

The Relationship Between Music Excerpts and Emotional Responses of Undergraduate Students

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Abstract

The purpose of this study was to survey the relationship between music excerpts and emotion responses, including the coefficient between familiarity and preference. Participants were 179 undergraduate students, non-music majors and attendants of music course for general education, from three universities in northern, middle and southern Taiwan. *Scale of Music Listening Emotion and Scale of Music Preference* were developed to investigate how different music pieces may arouse different listening emotions. The stimuli were twelve music excerpts equally classified into different categories: classical & non-classical, instrumental & vocal, and stimulative & sedative. And students should rate their listening emotion, familiarity and preference about the excerpts. Four main results were as follows. (1) Nearly all

excerpts can arouse two dimensions of listening emotions: happy-sad, and agitated-calm; (2) Significant differences of emotional responses exist in classical & non-classical, instrumental & vocal, and stimulative & sedative music; (3) There is a positive relationship between familiarity and preference; (4) Listeners with different familiarity and preference produce different emotion responses.

Keywords: Music Emotion, Emotion Response, Familiarity, Preference, Music appreciation

1. Introduction

The nature of music is to convey the innermost feeling of humans. Long since ancient Greek, philosopher Plato had considered that music has the power of cultivating the mind. His pupil, Aristotle further asserted that rhythm and tune mirror one's personality. They made people mad and tender, as well as stimulate and moderate, and had the function to purify emotions and sublimate feelings (Fong, 1997). That is, music can arouse strong emotional experiences. While listening, one formed a unique individual music experience which affected the development of one's brain, body, and feeling (Reimer, 2005).

We can consider multiple definitions about feeling. Emotion as a part of feeling was in psychological field related to the affective aspect (Radocy & Boyle, 2003). It was an agitated body and mind state including complex emotional response and physical change caused by stimulation (Chang, 1992). Although emotional response belongs to the basic level of music behaviors, it is a very important issue in musical psychology. On the whole, musical elements that aroused emotional response can be classified into four categories: (1) Structural features, including acoustic wave, the amplitude of vibration, and basic music elements like melody, tempo, rhythm, harmony, form, timbre, etc; (2) Performance features, including technical skills, interpretation, concentration, etc; (3) Listener features, including professional disposition, preference, personality, mood and motive; (4) Contextual features, including location and event (Gabrielsson, 2001; Scherer

& Zentner, 2001). These are all indicative items that affect listening emotions.

Regarding the selection of music excerpts for listening emotion studies, Eagle (1971; cited from Abeles and Chung, 1996) used five pairs of bipolar adjectives to survey 274 undergraduate and graduate music majors for their emotional responses of listening. He found out that presentation order of music excerpts did not influence mood response, but the mood before the listening did. A person responded differently between vocal music and instrumental music. Besides, Campbell (2005) in his *Mozart Effect* writing also pointed out different music has different therapeutic effects and arouses different emotions. Bruner (1990; cited from Crozier, 1997) inquired into the influence of music to emotion and further pointed out that the essential elements like tempo, pitch, rhythm, harmony, volume, may cause different emotional responses.

In terms of listeners' feeling, Radocy and Boyle (2003) based on the concepts of contemporary psychology and music function, divided music into two types: stimulative music and sedative music, and believed that each has different effect. Stimulative music can stimulate emotional responses and usually possess characteristics on rhythm and dynamics, such as (1) more staccato, and accented notes; (2) louder sound; (3) faster tempo. Marching and dance music are good examples. Sedative music, on the other hand, referred to that which can comfort and calm feelings and make people relax. Its music traits are (1) sustained legato melody; (2) quiet and steady underlying beats; (3) lower tempo such as lullabies. These characteristics will be the indicators of the following music excerpts categorization.

In the relationship between music familiarity and preference, literatures showed a positive correlation between the two (Fung, 1996; Krugman, 1943; Zissman & Neimark, 1990). They further indicated that popular music tended to elicit a maximal pleasantness degree at an early repetition, while classical excerpts reached their affective maximum during later repetitions (Bartlett, 1973; Lundin, 1967; cited from Radocy & Boyle, 2003). Hargreaves (1984) studied the effects of repetition on liking of music and proved the hypothesis of inverted U-shape curve. That was, repeatedly listening would increase preference, but when preferences rise to a certain degree, it may

gradually go down. This change during the process depended on different style which caused different results.

Besides, Hart and Cogan (1976; cited from Abeles & Chung, 1996) asked college-age listeners to identify the level of familiarity with selected music excerpts and then responded to emotional verbal scales for four musical selections. The result showed that the emotional affective responses might be affected by gender and familiarity interaction. Wheeler (1985) indicated that the interaction between mood prior to the music and enjoyment of music was significant in predicting mood following music. People in sad mood heard music they like would have positive emotion whereas people in happy mood may gradually have negative emotion after listening to music they do not like. Related literatures seem to show that familiarity and preference have influence on our mood and cause different emotional responses.

Most studies on music emotional response employed self-report and physiological measures. The former mainly used to examine the subjects' effective responses, and the latter used machines to measure physical responses toward music, such as heart rate, blood pressure, skin conductance, etc (Abeles & Chung, 1996). We would use the self-report technique in this study and explore listeners' emotional responses and their influential factors.

From above we know there are lots of studies abroad on music emotion, however, there is a deficiency in our country. Therefore, this study attempted to be groundwork for future research on factors of music affecting emotion and help students use music to release emotion. The subjects of this study were undergraduate students in Taiwan who took music course for general education. By survey method, we investigated the relationship between music excerpts and emotional responses. The main research questions were as follows: (1) What emotional responses were commonly aroused while listening to music excerpts? (2) Did listening to different music types (classical vs. non-classical, instrumental vs. vocal, stimulative vs. sedative) produce different emotional responses? (3) What was the relationship between listeners' music familiarity and preference? (4) Did listeners' different familiarity and preference to music excerpts arouse different emotions?

2. Method

2.1. Subjects

This study employed purposive sampling and selected undergraduate students who took music course for general education ($N=179$), 107 males and 72 females from three national universities in northern ($n=40$), middle ($n=71$) and southern ($n=68$) districts of Taiwan.

The subjects of most literature studies on music emotion are undergraduate students (Abeles and Chung, 1996). It is probably because that students of this age possess better ability to correctly examine their emotion, and thus can more truly reflect listening emotion.

2.2. Instruments

This study asked students to fill out researcher-developed *Scale of Music Listening Emotion* and *Scale of Music Preference* after listening to twelve music excerpts.

2.2.1. Scale of Music Listening Emotion

This study mainly referred to the following four music affective literatures to make the scale:

a. Hevner's *Adjective Circle* (1936; cited from Radocy & Boyle, 2003) grouped 67 adjectives into eight consistent clusters: solemn, sad, longing, calm, humorous, happy, agitated, and majestic. Each cluster contained adjectives of approximately the same meaning. For example, the adjectives bright, cheerful, gay, happy, joyous, and merry were classified into the same category.

b. Farnsworth's *Modification of the Hevner Adjective Circle* (1954; cited from Radocy & Boyle, 2003) tested the internal consistency of the clusters of Hevner's *Adjective Circle* and rearranged 50 of them into ten more consistent categories: happy, fanciful, delicate, quiet, longing, sad, sacred, majestic, agitated, and frustrated.

c. Bruner (1990; cited from Crozier, 1997) indicated that the most common mood terms of listening to music were exciting, tranquil, serious, happy and sad.

d. Baumgartner (1992; cited from Crozier, 1997) classified listening emotions into two dimensions: “pleasure–displeasure” and “degree of arousal”.

Furthermore, Boyle and Radocy (1987) stated that the semantic differential technique was more suitable in measuring music affective responses than adjective checklists.

The researchers thus summarized the four classifications stated above and also applied semantic differential technique to measure the emotional responses of music listeners. The self-developed *Scale of Music Listening Emotion* consisted of dimensions of happy–sad, agitated–calm, humorous–serious, longing–depressed, and majestic–delicate. Each dimension was tabulated into five–point scale. For example, “happy” got 5 points and “sad” got 1. Other degrees in between can be inferred in this way.

2.2.2. Scale of Music Preference

This self-developed instrument employed Likert-type scale to investigate the degree of subjects’ familiarity and preference with the twelve musical stimuli. For example, “strongly familiar” was allotted 5 points while “strongly unfamiliar” was given 1; “strongly like” got 5 points and “strongly dislike” got 1. Other degrees in between can be inferred in this way.

2.2.3. Music Excerpts

The music excerpts selected for this study were based upon informal survey of undergraduates’ music preferences, Taiwan’s high school textbook series, and researchers’ teaching experiences. Twelve music excerpts were selected, each to be played for the beginning two minutes for the sake of research consistency. Music types included six classical music excerpts (baroque, classical, and romantic) and six non-classical music excerpts (pop, jazz, rock, Latino, and movie soundtrack). Among them were equal excerpts of instrumental and vocal pieces as well stimulative and sedative music as shown in table 1.

