. After clicked, user could access into the volume settings page. If user clicked on the second button which is labelled “Quote”, user could access into the quote menu page. This page allows user to select any of the inspired quote and then appears at the top of this page and the main homepage. User could select another quote in order to replace the previous selected (Figure 8). However, user is allows to delete the quote selected through the delete button on top of this page.

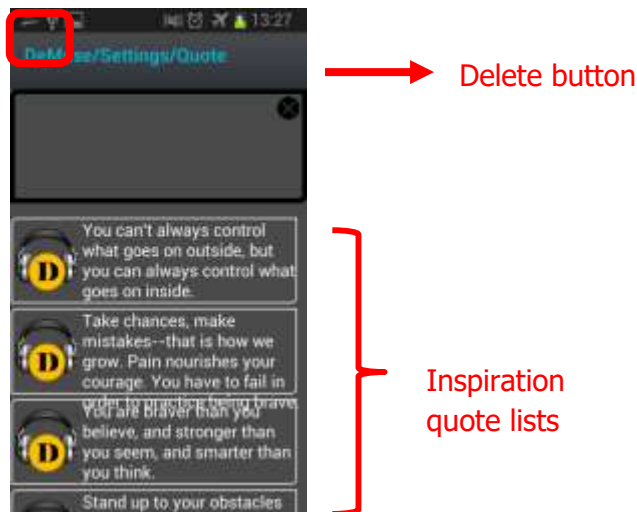


Fig. 9 Quote Menu Page

User may click on the “Package” button in order to follow the relieving stress activities. One of the activity is a quick breathing step, in which allow the user to settle down and clam their emotion and mind in a specific time. Based on Sayadaw (1995), this activity is developed from the concept of mindfulness-of-breathing. It said that in-and-out breathing is a purpose to achieve concentration on emotion and mind. It recommended that in-and-out breathing should be complete in a count of eight. This counting manner able to aid user to develop concentration. Figure 9 shows the inhalation process (8 to 5) seconds, and exhalation process (4-0) seconds, and complete after user achieve 30 times of in-and-out breathing. Lastly, users are allowed to click on the text “DeMuse” at the top left of the main homepage in order to activate the quit out function.

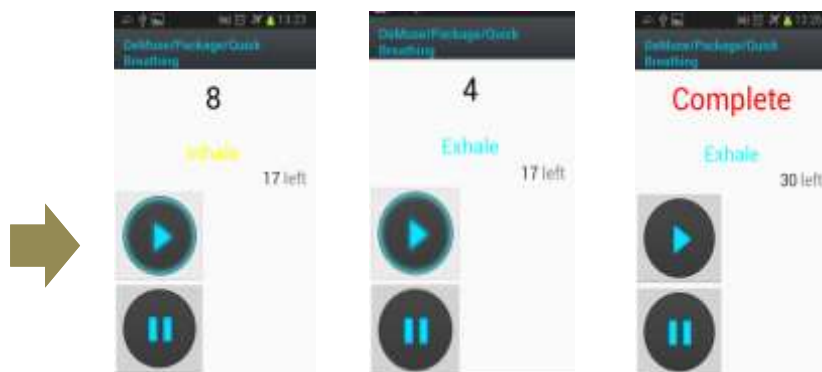


Fig. 9 Inhalation and Exhalation Process

## Conclusion

In the conclusion, DeMuse, which is a distress product would likely to develop in order to target this common enemy and further decreasing or demolishing its increasing growth trend. This project hope that DeMuse could give a great help for those victims that troubled or tortured by negative stress. Based on the research studies, increasing trend of health problem mainly came from stress faced in daily life. This negative symptoms causing various methods to minimize this negative trend, such as surfing Internet, playing video games, exercising, and listening to music. DeMuse was developed as an alternative way of de-stressor that in the theme of music. Through the development of DeMuse,

users able to reduce their stress in everywhere. Since the overall music and emotion categories are mainly concern with the UMS students, these arrangements and relationships will be again obtained from users as further improvement purpose. Furthermore, the features applied in DeMuse will be modified in order to make users experience it in more simple way. Lastly, DeMuse, which is the product of this project, is willingly to be an alternative way in coping with this negative stress.

