MUSICAL EXPOSURES AND CREATIVITY AMONG MUSIC MAJOR TRAINEE TEACHERS IN MALAYSIA

LIM ZEK CHEW

CULTURAL CENTRE
UNIVERSITY OF MALAYA
KUALA LUMPUR

2014
MUSICAL EXPOSURES AND CREATIVITY AMONG MUSIC MAJOR TRAINEE TEACHERS IN MALAYSIA

LIM ZEK CHEW

THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

CULTURAL CENTRE UNIVERSITY OF MALAYA KUALA LUMPUR

2014
UNIVERSITI MALAYA

ORIGINAL LITERARY WORK DECLARATION

Name of Candidate:  LIM ZEK CHEW  (IC/Passport No: 630107065290)
Registration/Matric No:  RHA080002
Name of Degree:  Doctor of Philosophy


MUSICAL EXPOSURES AND CREATIVITY AMONG MUSIC MAJOR TRAINEE TEACHERS IN MALAYSIA

Field of Study:  MUSIC EDUCATION

I do solemnly and sincerely declare that:

(1) I am the sole author/writer of this Work;
(2) This Work is original;
(3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;
(4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;
(5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya (“UM”), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;
(6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

Candidate’s Signature  Date

Subscribed and solemnly declared before,

Witness’s Signature  Date

Name:  
Designation:  


ABSTRACT

The primary purpose of this study was to investigate the relationships between musical exposures and creativity among the pre-service music major trainee teachers from the teacher education institutions in Malaysia. This study also sought to examine the nature of musical creativity and general creativity. Individual differences such as gender, ethnicity, academic years, and socioeconomic status were examined to investigate to what extent these differences moderate the relationships between musical exposures and creativity. In addition, this study also determined the predictors of musical creativity and general creativity.

In this study, musical exposures were investigated by looking at four aspects namely keyboard grades, musical activity involvement, aural discrimination, and self-esteem of musical ability. Meanwhile, creativity was examined by using two constructs which were musical creativity and general creativity.

To address the purposes of the study, quantitative data were collected using a survey approach. As the research questions concerned the relationships between musical exposures and creativity, a correlation design was adopted.

The respondents of the study were 159 pre-service music major trainee teachers randomly selected from seven teacher education institutions in Malaysia. In total there were 51 males and 108 females.

The dependent variables of this study were musical creativity and general creativity. The independent variables were personal variables and musical exposures. Data for dependent variables were collected using two instruments, namely the Torrance Test of Creative Thinking, and the Composition Test. Data for independent variables were collected from demographic questionnaire, musical activity involvement.
questionnaire, self-esteem of musical ability questionnaire and the Aural Discrimination Test.

Descriptive statistics were used to ascertain musical exposures and the nature of creative abilities of the trainee teachers. Inferential statistics were used to ascertain the relationships between musical exposures and creativity. One-way ANOVAs and Tukey HSD were performed to determine significant differences between variables and Pearson Product-Moment correlation were used to analyse the correlations between variables. Besides that, stepwise multiple regression analysis and hierarchical multiple regressions analysis were used to determine the predictors of musical creativity and general creativity.

Based on the results of this study, it was concluded that male trainee teachers were more creative in musical creativity than female trainee teachers. However, there was no significant difference between genders in general creativity. Findings of the study also showed that musical exposures influenced musical creativity. Musical creativity were significantly related to musical activity involvement ($r = 19, p < .05$), aural discrimination ($r = 48, p < .05$) and self-esteem of musical ability ($r = 31, p < .05$). On the contrary, musical exposures were not related to general creativity.

Stepwise multiple regression analysis revealed that aural discrimination is the strongest predictor of musical creativity, which alone accounted for 29.0% of the variance in total. Subsequently, self-esteem of musical ability is modest in predicting musical creativity. Surprisingly, musical activity involvement did not appear to contribute to musical creativity. As for general creativity, all the variables in musical exposures were not predictor of general creativity.
PENDEDAHAN MUZIKAL DAN KREATIVITI DALAM KALANGAN GURU PELATIH MAJOR MUZIK DI MALAYSIA

ABSTRAK


Dalam kajian ini, pendedahan muzikal dikaji daripada empat aspek iaitu gred permainan kibod, penglibatan aktiviti muzikal, diskriminasi aural, dan penghargaan diri dalam keupayaan muzikal. Manakala, kreativiti dikaji dengan menggunakan dua konstruk iaitu kreativiti muzikal dan kreativiti umum.


Sampel kajian terdiri daripada 159 orang guru pelatih dipilih secara rawak daripada tujuh institut pendidikan guru di Malaysia. Terdapat 51 guru pelatih lelaki dan 108 guru pelatih perempuan.

Kreativiti muzikal dan kreativiti umum adalah variabel bersandar. Variabel bebas adalah variabel personal dan pendedahan muzikal guru pelatih. Data daripada variabel bersandar dikutip dengan menggunakan dua instrumen iaitu Torrance Test of Creative Thinking dan Ujian Penciptaan. Untuk variabel bebas pula, soal selidik
digunakan untuk mengutip data berkaitan dengan maklumat peribadi, penglibatan dalam aktiviti muzikal, dan penghargaan diri dalam keupayaan muzikal. Ujian Diskriminasi Aural diguna untuk mendapatkan data tentang pencapaian aural guru pelatih.