The rules of excerpting stimulative and sedative music were based on Radocy and Boyle’s (2003) categorization of music characteristics. One which met two characteristics was classified as that type of music. The classification of music is shown in table 2. Two teachers who had research and teaching experience were invited to validate the consistency of stimulate–sedative music classification with the author.

One teacher whose specialty is music education is now a lecturer of undergraduate general education; the other who is currently working on his doctoral degree musicology is an experienced high school music teacher. Kendall's coefficient of concordance was applied. The results ranged from .718 to 1.0. Therefore, 12 selected excerpts were believed to be representative and stable in terms of stimulative or sedative music.

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Table 1 Categories of music excerpts

<i>Music excerpts</i>	<i>Categories</i>					
	A		B		C	
	Classical	Non-classical	Instrumental	Vocal	Stimulative	Sedative
1. Handel Messiah "Halleluiah"	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	
2. Bach "Air on G String"	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>
3. Mozart Die Zauberflöte "Papagino Duet"	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	
4. Haydn Symphony No.101 "Clock" Mov.2	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>
5. Saint-Saens Animal Carnival "Finale"	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
6. Gounod "Ave Maria"	<input type="radio"/>			<input type="radio"/>		<input type="radio"/>
7. Taiwanese song: Jiang-hui "Wife"		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
8. Japanese song: Ken Hirai "The Old Clock"		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
9. Jazz music: "Winter Wonderland"		<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	
10. Rock music: Bon Jovi "You Give Love a Bad Name"		<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	
11. Festival Latino: Ternura		<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	
12. Movie soundtrack: Hayao Miyazaki "Castle in the Sky"		<input type="radio"/>	<input type="radio"/>			<input type="radio"/>

Table 2 The music characteristics of stimulative and sedative music

Music excerpts	Stimulative /Sedative	music characteristics
1. Halleluiah	Stimulative	a. more staccato, and accented notes b. louder sound c. faster tempo
2. Air on G String	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo
3. Papagino Duet	Stimulative	a. more staccato, and accented notes b. faster tempo
4. Clock Symphony	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo
5. Animal Carnival "Finale"	Stimulative	a. more staccato, and accented notes b. louder sound c. faster tempo
6. Ave Maria	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo
7. Wife	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo
8. The Old Clock	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo
9. Jazz music	Stimulative	a. more staccato, and accented notes b. faster tempo
10. Rock music	Stimulative	a. more staccato, and accented notes b. louder sound c. faster tempo
11. Festival Latino	Stimulative	a. more staccato, and accented notes b. faster tempo
12. Castle in the Sky	Sedative	a. sustained legato melody b. quiet but steady underlying beats c. lower tempo

2.2.4. The reliability and validity of the scales

a. Test-retest reliability: This study used test-retest reliability to examine the stability of *Scale of Music Listening Emotion* and *Scale of Music Preference*. Subjects were 30 freshmen from a national university in southern Taiwan. Two weeks after they took the first test, we

administered the same test and got reliability of .12 ~ .78 in *Scale of Music Listening Emotion* and .09 ~ .86 in *Scale of Music Preference*. Most items of scale showed significance ($p < .05$). However, the reliability did not quite meet the standard. Then, we consulted psychometric professional who explained that emotion does fluctuate and the test-retest reliability was acceptable but had better to be used with caution.

b. Expert validity: For better validity, we invited three experts of music education for consultation. Most items of the scales were confirmed by the experts and some parts of the descriptions were modified according to their suggestions. However, the experts thought the five-paired emotional responses should be changed into ten individual emotions. Since Boyle & Radocy (1987) indicated that semantic differential technique was better than adjective checklist, the five-paired emotions still remained in this study. Besides, they suggested more music excerpts to be included in the instrument. Taking time and students' attention span into consideration, the study kept the original number of music excerpts.

2.3. Procedure

To avoid interference by other variances, the scales were entrusted to two researchers and one teacher to administer the scales in a well soundproof audio-visual classroom in the day afternoon on May, 2006. Two speakers were in the two sides in the front area of the classroom. While listening to the 12 pre-recorded music excerpts, participants followed four steps of instructions. First, they listened to 12 music excerpts which were sequenced randomly. Second, each excerpt lasted for 2 minutes and the interval time was 30 seconds. Third, no background information about the excerpts was provided. Last, participants completed the *Scale of Music Preference* first, and then fill out *Scale of Listening Emotion*.

2.4. Data analysis

This study used SPSS12.0 to process data input and data analysis. Descriptive statistic of means, paired sampling test, Pearson product-moment correlation were statistical methods utilized.

3. Results & Discussion

3.1. Emotional responses of listening to music excerpts

Listening emotions were classified into three levels based on the mean score. Taking “happy-sad” as an example, mean scores ranging from 3.5 to 5 showed the inclination toward the happy emotion and from 1 to 2.5 were geared toward the emotion of “sad”. And the score between 2.6 and 3.4 stood for medium which meant neither happy nor sad emotion was produced and classified into “none”.

Table 3 Listening emotion levels

Mean	Emotion categories				
	happy -sad	agitated -calm	humorous -serious	longing -depressed	majestic -delicate
3.5 ~ 5 2.6 ~ 3.4 1 ~ 2.5	happy none sad	agitated none calm	humorous none serious	longing none depressed	majestic none delicate

Based on table 3, emotional responses of each music excerpt were marked out mean scores in table 4. Total numbers were between 164 and 170. Each music excerpts evoked different emotions. For instance, *Halleluiah* evoked happy, agitated, serious, longing, and majestic emotions. *Air on G String*, on the other hand, made people feel sad, calm, serious, and delicate. But in the category of “longing-depressed”, there was no obvious emotional response observed. Moreover, from the five-paired emotions, we can see over 91.67% music excerpts produced “happy-sad” and “agitated-calm” emotions; about 66.67% music excerpts produced “longing-depressed” and “majestic-delicate” emotions; but only 58.33% music excerpts produced “humorous-serious” response.

Thus, almost all music excerpts had aroused “happy-sad” and “agitated-calm” emotions. Literature has shown that emotion was a temporary state including two dimensions: positive-negative and arousal dimensions (Schubert, 1996). “Positive-negative” echoes “happy-sad” dimension whereas arousal is similar to “agitated-calm” dimension, which supports this result.

Table 4 Mean scores of emotional responses

Music Excerpts	Emotional Responses (M)				
	happy -sad	agitated -calm	humorous -serious	longing -depressed	majestic -delicate
1. Halleluiah	happy 4.03	agitated 3.80	serious 2.33	longing 4.24	majestic 4.40
2. Air on G String	sad 2.32	calm 1.76	serious 2.50	non 2.68	delicate 1.85
3. Papagino Duet	happy 4.17	agitated 3.82	humorous 4.13	longing 4.14	non 3.26
4. Clock Symphony	happy 3.54	calm 2.17	non 3.25	non 3.27	delicate 2.23
5. Animal Carnival "Finale"	happy 4.56	agitated 4.41	humorous 4.13	longing 4.49	majestic 3.69
6. Ave Maria	sad 2.21	calm 2.08	serious 2.16	depressed 2.48	delicate 2.23
7. Wife	sad 2.43	calm 2.39	non 2.62	non 2.97	delicate 2.08
8. The Old Clock	non 2.74	calm 2.08	non 2.81	non 3.11	delicate 2.13
9. Jazz music	happy 4.23	agitated 3.64	humorous 4.26	longing 4.02	non 2.82
10. Rock music	happy 4.04	agitated 4.79	non 3.48	longing 4.61	majestic 4.38
11. Festival Latino	happy 3.60	non 3.47	non 3.46	longing 3.88	non 3.03
12. Castle in the Sky	sad 1.89	calm 1.68	serious 2.12	depressed 2.35	delicate 1.79

3.2. The differences of emotional responses caused by music excerpts

3.2.1. The emotional responses to "classical" and "non-classical" music

Table 5 presents the results of paired sample test of emotional responses to classical and non-classical music. We found that the major difference lied in the categories of "happy-sad" and "majestic-delicate" ($p < .001$). Classical music tended to cause happy and majestic emotions. In related studies, Lin (2006) surveyed junior high school students and pointed out that pop music can modulate negative emotion and was more significant than other music excerpts. Besides, Scherer, Zentner & Schacht (2002) indicated that music structure was

more important for emotional responses when listening to classical music than non-classical music. Therefore, we can see classical and non-classical music seemed to evoke different emotional responses, but more studies are needed to investigate variables such as music elements and music style.