## References

- Barrios-Choplin, B., McCraty, R., & Cryer, B. (1997). A new approach to reducing stress and improving physical and emotional well-being at work. *Stress Medicine* 13: 193–201.
- Boxall, A. (2014). Is the year of health and fitness apps, says Google. Retrieved at (Oct2016) from <http://www.digitaltrends.com/mobile/google-play-store-2014-most-downloaded-apps/>
- Chami, A. (2003). Daily uses of music in mood management. *MSc in musicpsychology*, module 2, option 5.
- Cheng K. W. (2009). A Study of stress sources among college students in Taiwan. *Journal of Academic and Business Ethics*, Vol2, 1-8.
- Edworthy, J., & Waring, H. (2006) "The effects of music tempo and loudness level on treadmill exercise." *Ergonomics* 49.15 (2006): 1597-1610.
- Frederickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Journal of Cognition and Emotion*, 12, 191-220.
- Gfeller, K. (1988). Musical components and styles preferred by young adults for aerobic fitness activities. *Journal of Music Therapy*, 25 28-43.
- Karageorghis, C. I. & Terry, P. C. (1997). The psychophysical effects of music in sport and exercise: A review. *Journal of Sport Behavior*, 20(1) 54-69.
- Karageorghis, C. I., Jones, L., Low, D. C. (2006). Relationship between Exercise Heart Rate and Music Tempo Preference. *Research Quarterly for Exercise and Sport*, 77. 2 (2006): 240-250.
- Kent, D. (2006). The Effect of Music on the Human Body and Mind. Retrieved at (Oct 2016) from [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUK Ewi1lLbZ5djPAhVCRo8KHWrrA9YQFggcMAA&url=http%3A%2F%2Fdigitalcommons.liberty.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D1162%26context%3Dhonors&usg=AFQjCNFITtN0FQeH2XG4HNIUXdoqY8h5Dw&sig2=CW\\_MPtDK7yJqYtE04FLXtQ&bvm=bv.135475266.d.c2i](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUK Ewi1lLbZ5djPAhVCRo8KHWrrA9YQFggcMAA&url=http%3A%2F%2Fdigitalcommons.liberty.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D1162%26context%3Dhonors&usg=AFQjCNFITtN0FQeH2XG4HNIUXdoqY8h5Dw&sig2=CW_MPtDK7yJqYtE04FLXtQ&bvm=bv.135475266.d.c2i)
- Kirklees, C. (2014). Research and consultation guidelines: focus groups. [Online]. Retrieved at (Nov 2016) from <https://www.kirklees.gov.uk/community/yoursay/questionnaires.pdf>
- Lee, J. H., & Hu, X. (2014). Cross-cultural Similarities and Differences in Music Mood Perception. *In iConference 2014 Proceedings*, 259–269.
- McGrath, P. (2004). The burden of RA RA positive: survivors' and hospice patients' reflection on maintaining a positive attitude to serious illness. *Support Care Cancer*, 12, 25-33.
- Naseem, Z., & Khalid, R. (2010). Positive Thinking in Coping with Stress and Health outcomes: Literature Review. *Journal of Research and Reflections in Education*, June 2010, Vol.4, No.1, 42 -61.
- Ong, A.D., Bergeman, C.S., Bisconti, T.L., Wallace, K.A.: Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, 91, 730–749 (2006).
- Roddy, K., & Allsop, L. (2006). Creating Effective Questionnaires and Surveys and Analyzing the Data. [Online]. Retrieved at (Nov 2016) from [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUK EwjcgveutDOAhWDFZOKHZiBCCYQFggI MAE&url=http%3A%2F%2Fwww.lse.ac.uk%2Flibrary%2Fversions%2FCreating%2520effective%2520questionnaires%2520and%2520surveys.pdf&usg=AFQjCNGbE u0BDySn\\_fqkZCgC7mW\\_rCQQ8Q&sig2=reojrubM6aOUGZg6cF2mtQ&bvm=bv.139782543.d.dGo](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUK EwjcgveutDOAhWDFZOKHZiBCCYQFggI MAE&url=http%3A%2F%2Fwww.lse.ac.uk%2Flibrary%2Fversions%2FCreating%2520effective%2520questionnaires%2520and%2520surveys.pdf&usg=AFQjCNGbE u0BDySn_fqkZCgC7mW_rCQQ8Q&sig2=reojrubM6aOUGZg6cF2mtQ&bvm=bv.139782543.d.dGo)
- Sayadaw, P.A.T. (1995). Mindfulness of Breathing & Four Elements Meditation. *Buddha Dharma Education Association Inc*, 1-5.
- Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55 (1), 5-14.
- Sorenson, L., Czech, D. R., Gonzalez, S., Klein, J., & Lachowetz, T. (2008). Listen up! The experience of music in sport: A phenomenological investigation. *Athletic Insight*, 10(2).
- Tugade, M. M., & Frederickson, B. L. (2004). Resilient persons use positive emotions to bounce back from negative emotions experiences. *Journal of personality and social psychology*, 86, 320-333.
- Wales, D. N. (1986). The effects of tempo and disposition in music on perceived exertion, brain waves, and mood during aerobic exercise. *Microform Publications, College of Human Development and Performance, University of Oregon*.