Statistik deskriptif iaitu min, sisihan piawai, median, minimum dan maksima diguna untuk menganalisis variabel dalam pendedahan muzikal dan setiap komponen dalam kreativiti muzikal dan kreativiti umum. Statistik deskriptif dan statistic inferen diguna untuk menentukan perhubungan antara pendedahan muzikal dan kreativiti. Ujian ANOVA satu-hala diguna untuk menentukan kesignifikan perbezaan antara variabel bebas dan variabel bersandar dan ujian kolerasi Pearson Product Moment diguna untuk menganalisis perhubungan antara variabel. Selain daripada itu, analisis regresi pelbagai and analisis hierarchical regresi pelbagai digunakan untuk mengenalpasti variabel peramal untuk kreativiti muzikal dan kreativiti umum.

Berdasarkan dapatan kajian ini, boleh disimpulkan bahawa guru pelatih lelaki mempunyai kreativiti yang lebih tinggi daripada guru pelatih perempuan dalam kreativiti muzikal. Walau bagaimana pun, tidak terdapat perbezaan antara jantina untuk kreativiti umum. Dapatan kajian juga menunjukkan terdapat perbezaan yang signifikan antara kreativiti muzikal dan penglibatan aktiviti muzikal ($r = 19, p < .05$), diskriminasi aural ($r = 48, p < .05$), and penghargaan diri dalam keupayaan muzikal ($r = 31, p < .05$). Pendedahan muzikal tidak mempunyai perhubungan dengan kreativiti umum.

Analisis daripada regresi pelbagai menunjukkan bahawa diskriminasi aural merupakan variabel peramal yang utama untuk kreativiti muzikal di mana ia menyumbangkan sebanyak 29.0% perubahan varians dalam variabel kreativiti muzikal. Penghargaan diri dalam keupayaan muzikal merupakan variabel peramal kreativiti muzikal yang sederhana. Agak menakjubkan ialah penglibatan aktiviti muzikal bukan merupakan peramal kepada kreativiti muzikal. Untuk kreativiti umum pula, didapati semua variabel pendedahan muzikal bukan peramal untuk kreativiti umum.
ACKNOWLEDGEMENTS

I am grateful to all the individuals dear to my heart who have encouraged me in this challenging and rewarding dissertation process. First and foremost, my special gratitude to my supervisor, Dr Pan Kok Chang, for his support and encouragement throughout the duration of this study. I have enjoyed our conversations and appreciate your willingness to assist me with my research interests.

My heartfelt gratitude to Associate Professor Dr. Chua Yan Piaw, my supervisor, for his guidance as I went through the ups and downs of the dissertation process. I am grateful for your immense knowledge of statistics, eclectic abilities, as well as your support and innovative research on creativity in education. I applaud your professional approach.

I am very grateful to my friends, Dr Lew Moi Mooi and Dr Lam Kah Kei for all the support and guidance. Thank you for lending an ear, keeping me on track, and never give up on me. Thank you for pushing me to my limit.

My deepest appreciation and thanks to my friend in Dhamma, Cheong Lai Wah, for providing editorial support in this manuscript. Your expertise and patience in checking through the contents of the dissertation are very much appreciated. Thank you for your constructive comments and suggestions.

A very special thanks to my childhood friend, Chiew Wye Mei, who has always been by my side in this dissertation process. Your moral support, sharing, and inspiration has kept me sane. I could never have completed this mid-life doctorate without you.

My special thanks is also extended to the directors, head of music units, and music lecturers of the teacher education institutions where I conducted my study. My sincere thanks to all the trainee teachers who participated in this study for their cooperation and help rendered me throughout the administration of the instruments.
Last, I owe a special debt of gratitude to my beloved family members. To my father and mother, who have taught me the skills of perseverance and persistence as well as hard work. To my sisters, Yeak Chiew and Sing Chew, and brother, Zek Sen, who have been supportive, appreciative, and encouraging at all times. Also, to my niece, Zelyn, thank you for keeping up with my gobbledygook.

A great big thanks to all of you.
# TABLE OF CONTENTS

**TITLE PAGE** i  
**ORIGINAL LITERACY WORK DECLARATION FORM** ii  
**ABSTRACT** iii  
**ABSTRAK (BAHASA MELAYU VERSION OF THE ABSTRACT)** v  
**ACKNOWLEDGEMENTS** vii  
**LIST OF FIGURES** xvi  
**LIST OF TABLES** xvii  
**LIST OF SYMBOLS AND ABBREVIATIONS** xxiv  
**LIST OF APPENDICES** xxv

## CHAPTER

### 1 INTRODUCTION 1

1.1 Background of the Study 3  
1.2 Statement of the Problem 9  
1.3 Objectives of the Study 18  
1.4 Research Questions 19  
1.5 Significance of the Study 20  
1.6 Limitations of the Study 23  
1.7 Definition of Terms 25  
1.7.1 General Creativity 25  
1.7.2 Musical Creativity 26  
1.7.3 Musical Exposures 29  
1.7.4 Socioeconomic Status 30  
1.8 Summary 30

### 2 LITERATURE REVIEW 32

2.1 Overview 33  
2.2 Defining Creativity 36  
2.3 Defining Musical Creativity 38  
2.4 Measuring Composition and Consensual Assessment Technique 42  
2.5 Musical Creativity and Measurements 49  
2.6 General Creativity and Measurements 59
TABLE OF CONTENTS