Table 5 Paired samples test of emotional responses to classical and non-classical music

Emotional Responses		Mean of paired differences	df	t
Pair 1	classical /happy – non-classical /happy	.32311	162	7.102***
Pair 2	classical /agitated – non-classical /agitated	.00309	161	.081
Pair 3	classical /humorous – non-classical /humorous	-.03333	159	-.867
Pair 4	classical /longing – non-classical /longing	.05104	159	1.295
Pair 5	classical /majestic – non-classical /majestic	.23602	160	5.404***

*** $P < .001$

3.2.2. The emotional responses to instrumental and vocal music

Table 6 shows that listening to instrumental and vocal music generated different emotional responses. There were significant differences in “agitated–calm”, “humorous–serious”, “longing–depressed”, and “majestic–delicate” dimensions ($p < .001$). There was no difference in “happy–sad” dimension. Ali & Peynircioglu (2006) presented that listening to music which had no lyric tended to generate positive emotional responses like happy and calm. But when the music added lyrics, it tended to evoke negative emotions like sad and anger. It showed that lyrics can be a factor that affects listening emotion.

Table 6 Paired samples test of emotional responses to instrumental and vocal music

Emotional Responses		Mean of paired differences	df	t
Pair 1	Instrumental /happy – Vocal /happy	.07157	162	1.698
Pair 2	Instrumental /agitated – Vocal /agitated	-.29321	161	-7.912***
Pair 3	Instrumental /humorous – Vocal /humorous	.36875	159	9.652***
Pair 4	Instrumental /longing – Vocal /longing	-.15313	159	-4.158***
Pair 5	Instrumental /majestic – Vocal /majestic	-.50932	160	-12.941***

*** $P < .001$

3.2.3. The emotional responses of stimulative and sedative music

Table 7 shows that while listening to stimulative and sedative music, listeners demonstrated significant differences in “happy-sad,” “agitated-calm,” “humorous-serious”, “longing-depressed”, and “majestic-delicate” dimensions ($p < .001$). Because all five-paired emotions showed significant differences, figure 1 further compared their means. The results seemed to suggest stimulative music was easier to cause happy, agitated, humorous, longing and majestic feelings while sedative music tended to generate sad, calm, serious, depressed and delicate emotions. Other related studies (Iwanaga & Moroki, 1999; Radocy & Boyle, 2003) also pointed out that stimulative and sedative music can have different effects on listeners. Stimulative music can stimulate emotional responses whereas sedative music can comfort, calm and release feelings.

Table 7 Paired samples test of emotional responses to stimulative and sedative music

<i>Emotional Responses</i>		<i>Mean of paired differences</i>	<i>df</i>	<i>t</i>
Pair 1	Stimulative/ happy – Sedative /happy	.83742	14.028***	162
Pair 2	Stimulative/ agitated – Sedative /agitated	1.95988	36.323***	161
Pair 3	Stimulative/ humorous– Sedative /humorous	1.04792	21.953***	159
Pair 4	Stimulative/ longing– Sedative /longing	1.43646	31.573***	159
Pair 5	Stimulative/ majestic– Sedative /majestic	1.55072	31.426***	160

*** $P < .001$

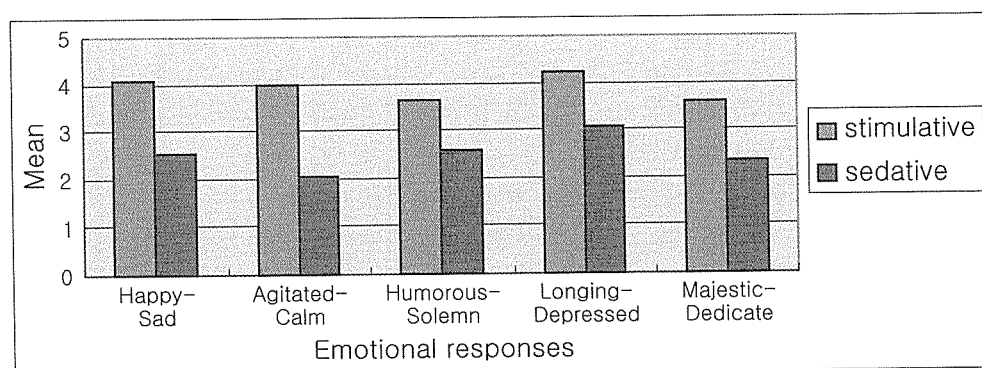


Figure 1. Emotional responses comparison of stimulative and sedative music

3.3. The relationship between familiarity and preference

3.3.1. The distribution of familiarity and preference

Based on mean scores, table 8 classified dimensions into three levels: high familiarity /preference, medium familiarity /preference and low familiarity /preference.

Table 8 Levels of familiarity and preference

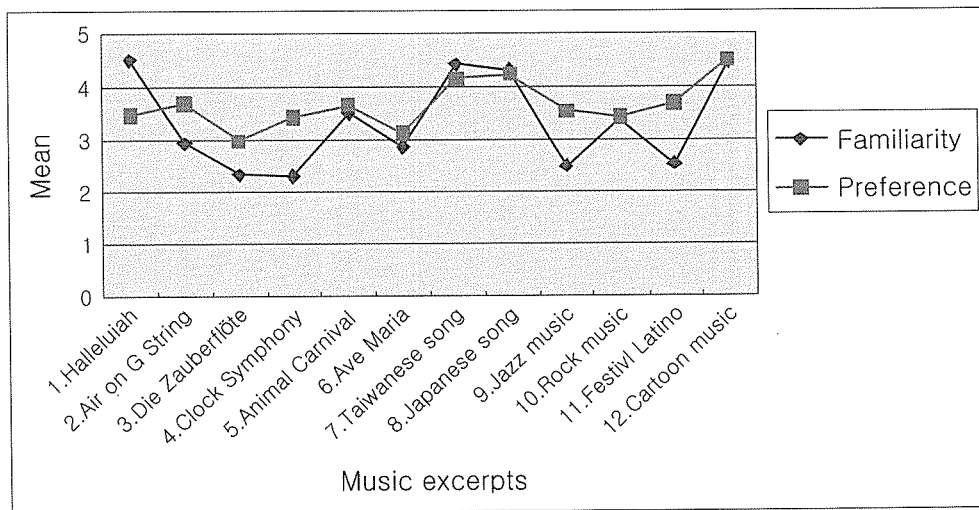
Mean	Familiarity	Preference
3.5~5	High	high
2.6~3.4	medium	medium
1~2.5	low	low

According to table 8, the study tabulates the levels of familiarity and preference together with the mean scores of each music excerpt in table 9. In the aspect of familiarity, the result showed that the most familiar excerpts to undergraduate students were *Halleluiah*, *Castle in the sky*, *Wife*, *The old clock*, *Animal carnival "Finale"*. They were pop music, movie soundtrack, background music in a commercial and music commonly heard in our daily life. Music excerpts that had low familiarity were *Clock symphony*, *Papagino duet*, *Jazz*, and *Festival Latino*. It showed that undergraduate students were less familiar with classical and multicultural music. In the aspect of preference, seven music excerpts reached high preference level. The top five preferred were *Castle in the sky*, *The old clock*, *Wife*, *Air on G string*, *Festival Latino*. There was no low preference excerpt. This meant undergraduate students accepted all types of music and especially preferred non-classical music, such as pop music, movie soundtrack, and background music in commercials. On the whole, the total average of preference ($M = 3.67$) was higher than that of familiarity ($M = 3.35$), which implied that undergraduate students had high acceptance of various kinds of music.

In figure 2, except for *Halleluiah* and *Wife*, the averages of preference were higher than familiarity or the averages of the two were very close. This shows undergraduate students have high preference for various types of music and are willing to accept all kinds of unfamiliar music style.

Table 9 Means of familiarity and preference

Music Excerpts	Familiarity		Preference	
	Mean	Level	Mean	Level
1. Halleluiah	4.52	high	3.49	medium
2. Air on G String	2.94	medium	3.73	medium
3. Papagino Duet	2.34	low	2.99	medium
4. Clock Symphony	2.31	low	3.43	medium
5. Animal Carnival "Finale"	3.54	high	3.68	high
6. Ave Maria	2.89	medium	3.16	medium
7. Wife	4.41	high	4.16	high
8. The Old Clock	4.34	high	4.26	high
9. Jazz music	2.51	low	3.56	high
10. Rock music	3.41	medium	3.43	medium
11. Festival Latino	2.55	low	3.70	high
12. Castle in the Sky	4.47	high	4.50	high
Average	3.35		3.67	

**Figure 2 The distribution of familiarity and preference**

3.3.2 The relationship between familiarity and preference

This section focuses on exploring the relationship between familiarity and preference. Instead of taking analysis on individual

excerpt, the study calculated the Pearson product-moment correlation coefficients on the twelve music excerpts as a whole. Pearson correlation coefficient was $r = .485$ and reached significance ($p < .01$), which meant a positive relationship between familiarity and preference existed. That is, the higher the familiarity, the higher its preference is, and vice versa. Other literatures (Krugman, 1943; Zissman & Neimark, 1990; Fung, 1996) also have similar results.

