INTERACTION OF SELECTED SOCIAL COGNITIVE VARIABLES IN PREDICTING MUSICAL CREATIVITY AMONG FORM FOUR STUDENTS IN NAIROBI CITY COUNTY, KENYA

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MARCH 2019
DECLARATION

I confirm that this thesis is my original work and has not been presented in any other university/institution. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

Signature _______________ Date 15/3/2019

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We confirm that the work reported in this thesis was carried out by the candidate under our supervision as university supervisors.

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DEDICATION

This thesis is dedicated to my parents Norah Atieno and late John Mawang, for their love and devotion.

To my husband, Sylvance and our children Aggrey, Sophy, Marion, Rebecca and Beryl for their patience, support and inspiration.
ACKNOWLEDGEMENTS

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## ABBREVIATIONS AND ACRONYMS

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AGQ-R</td>
<td>Achievement Goals Questionnaire - Revised</td>
</tr>
<tr>
<td>AMMA</td>
<td>Advanced Measures of Musical Audition</td>
</tr>
<tr>
<td>APA</td>
<td>American Psychological Association</td>
</tr>
<tr>
<td>CAT</td>
<td>Consensual Assessment Technique</td>
</tr>
<tr>
<td>CMCAS</td>
<td>Consensual Musical Creativity Assessment Scale</td>
</tr>
<tr>
<td>KCSE</td>
<td>Kenya Certificate of Secondary Education</td>
</tr>
<tr>
<td>KNEC</td>
<td>Kenya National Examination Council</td>
</tr>
<tr>
<td>MAGQ</td>
<td>Music Achievement Goals Questionnaire</td>
</tr>
<tr>
<td>MLSQ</td>
<td>Music Learning Strategies Questionnaire</td>
</tr>
<tr>
<td>MOEST</td>
<td>Ministry of Education Science and Technology</td>
</tr>
<tr>
<td>MSLQ</td>
<td>Motivated Strategies for Learning Questionnaire</td>
</tr>
<tr>
<td>MUPQ</td>
<td>Music Participation Questionnaire</td>
</tr>
<tr>
<td>MUSPI</td>
<td>Music Self-perception Inventory</td>
</tr>
<tr>
<td>NAME</td>
<td>National Association for Music Education</td>
</tr>
<tr>
<td>PCSC</td>
<td>Perception of Child Self-concept</td>
</tr>
<tr>
<td>SEMA</td>
<td>Self-esteem of Musical Ability</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>SRL</td>
<td>Self-regulated Learning</td>
</tr>
<tr>
<td>TTCT</td>
<td>Torrance Tests of Creative Thinking</td>
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ABSTRACT

The main objective of music education is enhancement of students’ musical creativity. However, over the last six years (2012 to 2017) there has been a declining trend in the Kenya Certificate of Secondary Education music performance. This is compounded with consistent underachievement in prime creative areas like composition, aural and harmony, which signifies a decline in musical creativity among students. Although studies have associated psychological factors with musical creativity, limited local studies have examined how social cognitive attributes within the students may predict musical creativity. The purpose of this study was to determine the relationships among musical self-concept, achievement goal orientation and learning strategies, and musical creativity of secondary school music students in Kenya. The prediction equation of musical creativity given the three constructs was also established. Framed upon componential theory of creativity, musical self-concept theory and the (2 x 2) achievement goal orientation model, the study adopted an ex post facto research design. The study targeted all the year 2017 form four music students in Nairobi County. The study used purposive sampling and a census to select 201 participants (139 females and 62 males) with a mean age of 17.24 years (SD = .78). A pilot study involving 20 students was conducted. Quantitative data were collected by use of Musical Self-perception Inventory, Music Achievement Goal Questionnaire, Music Learning Strategies Questionnaire and Consensual Musical Creativity Assessment Scale. Data were analysed using both descriptive and inferential statistics. Descriptive statistics comprised of frequency distributions, percentages, measures of central tendency and variability. Inferential statistics including Pearson’s correlation coefficient and multiple regression analysis were used in hypotheses testing. Results indicated a significant positive correlation ($r(199) = .25, p < .01$) between musical self-concept and musical creativity. A significant positive correlation ($r(199) = .39, p < .01$) was also observed between mastery-approach goal and musical creativity. In contrast, there were significant negative correlations ($r(199) = -.19, p < .01$) and ($r(199) = -.28, p < .01$) between performance-approach and performance-avoidance goals respectively, and musical creativity. The results also indicated a significant positive correlation ($r(199) = .52, p < .01$) between deep processing learning strategy and musical creativity, and a significant negative correlation ($r(199) = -.24, p < .01$) between surface processing learning strategy and musical creativity. However, nonsignificant correlations were revealed among persistence and peer learning strategies, and musical creativity. The equation for predicting musical creativity was significant ($F(8,192) = 18.47, p < .01$). Deep processing learning strategy had the highest positive predictive value ($\beta = .47, p < .01$) on participants’ musical creativity. The study recommended that parents and teachers should create conducive home and school environments, which fosters positive musical self-concept, mastery-approach goal orientation and deep processing learning, to enhance musical creativity among students.
CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction
This chapter focuses on background to the study, statement of the problem, purpose and objectives of the study. The research hypotheses, assumptions, limitations and delimitations as well as significance of the study are also outlined. The theoretical and conceptual frameworks as well as operational definition of terms are specified.

1.2 Background to the Study
Globally, educational psychologists have highlighted the significance of creativity in education for the 21st century. This has prompted educational researchers, policy makers and other stakeholders to take interest in identifying strategies that may enhance creativity among students. In this regard, the Kenya Sessional Paper No. 2 of 2015 recommended a competency-based curriculum, in which creativity and imagination are among the seven core competencies to be developed in basic education. Music education offers great opportunities for musical creativity in domains such as composition, performance, improvisation, arranging, conducting, listening and analysis. The national curriculum for England proposes that teaching of music enhances self-discipline and creativity. Similarly, The National Association for Music Education (NAME) aims to advance music education by encouraging the learning and creation of music by all in the US. (Rolandson, 2015; Shaheen, 2010).
Despite the current emphasis on creativity in education, over the last six years (2012 to 2017) there has been a declining trend in the Kenya Certificate of Secondary Education (KCSE) music performance. This is compounded with underachievement in prime creative areas like composition, aural and harmony, which signifies a decline in musical creativity among students (KNEC, 2017). Although these examinations have been on general music performance, musical creativity is implied because musical knowledge and skills are essential for musical creativity.

In educational context, low music performance is likely to have a direct and negative impact on musical creativity. Morin (2002) has reiterated this position by suggesting that for students to display musical creativity, they must have a fundamental knowledge of melody, harmony and rhythm. Similarly, Gordon (1993) stated that the degree to which a learner is musically creative is directly dependent on the learner’s tonal and rhythmic vocabulary. This is further corroborated by Elliott (1995) and Laycock (1992) who stated that music composition involves creative thinking in music, which basically requires the students to apply knowledge of musical elements such as melody, rhythm and timbre, and their governing principles in musical creation.

The Kenya National Examination Council (KNEC) annual report on candidates’ performance by subject indicated that music was among the subjects with significant decline in performance between years 2012 - 2016. In general, the whole music paper recorded a decline in performance. It was further noted that melody composition, aural and harmony seemed difficult to most candidates. It was evident that very few
candidates attempted these questions and the few performed poorly (see Table H.1 of Appendix H). Though melody composition seemed difficult to most candidates it covers the most important skill of a musician. According to Burnard, Fautly and Savage (2010), musical creativity can be demonstrated through composition, improvisation, performing, listening, writing, and analysing. However, composition is considered a prime musical example of the creative act or a problem-solving activity, which involves the use of musical skills and understanding as well as original thinking or imagination in music creation (Burnard & Younker, 2004; Kokotsaki, 2012). Consistent underachievement in composition at the KCSE suggests that there is a decline in musical creativity.

The above trend also existed in the counties. Statistics obtained from the Directorate of Education, Nairobi City County (2017) indicated that between the years 2012 - 2016, Nairobi City County consistently posted low performance in KCSE music together with low enrolment and gender disparity (see Table G.1 and Table G.2 of Appendix G). The implication of such poor performance in music is that the County is not reaping full benefits of music education to individual students and the society in general. These include: enhancement of musical creativity; priority in advancing music education; and potential careers in the creative arts, cultural, digital and media industries, sectors that are contributing significantly to the world economy.
In educational psychology, creativity has been understood as the students’ ability to produce work that is both novel and appropriate within a particular domain (Barbot, Besançon & Lubart, 2011; Sternberg & Lubart 1995). Creativity is usually considered a characteristic relating to a person, process or product. Ferrari, Cachia and Punie (2009) define creativity as a product or process that shows a balance of originality and value. Characteristics of the creative product can be examined to determine the creativity of the persons who made them (Laycock, 1992). Guilford (1968) highlighted four factors of creativity which include: fluency, flexibility, originality and elaboration. Fluency refers to the ability of an individual to generate a number of appropriate responses during a limited time frame; flexibility refers to the ability to generate different kinds of responses; originality on the other hand is the degree to which the responses produced are unique or unusual while elaboration encompasses the ability to extend or enhance a simple idea.

Besançon, Lubart and Barbot (2013) distinguished between creative potential, creative accomplishment and creative talent. Creative potential is a latent ability to produce an original and adaptive work; creative achievement refers to the actual production of a creative output that has been recognized as creative in a domain-based context; and creative talent refers to the tendency to produce creative work on repeated occasions. The current study focussed on the construct of creative potential rather than creative achievement nor talent.
In educational context, musical creativity is viewed as a potential of all individuals which can be nurtured and measured (Amabile, 2012; Barbot et al., 2011). According to Elliott (1995), musical creativity is the ability to generate an original musical product that is appropriate for the musical context where it is produced. Musical creativity involves creative thinking in music with the objective of generating a novel musical product (Webster, 1990). A number of psychological variables including intelligence, cognition, knowledge, personality, motivation, emotions and the social environment have been identified as important predictors of general creativity (Barbot et al., 2011; Besançon & Lubart, 2008; Sternberg, 2006). Though, limited studies have investigated these constructs in relation to musical creativity.