2.7 Relationship between Musical Creativity and General Creativity 67
2.8 Musical Exposures 72
  2.8.1 Musical Activity Involvement 72
  2.8.2 Aural Discrimination 76
  2.8.3 Self-Esteem of Musical Ability 79
2.9 Influence of Personal Variables on Creativity 83
2.10 Relationship between Creativity and Musical Exposures 89
2.11 Predictors of Musical Creativity 93
2.12 Theoretical Framework 102
  2.12.1 Personal Variables 104
  2.12.2 Musical Exposures 104
2.13 Theories Related to Creativity 105
2.14 Approaches to Creativity Research 107
  2.14.1 Confluence Approach of Creativity 107
  2.14.2 Componential Approach of Creativity 108
2.15 Conceptual Framework of the Study 108
2.16 Summary 111

3 METHODOLOGY 113
  3.1 Research Design 113
  3.2 Population and Sample of the Study 113
  3.3 Instrumentation 122
    3.3.1 Demographic Questionnaire 123
    3.3.2 Musical Activity Involvement Questionnaire 125
    3.3.3 Self-Esteem of Music Ability 126
    3.3.4 Aural Discrimination Test 127
    3.3.5 The Composition Test 129
    3.3.6 Torrance Test of Creative Thinking 134
  3.4 Pilot Study 138
    3.4.1 Pilot Study of the Self-Esteem of Musical Ability 139
    3.4.2 Pilot Study of the Aural Discrimination Test 140
    3.4.3 Pilot Study of Torrance Test of Creative Thinking 141
    3.4.4 Changes Made after the Pilot Study 142
TABLE OF CONTENTS

3.5 Reliability Analyses for the Respondents in the Study
   3.5.1 Interjudge Reliabilities for General Creativity
   3.5.2 Interjudge Reliabilities of Composition Dimensions
   3.5.3 Reliability Index of Measurements
3.6 Data Collection Procedures
   3.6.1 Procedure of Questionnaires
   3.6.2 Procedures of the Aural Discrimination Test
   3.6.3 Procedure of the Torrance Test of Creative Thinking
   3.6.4 Procedure of the Composition Test
3.7 Data Analysis
   3.7.1 Data Analysis of the First Research Question
   3.7.2 Data Analysis of the Second Research Question
   3.7.3 Data Analysis of the Third Research Question
   3.7.4 Data Analysis of the Fourth Research Question
   3.7.5 Data Analysis of the Fifth Research Question
   3.7.6 Data Analysis of the Sixth Research Question
   3.7.7 Data Analysis of the Seventh Research Question
   3.7.8 Data Analysis of the Eighth Research Question
   3.7.9 Data Analysis of the Ninth Research Question
   3.7.10 Data Analysis of the Tenth Research Question
   3.7.11 Data Analysis of the Eleventh Research Question
   3.7.12 Data Analysis of the Twelfth Research Question
3.8 Summary

4 RESULTS
4.1 Preliminary Analysis
   4.1.1 Profile of Respondents in Terms of Gender and Academic Grades
   4.1.2 Profile of Respondents in Terms of Ethnicity
   4.1.3 Profile of Respondents in Terms of Socioeconomic Status
4.2 Data Analysis for Research Question One
   4.2.1 Keyboard Grades of the Respondents
   4.2.2 Musical Activity Involvement of the Respondents
   4.2.3 Aural Discrimination of the Respondents
# TABLE OF CONTENTS

4.2.4 Self-Esteem of Musical Ability of the Respondents 179
4.2.5 Summary of Results for Research Question One 180

4.3 Data Analysis for Research Question Two 181
4.3.1 Keyboard Grades and Gender 181
4.3.2 Keyboard Grades and Ethnicity 183
4.3.3 Keyboard Grades and Academic Years 184
4.3.4 Keyboard Grades and Socioeconomic Status 186
4.3.5 Summary of Results for Research Question Two 187

4.4 Data Analysis for Research Question Three 188
4.4.1 Musical Activity Involvement and Gender 188
4.4.2 Musical Activity Involvement and Ethnicity 189
4.4.3 Musical Activity Involvement and Academic Years 191
4.4.4 Musical Activity Involvement and Socioeconomic Status 193
4.4.5 Summary of Results in Research Question Three 194

4.5 Data Analysis for Research Question Four 195
4.5.1 Aural Discrimination and Gender 195
4.5.2 Aural Discrimination and Ethnicity 198
4.5.3 Aural Discrimination and Academic Years 203
4.5.4 Aural Discrimination and Socioeconomic Status 208
4.5.5 Summary of Research Question Four 211

4.6 Data Analysis for Research Question Five 212
4.6.1 Self-Esteem of Musical Ability and Gender 212
4.6.2 Self-Esteem of Musical Ability and Ethnicity 214
4.6.3 Self-Esteem of Musical Ability and Academic Years 215
4.6.4 Self-Esteem of Musical Ability and Socioeconomic Status 217
4.6.5 Summary of Results for Research Question Five 218