3.4. The influence of familiarity and preference on music listening emotion

3.4.1. The differences between familiarity and emotional responses

Table 10 shows that different familiarity would generate different responses in four-paired emotions ($p < .001$): agitated-calm, humorous-serious, longing-depressed and majestic-delicate. Hart and Cogan (1976; cited from Abeles & Chung, 1996) also indicated that familiarity was one of the factors that affect emotional responses. Ritossa & Rickard (2004) pointed out that besides pleasantness and arousal, familiarity was an important factor that can predict listening emotion. They presented familiarity were positively correlated with arousal and pleasantness, so people tended to generate positive emotion toward familiar music and negative emotion toward the unfamiliar. Hence, familiarity seems to be an essential factor in listening emotions.

Table 10 Paired sample test of familiarity and emotional responses

Paired Sample		Mean of paired differences	freedom	t- score
Pair 1	familiarity – happy / sad	.48148	161	.829
Pair 2	familiarity – agitated / calm	4.22981	160	7.192***
Pair 3	familiarity – humorous / serious	3.37736	158	5.902***
Pair 4	familiarity – longing / depressed	-1.71069	158	-3.054***
Pair 5	familiarity – majestic / delicate	.48148	159	10.852***

*** $P < .001$

3.4.2. The differences between preference and emotional responses

Significant differences were observed for preference ($p < .001$) in five emotions: happy–sad, agitated–calm, humorous–serious, longing–depressed, and majestic–delicate (Table 11). Wheeler (1985) mentioned that preference for music and emotion before listening can predict the emotional responses after listening. Sad people listening to high preference music can generate positive emotion while happy people listening to low preference music would gradually generate negative emotion. Thus, preference can affect listening emotion. However, the emotion before listening was not a variable of this study, and thus no research control was conducted for it.

Table 11 Paired sample test of preference and emotional response

Paired Sample		Mean of paired differences	freedom	t- score
Pair 1	preference – happy / sad	4.36943	156	11.069***
Pair 2	preference – agitated / calm	7.85897	155	17.361***
Pair 3	preference – humorous / serious	7.19481	153	18.270***
Pair 4	preference – longing / depressed	2.10390	153	5.922***
Pair 5	preference – majestic / delicate	10.29677	154	21.126***

*** $P < .001$

4. Conclusions & Suggestions

4.1. Conclusions

Limited by the number of music excerpts and subjects, this study can only produce preliminary conclusions from surveying 179 undergraduate students for their emotional responses to the twelve music excerpts. We propose four conclusions as follows:

4.1.1. Music can arouse emotional responses. Among them, “happy–sad” and “agitated–calm” are most common. Almost all music excerpts can arouse these two emotional dimensions.

4.1.2. There are significant differences of emotional responses in listening to classical vs. non-classical, instrumental vs. vocal, and stimulative vs. sedative music. Especially in listening to stimulative music, listeners tended to have happy, agitated, humorous, longing

and majestic responses whereas when listening to sedative music, they easily generated sad, calm, serious and delicate emotions.

4.1.3. Music familiarity can affect preference ($r = .485$). There is a positive correlation between the two. That is, when familiarity is high, so is preference.

4.1.4. Different familiarity with and preference for music will cause different listening emotions.

4.2. Suggestions

According to the conclusions above, the study brings up suggestions for educational practices and future study.

4.2.1. Educational practices

a. Use music to lead students to positive emotions: In teaching, teachers can make use of the great influence of music on emotion and teach students to cultivate the ability in managing their own emotion. Students can try to use music to alter mood and make their own music excerpts to increase EQ.

b. Use familiar music to inspire leaning motivation. Music listening is highly related to emotional responses. Thus in designing music curriculum, teachers can utilize familiar music in daily life as a starting point to inspire learning motivation and further to motivate learning other related knowledge to cultivate good music capacity.

4.2.2. Future study

a. More detailed classifications of music excerpts. This study only used three main music types: classical vs. non-classical, instrumental vs. vocal, and stimulative vs. sedative music, and did not further deal with instrumental timbre or the lyrics of the vocal music. Future study can do more detailed classifications of music excerpts to grasp the influence of different music style and music elements such as rhythm, tempo, melody, timbre, etc.

b. Add more music excerpts or consider their representative level. This study only exploited twelve music excerpts which covered different types of music. Future study can add various kinds of music to verify this study's results.

c. Adopt other reliability and validity measures on research instrument. This study used test-retest reliability and expert validity. To

make the scale more objective, future study can do internal consistency or alternate form reliability, and refer to more references to establish content validity.

d. Add more samples. Limited by time and expenses, this study only surveyed a small group. Future study can use random sampling to obtain more objective study results.

e. Take listeners' emotion before listening into consideration. Wheeler (1985) pointed that the mood before the listening may affect listening emotion and suggested future study to survey students' emotion before listening. Thus, the emotion before listening could be an important study variable.

f. Find out more influential factors about listening emotion. Schere and Zentner (2001) specified that the main factors that affect listening emotion were structural, performance, listener and contextual features. This study only focused on emotional responses to different types of music. Future study can investigate other factors to construct a more solid theory.

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大學生音樂選曲與情緒反應之相關研究

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摘要

本研究旨在探究音樂聆賞與情緒反應的關聯性，並進一步瞭解熟悉度與喜愛度的相關及其對情緒的影響。在研究方法上，以179位修習音樂通識課程的大學生為研究對象，運用自編「音樂聆賞情緒量表」與「音樂偏好量表」，將十二首聆賞樂曲均等分類為「古典—非古典」、「器樂曲—聲樂曲」、「激勵型—鎮定型」，以探究不同樂曲種類的情緒反應，以及聆賞者對每首樂曲的熟悉與喜愛程度。研究結果顯示：(1)「快樂的—悲傷的」與「激動的—平靜的」是音樂聆賞最常產生的情緒反應；(2)聆賞「古典—非古典」、「器樂曲—聲樂曲」、「激勵型—鎮定型」音樂時，引發的情緒都顯著不同；(3)聆賞者對樂曲的熟悉度與喜愛度呈現顯著正相關；(4)對樂曲的不同熟悉度與喜愛度，會產生顯著不同的聆賞情緒反應。

關鍵字：音樂情緒、情緒反應、熟悉、喜好、音樂欣賞

壹、緒論

音樂的本質是傳達人類心靈深處的情感，遠自希臘哲學家柏拉圖即認為音樂具有陶冶心靈的功能；其弟子亞里斯多德更提出節奏與曲調是性格的複製，可使人生氣或溫柔，鼓勵或節制，且具有淨化情緒與昇華情感的作用（方銘健，1997）。亦即音樂能夠喚起強烈的情緒經驗（emotional experiences），在聆賞中構成每個人獨特的音樂經驗，影響其腦部（brain）、身體（body）與情感（feeling）的發展（Reimer, 2005）。

情感本身有多重之定義，情緒（emotion）為其中與情意（affective）層面相關的心理歷程（Radocy & Boyle, 2003），是由於受到刺激，所產生的身心激動狀態，包括複雜的情感性反應和生理的變化（張春興，1989）。情緒反應對於音樂行為而言，雖屬基礎的層次，卻是音樂心理學上非常重要的議題，整體來說，音樂引發情緒反應的影響因素主要歸納為四類：（1）音樂結構：包括音響學中之聲波、振幅等物理原理，以及音樂的基本要素如：節奏、速度、器樂、聲樂等；（2）演奏者：包括演奏技能、演奏狀況等；（3）聆賞者：包括專業素養、偏好、人格、個性、心情、動機等；（4）背景環境：包括場地、事件等（Gabrielsson, 2001；Scherer & Zentner, 2001），這些因素皆是影響聆賞情緒的指標項目。

在有關聆賞情緒的選曲上，Eagle（1971；引自Abeles & Chung, 1996）曾以274位音樂主修大學生為對象，採用五點式量表請其回答聆賞心情反應，結果發現音樂選曲的聆賞順序並不會影響情緒的反應，但聆賞器樂曲與聲樂曲會產生不同的心情或情緒感受，且聆賞前的心情也會影響聆賞的感受。此外Campbell（2005）

「莫札特效應－音樂身心靈療法」一書中，也指出各種不同類別的音樂具有不同的療效，能激發不同的情緒。Bruner（1990；引自Crozier, 1997）關於音樂對情緒的影響研究更進一步指出樂曲的要素如：調性、速度、音高、節奏、和聲、音量的不同，將會使聆賞者產生不同的情緒反應。