Studies in music education have identified musical self-concept, achievement goal orientation and learning strategies as important social cognitive factors which regulate music students’ practice behaviour, effort and motivation towards music learning tasks and ultimately define their musical creativity, performance and achievement (Hallam, 2002; McCormick & McPherson, 2003; Miksza, 2011; Schmidt, 2005; Schmidt, Zdzinski & Ballard, 2006; Spychiger, Gruber, & Olbertz, 2009). Though, these studies were primarily conducted in the developed countries and are lacking in developing countries contexts.

Musical self-concept integrates perceptions and beliefs about an individual’s musical abilities and potential (Morin, Scals, Vispoel, Marsh & Wen, 2016). In the educational process, musical self-concept is viewed as a learner’s self-perception of
his/her musicianship which is formed through their experiences and interpretation of the school environment (Bong & Skaalvik, 2003; Elliot, 1995). According to Hallam (2002), musical self-concept influences the extent to which a learner is motivated to pursue musical activities such as practice, which is seen to be an important determinant of the level of expertise attained in music.

Research in educational psychology indicates that in addition to academic performance, students’ academic self-concept impacts their learning strategies, motivation as well as subject choices (Bong & Skaalvik, 2003). In a study of American secondary school instrumental students, Schmidt (2005) found a positive correlation between musical self-concept and intrinsic motivation. A similar pattern of results was established by Schmidt et al. (2006) among undergraduate music education majors in America. Nonetheless, limited studies have investigated musical self-concept in relation to musical creativity of secondary school students, especially in African educational context.

Music learning strategies are essential for acquisition of musicianship and musical creativity in music education process. According to Elliot, McGregor and Gable (1999), learning strategies refer to cognitive and motivational processes intentionally engaged by students during learning and preparation for examination. Previous studies have demonstrated a link between students’ learning strategies and creativity. These learning strategies include: deep processing, persistence, metacognition and team learning (Hirst, Van Knippenberg & Zhou, 2009; Ruscio, Whitney & Amabile, 1998;
Van de Kamp, Admiraal & Rijlaarsdam, 2015). Deep processing involves authentication, structuring and integration of encountered information with previous knowledge. Persistence refers to the determination to continue learning in the face of obstacles, while team learning involves using peers to collaboratively understand course material and in collective problem solving to enhance learning (Elliot et al., 1999; Pintrich, Smith, García & McKeachie, 1991). McPherson and McCormick (1999) findings suggested that instrumental students who reported higher levels of cognitive strategy use while practicing also reported higher levels of intrinsic motivation and were also more efficient with their learning. Unfortunately, literature review reveals limited studies on learning strategies in relation to musical creativity involving secondary school subjects in Africa.

Achievement goal orientation is a motivational orientation that influences individuals’ behaviour in achievement situations (Elliot et al., 1999). Two distinct goals orientation have been commonly identified. They are mastery/learning and performance/ego dimensions which can each be divided further into approach and avoidance dimensions (Elliot & McGregor, 2001; Miksza, 2011). A mastery-approach goal is focused on the development of competence and task mastery (Ranellucci et al., 2013). The orientation to this goal may generate greater musical creativity (Schatt, 2011), as the goal is associated with intrinsic interest in the task, use of deep processing strategy, persistence and effort in problem solving (Elliott et al., 1999; Janssen & Van Yperen, 2004; Ruscio et al., 1998). Schmidt (2005) indicated that instrumental music students’
success is best defined by mastery rather than performance orientation. A performance-approach goal orientation focuses on the demonstration of normative competence and is motivated by extrinsic factors such as competition and receiving incentives (Ranellucci et al., 2013). Previous research have linked performance-approach orientation to surface processing (Elliot et al., 1999; Elliot & McGregor, 2001; Ranellucci et al., 2013), which often results to temporary achievements. In contrast, performance-avoidance goal orientation motivates students to evade demonstrating normative incompetence (Ranellucci et al., 2013). Such students engage in surface learning and disorganization (Elliot et al., 1999). Due to fear of failure, they may avoid tasks such as music auditioning and public performance which would otherwise enhance their musical creativity (Schatt, 2011).

Mastery-avoidance goal drives the individual to evade the inability to maximize learning. This goal has been associated with disorganized study habits (Elliot & McGregor, 2001). Studies among students in America and Europe indicate that achievement goal orientation regulate instrumental students’ practice behaviour and define their musical achievement and creativity (Diaz, 2010; Miksza, 2011; Schmidt, 2005; Schmidt et al., 2006). In addition, mastery-approach goal positively predicts musical achievement and instrumental performance (Miksza, 2009). However, secondary school students especially in non-developed countries are underrepresented in available research on how achievement goal orientation influences music achievement and creativity. Additionally, available studies have largely focused on
instrumental students’ creativity in performance, while there is a dearth of studies in other domains of musical creativity such as composition and improvisation.

 Numerous studies in the developed counties have investigated musical self-concept, achievement goal orientation and learning strategies in relation to advanced collegiate and undergraduate instrumental students practice behaviour and musical creativity in instrumental performance. However, limited studies have specifically examined these variables in relation to musical creativity in composition among secondary school subjects. In Kenya, limited studies if any have examined how musical self-concept, achievement goal orientation and learning strategies may predict musical creativity and yet these variables have been reported to have influence on music achievement and creativity of students in developed countries. This study addressed these gaps by investigating how musical self-concept, achievement goal orientation and learning strategies predict musical creativity in composition among form four music students in Nairobi City County, Kenya.

1.3 Statement of the Problem
Statistics by KNEC between 2012 and 2017, consistently pointed to low performance in KCSE music and underachievement in prime creative areas such as composition, aural and harmony which signified a decline in musical creativity among students. Similar trend also affected Nairobi City County. If not effectively investigated and addressed, persistent low performance in KCSE music within Nairobi City County will continue to hinder students' musical creativity and limit opportunities for
advanced music training and employment. Thus, there is need to study the factors that are associated with students’ music achievement and musical creativity.

Investigations by educational researchers in Kenya have indicated that the continued poor performance in KCSE music may be due to shortage of necessary facilities such as pianos, keyboards, and other relevant musical instruments. Consequently, most students have limited skills in musical instruments; insufficient number of music teachers; unfavourable teaching strategies; and reluctance by school administration to advance the use of computer technology in music teaching and learning at secondary school level (Akuno, 2005; Mbeche, 2010; Wanyama, 2006). The aforementioned contextual factors are generally not within control of the students. However, underachievement in music education and subsequent decline in musical creativity may also be attributed to social cognitive factors within the students. Research attention on how students’ social cognitive factors influence musical creativity will ensure that interventions to address music underachievement are learner-centered.

This study proposed that if social cognitive factors within the students were studied systematically and well understood, they could be manipulated to enhance students’ music achievement and musical creativity. From the foregoing background to the study, it is evident that musical self-concept, achievement goal orientation and learning strategies entail important social cognitive factors which regulate music students’ practice behaviour and influence their music achievement (Hallam, 2002; McCormick & McPherson, 2003; Miksza, 2011; Morin et al., 2016; Schmidt, 2005,
Schmidt et al., 2006). However, the evidence is from studies that mainly involved students in the developed countries. The studies have also not developed a prediction model to establish the relative predictive weight of the three constructs on musical creativity. Additionally, there is little focus on how the three constructs predict musical creativity among secondary school students in African educational contexts. The fundamental problem of this study was therefore to develop a prediction model of musical creativity from musical self-concept, achievement goal orientation and learning strategies of form four music students in Nairobi City County.

1.4 Purpose of the Study

The purpose of this study was to establish the relationship among musical self-concept, achievement goal orientations and learning strategies and musical creativity of secondary school music students in Nairobi City County, Kenya. The study also aimed at establishing a prediction equation of musical creativity from musical self-concept, achievement goal orientations and learning strategies. The information gained from this study may be used to guide music students in adopting and development of the construct which positively enhances musical creativity.

1.5 Objectives of the Study

This study sought to achieve the following objectives:

i. To determine the relationship between students’ musical self-concept and musical creativity.
ii. To establish the relationship between students’ achievement goal orientation and musical creativity.

iii. To determine the relationship between students’ music learning strategies and musical creativity.

iv. To establish the prediction equation of musical creativity from musical self-concept, achievement goal orientation and learning strategies.

1.6 Research Hypotheses

The study was guided by the following research hypotheses:

Hₐ₁: There is a significant relationship between students’ musical self-concept and musical creativity.

Hₐ₂: There is a significant relationship between students’ achievement goal orientation and musical creativity.

Hₐ₃: There is a significant relationship between students’ music learning strategies and musical creativity.

Hₐ₄: There is a significant equation for predicting musical creativity given musical self-concept, achievement goal orientation and learning strategies.

1.7 Assumptions of the Study

This study assumed that individual students had already adopted different types and levels of music learning strategies and achievement goal orientation. It was also assumed that the students had established different musical self-concepts which would
produce different levels of musical creativity. Another assumption was that the participants’ responses to the questionnaire were honest and accurate. It was also assumed that the participating schools provided homogeneous environments for the development of musical self-concept, achievement goal orientation, learning strategies and musical creativity. This assumption was based on the fact that these schools followed a similar curriculum and were within the same county.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations of the Study

A key limitation of the current study is that it only involved form four music students in selected secondary schools within Nairobi City County. The findings may be generalizable to music students with similar characteristics but with caution. Another limitation was that the researcher mainly utilized students’ self-report questionnaires for data collection. Thus, a certain degree of subjectivity in the findings was unavoidable. Additionally, as links between the constructs in the present study were primarily correlational, larger claims of causality could not be made regardless of the conceptual framework and the effects implied by the prediction model.