4.7 Data Analysis for Research Question Six 219
4.7.1 Descriptive Statistics of Musical Creativity 219
4.7.2 Pattern of Performance for Creative Dimension 222
4.7.3 Pattern of Performance for Technical Goodness 223
4.7.4 Pattern of Performance for Dimensions in Musical Creativity 223
4.7.5 Pattern of Performance for Components in Musical Creativity 225
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7.6</td>
<td>Descriptive Statistic of General Creativity</td>
<td>226</td>
</tr>
<tr>
<td>4.7.7</td>
<td>Pattern of Performance for General Creativity</td>
<td>228</td>
</tr>
<tr>
<td>4.7.8</td>
<td>Comparison of General Creativity Results with Study by Torrance</td>
<td>230</td>
</tr>
<tr>
<td>4.7.9</td>
<td>Summary of Results for Research Question Six</td>
<td>231</td>
</tr>
<tr>
<td>4.8</td>
<td>Data Analysis for Research Question Seven</td>
<td>233</td>
</tr>
<tr>
<td>4.8.1</td>
<td>The Relationships among the Components of Musical Creativity</td>
<td>233</td>
</tr>
<tr>
<td>4.8.2</td>
<td>The Relationship among the Components of General Creativity</td>
<td>241</td>
</tr>
<tr>
<td>4.8.3</td>
<td>The Relationship between Musical Creativity and General Creativity</td>
<td>245</td>
</tr>
<tr>
<td>4.8.4</td>
<td>Summary of Results for Research Question Seven</td>
<td>251</td>
</tr>
<tr>
<td>4.9</td>
<td>Data Analysis for Research Question Eight</td>
<td>252</td>
</tr>
<tr>
<td>4.9.1</td>
<td>The Relationship between Musical Creativity and Gender</td>
<td>252</td>
</tr>
<tr>
<td>4.9.2</td>
<td>The Relationship between Musical Creativity and Ethnicity</td>
<td>258</td>
</tr>
<tr>
<td>4.9.3</td>
<td>The Relationship between Musical Creativity and Academic Years</td>
<td>265</td>
</tr>
<tr>
<td>4.9.4</td>
<td>The Relationship between Musical Creativity and Socioeconomic Status</td>
<td>273</td>
</tr>
<tr>
<td>4.9.5</td>
<td>Summary of Results for Research Question Eight</td>
<td>278</td>
</tr>
<tr>
<td>4.10</td>
<td>Data Analysis for Research Question Nine</td>
<td>280</td>
</tr>
<tr>
<td>4.10.1</td>
<td>The Relationship between General Creativity and Gender</td>
<td>280</td>
</tr>
<tr>
<td>4.10.2</td>
<td>The Relationship between General Creativity and Ethnicity</td>
<td>284</td>
</tr>
<tr>
<td>4.10.3</td>
<td>The Relationship between General Creativity and Academic Years</td>
<td>289</td>
</tr>
<tr>
<td>4.10.4</td>
<td>The Relationship between General Creativity and Socioeconomic Status</td>
<td>296</td>
</tr>
<tr>
<td>4.10.5</td>
<td>Summary of Results for Research Question Nine</td>
<td>299</td>
</tr>
<tr>
<td>4.11</td>
<td>Data Analysis for Research Question Ten</td>
<td>301</td>
</tr>
<tr>
<td>4.11.1</td>
<td>The Relationship between Musical Creativity and Keyboard Grades</td>
<td>301</td>
</tr>
<tr>
<td>4.11.2</td>
<td>The Relationship between Musical Creativity and Musical Activity Involvement</td>
<td>310</td>
</tr>
<tr>
<td>4.11.3</td>
<td>The Relationship between Musical Creativity and Aural Discrimination</td>
<td>311</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

4.11.4 The Relationship between Musical Creativity and Self-Esteem of Musical Ability 317  
4.11.5 Summary of Result for Research Question Ten 320  
4.12 Data Analysis for Research Question Eleven 321  
4.12.1 The Relationship between General Creativity and Keyboard Grades 321  
4.12.2 The Relationship between General Creativity and Musical Activity Involvement 327  
4.12.3 The Relationship between General Creativity and Aural Discrimination 328  
4.12.4 The Relationship between General Creativity and Self-Esteem of Musical Ability 330  
4.12.5 Summary of Result for Research Question Eleven 331  
4.13 Data Analysis for Research Question Twelve 332  
4.13.1 Predictors of Musical Creativity among Musical Exposures 333  
4.13.2 Predictors of Components of Musical Creativity among Musical Exposures 336  
4.13.3 Summary of Predictors of Musical Creativity among Musical Exposures 358  
4.13.4 Predictors of General Creativity among Musical Exposures 360  
4.13.5 Predictors of Components of General Creativity among Musical Exposures 360  
4.13.6 Summary of Predictors of General Creativity among Musical Exposures 365  
4.13.7 Predictors of Musical Creativity among Musical Exposures with Controlled Personal Factors 366  
4.13.8 Predictors of General Creativity among Musical Exposures with Controlled Personal Factors 370  
4.13.9 Summary of Results for Research Question Twelve 370  
4.14 Summary 372  

5 SUMMARY, DISCUSSION, IMPLICATION, AND RECOMMENDATIONS 376  
5.1 Summary of the Study 376  
5.2 Summary of Major Findings 379
TABLE OF CONTENTS

5.3 Discussion 388
  5.3.1 Musical Exposures 388
  5.3.2 Musical Exposures and Personal Variables 390
  5.3.3 Musical Creativity 392
  5.3.4 General Creativity 395
  5.3.5 Musical Creativity and General Creativity 398
  5.3.6 Musical Creativity and Personal Variables 399
  5.3.7 General Creativity and Personal Variables 401
  5.3.8 Musical Exposures and Musical Creativity 404
  5.3.9 Musical Exposures and General Creativity 410
  5.3.10 Predictors of Musical Creativity and General Creativity 411