由聆賞者的感受而言，Radocy及Boyle（2003）針對當代心理學及音樂功能之概念，將音樂分為激勵型（stimulative music）與鎮定型（sedative music）二類，不同性質的音樂可以發揮不一樣的效果。激勵型是指能刺激情感反應的音樂，通常具有節奏與力度上的特色，包括：（1）常出現斷奏與重音；（2）力度較強，音量比較大聲；（3）速度較快。因此能激發身體的反應，例如進行曲與舞曲等。而鎮定型音樂是指能撫慰、平靜與鎮定情感的音樂，使人感到放鬆，音樂特色為：（1）通常為大樂句的圓滑旋律；（2）安靜且持續的柔和節奏；（3）速度較慢，例如搖籃曲就是代表的曲目。這些音樂特色將成為後續音樂選曲分類中激勵型與鎮定型音樂的參照指標。

在有關樂曲熟悉度（familiarity）與喜愛度（preference）的研究方面，也紛紛指出兩者呈現正相關（Fung, 1996；Krugman, 1943；Zissman & Neimark, 1990）；且進一步發現古典與流行音樂在重複的聆賞過程中，產生最佳愉悅感的時間點

是不同的，流行音樂傾向在開始的重複播放中獲得最佳的愉悅感受，而古典音樂則是於較後面的重複播放中，才會獲得最大的愉悅感（Bartlett, 1973; Lundin, 1967; 引自Radocy & Boyle, 2003）。而Hargreaves (1984) 對於重複性聆賞與喜愛度進行研究，則證實了喜愛度會呈現倒U曲線的假設，也就是持續的重複聆賞會增加喜愛度，但喜愛度增加到一最高點後，將會逐漸下降，期間的變化則視不同音樂風格而有不同的結果。

此外，Hart 及Cogan (1976; 引自Abeles & Chung, 1996) 請大學生指出對樂曲的熟悉程度，再以口語敘述的方式表達對四首選曲的情緒感受，結果顯示聆賞情緒會受到熟悉度與性別的交互影響。Wheeler (1985) 提出對音樂喜愛程度與聆賞前情緒的交互作用可以預測聆賞後的情緒反應，悲傷的人欣賞喜愛的音樂，會產生正向的情緒；而快樂的人欣賞不喜愛的樂曲則會逐漸產生負向的情緒。這些論點似乎可間接發現熟悉度與喜愛度對情緒感受具有影響力，將使聆賞者產生不同的情緒反應。

綜合音樂引發情緒反應的相關研究，通常以運用字句陳述 (verbal report) 及物理測量 (physiological measure) 兩者為多。前者主要以分類系統或自我陳述的方式，呈現受試者對音樂的感受或想法；後者則依據人類對音樂所產生的生理反應如：心跳、血壓、肌膚觸感等，運用機器加以測試及評估 (Abeles & Chung, 1996)。本文將採用字句陳述的方式進行調查研究，以瞭解聆賞者的情緒感受及其相關的影響因素。

由上述文獻可見國外已有許多探討音樂聆賞情緒之研究，但國內相關研究卻明顯不足，因此本研究將以本國修習音樂通識課程之大學生為對象，以探討音樂選曲與情緒反應的關聯性，並瞭解熟悉度與喜愛度的相關性及其對情緒的影響，採用實證研究的方式進行量表調查。主要的研究問題為下列四項：

1. 聆賞音樂選曲通常會產生哪些情緒反應？
2. 聆賞不同類型音樂（古典—非古典、器樂曲—聲樂曲、激勵型—鎮定型）是否會產生不同的情緒反應？
3. 聆賞者對音樂的熟悉度與喜愛度的相關性為何？
4. 聆賞者對音樂選曲的不同熟悉度或喜愛度是否會產生不同的情緒感受？

研究者希望藉由這個試探性的研究，作為未來深入探討音樂影響情緒相關因素的基礎，並協助學生達到以音樂抒解情緒的目標。

貳、研究方法

本研究旨在探討音樂聆賞情緒反應與樂曲種類之關聯性，主要採用量化的

研究方法，以瞭解大學生對音樂的聆賞感受。

大學生音樂選曲與情緒反應之相關研究

一、研究對象

有關音樂情緒反應的文獻大多以大學生為研究對象 (Abeles & Chung, 1996)，推測此時學生較具有正確檢視自我情緒的能力，較能真實反映聆賞的情緒。因此本研究採用立意取樣，以修習音樂通識課程的大學生為研究對象 ($N = 179$)，男生107位，女生72位，分別選自北部 ($n = 40$)、中部 ($n = 71$)、南部 ($n = 68$) 各一所國立大學之大一至大四非音樂科系的學生。

二、研究工具

本研究採用調查研究法，透過十二首音樂選曲段落之聆聽，請學生分別填答「音樂聆賞情緒量表」與「音樂偏好量表」，以瞭解聆賞者的情緒感受。

(一) 音樂聆賞情緒量表

在音樂聆賞情緒量表編製方面，主要參酌四項音樂情意層面相關研究之做法，分述如下：

1. Hevner的形容詞週期表 (Hevner Adjective Circle)：Hevner (1936；引自Radocy & Boyle, 2003) 將代表相似意義的形容詞敘述歸為同一類情緒，例如：明亮的 (bright)、愉快的 (cheerful)、爽朗的 (gay)、快樂的 (happy)、歡樂的 (joyous)、愉快的 (merry) 皆具一致性，因此屬於同一種類的心情反應。進而整理所有的音樂欣賞心情語彙 (mood terms) 為八大種類，分別為：嚴肅的 (solemn)、悲傷的 (sad)、渴望的 (longing)、平靜的 (calm)、幽默的 (humorous)、快樂的、激動的 (agitated)、壯闊的 (majestic)。

2. Farnsworth的修訂版 (Farnsworth's Modification of the Hevner Adjective Circle)：Farnsworth (1954；引自Radocy & Boyle, 2003) 根據Hevner的理論，重新檢視其內部一致性，將其修正為十類更具一致性的心情反應敘述，分別為：快樂的、奇異的 (fanciful)、精緻的 (delicate)、平靜的 (quiet)、渴望的、悲傷的、虔誠的 (sacred)、壯闊的、激動的、沮喪的 (frustrated)。

3. Bruner (1990；引自Crozier, 1997) 的研究指出音樂最常引發的情緒主要為激動的 (exciting)、平靜的 (tranquil)、嚴肅的 (serious)、快樂的 (happy)、悲傷的 (sad) 五大類。

4. Baumgartner (1992；引自Crozier, 1997) 則根據上述五類情緒反應，採用評定量表 (rating scales) 的方式，將其分為兩個向度的情緒，分別為愉快 (pleasure) 一不愉快 (unpleasure)，以及激勵程度 (degree of arousal)，編製音樂情緒評定量表。

此外,Boyle和Radocy (1987) 也指出語意區分技術 (semantic differential technique) 比形容詞檢核表 (adjective checklist) 更適於應用在音樂情意方面的測量,因此本研究將綜合以上四項量表的情緒感受類別,並採用語意區分技術,以瞭解受測者於聆賞音樂時的五向度情緒,量表題目編製為「快樂的—悲傷的」、「激動的—平靜的」、「幽默的—嚴肅的」、「熱切的—沮喪的」、「壯闊的—細緻的」。每向度採用五點式量表加以陳述,如:「快樂的」為「5」,「悲傷的」為「1」,其間的等級依此類推,以實際瞭解受試者在聆賞樂曲時之情緒反應。

(二) 音樂偏好量表

此部分量表調查受測者對十二首樂曲的熟悉度與喜愛度,同樣採用李克特五點式量表,如:「非常熟悉」為「5」,「非常不熟悉」為「1」;「非常喜愛」為「5」,「非常不喜愛」為「1」,其間的等級依程度類推。

(三) 曲目編選

樂曲選擇主要參考高中音樂教科書,並透過非正式詢問大學生音樂偏好與研究者個人教學經驗,編選出十二首樂曲,並考量選曲前兩分鐘的情緒感受大致符合一致性。此外,在音樂種類方面包含古典音樂六首(巴羅克、古典、浪漫樂派)、非古典音樂六首(流行、爵士、搖滾、拉丁、電影配樂),其中又均等包含器樂曲與聲樂曲,以及激勵型與鎮定型音樂如表1所列。