Finally, the participants’ musical creativity was based on their aggregate scores in a creative compositional task. The reliability of the musical creativity scores largely depended on the consistency of the two expert judges in rating the participants’ compositions, making it difficult to rule out a degree of subjectivity in the findings.
1.8.2 Delimitations of the Study

The sample for this study was confined to 201 form four music students in 21 secondary schools in Nairobi City County, excluding the other classes. The study focused on social cognitive factors including musical self-concept, achievement goal orientation and learning strategies as predictors of musical creativity, out of the many factors that influence students’ musical creativity. In addition, musical creativity was based on the componential theory of creativity, although there are other creativity theories such as the generativity theory, investment theory and threshold theory which could have been relevant to this study. Moreover, musical creativity was solely inferred from participants’ aggregate scores obtained in a creative composition task. The other domains of musical creativity such as performance, improvisation, listening and analysis, were not incorporated in this study.

1.9 Significance of the Study

This study established the relationships among students’ musical self-concept, achievement goal orientation, learning strategies and musical creativity. The findings of this study enrich existing literature on musical self-concept, achievement goal orientation, learning strategies and musical creativity among students in Kenya. Prior to this study, studies on these variables had mainly been conducted with participants in the developed countries.
The findings may also enhance conceptual knowledge of musical creativity and inform educational stakeholders on how musical self-concept, achievement goal orientation and learning strategies relate to musical creativity. Thus, music educators may strive to nurture positive musical self-concept, promote deep processing learning strategies and mastery-approach achievement goal orientation among music students, to enhance their musical creativity. In addition, teachers and parents may use the findings as they structure conducive home and school learning environment to help music students accomplish musical self-expression, which could enhance positive musical self-concept. It is also hoped that music educators and researchers may capitalize on the study results to develop instructional methods that are effective in enhancing students' positive musical self-concept and adoption of mastery-approach achievement goal orientation and deep processing learning strategy.

1.10 Theoretical Framework and Conceptual Framework

1.10.1 Theoretical Framework

This study is based on three theoretical frameworks: Musical Self-Concept Theory (Spychiger, et al., 2009), the (2 x 2) Achievement Goal Theory (Elliot & McGregor, 2001) and Componential Theory of Creativity (Amabile, 2012). The constructs, musical self-concept and achievement goal orientation are conceptualized as theories. Therefore, Musical Self-Concept Theory and Achievement Goal Theory enabled the researcher to establish each construct into perspective. The Componential Theory of Creativity integrated the three independent variables and the dependent variable and
formed the main theoretical basis of the study. This section cites the propositions in these theories and demonstrates their link to the current study.

i) **Musical Self-Concept Theory (Spychiger et al., 2009)**

Spychiger et al. (2009) conceived musical self-concept as a person’s self-perception or self-evaluation with regards to general musical domain. They presented a multi-dimensional model of musical self-concept in which musical self-concept comprised both non-academic and academic dimensions. The non-academic dimension of musical self-concept deals with who the individual is in music. It is concerned with the emotional, social, physical, cognitive and spiritual notions of the individuals. The academic dimension on the other hand, entails what the individual can do in music. It comprises musical abilities such as singing, aural, harmony, arrangement and composition (Spychiger et al., 2009).

Music self-concept is related to intrinsic motivation towards musical practice (Hallam, 2002; Morin et al., 2016; Schmidt, 2005). In educational settings, students with positive music self-concepts tend to invest more effort and perform better in musical activities (Schmidt, 2005). The current study mainly focused on the academic dimension of musical self-concept. Positive musical self-concept may motivate students to select music, which is an optional subject at secondary school level. Positive musical self-concept may also enable the music students to adopt appropriate music learning strategies and achievement goal orientation which will ultimately lead to attainment of higher musical creativity.
ii) The 2 x 2 Achievement Goal Theory (Elliot & McGregor, 2001)

This study adopted the (2 x 2) achievement goal conceptual framework advanced by Elliot and McGregor (2001). This model consists of four achievement goals. They include: mastery-approach, mastery-avoidance, performance-approach and performance-avoidance. Based on this model students who focus on mastery-approach goal are driven by task mastery and development of competence, whereas mastery-avoidance goal-oriented students are focused on evading the inability to maximize on learning. Performance-approach goal motivates students to demonstrate their capability to others, while performance-avoidance goal drives students to evade appearing incompetent to their peers (Ranellucci et al., 2013).

Elliot and McGregor (2001) also contend that mastery-oriented students are intrinsically motivated to learn a task, while those who focus on performance-approach and performance-avoidance goals are extrinsically motivated. Based on the mentioned suggestions, participants who embraced a mastery-approach goal in the current study were expected to be intrinsically motivated to music learning tasks. It was anticipated that they were likely to attain higher musical creativity than their extrinsically motivated counterparts, who adopted performance goal (Elliot & McGregor, 2001).

iii) Componential Theory of Creativity (Amabile, 2012)

According to Amabile (2012), creativity is the production of a novel and appropriate response, product or solution to an open-ended task in a particular domain. Amabile advanced a componential model of creativity in which domain-relevant skills,
creativity-relevant processes, intrinsic task motivation, and the social environment are all viewed as necessary components of creative performance.

According to this theory, one of the primary requirements for creativity is having specialized domain knowledge and creative strategies. Music learning strategies are essential for acquisition of music knowledge. Previous studies link students’ learning strategies including deep processing strategies, persistence and team learning to creativity (Hirst et al., 2009; Ruscio et al., 1998; Van de Kamp et al., 2015). In the previous studies, participants who adopted deep processing, persistence and team learning strategies tended to achieve high musical creativity.

Amabile (2012) further postulates that intrinsic task motivation is essential for creativity. Musical self-concept relates to the motivational component of musical creativity. Positive musical self-concept was expected to enhance participants’ motivation in music learning tasks and possibly produce high musical creativity (Hallam, 2002; Morin et al., 2016; Schmidt, 2005; Spychiger et al., 2009). Similarly, achievement goal orientation relates to both the motivational and learning strategies component of musical creativity. Study by Hirst et al. (2009) establishes a positive relationship between mastery goal orientation and creativity. Additionally, performance-approach orientation is positively related to creativity when team learning is high, and performance-avoidance orientation is unrelated to creativity. Based on this study, participants who adopted mastery-approach goal were expected to be intrinsically motivated to music learning tasks (Elliot & McGregor, 2001), adopt
deep processing strategies and probably attain high musical creativity (Elliot et al., 1999; Hirst et al., 2009; Ruscio et al., 1998).

Similarly, participants who focused on performance-approach goal were likely to be extrinsically motivated to music learning tasks (Elliot & McGregor, 2001), adopt surface processing strategies (Elliot et al., 1999) and possibly attain high musical creativity when peer learning strategy was high (Hirst et al., 2009). On the other hand, the performance-avoidance oriented participants were likely to be extrinsically motivated, make use of surface processing strategies (Elliot & McGregor, 2001) and possibly attain low musical creativity.

1.10.2 Conceptual Framework

The current study variables, their probable interactions and anticipated interrelationship are shown in Figure 1.1. The independent variables were musical self-concept, music achievement goal orientation and music learning strategies, while musical creativity was the dependent variable. Participants’ musical creativity was hypothesized to be influenced by their musical self-concept, achievement goals and learning strategies. Positive musical self-concept, mastery-approach goal orientation and deep processing strategy were expected to have positive correlations with musical creativity. On the contrary, negative musical self-concept, surface processing learning strategy and performance goal orientations were expected to have a negative correlation with musical creativity.
Musical self-concept was also hypothesized to interact with music achievement goals and music learning strategies in determining musical creativity. Participants with positive musical self-concept were expected to adopt a mastery-goal orientation, use deep processing, persistence and peer learning strategies and eventually realize high musical creativity. In contrast, participants with negative musical self-concept were expected to adopt performance-goal orientation and use surface possessing learning strategies, and attain low musical creativity. Gender differences in musical self-concept and achievement goals, as well as learning strategies were likely to be realized.
**Figure 1.1**: Conceptual model showing the relationship among study variables

**Independent Variable**
- **Music Achievement Goals**
  - Mastery-approach
  - Performance –approach
  - Performance -avoidance

**Moderator Variable**
- **Musical Self-Concept Dimensions**
  - Singing
  - Instrument
  - Reading
  - Composing
  - Listening
  - Dance
  - Rhythm
  - Global

**Dependent Variable**
- **Musical Creativity Dimensions**
  - Craftsmanship
  - Syntax
  - Originality
  - Aesthetic sensitivity

**Gender**
- Male
- Female

**Music Learning Strategies**
- Deep Processing
- Surface processing
- Persistence
- Peer Learning

*Note.* Anticipated relationships Interaction effect
1.11 Operational Definition of Terms

**Aesthetic musical sensitivity:** The score at the interval level indicating the degree to which a participant’s composition is musically expressive and appealing as rated by Consensual Musical Creativity Assessment Scale (CMCAS). Higher scores indicated high levels of aesthetic musical sensitivity.

**Music achievement goals:** A measure at the interval level of a participant’s motivation orientation as assessed by Music Achievement Goal Questionnaire (MAGQ), which comprised of three subscales: mastery-approach, performance-approach and performance-avoidance. An aggregate score in a particular subscale indicated a participant's level of focus on the corresponding goal.

**Music learning strategy:** A measure at the interval level of the cognitive and motivational processes used intentionally by participants to achieve music learning goals as assessed by Music Learning Strategies Questionnaire (MLSQ). The cognitive strategies were measured by deep processing and surface processing subscales, while the motivational strategies were assessed by persistence and peer learning subscales. An aggregate score in each subscale showed a participant’s level of focus on the corresponding learning strategy.