5.4 Implications for Teaching 414
5.5 Recommendation for Further Research 418
5.6 Closure 420

REFERENCES 421
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>The System Model of Creativity (Csikszentmihalyi, 1988)</td>
<td>103</td>
</tr>
<tr>
<td>2.2</td>
<td>Conceptual Framework of the Study</td>
<td>110</td>
</tr>
<tr>
<td>3.1</td>
<td>Procedure of data collection</td>
<td>147</td>
</tr>
<tr>
<td>3.2</td>
<td>Summary of Data Analysis Based on the Research Questions</td>
<td>160</td>
</tr>
<tr>
<td>4.1</td>
<td>The Pattern of Performance of the Creative Dimension of Musical Creativity</td>
<td>223</td>
</tr>
<tr>
<td>4.2</td>
<td>The Pattern of Performance of the Dimensions in Musical Creativity</td>
<td>224</td>
</tr>
<tr>
<td>4.3</td>
<td>The Pattern of Performance of Musical Creativity</td>
<td>226</td>
</tr>
<tr>
<td>4.4</td>
<td>The Pattern of Performance of General Creativity</td>
<td>229</td>
</tr>
<tr>
<td>5.1</td>
<td>Summary of Predictors of Musical Creativity</td>
<td>413</td>
</tr>
<tr>
<td>5.2</td>
<td>Summary of Predictors of Musical Creativity with Moderated Personal Variables</td>
<td>413</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Courses offered in Bachelor of Teaching in Music Education for Primary School Program</td>
<td>116</td>
</tr>
<tr>
<td>3.2</td>
<td>Population of the Study</td>
<td>117</td>
</tr>
<tr>
<td>3.3</td>
<td>Population of the Study by Year</td>
<td>118</td>
</tr>
<tr>
<td>3.4</td>
<td>Population of the Study by Gender</td>
<td>118</td>
</tr>
<tr>
<td>3.5</td>
<td>Population of the Study by Year and Gender</td>
<td>119</td>
</tr>
<tr>
<td>3.6</td>
<td>Sample of the Study</td>
<td>120</td>
</tr>
<tr>
<td>3.7</td>
<td>Sample of the Study by Year</td>
<td>120</td>
</tr>
<tr>
<td>3.8</td>
<td>Sample of the Study by Gender</td>
<td>121</td>
</tr>
<tr>
<td>3.9</td>
<td>Sample of the Study by Year and Gender</td>
<td>121</td>
</tr>
<tr>
<td>3.10</td>
<td>Content Validity of Musical Achievement Test in Comparison with Aural and Sight Singing Course End Results</td>
<td>141</td>
</tr>
<tr>
<td>3.11</td>
<td>Test-Retest Reliabilities for Torrance Test of Creative Thinking</td>
<td>142</td>
</tr>
<tr>
<td>3.12</td>
<td>Interjudge Reliability for General Creativity</td>
<td>144</td>
</tr>
<tr>
<td>3.13</td>
<td>Interjudge Reliabilities for the Components of Composition</td>
<td>145</td>
</tr>
<tr>
<td>3.14</td>
<td>Internal Consistency Reliability of the Independent and Dependent Variables</td>
<td>146</td>
</tr>
<tr>
<td>4.1</td>
<td>Distribution of the Respondents According to Gender and Academic Years</td>
<td>172</td>
</tr>
<tr>
<td>4.2</td>
<td>Distribution of the Respondents According to Ethnicity</td>
<td>173</td>
</tr>
<tr>
<td>4.3</td>
<td>Distribution of the Respondents According to Socioeconomic Status</td>
<td>174</td>
</tr>
<tr>
<td>4.4</td>
<td>Distribution of the Respondents According to Keyboard Grades</td>
<td>175</td>
</tr>
<tr>
<td>4.5</td>
<td>Distribution of Respondents According to Musical Activity Involvement</td>
<td>177</td>
</tr>
<tr>
<td>4.6</td>
<td>Means, Standard Deviation, and Percentage of Aural Discrimination Test</td>
<td>178</td>
</tr>
<tr>
<td>4.7</td>
<td>Distribution of the Respondents According to Self-Esteem of Musical Ability</td>
<td>179</td>
</tr>
<tr>
<td>4.8</td>
<td>Distribution of the Respondents According to Keyboard Grades by Gender</td>
<td>182</td>
</tr>
<tr>
<td>4.9</td>
<td>Mann-Whitney U Test for the Differences in Keyboard Grades among Gender</td>
<td>182</td>
</tr>
<tr>
<td>4.10</td>
<td>Distribution of the Respondents According to Keyboard Grades by Ethnicity</td>
<td>183</td>
</tr>
<tr>
<td>4.11</td>
<td>Kruskal-Wallis Test for the Differences in Keyboard Grades among Ethnicity</td>
<td>184</td>
</tr>
</tbody>
</table>
Table 4.12 Distribution of the Respondents According to Keyboard Grades by Academic Years Page 185

Table 4.13 Kruskal-Wallis Test for the Differences in Keyboard Grades among Academic Years Page 186

Table 4.14 Distribution of the Respondents According to Keyboard grades by Socioeconomic Status Page 186

Table 4.15 Mann-Whitney U Test for the Differences in Keyboard Grades among Socioeconomic Status Page 187

Table 4.16 Mean and Standard Deviation of Musical Activity Involvement by Gender Page 189

Table 4.17 Result of Independent Sample $t$-test for Differences between Gender and Musical Activity Involvement Page 189

Table 4.18 Distribution of the Respondents According to Musical Activity Involvement by Ethnicity Page 190

Table 4.19 Summary of One-way ANOVA for Differences between Ethnicity and Musical Activity Involvement Page 190

Table 4.20 Mean and Standard Deviation According to Musical Activity Involvement by Academic Years Page 191