表1 樂曲分類表

音樂選曲	樂曲分類					
	A		B		C	
	古典	非古典	器樂曲	聲樂曲	激勵型	鎮定型
1. 韓德爾 神劇《彌賽亞》《哈雷路亞》	○			○	○	
2. 巴赫〈G弦之歌〉	○		○			○
3. 莫札特〈魔笛〉《Papageno二重唱》	○			○	○	
4. 海頓〈時鐘〉交響曲 第二樂章	○		○			○
5. 聖桑〈動物狂歡節〉《終曲》	○		○		○	
6. 古諾〈聖母頌〉	○			○		○
7. 台語歌曲:〈家後〉(江蕙演唱)		○		○		○
8. 日語歌曲:〈古老的大鐘〉(平井堅演唱)		○		○		○
9. 爵士樂:〈Winter Wonderland〉(鋼琴獨奏)		○	○		○	
10. 搖滾樂:〈You Give Love a Bad Name〉(邦喬飛演唱)		○		○	○	
11. 拉丁節慶音樂:〈Ternura〉		○	○		○	
12. 電影配樂:〈天空之城〉主題曲		○	○			○

而激勵型與鎮定型的選曲標準，主要以Radocy及Boyle (2003) 的音樂特色分類為參照指標，符合其中二項特色者，即定義為該類型的音樂，音樂特色分類如表2所示。為使十二首樂曲在激勵型與鎮定型的音樂中具有代表性，邀請兩位具有研究及教學經驗之教師，與研究者進行樂曲分類一致性檢驗，其中一位為音樂教育專長，現職為大學通識課程講師，另一位為音樂學專長，現為資深中學音樂班專任教師，三位的分類結果求得肯式 (Kendall) 和諧係數介於.718~1.0，可見十二首選曲在分類上屬於激勵型或鎮定型具有一致的穩定性。

表2 激勵型與鎮定型選曲音樂特色表

音樂選曲	激勵型 - 鎮定型	音樂特色
1. 哈雷路亞	激勵型	a. 常出現斷奏與重音 b. 力度較強，音量比較大聲 c. 速度較快
2. G弦之歌	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢
3. 魔笛	激勵型	a. 常出現斷奏與重音 b. 速度較快
4. 時鐘交響曲	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢
5. 動物狂歡節	激勵型	a. 常出現斷奏與重音 b. 力度較強，音量比較大聲 c. 速度較快
6. 聖母頌	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢
7. 家後	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢
8. 古老的大鐘	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢
9. 爵士樂	激勵型	a. 常出現斷奏與重音 b. 速度較快
10. 搖滾樂	激勵型	a. 常出現斷奏與重音 b. 力度較強，音量比較大聲 c. 速度較快
11. 拉丁節慶	激勵型	a. 常出現斷奏與重音 b. 速度較快
12. 天空之城	鎮定型	a. 通常為大樂句的圓滑旋律 b. 安靜且持續的柔和節奏 c. 速度較慢

(四) 量表信度與效度

1. 重測信度：本研究採用重測信度，以瞭解「音樂聆賞情緒量表」與「音樂偏好量表」題目的穩定性，預測對象為南部某國立大學一年級學生共30位，於第一次施測後，隔週進行第二次重測，得到「音樂聆賞情緒量表」信度為 $-.12 \sim .78$ ，「音樂偏好量表」信度為 $.09 \sim .86$ ，且大部分試題皆達到顯著水準 ($p < .05$)。雖然信度並未完全符合標準，但經徵詢心理測驗專家的意見，其表示情緒本身即具有波動的特性，所以重測信度的推估有其限制。

2. 專家效度：為求量表的良好效度，聘請國立大學音樂學系音樂教育專長之學者專家共三位，為本研究提供諮詢，其中大部分題目皆獲得專家的認同，部分文字敘述已根據指示加以修正，而專家意見中有兩項因考量相關文獻與研究目的的需求，仍維持原來的試題。其一，專家之一認為五個向度的情緒應改為十項獨立之不同情緒，由於Boyle和Radocy (1987) 指出語意區分技術優於形容詞檢核表，故仍維持原本五個向度之題型；另外亦有專家認為選曲可再增加，但考量施測過程中學生的專注力與時間等因素，因此仍維持原本之樂曲數量。

三、實施程序

為排除量表施測過程中所產生的干擾因素，量表交由二位研究者及一位音樂通識教師於上課時施測，施測時間皆為下午上課時段，且位於隔音良好之音樂視聽教室，二台喇叭位置均位於教室前方的兩側，以音響設備播放事先錄製的音樂選曲，施測時並遵守下列四個注意事項：(1) 十二首聆賞樂曲以隨機選曲的方式播放，以避免樂曲順序對情緒產生影響；(2) 樂曲播放長度以二分鐘為限，每首間隔30秒；(3) 樂曲播放前與播放中，無任何曲名與樂曲背景的相關介紹；(4) 聆聽一首樂曲時，受測者先填答「音樂偏好量表」，接著再填答「音樂情緒反應量表」。

四、資料分析

本研究主要採用SPSS12.0進行資料輸入與統計分析，以平均值、相依樣本t考驗、皮爾森積差相關等統計方法進行量化資料分析。

叁、研究結果與討論

一、聆賞音樂選曲之情緒反應

本研究在聆賞情緒反應方面，根據平均值的高低將每個向度的情緒反應分為三類，例如在「快樂的—悲傷的」中，平均值介於3.5~5，表示偏向快樂的情緒，所以歸類為「快樂的」；同理平均值介於1~2.5表示「悲傷的」；而平均值介於2.6~3.4為中間選項，表示並無產生快樂或悲傷的情緒，因此歸類為「無」這項情緒反應。五項情緒的分類如表3所示。

表3 聆賞情緒分類表

平均值 (M)	聆賞情緒分類				
	快樂的 —悲傷的	激動的 —平靜的	幽默的 —嚴肅的	渴望的 —沮喪的	壯闊的 —細緻的
3.5~5	快樂	激動	幽默	渴望	壯闊
2.6~3.4	無	無	無	無	無
1~2.5	悲傷	平靜	嚴肅	沮喪	細緻

根據上表，逐一列出每首曲目的五向度情緒反應，並註明平均值（如表4），每項的總數 N 介於164 - 170間。十二首樂曲個別而言，可瞭解每首樂曲所產生的不同情緒，例如《哈雷路亞》可使聆賞者產生快樂、激動、嚴肅、渴望、與壯闊的情緒感受；而《G弦之歌》則使人感到悲傷、平靜、嚴肅、細緻的，但於「渴望的—沮喪的」兩個向度中，卻無明顯的情緒反應。此外，由五個情緒向度的角度來看，可發現全部樂曲中，高達91.67% 的樂曲可產生「快樂的—悲傷的」、「激動的—平靜的」的情緒；約有66.67% 的樂曲能產生「渴望的—沮喪的」與「壯闊的—細緻的」之情緒；但只有58.33% 的樂曲會產生「幽默的—嚴肅的」的反應。

由此可見在音樂聆賞情緒反應上，幾乎所有樂曲都可引發「快樂的—悲傷的」以及「激動的—平靜的」感受。文獻指出情緒是一暫時的狀態，包含了正負向和激勵程度兩個向度（Schubert, 1996），其中正負向似乎可呼應「快樂的—悲傷的」，而激勵程度（arousal）則近似於「激動的—平靜的」的情緒，與本研究結果相符。

表4 音樂選曲情緒反應平均值統計表

音樂選曲	情緒反應 (M)				
	快樂的 —悲傷的	激動的 —平靜的	幽默的 —嚴肅的	渴望的 —沮喪的	壯闊的 —細緻的
1. 哈雷路亞	快樂 4.03	激動 3.80	嚴肅 2.33	渴望 4.24	壯闊 4.40
2. G弦之歌	悲傷 2.32	平靜 1.76	嚴肅 2.50	無 2.68	細緻 1.85
3. 魔笛	快樂 4.17	激動 3.82	幽默 4.13	渴望 4.14	無 3.26

4. 時鐘交響曲	快樂 3.54	平靜 2.17	無 3.25	無 3.27	細緻 2.23
5. 動物狂歡節	快樂 4.56	激動 4.41	幽默 4.13	渴望 4.49	壯闊 3.69
6. 聖母頌	悲傷 2.21	平靜 2.08	嚴肅 2.16	沮喪 2.48	細緻 2.23
7. 家後	悲傷 2.43	平靜 2.39	無 2.62	無 2.97	細緻 2.08
8. 古老的大鐘	無 2.74	平靜 2.08	無 2.81	無 3.11	細緻 2.13
9. 爵士樂	快樂 4.23	激動 3.64	幽默 4.26	渴望 4.02	無 2.82
10. 搖滾樂	快樂 4.04	激動 4.79	無 3.48	渴望 4.61	壯闊 4.38
11. 拉丁節慶	快樂 3.60	無 3.47	無 3.46	渴望 3.88	無 3.03
12. 天空之城	悲傷 1.89	平靜 1.68	嚴肅 2.12	沮喪 2.35	細緻 1.79