**Musical craftsmanship:** The score at the interval level indicating the degree to which the tonal and rhythmic elements in a participant’s composition
demonstrate technical competence as rated by CMCAS. Higher scores indicated high technical mastery.

**Musical creativity:** A measure at the interval level of a participant’s ability to compose an original and useful music as rated by CMCAS which is comprised of four dimensions: musical originality, musical syntax, musical craftsmanship and aesthetic musical sensitivity. Higher aggregate scores indicated high levels of musical creativity.

**Musical originality:** The score at the interval level indicating the degree to which a participant’s composition is unique when compared to the existing melodies by other participants as rated by CMCAS. Higher scores indicated highly unique and different melody.

**Musical self-concept:** A measure at the interval level of a participant’s self-perception of their musical ability as assessed by Music Self-perception Inventory (MUSPI) which comprised of eight dimensions: singing, instrument playing, music reading, music composition, music listening skills, dancing, sense of rhythm and global. Higher aggregate scores indicated positive musical self-concept while lower scores indicated negative musical self-concept.

**Musical syntax:** The score at the interval level indicating the degree to which the tonal and rhythmic patterns in a participant’s composition are structured in a logical manner as rated by CMCAS. Higher scores indicated highly structured melody.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, studies on the relationships among musical self-concept, achievement goal orientation and learning strategies, and musical creativity were reviewed. In addition, a review of studies on prediction of musical creativity from musical self-concept, achievement goal orientation and learning strategies are presented. The chapter ends with a summary of the literature review and gap identification.

2.2 Relationship between Musical Self-concept and Musical Creativity

A few studies were found to have directly investigated the relationship between musical self-concept and musical creativity among secondary school students. Demorest, Kelley and Pfordresher (2017) examined the relationship between musical self-concept and students’ singing ability among high school students in the US. Participants were 319 (49% females and 51% males) with a mean age of 12.16 years. The Music Participation Questionnaire (MUPQ; Clements, 2002) was used in data collection. Singing ability was assessed by two independent judges.

Data were analysed using Pearson’s correlation. Their results indicated that musical self-concept correlated significantly with students’ singing ability. However, the generalizability of the results is limited by the fact that the study solely focused on
musical creativity in singing performance. This presented a need to confirm the findings when creativity is measured through music composition in an African educational context like Kenya. This concern was addressed in the current study.

In a related study, Sanders (2010) examined the relationships amongst musical self-concept, music background and music aptitude. Participants were 84 (58 females and 26 males) undergraduate non-music majors in the US. Majority of participants (85%) were aged between 16 and 24 years, while 15% were 25 years or older. Data were collected using the Music Self-Perception Inventory, Advanced Measures of Music Audition, and the Music Background Questionnaire. Data were analysed using Pearson’s correlation and multiple regression analysis.

The study found that variables associated with affective aspects of the musical experience were strongly related to musical self-concept. The study concluded that greater emphasis on music performance, improvisation, and other music making may lead to higher student self-concept than listening. However, the research only focused on a sample of undergraduate non-music majors. The author recommends the use of other populations of music majors and age ranges to determine whether these findings may be generalized to other groups. To address this concern, the current study involved a sample of secondary school music students in Kenya.

In a mixed-methods study, Draves (2008) investigated the relationships between musical self-concept and music aptitude, and musical achievement as measured by
participants' original compositions amongst undergraduate students in the US. A sample of 20 first year non-music majors, enrolled in a music composition course participated in the study. Quantitative data were collected using Self-Esteem of Musical Ability (SEMA; Austin, 1990), and Advanced Measures of Musical Audition (AMMA; Gordon, 1989). Participants' original compositions were rated by two independent judges. Qualitative data were obtained by coding and analysing participants’ Journal entries. Pearson’s correlation was used in data analyses.

The study results indicated significant relationships between all criterion measures and outcome variables. The study concluded that providing opportunities for social music-making may enhance interest in music, and musical creativity amongst students. However, generalizability of the study findings was limited by the small sample size. The author recommends a replication with larger sample and with samples of different age levels in other geographic areas. The current study therefore involved a larger sample of secondary school music students in Kenya.

To understand the relationship between musical self-concept and musical creativity, Laycock (1992) conducted a study involving 56 high school students in the US. The participants were aged between 15 to 18 years. Musical self-concept was measured using the Self-Esteem of Music Ability Questionnaire (SEMA; Austin, 1990). Musical creativity was inferred from participants’ original compositions, which were rated by two independent judges. The study found that musical self-concept had a strong positive correlation with musical creativity. However, the Self-Esteem of Music
Ability Questionnaire (SEMA), used in this study only provides a global measure of musical self-concept (Austin, 1990), and its results may not reflect specific dimensions of musical self-concept. The current study therefore used the recently developed (MUSPI-Version 2; Vispoel, 2017) among a sample of Kenyan secondary school music students. The MUSPI assesses perceptions of general music ability (global musical self-concept) as well as perceptions of specific skill in the music subdomains of singing, instrument playing, reading music, composing, listening, dancing and sense of rhythm. This facilitated in-depth analyses as well as comparison of the musical self-concept dimensions.

The MUSPI was developed in America and it was validated with a sample of American high school students. Morin et al. (2016) emphasized the need to conduct further research exploring the application of the MUSPI among students in Non-American contexts. However, the validity of the MUSPI as used to study secondary school students in African contexts where home and schooling conditions are different from those in Western countries remains unexplored. It also remains unclear whether musical self-concept as measured through the MUSPI, can reliably predict musical creativity of secondary school students. These challenges were addressed in the current study by investigating musical self-concept as measured by the MUSPI among a sample of Kenyan secondary school music students.

The relationship between self-concept and creativity is also reported in a quasi-experimental study involving early childhood education pupils in Spain. Franco (2006)
established the effect of self-concept on pupil’s creative ability. A sample of 71 pupils (24 - experimental group; 25 - first control group; and 22 - second control group), aged between 5 - 6 years participated in the study. The general hypothesis of the study was that the stimulation of creativity can promote positive self-concept in children. The experimental group was submitted to a programme that stimulated creativity based on children’s stories. The Torrance Tests of Creative Thinking (TTCT) and Perception of Child Self-Concept (PCSC) test were used as evaluation instruments.

The study findings indicated that the self-concept and levels of creativity in the experimental group increased significantly as compared with the control groups, suggesting a relationship between self-concept and creativity. However, the focus of the study was confined within a population of early childhood education learners which limited generalization of its findings to other levels of education. The gap was addressed in the current study by investigating musical creativity among secondary school music students in Kenya.

No study was readily available on the effect of musical self-concept on musical creativity among secondary students in Kenya. Its importance was inferred from studies on academic self-concept, academic achievement and music education. An ex-post-facto research by Matiti (2012) established the relationships among music education and music performance, and students’ self-concept and academic achievement among secondary school students in Kenya. A sample of 80 (50% males and 50% females), form-three music students participated in the study. Majority
(87.5%) of the participants were aged between 16 and 20 while 12.5% were aged 15 years and below. Students’ self-report questionnaire and documents analyses were used in data collection. The study findings revealed that students’ academic self-concept significantly correlated to music education and music performance. Nevertheless, academic self-concept involves students’ perception of their general academic ability at school and therefore cannot give specific information on students’ musical self-concept. Additionally, the study did not establish how musical self-concept relates to musical creativity. This was a gap addressed in the current study.

The reviewed studies revealed relatively limited research on relationship between musical self-concept and musical creativity among secondary school students in African educational contexts. This present study was designed to investigate how musical self-concept as measured by the MUSPI related with musical creativity among secondary school music students in Kenya.

2.3 Relationship between Achievement Goal Orientation and Musical Creativity

The reviewed literature established that limited studies directly investigated the relationship between secondary school students’ achievement goals and musical creativity. Wang, Tan, and Dairianathan (2018) concurrently examined the domain specificity of Elliot’s 2 × 2 achievement goal framework across music, visual art, and sports. Participants were 103 (37 males and 66 females) collegiate student in Singapore. The mean age of participants was 26.98 years (SD = 4.79). Data were collected via self-report questionnaires that included measures of achievement goal
orientation, implicit beliefs of intelligence, and intrinsic motivation. The study results from MANOVA, ANOVA and multiple regressions analyses indicated that achievement goals are domain-specific and are highest in participants’ area of specialization; performance-approach and performance-avoidance achievement goals in music were not significantly different; and mastery-approach goal positively predicted enjoyment in each specialization. The study concluded that achievement goals are not generalizable across different domains. However, the study did not investigate how the components of achievement goal orientation influenced musical creativity, an interest of the current study.

In a survey study, Köksoy and Uygun (2018) examined achievement goal orientation in relation to eight variables among undergraduate music students in Turkey. Participants were 1,250 (60% females and 40% males). The Achievement Goal Orientation Scale and an information form were used in data collection. Non-parametric tests comprising The Mann–Whitney U test and the Kruskal–Wallis test were used in data analyses. Their results indicated that gender, grade level and music achievement had small effect on achievement goal orientation while music practice and music self-perception had medium effect on achievement goal orientation. The study concluded that enlightening students about the achievement goal orientation may make their learning processes more effective by revealing how they are motivated towards the learning tasks. The authors recommend the use of parametric methods to
broaden the understanding of the relationship between achievement goal orientation and musical achievement outcomes, an aspect of the current study.

In their study, Miksza, Tan and Dye (2016) conducted a cross-cultural examination of achievement goal motivation for instrumental music among American and Singapore students. Participants were 359 (217 high school students from the US and 142 polytechnic students from Singapore). Measures of the 2 × 2 achievement goal orientation, flow in band rehearsal, determination in practising and commitment to band were used in data collection. The study results from confirmatory factor analyses established that the 2 × 2 achievement goal framework had satisfactory fit to the data. No significant differences in achievement goal were found as a function of culture. However, some differences were found between the achievement goal subscales and flow, determination and commitment as a function of culture. In light of these findings, a key objective of the current study was to establish the relationship between achievement goal orientation and musical creativity among secondary school students in Kenya.