Table 4.21 Summary of One-way ANOVA for Differences between Academic Years and Musical Activity Involvement Page 192

Table 4.22 Distribution of the Respondents According to Musical Activity Involvement by Socioeconomic Status Page 193

Table 4.23 Results of Independent Sample $t$-test for Differences between Socioeconomic Statuses and Musical Activity Involvement Page 194

Table 4.24 Mean and Standard Deviation of Aural Discrimination by Gender Page 196

Table 4.25 Result of Independent Sample $t$-test for Differences between Gender and Aural discrimination Page 196

Table 4.26 Means of Components for Aural Discrimination by Gender Page 197

Table 4.27 Results of Independent Sample $t$-test for Differences between Gender and Components of Aural Discrimination Page 198

Table 4.28 Means for Aural Discrimination by Ethnicity Page 199

Table 4.29 Summary of One-way ANOVA for Differences between Ethnicity and Aural Discrimination Page 200

Table 4.30 Means of Components for Aural Discrimination by Ethnicity Page 200

Table 4.31 Summary of One-way ANOVA for Differences between Ethnicity and Components of Aural Discrimination Page 203

Table 4.32 Means of Aural Discrimination by Academic Years Page 204

Table 4.33 Summary of One-way ANOVA for Differences between Academic Years and Aural Discrimination Page 205
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.34</td>
<td>Means of Components for Aural Discrimination by Academic Years</td>
<td>206</td>
</tr>
<tr>
<td>4.35</td>
<td>Summary of One-way ANOVA for Differences between Academic Years and Components of Aural Discrimination</td>
<td>207</td>
</tr>
<tr>
<td>4.36</td>
<td>Means of Aural Discrimination by Socioeconomic Status</td>
<td>208</td>
</tr>
<tr>
<td>4.37</td>
<td>Results of Independent Sample t-test for Differences between Socioeconomic Statuses and Aural Discrimination</td>
<td>209</td>
</tr>
<tr>
<td>4.38</td>
<td>Means of Components for Aural Discrimination by Socioeconomic Status</td>
<td>209</td>
</tr>
<tr>
<td>4.39</td>
<td>Results of Independent Sample t-test for Differences between Socioeconomic Statuses and Components of Aural Discrimination</td>
<td>210</td>
</tr>
<tr>
<td>4.40</td>
<td>Means and Standard Deviation of Self Esteem of Musical Ability by Gender</td>
<td>213</td>
</tr>
<tr>
<td>4.41</td>
<td>Result of Independent Sample t-test for Differences between Gender and Self-Esteem of Musical Ability</td>
<td>213</td>
</tr>
<tr>
<td>4.42</td>
<td>Means and Standard Deviation of Self Esteem of Musical Ability by Ethnicity</td>
<td>214</td>
</tr>
<tr>
<td>4.43</td>
<td>Summary of One-way ANOVA for Differences between Ethnicity and Self-Esteem of Musical Ability</td>
<td>215</td>
</tr>
<tr>
<td>4.44</td>
<td>Means and Standard Deviation of Self Esteem of Musical Ability by Academic Years</td>
<td>215</td>
</tr>
<tr>
<td>4.45</td>
<td>Summary of One-way ANOVA for Differences between Academic Years and Aural Discrimination</td>
<td>216</td>
</tr>
<tr>
<td>4.46</td>
<td>Means and Standard Deviation of Self Esteem of Musical Ability by Socioeconomic Status</td>
<td>217</td>
</tr>
<tr>
<td>4.47</td>
<td>Result of Independent Sample t-test for Differences between Socioeconomic Status and Self-Esteem of Musical Ability</td>
<td>218</td>
</tr>
<tr>
<td>4.48</td>
<td>Means, Standard Deviation, Median, Minimum, and Maximum Scores of Components of Musical Creativity</td>
<td>221</td>
</tr>
<tr>
<td>4.49</td>
<td>Descriptive Statistics of Components of General Creativity</td>
<td>228</td>
</tr>
<tr>
<td>4.50</td>
<td>Comparison of Raw Score between the Torrance Test of Creative Thinking and Study by Torrance</td>
<td>230</td>
</tr>
<tr>
<td>4.51</td>
<td>Inter-correlations of Components of Musical Creativity</td>
<td>234</td>
</tr>
<tr>
<td>4.52</td>
<td>Inter-correlations of Components of General Creativity</td>
<td>241</td>
</tr>
<tr>
<td>4.53</td>
<td>Inter-correlations of Components of Musical Creativity and General Creativity</td>
<td>250</td>
</tr>
<tr>
<td>4.54</td>
<td>Means and Standard Deviations for Musical Creativity by Gender</td>
<td>253</td>
</tr>
<tr>
<td>4.55</td>
<td>Result of Independent Sample t-test for Differences between Gender and Musical Creativity</td>
<td>253</td>
</tr>
</tbody>
</table>
Table | Page |
---|---|
4.56 | Means and Standard Deviations for Components and Dimensions of Musical Creativity by Gender | 256 |
4.57 | Summary of Independent Sample $t$-test for Differences between Gender and Components of Musical Creativity | 257 |
4.58 | Means and Standard Deviations for Musical Creativity by Ethnicity | 258 |
4.59 | Summary of One-way ANOVA for Differences between Ethnicity and Musical Creativity | 259 |
4.60 | Means and Standard Deviations for Components of Musical Creativity by Ethnicity | 260 |
4.61 | Summary of One-way ANOVA for Differences between Ethnicity and Components of Musical Creativity | 262 |
4.62 | Means and Standard Deviations for Musical Creativity by Academic Years | 265 |
4.63 | Summary of One-way ANOVA for Differences between Academic Years and Musical Creativity | 266 |
4.64 | Means and Standard Deviations for Components of Musical Creativity by Year | 267 |
4.65 | Summary of One-way ANOVA for Differences between Academic Years and Components of Musical Creativity | 271 |
4.66 | Means and Standard Deviations for Musical Creativity by Socioeconomic Status | 273 |
4.67 | Result of Independent Sample $t$-test for Differences between Socioeconomic Status and Musical Creativity | 274 |
4.68 | Means and Standard Deviations for Components of Musical Creativity by Socioeconomic Status | 275 |
4.69 | Summary of Independent Sample $t$-test for Differences between Socioeconomic Statuses and Components of Musical Creativity | 277 |
4.70 | Means and Standard Deviations for General Creativity by Gender | 281 |
4.71 | Result of Independent Sample $t$-test for Differences between Gender and General Creativity | 282 |
4.72 | Means and Standard Deviations for Components of General Creativity by Gender | 283 |
4.73 | Summary of Independent Sample $t$-test for Differences between Gender and Components of General Creativity | 284 |
4.74 | Means and Standard Deviations of General Creativity by Ethnicity | 285 |
4.75 | Summary One-Way ANOVA for Differences between Ethnicity and General Creativity | 286 |
Table