二、不同類型樂曲於情緒反應上的差異

(一)「古典與非古典音樂」的情緒反應

如表5所列，研究者在聆賞音樂選曲的五個向度情緒反應中，將古典與非古典音樂相比較，進行相依樣本t考驗，發現主要差異在於「快樂的—悲傷的」、「壯闊的—細緻的」情緒向度上 ($p < .001$)，在本研究的十二首音樂選曲中，古典音樂似乎較容易產生快樂與壯闊的情緒。相關研究文獻中，林宜家(2006)對國中生的調查也指出演唱流行歌曲能調節不好的情緒，且較其他類型的曲目顯著許多。此外，在音樂的聆賞情緒反應上，Scherer、Zentner與Schacht(2002)指出古典音樂比非古典音樂更需重視音樂結構與要素的影響。由此可見古典與非古典音樂可引發不同的情緒反應，但仍需相關研究針對音樂要素與音樂風格等變項做更深入的探究。

表5「古典與非古典音樂」情緒反應相依樣本t考驗

情緒反應		相依差異平均值	自由度	t 值
Pair 1	古典快樂 — 非古典快樂	.32311	162	7.102***
Pair 2	古典激動 — 非古典激動	.00309	161	.081
Pair 3	古典幽默 — 非古典幽默	-.03333	159	-.867
Pair 4	古典熱切 — 非古典熱切	.05104	159	1.295
Pair 5	古典壯闊 — 非古典壯闊	.23602	160	5.404***

*** $p < .001$

(二)「器樂曲與聲樂曲」的情緒反應

由表6統計結果所示，聆賞器樂曲與聲樂曲大多會產生不同的情緒反應，在「激動的一平靜的」、「幽默的一嚴肅的」、「熱切的一沮喪的」、「壯闊的一細緻的」四個情緒向度上呈現非常顯著的差異性 ($p < .001$)，僅在「快樂的一悲傷的」反應上無差異。而Ali和Peynircioglu (2006)的研究也提出聆賞無歌詞的音樂較易產生正向的情緒反應，例如快樂與平靜，但將相同音樂加上歌詞，卻較會產生負向的情緒感受，如悲傷與憤怒。由此可見樂曲是否具有歌詞將會影響聆賞者的情緒感受，歌詞可視為影響聆賞情緒感受的影響因素之一。

表6「器樂與聲樂曲」情緒反應相依樣本t考驗

情緒反應		相依差異平均值	自由度	t 值
Pair 1	器樂快樂 — 聲樂快樂	.07157	162	1.698
Pair 2	器樂激動 — 聲樂激動	-.29321	161	-7.912***
Pair 3	器樂幽默 — 聲樂幽默	.36875	159	9.652***
Pair 4	器樂熱切 — 聲樂熱切	-.15313	159	-4.158***
Pair 5	器樂壯闊 — 聲樂壯闊	-.50932	160	-12.941***

(三)「激勵型與鎮定型音樂」的情緒反應

由表7顯示聆賞者於欣賞激勵型與鎮定型音樂時，在「快樂的一悲傷的」、「激動的一平靜的」、「幽默的一嚴肅的」、「熱切的一沮喪的」、「壯闊的一細緻的」情緒向度上皆有非常顯著差異 ($p < .001$)。由於在五類情緒皆會產生顯著的差異性，圖1進一步比較其平均值，發現激勵型音樂似乎較易使聽者產生快樂的、激動的、幽默的、熱切的、壯闊的感受，而鎮定型音樂則較易產生悲傷的、平靜的、嚴肅的、沮喪的、細緻的情緒。其他相關研究 (Iwanaga & Moroki, 1999; Radocy & Boyle, 2003) 也指出激勵型與鎮定型音樂可對聆賞者發揮不同的效果，激勵型音樂能刺激情感反應，而鎮定型則能撫慰、平靜與放鬆情感。

表7「器樂與聲樂曲」情緒反應相依樣本t考驗

情緒反應		相依差異平均值	自由度	t 值
Pair 1	激勵快樂 — 鎮定快樂	.83742	14.028***	162
Pair 2	激勵激動 — 鎮定激動	1.95988	36.323***	161
Pair 3	激勵幽默 — 鎮定幽默	1.04792	21.953***	159
Pair 4	激勵熱切 — 鎮定熱切	1.43646	31.573***	159
Pair 5	激勵壯闊 — 鎮定壯闊	1.55072	31.426***	160

*** $p < .001$

大學生音樂選曲與情緒反應之相關研究

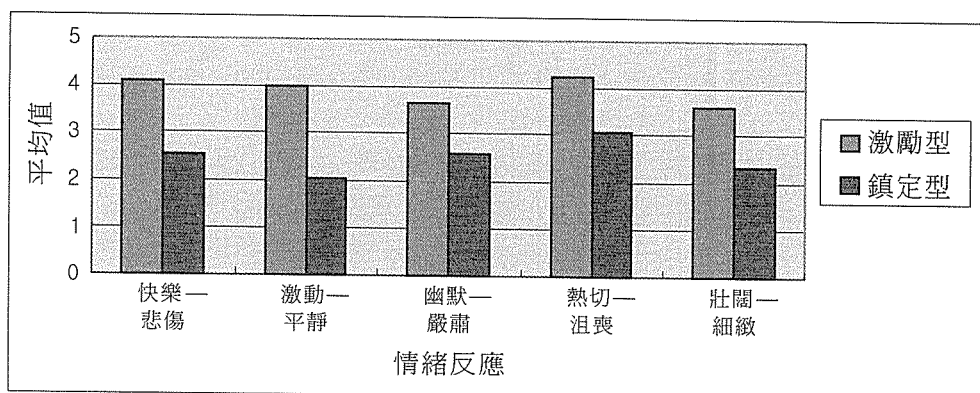


圖1 「激勵型與鎮定型音樂」情緒反應條狀圖

三、熟悉度與喜愛度的關聯性

(一) 熟悉度與喜愛度的分布情形

在熟悉度與喜愛度方面，表8根據平均值的高低將每個向度的情緒反應分為高熟悉（喜愛）度、中熟悉（喜愛）度、低熟悉（喜愛）度三類。

表8 熟悉度與喜愛度分類表

平均值 (M)	熟悉度	喜愛度
3.5 ~ 5	高	高
2.6 ~ 3.4	中	中
1 ~ 2.5	低	低

根據表8的分類，逐一列出每首曲目的熟悉與喜愛程度，並註明平均值如表9，每項的總數N介於174-178間。在熟悉度方面，由資料分析可發現大學生高熟悉度的樂曲依次為《哈雷路亞》、《天空之城》、《家後》、《古老的大鐘》、《動物狂歡節》，這些多為流行音樂、電影配樂、或生活中常聽到的樂曲；而低熟悉度的樂曲依次為《時鐘交響曲》、《魔笛》、《爵士樂》、《拉丁節慶》，由此可知大學生對於古典音樂與多元文化音樂較不熟悉。另外於喜愛度方面，有七首高喜愛度的樂曲，前五名為《天空之城》、《古老的大鐘》、《家後》、《G弦之歌》、《拉丁節慶》，並無低喜愛度的樂曲。可見大學生較喜愛非古典音樂，如流行歌曲、電影或廣告配樂等。但整體而言喜愛度（總平均值3.67）高於熟悉度（總平均值3.35），可見大學生對各式風格的樂曲接受程度高，喜愛聆賞各式不同類型的音樂曲目，教師在教學上宜廣泛的介紹各類曲目，以培養學生廣博的音樂視野。

表9 熟悉度與喜愛度平均值分佈表

曲目	熟悉度		喜愛度	
	平均值 (M)	程度	平均值 (M)	程度
1. 哈雷路亞	4.52	高	3.49	中
2. G弦之歌	2.94	中	3.73	高
3. 魔笛	2.34	低	2.99	中
4. 時鐘	2.31	低	3.43	中
5. 動物狂歡節	3.54	高	3.68	高
6. 聖母頌	2.89	中	3.16	中
7. 家後	4.41	高	4.16	高
8. 古老的大鐘	4.34	高	4.26	高
9. 爵士樂	2.51	低	3.56	高
10. 搖滾樂	3.41	中	3.43	中
11. 拉丁節慶	2.55	低	3.70	高
12. 天空之城	4.47	高	4.50	高
總平均值	3.35		3.67	

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由圖2可發現除了《哈雷路亞》與《家後》外，其他樂曲的平均喜愛度皆高於熟悉度，又或兩者非常接近，由此可見大學生對於各種種類的樂曲喜愛度高，且樂於嘗試並接受各種不熟悉的樂曲風格。