In a replication and extension of Miksza et al. (2016) study, Tan and Miksza (2017) examined individual and collective achievement goal orientation in relation to three adaptive learning outcomes: flow, grit, and commitment to band among collegiate instrumental students from the US and Singapore. The purpose of the study was to determine the cross-cultural validity of a collective achievement goal model, and establish correlations amongst collective achievement goal orientation, and flow, grit
and commitment to band. Participants comprised 427 instrumental students. Specifically, 227 (41% males and 51% females; mean age = 19.39, SD = 1.88) were from the US, and 200 (47% males and 53% females; mean age = 21.66, SD = 2.23) from Singapore. The revised achievement goal questionnaire (Elliot & Murayama, 2008); the short dispositional flow scale; the short grit scale; and the commitment to band scale (Schmidt, 2005) were adapted and used in data collection.

Their results indicated that mastery-approach orientation was rated the highest by both groups. Moderate to weak positive correlations were observed between performance-approach orientation and grit and commitment to band. Additionally, a weak negative correlation was revealed between performance-avoidance and grit. However, the study only involved university students and did not investigate how the components of achievement goal orientation influence musical creativity in composition. There was a need to compare the findings with data obtained from secondary school students. This was a major focus of the current study.

In yet another study, Miksza (2011) investigated the relationship between observed music practice behaviours and achievement goal motivation of 55 (31 males and 24 females) undergraduate instrumental students in the USA. The study sought to establish the impact of achievement goal motivation on practice effectiveness, and the relationships between practice behaviours and achievement in music performance. Participants completed the 2 x 2 Achievement Goal Questionnaire (Elliot & McGregor, 2001) and a Practice Habit Questionnaire. The study results indicated that
there were significant correlations between achievement goal motivation subscales and observed music practice behaviours. Generally, the sample endorsed mastery orientation more than performance orientation, with the mastery-approach having the highest mean among the achievement goal subscales. However, the study involved a relatively small sample size of university students which limited its generalizability. There was a need to compare the findings with data obtained from secondary school students, an aspect of the current study.

To understand the relationship between achievement goal orientation and musical performance, Diaz (2010) conducted a survey study among 169 (77 females and 92 males) university instrumentalists in the US. Self-report questionnaires were used in data collection. Data were subjected to descriptive statistics and factor analysis. The study results revealed relatively high means for variables associated with mastery goal orientation, while relatively low means were associated with variables regarded as performance goal orientation. The study concluded that instrumental students consider mastery orientation factors to be more motivating for musical activities over performance orientation. The study was confined to the dichotomous model of achievement goal orientation and only focused on advanced instrumentalists in the US. The current study therefore sought to establish how achievement goal orientation as conceptualized under the trichotomous model related with musical creativity amongst secondary school students in Kenya.
The reviewed studies revealed relatively limited research on relationship between achievement goal orientation and musical creativity among secondary school students in African educational contexts. This present study was designed to investigate how achievement goal orientation as measured by the Achievement Goal Questionnaire-Revised (AGQ-R) related with musical creativity among secondary school music students in Kenya.

2.4 Relationship between Music Learning Strategies and Musical Creativity

The reviewed literature indicates that a few studies directly investigated the relationship between music learning strategies and musical creativity. Recently, McPherson, Osborne, Evans and Miksza (2019) used a multiple case study design, to describe the development of self-regulated learning (SRL) amongst undergraduate instrumental students in Australia. The purpose of the study was to apply microanalysis technique to understand students’ self-regulated learning in the music context. Two first year Bachelor of Music students aged 17 and 18 years participated in the study. Video recording of the music practice sessions and guided interviews were used in data collection.

The case studies demonstrated two broadly contrasting self-regulated learning profiles of behaviour, cognition, and affect. The study concluded that microanalysis techniques built on the three phases of self-regulated learning strategies can be adapted to study music practice. The authors recommend the use of large-scale quantitative approaches
where students’ learning strategies are analysed in relation to music performance scores or other indices of music performance ability, an aspect of the current study.

In a pilot study, Green (2010) applied qualitative research method and related the concept of learning style and learning strategy to the context of instrumental music learning in the UK. Fifteen instrumental students, mainly drawn from Grade 2 standard and their teachers (4 females) participated in the study. The students were aged between 10 – 17 years. Data were collected through participant observation and audio recording of students’ learning activities.

The study findings demonstrated four potential learning styles and a range of learning strategies that emerged spontaneous and unexpected among the participants. The study concluded that the practice of playing by ear can reveal a range of spontaneous learning styles and learning strategies amongst students that may provide new insights for music teachers. However, the focus of the study was specifically confined to performing learned music. Additionally, the learning processes highlighted were highly individualized. There was need for a large-scale study to investigate learning strategies in a music classroom context. This was a major focus of the current study.

In a replication and extension of Green’s (2010) study, Varvarigou and Green (2015) used qualitative research method to discuss the emergence of learning styles and learning strategies based on learners’ initial responses to music performance task. Participants were 75 students (73% females and 27% males), mainly drawn from
preparatory, grade 1 and grade 2 standards and 15 teachers (13 females and 2 males) in the UK. The students were aged between 11 and 14 years. Data collection involved interviews and questionnaires for both students and teachers, and audio recordings of one on one performance session from the students. The study findings from the lessons’ transcriptions indicated that four learning styles were apparent amongst instrumental music students. The analysis revealed that the learners adopted a variety of learning strategies including listening without playing, playing isolated notes, asking questions, listening and playing along with the recording and experimenting. The study revealed a range of learning strategies in music education context, within the limitations of a qualitative research. There was need to pursue a quantitative study to establish how these learning strategies relate to musical creativity in a secondary school music classroom context in Kenya. This gap was addressed in the current study.

To understand learning strategies in relation to music performance, Nielsen (2004) conducted a study involving 130 (55% females and 45% males) first-year music students in Norway. The main purpose of the study was to determine the strategies employed during music practice that are most appropriate to improving music performance. The participants mean age was 20.80 years ($SD = 6.30$). The Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991) was adapted to assess participants’ strategic learning and self-efficacy beliefs. The study results indicated that music students generally applied cognitive and metacognitive strategies during practice, and that they engaged resource management strategies to a lesser extent than
other strategies. Music students high in self-efficacy reported using more learning strategies compared with students low in self-efficacy. However, relation between learning strategies and musical creativity was not established. Accordingly, this present study sought to determine whether learning strategies may predict musical creativity among secondary school students in Kenya.

In yet another study, Nielsen (2010) examined epistemic beliefs and self-regulated learning among university instrumental students in Norway. Participants were 130 (71 females / 59 males) first-year music students aged between 18 - 43 years ($M = 20.80; SD = 6.30$). The main objective of the study was to establish the relationships among music students’ epistemic beliefs and self-reported learning strategies in practising a musical instrument. The Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991) was adapted to assess participants’ learning strategies. The study findings indicated that beliefs about the control of knowledge acquisition and the simplicity of knowledge are significantly related to learning strategies. However, the study only involved university students in Norway and did not establish relations between learning strategies and musical creativity. This gap was addressed in the current study.

In a multiple case study, Nielsen (2015) established self-regulated learning strategies of two instrumental students in Norway. Participants were third-year undergraduate students enrolled in a music performance course. The gender and ages of the participants were not revealed due to the ethical procedures relating to anonymity. Data were collected through video recordings of participants’ practice sessions and
stimulated recall interviews. The study results indicated that music students use a range of cognitive strategies and metacognitive strategies during practice. However, the students did not always adapt their strategic activities based on their self-evaluations during practice. The study concluded that providing instructions on self-regulated learning strategies within music education may enhance students’ skills in instrumental practice. The study reported results within the constraints of a multiple case study amongst two undergraduate samples which limited its generalizability to other music education contexts. The author recommends the use of survey study to broaden the understanding of the relations between learning strategies and musical achievement outcomes, an aspect of the current study.

In an experimental study, Miksza (2015) examined the effect of self-regulation instructions on practice behaviour, performance achievement, and musical self-efficacy of undergraduate instrumental students in the US. The participants were 28 music majors (54% males and 46% females) with a mean age of 20 (SD = 1.24) years. The purpose of the study was to examine the relative effectiveness of two pedagogical interventions on the practice behaviour, performance achievement, and musical self-efficacy of instrumental students. The control group were only presented with instructions about practice behaviours, while the experimental group received lessons in practice behaviours in addition to self-regulation instructions. Participants completed a questionnaire with items pertaining to their musical experience, practice behaviours and a self-efficacy measure. Three independent judges assessed
participants’ performance achievement prior to practice and after practice on days 1 and 5 of the study. The study results from analyses of mean differences between the pre- and post-test performance achievement indicated that participants in the experimental groups were able to make significantly greater gains in performance achievement on day 5 than those in the control group. No significant differences were detected ($p > .05$) in participants’ self-efficacy and the practice behaviours. The study concluded that the self-regulation instruction helped the participants to be more efficient and effective in their practicing. The author recommends replication of the study with larger and more varied sample to enhance generalizability of the findings. Moreover, there was a need to examine learning strategies as they relate to music learning outcomes and musical abilities. This concern was addressed in the current study.