4.76 Means and Standard Deviations for Components of General Creativity by Ethnicity  
4.77 Summary One-Way ANOVA for Differences between Ethnicity and Components of General Creativity  
4.78 Means and Standard Deviations for General Creativity by Year  
4.79 Summary of One-way ANOVA for Differences between Academic Years and General Creativity  
4.80 Means and Standard Deviations for Components of General Creativity by Year  
4.81 Summary of One-way ANOVA for Differences between Academic Years and Components of General Creativity  
4.82 Means and Standard Deviations of General Creativity by Socioeconomic Status  
4.83 Result of Independent Sample t-test for Differences between Socioeconomic Status and General Creativity  
4.84 Means and Standard Deviations for Components of General Creativity by Socioeconomic Status  
4.85 Results of Independent Sample t-test for Differences between Socioeconomic Statuses and Components of General Creativity  
4.86 Means and Standard Deviations for Musical Creativity by Keyboard Grades  
4.87 Summary of One-way ANOVA for Differences between Keyboard Grades and Musical Creativity  
4.88 Means and Standard Deviations for Components of Musical Creativity by Keyboard Grades  
4.89 Summary of One-way ANOVA for Differences between Keyboard Grades and Components of Musical Creativity  
4.90 Correlations Matrix of Musical Creativity and its Components with Musical Activity Involvement  
4.91 Correlational Analysis between Musical Creativity and Components of Aural Discrimination  
4.92 Correlational Analysis between Components of Musical Creativity and Components of Aural Discrimination  
4.93 Correlations Matrix of Musical Creativity and its Components with Self-esteem in Musical Ability  
4.94 Means and Standard Deviations of General Creativity by Keyboard Grades  
4.95 Summary of One-way ANOVA for Differences between Keyboard Grades and General Creativity  
4.96 Means and Standard Deviations for Components of General Creativity by Keyboard Grades  

