Chapter 3
A Study on Emotion Releasing Effect with Music and Color

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ABSTRACT

Music is considered a remedy for the body, psychological therapy, and a mental release. During World War Two, health medical professionals held concerts to appease the wounded soldiers’ emotions and to initiate the research and discussion of music and emotion applied to various fields in academia. This chapter attempts to use the music emotion model as the media to introduce the possible emotional response during music listening via music structure, listener’s background, and surroundings, to do the research for human physical and psychological influence by automatic generated electronic sound, and to discuss the emotional releasing effect of music. This chapter also discusses various emotional responses derived by various colors applied to the music emotion model to break the limitation of the existing music forms and to develop the possible music color synesthesia applied to all aspects, in order to lay the foundation for next generation users.

INTRODUCTION

Music is shown to influence on emotion based on various research fields, while color has similar effect to emotion. The research of Oxford University by the psychological Professor Charles Spence indicates that we have the capability to hear shape and size, and even can taste sound; all of the people have synesthesia response in various degrees, and some people have stronger response, therefore a sensory stimulation can induce another sensory neurologically (Calvert, Spence & Stein, 2004; Spence, Senkowski, & Röder, 2009).

The late 19th century Russian composer Alexander Scriabin thought that synesthesia exists between the circle of fifths of music tonality and color frequency circle with a mapping relationship (Galeyev & Vanechkina, 2001). Music emotion

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model can arouse listener’s emotional response via the music structure and fundamental features, listener’s background (expertise, preference, personality, mood, etc.), ambient environment events (Gabrielsson, 2001; Gabrielsson & Lindstrom, 2001) therefore the proposed system will generate a music color synesthetic model based on algorithmic composition (Cope, 1992; Cope, 2004; Winsor, 1992) and color model (Fairchild, 2005; Shevell, 2003) to investigate the possibility to use it to release our emotion.

**MUSIC AND EMOTION PERCEPTION**

Music can arouse strong emotional experiences. In the early stage, Hevner (Hevner, 1936) has proposed 8 categorized emotion terms including solemn, sad, longing, calm, humorous, joyous, agitated, majestic, etc., as shown in Figure 1, to present the music meaning with various emotions implicitly.

**Music and Emotion**

There are several music features which can make human perceive including pitch, dynamic, timbre, etc., however the features that can arouse emotion including pitch, tempo, loudness, tonality, articulation, and harmony. Among these features, tonality and loudness has greater relation with emotion other than other music features, as shown in Figure 2.

**Energy Music Theory**

In 1989 Thayer proposed a 2-Dimension emotion plane (Thayer, 1989) using Energy and Stress to