In their study, McCormick and McPherson (2003) investigated learning strategies and graded instrumental performance among elementary to advanced levels instrumental students in Australia. The main objective of the study was to establish the relationships between learning strategies and instrumental performance. Participants ($N = 332$) were aged between 9 to 18 years ($M = 12.8$). The participants completed a self-report questionnaire involving dimensions of music learning strategies (rehearsing, elaboration, organizational strategies and effort management). Music performance was examined by the Trinity College, London graded performance examinations.
The study findings from using structural equation modelling indicated that learning strategies did not significantly correlate with music performance. However, results of the study were inconclusive. The authors recommend the use of refined instruments for measuring learning strategies. Accordingly, the current study adapted the Motivated Strategy for Learning Questionnaire (Pintrich et al., 1991) to address this concern. Construct validity and reliability of the (MSLQ) has been established in a number of studies and is summarized in Pintrich et al. (1991).

In their study, Van de Kamp et al. (2015) used a quasi-experimental design to examine the effects of explicit instruction of metacognition on creativity of secondary school visual arts students in the Netherlands. The main objective of the study was to examine the effects of explicit instruction of metacognition on students’ divergent thinking. The participants were 147 (80 females / 67 males) aged between 16 to 17 years. The experimental group attended one intervention lesson with explicit instruction of metacognition, in addition to the regular lessons. Pre-test and post-test instances were used to measure fluency, flexibility and originality as indicators of creativity.

The study findings indicated that metacognitive knowledge positively affects fluency and flexibility dimensions of creativity, but not originality. The study only focused on visual arts students in the Netherlands. There was a need to confirm the findings when creativity is measured through music composition in an African educational context like Kenya. This concern was addressed in the current study.
A step not taken in the reviewed studies was to investigate the relationship between learning strategies and musical creativity among secondary school students in African educational contexts. This present study was designed to investigate how learning strategies as measured by the Motivated Strategies for Learning Questionnaire (MSLQ) related with musical creativity among secondary school music students in Kenya.

2.5 Prediction of Musical Creativity from Musical Self-concept, Achievement Goal Orientation and Learning Strategies

Although no reviewed study directly investigated the prediction of students’ musical creativity given musical self-concept, achievement goals and learning strategies, this prediction was inferred from a few related studies. Nielsen (2008) investigated the relationships among achievement goals, learning strategies and instrumental performance. The participants were 130 (71 females/ 59 males) first-year music students in Norway. The study results indicated that achievement goal orientation variables were not related to instrumental performance. Significant correlations were found between mastery-goal and learning strategies, and between performance-avoidance goal and learning strategies. However, the study only involved university students in the US and did not investigate whether the two constructs could jointly predict musical creativity. There was a need to compare the findings with data obtained from secondary school students. This was a major focus of the current study.
Recently, Demorest et al. (2017) reviewed earlier, examined musical self-concept, singing ability, attitude and family music participation as predictors of high school students’ future music participation in the US. The study results from multiple linear regression analyses indicated that musical self-concept, peer influence, and family music participation can predict students’ elective music participation with 74% accuracy. Musical self-concept was the only unique predictor of students’ singing accuracy, accounting for approximately 16% of the variance in singing accuracy. The findings were specifically confined to musical creativity in vocal performance amongst participants in the US. This presented a need to confirm the findings when creativity is measured through music composition in an African educational context like Kenya. This gap was addressed in the current study.

To understand the contribution of achievement goal orientation in predicting musical creativity, Miksza (2009) conducted a study involving 60 (30 females and 30 males) high school music students in the US. The mean age of the participants was 16 years. The research purposed to establish correlations among achievement goal orientation, instrumental performance achievement and practice behaviours. The 2 X 2 Achievement Goal Questionnaire (Elliot & McGregor, 2001), was used in data collection. The study findings indicated that mastery-approach goal orientation was a significant positive predictor of instrumental performance achievement. There was a scarcity of such studies among secondary school students in African educational contexts, hence the need for the current study.
In a related study, Tan and Miksza (2017) reviewed earlier, examined collective and individual achievement goal orientation as predictors of three adaptive music learning outcomes: flow in band, grit, and commitment to band among collegiate instrumental students in the US and Singapore. The study results from hierarchical regression analyses indicated that collective achievement goal subscales explained 14% of the variance in flow in band. Mastery-approach and mastery-avoidance from the collective perspective were significant predictors of flow in band.

The achievement goal subscales from the individual perspective explained 17% of the variance in flow scores, with the scales from the collective perspective explaining an additional two percent. Mastery-approach had a significant positive predictive value on all the three adaptive music learning achievements, while performance-avoidance had a weak, but significant negative predictive value on commitment to band. In light of these findings, a key objective of the current study was to establish how achievement goal orientation may potentially predict musical creativity among secondary school students in Kenya.

A study by Schmidt (2005) examined achievement goal orientation, musical self-concept and attitude to band in relation to instrumental performance and effort among high school music students in the US. Relations among grade level, gender, type of instrument and self-reported practice time were also examined. Participants (N = 300) were instrumental students (Grades 7-12). Data were collected by use of students’ self-report questionnaire. Besides, instrumental performance achievement and effort were
rated by the music teachers. The study results indicated that instrumental performance and effort were strongly correlated with musical self-concept. Mastery orientation was positively correlated with instrumental performance achievement. Furthermore, performance orientation was negatively correlated with solo performance ratings. Differences by gender were nonsignificant. Nonetheless, the study was specifically confined to musical creativity in instrumental performance amongst participants in the US and did not investigate whether achievement goal orientation and musical self-concept could interact to predict musical creativity. This presented a need to confirm the findings when creativity is measured through music composition in an African educational context like Kenya. This gap was addressed in the current study.

To determine the best predictors of musical creativity in composition, Auh (1997) conducted a study involving 67 (48 females and 19 males) 5th and 6th grade elementary school learners in the USA. Participants, responded to measures of formal musical experiences, informal musical experiences, musical self-esteem, aptitude, achievement, IQ and gender were involved in data collection. Musical creativity was rated by the Consensual Assessment Technique (CAT). The study found that the best predictors of musical creativity were informal experiences, musical achievement and academic grades. Musical self-esteem was a nonsignificant predictor of musical creativity. However, the generalizability of the study results is limited by the fact it involved a relatively small sample size of elementary school music students in the US. This presented a need to confirm the findings with data obtained from high school
students in an African educational context like Kenya. This was a major focus of the current study.

In their study, Schmidt et al. (2006) examined achievement motivation orientation and musical self-concept in relation to academic achievement among 148 (76 females/72 males) undergraduate music students in the US. Students’ self-report questionnaire developed by the researchers was used in data collection. Their findings indicated that achievement motivation and musical self-concept were not correlated with academic achievement. However, the study only involved university students and did not investigate whether the two constructs could jointly predict musical creativity. There was a need to compare the findings with data obtained from high school students. This was a major focus of the current study.

In the reviewed studies, positive musical self-concept, mastery-approach goal orientation and deep processing learning tend to be favourable to musical creativity. Students who report more positive musical self-concept and mastery-approach goal orientation are likely to be more determined and intrinsically motivated towards pursuing musical competence than those with negative musical self-concept and both performance goals. However, there is a dearth of studies involving students from African educational contexts. This study addressed this concern by evaluating how musical self-concept, achievement goal orientation and learning strategies predict musical creativity among secondary school students in the Kenyan context.
2.6 Summary of Literature Review

Majority of the reviewed studies generally suggested that musical self-concept, achievement goal orientation and learning strategies are correlated to musical creativity. Research relating achievement goal orientation and musical achievement were rather varied. Some studies reported significant positive correlations between students’ mastery goal orientation and musical achievement. While others failed to find significant differences in musical achievement as a function of goal orientation. Similarly, studies on relationships between music learning strategies and musical creativity were relatively scarce and inconclusive. Additionally, most of the reviewed studies had been conducted with advanced collegiate and undergraduate instrumental students in the USA, Singapore, Norway and Australia. Moreover, none of the studies had taken an integrated approach to examine the extent to which musical self-concept, achievement goal orientation and learning strategies predict musical creativity. Thus, the current study examined the interaction of musical self-concept, achievement goal orientation and learning strategies in predicting musical creativity of secondary school students in Kenya.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction
This chapter focuses on the research design, variables and location of the study. The target population, sampling techniques, sample size, pilot study and the study instruments are also discussed. The chapter also describes data collection procedures, techniques for data analyses, as well as logistical and ethical considerations.

3.2 Research Design
The current study used an *ex post facto* research design in which an investigation is conducted on the basis of facts that have already occurred in the participants without interference from the researcher (Salkind, 2010). According to Goodwin (2010), *ex post facto* study examines how an independent variable, present prior to the study, affects a dependent variable. The design is often applied as a substitute for true experimental research to test hypotheses about cause-and-effect relationships or in contexts in which it is not practical or ethically acceptable to manipulate the characteristics of human participants. Additionally, *ex post facto* design does not use randomization and instead, participants are purposefully allocated to a particular group based on some prior characteristic that they manifested. This design was appropriate for the current study because the independent variables under investigation could not be manipulated or changed.
3.2.1 Research Variables

This study comprised three independent variables: musical self-concept, achievement goal orientations and music learning strategies. Musical self-concept was categorized into eight dimensions of self-concept. They included: singing, instrument playing, music reading, music composition, music listening skills, dancing, sense of rhythm, and global self-concept. Participants’ musical self-concept was inferred from a total score at the interval level obtained in a self-report Music Self-perception Inventory, that sought to establish their perceived musical ability in the eight dimensions of self-concept.

Achievement goal orientation was categorized into three goals including: mastery-approach, performance-approach and performance-avoidance. Participants’ achievement goal orientation was inferred from a total score obtained in a self-report Music Achievement Goal Questionnaire, which sought to establish their motivation towards a particular goal, all measured at the interval scale of measurement.

Music learning strategies were categorized into cognitive and motivational strategies. Cognitive strategies had two levels; deep and surface processing. While motivational strategies were categorized into persistence and peer learning strategies. Participants’ music learning strategies were inferred from a total score obtained in a self-report Music Learning Strategies Questionnaire, which sought to know the various strategies intentionally used by participants to achieve their music learning goals, all measured at the interval scale of measurement. The dependent variable in this study was musical
creativity which incorporated four dimensions of music craftsmanship, musical syntax, musical originality and aesthetic musical sensitivity. Participants’ musical creativity was inferred from an aggregate score in creative composition task, measured at the interval level. The moderator variable was gender of the participants which was determined as either male or female at nominal scale of measurement.