Page

287  
289  
290  
291  
292  
295  
296  
297  
298  
299  
302  
303  
305  
307  
311  
312  
314  
318  
322  
323  
324
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.97</td>
<td>Summary of One-way ANOVA for Differences between Keyboard Grades and Components of General Creativity</td>
<td>326</td>
</tr>
<tr>
<td>4.98</td>
<td>Correlations Matrix of General Creativity with Musical Activity Involvement</td>
<td>327</td>
</tr>
<tr>
<td>4.99</td>
<td>Correlational Analysis between General Creativity and Components of Aural Discrimination</td>
<td>328</td>
</tr>
<tr>
<td>4.100</td>
<td>Correlational Analysis between Components of General Creativity and Components of Aural Discrimination</td>
<td>330</td>
</tr>
<tr>
<td>4.101</td>
<td>Correlations Matrix of General Creativity with Self-Esteem of Musical Ability</td>
<td>331</td>
</tr>
<tr>
<td>4.102</td>
<td>Model Summary of Predictors on Musical Creativity</td>
<td>334</td>
</tr>
<tr>
<td>4.103</td>
<td>Results of ANOVA for Predictors on Musical Creativity</td>
<td>334</td>
</tr>
<tr>
<td>4.104</td>
<td>Standard Coefficients for Predictors on Musical Creativity</td>
<td>335</td>
</tr>
<tr>
<td>4.105</td>
<td>Model Summary of Predictors on Musical Fluency</td>
<td>337</td>
</tr>
<tr>
<td>4.106</td>
<td>Results of One-way ANOVA for Predictors on Musical Fluency</td>
<td>337</td>
</tr>
<tr>
<td>4.107</td>
<td>Standard Coefficients for Predictors on Musical Fluency</td>
<td>338</td>
</tr>
<tr>
<td>4.108</td>
<td>Model Summary of Predictors on Musical Originality</td>
<td>339</td>
</tr>
<tr>
<td>4.109</td>
<td>Results of ANOVA for Predictors on Musical Originality</td>
<td>340</td>
</tr>
<tr>
<td>4.110</td>
<td>Standard Coefficients for Predictors on Musical Originality</td>
<td>341</td>
</tr>
<tr>
<td>4.111</td>
<td>Model Summary of Predictors on Musical Elaboration</td>
<td>342</td>
</tr>
<tr>
<td>4.112</td>
<td>Results of ANOVA for Predictors on Musical Elaboration</td>
<td>342</td>
</tr>
<tr>
<td>4.113</td>
<td>Standard Coefficients for Predictors on Musical Elaboration</td>
<td>343</td>
</tr>
<tr>
<td>4.114</td>
<td>Model Summary of Predictors on Musical Resistance to Premature Closure</td>
<td>344</td>
</tr>
<tr>
<td>4.115</td>
<td>Results of ANOVA for Predictors on Musical Resistance to Premature Closure</td>
<td>345</td>
</tr>
<tr>
<td>4.116</td>
<td>Standard Coefficients for Predictors on Musical Resistance to Premature Closure</td>
<td>345</td>
</tr>
<tr>
<td>4.117</td>
<td>Model Summary of Predictors on Musical Abstractness of Title</td>
<td>346</td>
</tr>
<tr>
<td>4.118</td>
<td>Results of ANOVA for Predictors on Musical Abstractness of Title</td>
<td>347</td>
</tr>
<tr>
<td>4.119</td>
<td>Standard Coefficients for Predictors on Musical Abstractness of Title</td>
<td>347</td>
</tr>
<tr>
<td>4.120</td>
<td>Model Summary of Predictors on Craftsmanship</td>
<td>349</td>
</tr>
<tr>
<td>4.121</td>
<td>Results of ANOVA for Predictors on Craftsmanship</td>
<td>349</td>
</tr>
<tr>
<td>4.122</td>
<td>Standard Coefficients for Predictors on Craftsmanship</td>
<td>350</td>
</tr>
<tr>
<td>4.123</td>
<td>Model Summary of Predictors on Musical Syntax</td>
<td>352</td>
</tr>
<tr>
<td>4.124</td>
<td>Results of ANOVA for Predictors on Musical Syntax</td>
<td>352</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>4.125</td>
<td>Standard Coefficients for Predictors on Musical Syntax</td>
<td>353</td>
</tr>
<tr>
<td>4.126</td>
<td>Model Summary of Predictors on Musical Sensitivity</td>
<td>354</td>
</tr>
<tr>
<td>4.127</td>
<td>Results of ANOVA for Predictors on Musical Sensitivity</td>
<td>355</td>
</tr>
<tr>
<td>4.128</td>
<td>Standard Coefficients for Predictors on Musical Sensitivity</td>
<td>356</td>
</tr>
<tr>
<td>4.129</td>
<td>Model Summary of Predictors on Repetition of Song</td>
<td>357</td>
</tr>
<tr>
<td>4.130</td>
<td>Results of ANOVA for Predictors on Repetition of Song</td>
<td>357</td>
</tr>
<tr>
<td>4.131</td>
<td>Standard Coefficients for Predictors on Repetition of Songs</td>
<td>358</td>
</tr>
<tr>
<td>4.132</td>
<td>Summary of the Predictors of Musical Creativity among Musical Exposures</td>
<td>359</td>
</tr>
<tr>
<td>4.133</td>
<td>Model Summary of Predictors on Figural Elaboration</td>
<td>361</td>
</tr>
<tr>
<td>4.134</td>
<td>Results of ANOVA for Predictors on Figural Elaboration</td>
<td>362</td>
</tr>
<tr>
<td>4.135</td>
<td>Standard Coefficients for Predictors on Figural Elaboration</td>
<td>362</td>
</tr>
<tr>
<td>4.136</td>
<td>Model Summary of Predictors on Figural Resistance to Premature Closure</td>
<td>363</td>
</tr>
<tr>
<td>4.137</td>
<td>Results of ANOVA for Predictors on Figural Resistance to Premature Closure</td>
<td>364</td>
</tr>
<tr>
<td>4.138</td>
<td>Standard Coefficients for Predictors on Figural Resistance to Premature Closure</td>
<td>364</td>
</tr>
<tr>
<td>4.139</td>
<td>Summary of the Predictors of General Creativity among Musical Exposures</td>
<td>365</td>
</tr>
<tr>
<td>4.140</td>
<td>Model Summary of Predictors on Musical Creativity with Moderated Personal Variables</td>
<td>367</td>
</tr>
<tr>
<td>4.141</td>
<td>Results of ANOVA for Predictors on Musical Creativity with moderated Personal Variables</td>
<td>368</td>
</tr>
<tr>
<td>4.142</td>
<td>Standard Coefficients for Predictors on Musical Creativity with Moderated Personal Variables</td>
<td>369</td>
</tr>
</tbody>
</table>
LIST OF SYMBOLS AND ABBREVIATIONS

\[ M \quad \text{Mean} \]
\[ SD \quad \text{Standard deviation} \]
\[ n \quad \text{Sample size} \]
\[ p \quad \text{Probability} \]
\[ F \quad F\text{-ratio} \]
\[ df \quad \text{Degrees of Freedom} \]
\[ d \quad \text{Cohen } d \]
\[ \text{ANOVA} \quad \text{Analysis of Variance} \]
\[ \text{SES} \quad \text{Socioeconomic status} \]
\[ \text{SMC} \quad \text{System Model of Creativity} \]
APPENDICES

A  Demographic Questionnaire
B  Musical Activity Questionnaire
C  Aural Discrimination Test Answer Sheet
D  Self-Esteem of Musical Ability Questionnaire
E  Scoring Sheet and Examples of TTCT
F  Results of Tukey HSD test
G  Approval to Conduct Research