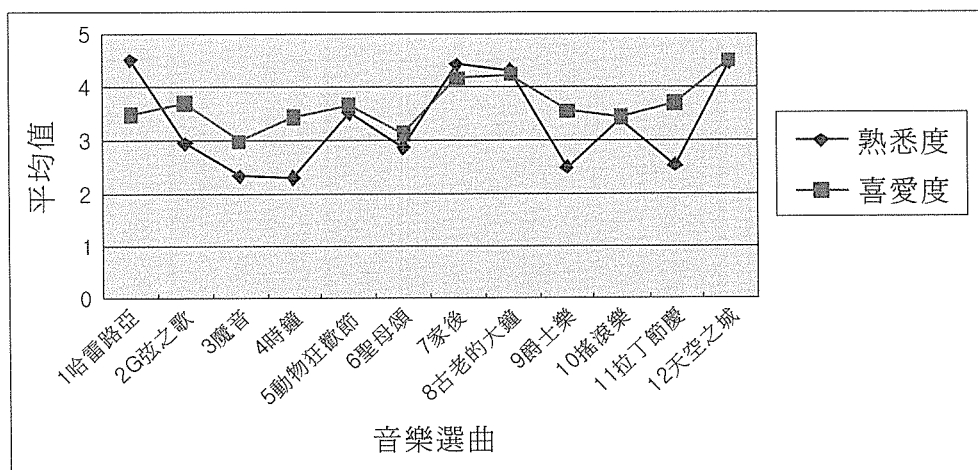


圖2 熟悉度與喜愛度分佈線形圖

(二) 熟悉度與喜愛度的相關性

此部分主要探討個人對音樂的不同熟悉度，是否會影響對音樂的喜愛程度，不著重個別選曲的現象分析，而以聆賞者個人對於十二首樂曲的整體性進行皮爾森積差相關，得到相關係數 $r = .485$ ，且達到顯著水準 ($p < .01$)。可見熟悉度與喜愛度呈現顯著正相關，熟悉度高，喜愛度也較高；熟悉度低，喜愛度也較低；反之喜愛度高，熟悉度也高；喜愛度低，熟悉度也相對較低。相關研究也指出兩者呈現正相關 (Krugman, 1943; Zissman & Neimark, 1990; Fung, 1996)，支持本研究的結果。

四、熟悉度與喜愛度對聆賞情緒反應的影響

(一) 不同熟悉度與情緒反應的差異

此部分同樣以聆賞者個人對於十二首樂曲的整體性進行相依樣本t考驗，表10數據顯示聆賞者對樂曲的不同熟悉度，將會在四個情緒向度上產生不同的反應 ($p < .001$)，分別為「激動的一平靜的」、「幽默的一嚴肅的」、「熱切的一沮喪的」、「壯闊的一細緻的」。Hart與Cogan (1976; 引自Abeles & Chung, 1996) 的研究曾指出熟悉度是影響情緒反應的因素之一。Ritossa與Rickard (2004) 的研究更提出除了愉悅感 (pleasantness)、喚起 (arousal) 會影響聆賞情緒感受外，熟悉度更是預測情緒的重要因素，熟悉度與「喚起」呈現正相關，且與「愉悅感」正相關，人們對於熟悉的樂曲較會產生正向聆賞情緒，對於不熟悉的樂曲則傾向產生負向的情緒。由此可見，熟悉度是影響聆賞情緒反應的重要因素。

表10 熟悉度與聆賞情緒反應相依樣本t考驗

相依樣本		相依差異平均值	自由度	t 值
Pair 1	熟悉度 — 快樂／悲傷	.48148	161	.829
Pair 2	熟悉度 — 激動／平靜	4.22981	160	7.192***
Pair 3	熟悉度 — 幽默／嚴肅	3.37736	158	5.902***
Pair 4	熟悉度 — 熱切／沮喪	-1.71069	158	-3.054***
Pair 5	熟悉度 — 壯闊／細緻	.48148	159	10.852***

*** $p < .001$

(二) 不同喜愛度與情緒反應的差異性

在探討喜愛度對情緒反應的影響，表11可發現聆賞者對樂曲的不同喜愛

度，將會在「快樂的—悲傷的」、「激動的—平靜的」、「幽默的—嚴肅的」、「熱切的一沮喪的」、「壯闊的一細緻的」五個情緒向度上呈現非常顯著的差異性 ($p < .001$)。Wheeler (1985) 指出對音樂的喜愛度與聆賞前的情緒可以預測聆賞後的情緒反應，悲傷者欣賞喜愛度高的音樂，會產生正向的情緒；而快樂者欣賞喜愛度低的樂曲則會逐漸產生負向的情緒。由此可見，喜愛度對聆賞情緒反應具有影響力，只是聆賞前的情緒並非本研究探討的變項，因此並未予以控制。

表11 喜愛度與聆賞情緒反應相依樣本t考驗

相依樣本		相依差異平均值	自由度	t 值
Pair 1	喜愛度 — 快樂／悲傷	4.36943	156	11.069***
Pair 2	喜愛度 — 激動／平靜	7.85897	155	17.361***
Pair 3	喜愛度 — 幽默／嚴肅	7.19481	153	18.270***
Pair 4	喜愛度 — 熱切／沮喪	2.10390	153	5.922***
Pair 5	喜愛度 — 壯闊／細緻	10.29677	154	21.126***

*** $p < .001$

肆、結論與建議

一、結論

本研究受限於選曲數量與研究對象取樣上的限制，僅能由研究範圍內的十二首樂曲與179位大學生的調查結果，歸納為下列探索性的初步結論：

(一) 音樂可使聆賞者產生情緒反應，其中「快樂的—悲傷的」與「激動的—平靜的」是最常產生的情緒，幾乎所有樂曲都可產生這兩個向度的情緒反應。

(二) 聆賞古典—非古典、器樂曲—聲樂曲、激勵型—鎮定型音樂時，聆賞者的情緒都顯著不同。尤其是激勵型較易產生快樂的、激動的、幽默的、渴望的、壯闊的情緒反應；而鎮定型則較易產生悲傷的、平靜的、嚴肅的、沮喪的、細緻的感受。

(三) 聆賞者對整體樂曲的熟悉程度將會影響其喜愛程度 ($r = .485$)，兩者間具有顯著正相關，亦即熟悉度高則喜愛度也高，熟悉度低則喜愛度相對較低。

(四) 對樂曲的不同熟悉度與喜愛度，將會產生顯著不同的聆賞情緒反應。

二、建議

根據上述研究結論，提出對於教育實務與後續研究的具體建議：

(一) 教育實務

1. 應用音樂引導學生正向情緒：在課程教學上，教師可善用音樂對情緒的深遠影響力，教導學生建立自我情緒管理的能力，試著運用音樂轉化心情，擬定屬於個人的音樂情緒處方，以提升自我的情緒智商。

2. 由熟悉的音樂啟發學習動機：研究結果顯示音樂聆賞與情緒反應具有高相關，因此在音樂課程設計上，教師可善用日常生活中熟悉的音樂為教學起點，以引發學生的學習興趣，進而引申至其他相關知識的學習，培養廣博的音樂涵養。

(二) 後續研究

1. 音樂選曲可做更細部的分類：本研究為探索性的研究，僅就大方向分類，將樂曲分為古典—非古典、器樂曲—聲樂曲、激勵型—鎮定型三大類，並無進一步細分器樂曲的樂器音色、聲樂曲的歌詞語言等。建議未來的研究能將樂曲做更細部的分類，以瞭解不同音樂要素（如節奏、速度、力度、旋律、樂器音色等）或不同音樂風格對聆賞情緒的影響。

2. 音樂選曲宜再增加或考量代表性：本研究的音樂選曲僅十二首，其中涵蓋各類型的樂曲分類，建議未來研究可增加各類型的代表曲目，以驗證本研究的結果是否具有推論性。

3. 研究工具可採用其他信效度考驗：本研究工具採行重測信度與專家效度，未來研究如欲增加量表的客觀性，還可進行內部一致性或複本信度之研究，並可參酌更多文獻以建立內容效度。

4. 研究樣本數可再擴增：本研究受限於經費，僅進行小樣本數的探索研究，建議未來研究可以區域性為原則，抽樣更多大學生進行調查，以取得更為客觀的研究結果。

5. 考量聆賞者作答前的情緒：Wheeler (1985) 曾提出聆賞前的心情會影響聆賞中的情緒感受，因此建議後續研究者可於聆賞前先調查學生的心情狀況，此心情狀況亦可作為分析之變項進行探討。

6. 更多影響因素的後續研究：Schere和Zentner (2001) 提出音樂聆賞情緒反應的主要影響因素為音樂結構、演奏者、聆賞者、背景環境，本研究僅採用音樂選曲的不同類型來探究與情緒反應的相關，建議未來研究可針對其他影響因素進行分析，以建構更完整的理論模式。

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