3.3 Location of the Study

The study was located in Nairobi City County, Kenya. The County has 315 secondary schools out of which seven are national schools, nine extra county schools, 43 county schools, 28 sub-county schools and 227 are private schools. Seven percent of these schools offer music education comprising six national schools, five extra-county schools, seven county schools and five private schools (Directorate of Education, Nairobi City County, 2017).

This locale was selected on account of the declining performance trends in music education and underachievement in core creative areas including music composition, aural and harmony, which signifies a decline in musical creativity among students. Music course at the secondary school level covers basic skills, melody composition, harmony, aural, history and analysis, Western music, practical, and projects. However, melody composition is considered a prime indicator of musical creativity that involves the use of musical skills and understanding as well as original thinking or imagination in music creation (Burnard et al., 2010; Burnard & Younker, 2004; Kokotsaki, 2012). As such, consistent underachievement in composition at the KCSE suggests that there
is a decline in musical creativity. Statistics obtained from the Directorate of Education, Nairobi City County (2017) revealed that between the years 2012 - 2016, Nairobi City County consistently posted low performance in KCSE music together with low enrolment and gender disparity (see Table G.1 and Table G.2 of Appendix G).

A number of local studies have indicated that the continued poor performance in KCSE music may be due to shortage of necessary facilities such as pianos, keyboards, and other relevant musical instruments. Consequently, most students have limited skills with musical instruments; insufficient number of music teachers; inappropriate teaching strategies; and reluctance by school administration in advancing the use of computer technology in music teaching and learning at secondary school level (Akuno, 2005; Mbeche, 2010; Wanyama, 2006). The aforementioned factors are generally not within control of the learners. Though, underachievement in music education and subsequent decline in musical creativity may also be attributed to social cognitive factors within the learners.

From available literature, no local studies have addressed students’ social cognitive attributes that may predict musical creativity. This study hoped to provide local empirical data that could be the missing link required to reverse the underachievement in music and subsequent decline in musical creativity among secondary school students. Enlightening students and teachers about musical self-concept, achievement goal orientation, learning strategies and musical creativity may make the learning
processes more effective by revealing how students are motivated towards music learning tasks. (See Appendix L, for map of Nairobi City County).

3.4 Study Population

The study targeted all the form four music students in Nairobi City County. The choice of the schools was based on the fact that they were offering music education and that they had form four music candidates at the time of the study. Nairobi City County suffers low enrolment and gender disparity in music education. In the year 2016, Nairobi City County’s KCSE candidature was 24,577, out of which 204 enrolled in music education (KNEC, 2017). However, this was the highest enrolment in music education relative to other counties and therefore offered adequate sample size for the current study. Accordingly, all the secondary schools (public and private) that offer music education in Nairobi City County were included in the study.

The accessible population comprised all year 2017 form four music students, drawn from both public and private secondary schools that offer music education in Nairobi City County. In total the schools were eighteen public and five private secondary schools, with a population of 225 (157 females / 68 males). These schools were categorized into national, extra county, county and private schools. Music education at secondary school level is among the optional subjects. Normally students select subjects at the end of form two. Therefore, form one and two students were not preferred for this study because they had not chosen their optional subjects. While form three students required more time to settle in their subject areas. Form four
participants were deemed appropriate for this study because they had selected the optional subjects for KCSE examination. Additionally, being a candidate class, these students were expected to be more serious with their studies and were likely to have covered sufficient course content necessary for generating creative compositions as a measure of musical creativity in this study. Mover, having participated in secondary school learning and examination processes for more than three years, these students were likely to have established a definite musical self-concept, and adopted characteristic achievement goal orientation and music learning strategies.

3.5 Sampling Techniques and Sample Size Determination

3.5.1 Sampling Techniques

This study employed purposive sampling in identifying all the secondary schools that offer music education in Nairobi City County. Purposive sampling was also used in selecting form four class to participate in the study. A list of all secondary schools that offered music education in Nairobi City County and corresponding number of candidates registered for KCSE music (2017), obtained from the KNEC, revealed that the County had a small population of music candidates $N = 225$ (68 males and 157 females) (see Table G.1 of Appendix G).

In determining sample size, Israel (2012) recommends the use of a census for small populations of 200 or less. This involves using the entire population as the sample. Israel suggests that census eliminates sampling errors and produces a desirable level of precision. Thus, because of the small population of music students in Nairobi City
County, all the form four music students in all the sampled schools were recruited to participate in this study. However, two county schools with a population of 20 (5 males and 15 females) were used for the pilot study. In total, 21 schools including six national schools; five extra county schools; five county schools; and five private schools with a population of 205 (63 males and 142 females) form four music students participated in this study as detailed in Table 3.1.

Table 3.1

*Sampling Frame*

<table>
<thead>
<tr>
<th>School Category</th>
<th>Target Population</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schools</td>
<td>Students</td>
</tr>
<tr>
<td>National</td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>Extra County</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>County</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Private</td>
<td>5</td>
<td>04</td>
</tr>
<tr>
<td>Sub- total</td>
<td>-</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>23 (100%)</td>
<td>225 (100%)</td>
</tr>
</tbody>
</table>

*Note.* Source: Kenya National Examination Council (2017)

**3.5.2 Sample Size Determination**

The data in Table 3.1 indicated that Nairobi City County had 23 secondary schools which offered music education, with a population of 225 (68 males/157 females) form four music students, year 2017. Out of these, two county schools with a population of
20 (5 males/ 15 females) were used for the pilot study. Then a census was used in sample size determination. Hence, the entire form four music students’ population in the remaining 21 schools were used as the sample for this study. Thus, the actual sample size was, 205 (63 males/ 142 females) that is (91%) of the accessible population.

3.6 Research Instruments

The current study used two research instruments for data collection; self-report questionnaires for students and musical creativity rating scale. This section presents a brief description of these instruments. The actual instruments as adapted appear in Appendices B and C.

3.6.1 Questionnaire for Students

A questionnaire is a research instrument consisting of a series of questions for the purpose of obtaining information from respondents. The questionnaire for students was divided into four distinct parts and was used to collect data on the participants’ demographic characteristics, musical self-concept, achievement goal orientation and music learning strategies. Part I comprised of a researcher-designed questionnaire to gather the participants’ demographic information including their gender, age, school category and school type. Part II contained the Music Self-perception Inventory - Version 2 (MUSPI - Version 2) which measured participants’ musical self-concept. In Part III, there was the Music Achievement Goals Questionnaire (MAGQ) which sought information on participants’ achievement goal orientation in music. Part IV
contained the Music Learning Strategies Questionnaire (MLSQ) that focused on learning approaches engaged by the participants in their music course.

Compared to other methods of data collection, questionnaire provides a relatively cheap, fast, and efficient method of gathering massive data from large populations (Goodwin, 2010). These three questionnaires were adopted for the current study because they contained easy-to-understand items that had been validated and successfully used in other studies among secondary school students of similar ages. Additionally, the instruments facilitated the study to address numerous issues in a standardized way and allowed the researcher to collect large amounts of data in a short time. A more detailed description of the Music Self-perception Inventory, Music Achievement Goals Questionnaire and the Music Learning Strategies Questionnaire is given next.

a) Music Self-perception Inventory - Version 2 (MUSPI - Version 2)

The participants’ musical self-concept was measured by Vispoel’s (2017) Music Self-perception Inventory - Version 2. The researcher obtained authorization from the author to adopt this instrument (see Appendix I). The MUSPI was divided into eight subscales. One subscale assessed participants’ perceptions of global musical self-concept and the other seven focused on perceptions of musical ability in specific sub-domains of singing, instrument playing, music reading, music composition, listening skills, dance movement and sense of rhythm. This instrument consisted of 48 items. The items were interspersed throughout the questionnaire rather than presented as
subscale by subscale. Each subscale had six items which were rated on a six-point Likert-type scale, ranging from 1 = *False* to 6 = *True*. Thus, the scores in each subscale ranged from 6 to 36. The participants were instructed to indicate the extent to which each statement in the scale was a true or false description of their abilities in different music related areas. The participants’ musical self-concept was represented by the total scores obtained in the eight MUSPI subscales. The anticipated minimum and maximum scores were 48 and 288 respectively, with higher scores indicating positive musical self-concept and lower scores corresponding to negative musical self-concept. A full description of the MUSPI is given in Appendix B.

b) **Music Achievement Goals Questionnaire (MAGQ)**

The Music Achievement Goals Questionnaire (MAGQ), a researcher-adaptation of Elliot and Murayama’s (2008) Achievement Goal Questionnaire-Revised (AGQ-R) was used to assess participants’ achievement goal orientation. Elliot and Murayama’s original statements were restructured to reflect competence in music related areas. For example, *(I am striving to do well compared to other students in the music class)*. The MAGQ composed of three subscales including: mastery-approach, performance-approach and performance-avoidance goal orientation. This instrument had nine items which were interspersed throughout the questionnaire. Each subscale (goal) was assessed by three items, which were rated on a five-point Likert-type scale, ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. Thus, the scores in each subscale ranged from 3 to 15, with higher scores corresponding to relatively stronger orientation.
to a particular goal. Participants were instructed to indicate the degree to which they
agreed or disagreed with each statement in relation to their goals in the music course.
The MAGQ was adapted by Miksza (2011) and Miksza et al. (2016) in assessing
achievement motivation among music students in the USA. A full description of the
scale is given in Appendix B.

c) Music Learning Strategies Questionnaire (MLSQ)

The Music Learning Strategies Questionnaire (MLSQ), a researcher-adaptation of
Pintrich et al. (1991) Motivated Strategies for Learning Questionnaire (MSLQ) was
used to measure participants’ music learning strategies. This scale is in the public
domain, and permission from the author was not necessary. The MLSQ had two
subscales including cognitive and motivational strategies. Each subscale was further
divided into two consisting of deep processing and surface processing; persistence and
peer learning respectively. These four factors were selected following an extensive
literature review in which they were established to be linked to students’ creativity.

The instrument comprised of 17 items which were scattered throughout the
questionnaire rather than presented as subscale by subscale. Participants were required
to indicate the degree to which each statement in the questionnaire represented their
learning approaches in the music course. The items were scored on a seven-point
Likert-type scale, ranging from 1 = not at all true of me to 7 = very true of me. Thus,
the scores in each item ranged from 1 to 7 and the overall scores in the items that made
up each subscale represented scores in that particular subscale. High scores
corresponded to relatively favouring the usage of a particular music learning strategy as shown in Appendix B. This scale was adapted by Elliot et al. (1999) in assessing students’ study strategies.

3.6.2 Consensual Musical Creativity Assessment Scale (CMCAS)

The Consensual Musical Creativity Assessment Scale (CMCAS) was used to evaluate participants’ musical creativity, based on a creative compositional task. The CMCAS was based on the Consensual Assessment Technique (CAT; Amabile, 1996, 2012) and composition dimensions (Auh, 1997). For the purpose of this study, four dimensions of music craftsmanship, musical syntax, musical originality and aesthetic musical sensitivity were adopted from Auh (1997), while repetition of song dimension was excluded since the participants did not compose directly on the piano. Compositional task was deemed appropriate for this study, because it can show participants’ intentional acts in music making due to the time allowed in composition to refine musical ideas (Auh, 1997).

The current study complied with the procedure for the use of the CAT (Amabile, 1996, 2012), in the administration and evaluation of the creative composition task: First, the participants notated their creative compositions on music manuscripts which lasted approximately 45 minutes. Secondly, the compositions were transcribed by the researcher using Noteworthy composer 2, computer programme. Then two expert judges independently listened to and rated the participants’ compositions relative to
each other, and in accordance with the four dimensions of music craftsmanship, musical syntax, musical originality and aesthetic musical sensitivity. The rating was based on a five-point Likert-type scale, ranging from \(1 = \text{Low}\) to \(5 = \text{High}\). Thus, the participants’ musical creativity scores ranged from 4 to 20. Finally, the scores from each judge were averaged to represent the participants’ musical creativity, with higher scores corresponding to relatively higher musical creativity. Many empirical studies in music that assess music composition products have successfully adapted Amabile’s CAT (Auh, 1997; Hickey, 2001). More details about the Consensual Musical Creativity Assessment Scale and creative composition task are given in Appendices C and D.

3.7 Pilot Study

A pilot study was conducted prior to the main study, among 20 (15 females and 5 males), form four music students drawn from two secondary schools in Nairobi City County. The procedure similar to that for the main study was applied in data collection. However, the pilot schools were not included in the main study. The pilot phase allowed the researcher to pre-test the research instruments for the purposes of ensuring clarity of instructions and questions. For instance, a discussion with participants during the pilot phase of the study revealed that the two items that tested effort learning strategy e.g. (‘I put a lot of effort into preparing for music practical exams’) and persistence learning strategy e.g. (‘Regardless of whether or not I like the music course
contents, I work my hardest to learn it’) were confusing the participants. Therefore, the effort learning strategy subscale was not incorporated in the main study.

Similarly, the two items that measured help seeking learning strategy (‘I try to identify students in the music class whom I can ask for help if necessary’) was being confused with peer learning strategy (‘When studying for music, I often try to explain the material to a classmate or friend’). Hence, help seeking was excluded from the main study. The pilot data was also used in determining the validity and reliability of the research instruments and for examination of the appropriateness of the planned statistical procedures for testing each hypothesis.

3.7.1 Validity of the Study Instruments

The content validity of the research instruments was confirmed through peer review and previous studies. Two experts in the Department of Educational Psychology, Kenyatta University examined the items in the three questionnaires to establish if they provided accurate information to measure the constructs being investigated. Their recommendations were incorporated in the final scale.

a) Music Self-perception Inventory (MUSPI)

Morin et al. (2016) conducted a Confirmatory Factor Analysis (CFA) model to evaluate the factor validity of the MUSPI among two independent samples of high school participants (n = 304; 12 – 16 years old; M = 13.14, SD = .71) and (n = 208; 11–16 years old; M = 13.21, SD = .70). Their results fully supported the adequacy of
the MUSPI model in terms of goodness-of-fit and showed that all factors were well-defined by high factor loadings (λ = .82 to .94; Mλ = .88). Similarly, Morin, Scalas and Vispoel (2017) study evaluated the factor validity of the MUSPI among a sample of 511 (311 females and 200 males) high school students in Australia (11–16 years old; M = 13.16, SD = .71). Their results from CFA showed that all factors were well defined by high factor loadings (MUSPI: λ = .69 to .93; Mλ = .84).

b) Music Achievement Goals Questionnaire (MAGQ)

The Music Achievement Goals Questionnaire was adapted from Elliot and Murayama (2008) Achievement Goal Questionnaire-Revised (AGQ-R). A study of the psychometric properties of the scale by Elliot and McGregor (2001) showed that it had adequate validity. Similarly, Miksza et al. (2016) conducted a cross-cultural study to examine achievement motivation among music students in the US and Singapore. The AGQ-R instrument was used with a randomly selected sample of 359 participants: 217 high school music students from the US; and 142 collegiate students from Singapore. The study results from Confirmatory Factor Analyses (CFA) showed that the model provided a satisfactory degree of fit to the data and resulted in well-defined and highly reliable factors. Similar results were reported by Miksza (2011) study among instrumental music students in the US.

c) Music Learning Strategies Questionnaire (MLSQ).

The construct validity of the Music Learning Strategies Questionnaire MSLQ-inventory has been established in a large number of studies and is summarized in

3.7.2 Reliability of the Study Instruments

The internal consistency technique (Cronbach's alpha) was used to assess reliability of the research instruments comprising Music Self-perception Inventory (MUSPI); Music Achievement Goals Questionnaire (MAGQ) and Music Learning Strategies Questionnaire (MLSQ).

a) Music Self-perception Inventory (MUSPI)

Research by Morin et al. (2016) shows that all the versions of MUSPI, presented satisfactory levels of composite reliability (MUSPI: $\omega = .96$ to .97; MUSPI-A: $\omega = .93$ to .95; MUSPI-B: $\omega = .93$ to.95). Given that these reliability coefficients were established using a sample from the US, data from the pilot phase of this study, was employed in assessing the MUSPI’s reliability for the current sample in Kenya. The results from the pilot data were as presented in Table 3.2.
Table 3.2

*Cronbach’s Alpha Reliability for the MUSPI-Version 2*

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Items per subscale</th>
<th>Cronbach’s Alpha (Pilot study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Singing</td>
<td>6</td>
<td>.90</td>
</tr>
<tr>
<td>2. Instrument Playing</td>
<td>6</td>
<td>.93</td>
</tr>
<tr>
<td>3. Reading Music</td>
<td>6</td>
<td>.93</td>
</tr>
<tr>
<td>4. Composing Music</td>
<td>6</td>
<td>.95</td>
</tr>
<tr>
<td>5. Listening Skills</td>
<td>6</td>
<td>.89</td>
</tr>
<tr>
<td>6. Dancing</td>
<td>6</td>
<td>.95</td>
</tr>
<tr>
<td>7. Sense of Rhythm</td>
<td>6</td>
<td>.89</td>
</tr>
<tr>
<td>8. Music related activities</td>
<td>6</td>
<td>.93</td>
</tr>
<tr>
<td>9. overall</td>
<td>48</td>
<td>.97</td>
</tr>
</tbody>
</table>


The results in Table 3.2 revealed satisfactory levels of internal consistency reliability ($\alpha = .89$ to $\alpha = .95$), with an overall reliability of ($\alpha = .97$). This was consistent with the findings of Morin et al. (2016), that established composite reliability values of ($\omega = .96$ to .97; $M\omega = .97$). The MUSPI was considered highly reliable and suitable for this study.

**b) Music Achievement Goals Questionnaire (MAGQ)**

Data from the pilot phase of this study was also used in assessing reliability of the MAGQ for the current sample. The findings from the pilot data are shown in Table 3.3.
Table 3.3

*Cronbach’s Alpha Reliability for the MAGQ.*

<table>
<thead>
<tr>
<th>Goal</th>
<th>Items per subscale</th>
<th>Cronbach’s Alpha (Pilot study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mastery-approach</td>
<td>3</td>
<td>.77</td>
</tr>
<tr>
<td>2. Performance-approach</td>
<td>3</td>
<td>.90</td>
</tr>
<tr>
<td>3. Performance-avoidance</td>
<td>3</td>
<td>.91</td>
</tr>
<tr>
<td>4. Overall</td>
<td>9</td>
<td>.88</td>
</tr>
</tbody>
</table>

*Note. N = 20. Source: Elliot and Murayama (2008) and researcher's calculations (2019).*

The data in Table 3.3 indicated that the internal consistency for all the factors showed high level of reliability ($\alpha = .77$ to $\alpha = .91$). The MAGQ was considered highly reliable and suitable for this study.

c) **Music Learning Strategies Questionnaire (MLSQ).**

Pintrich et al. (1991) Motivated Strategies for Learning Questionnaire (MSLQ), indicated a reliability of ($\alpha = .69$) for the rehearsal (surface processing) learning strategy (4 items). Deep processing subscales including organization, elaboration and critical thinking revealed a reliability of between ($\alpha = .64$ and $\alpha = .80$). Peer learning subscale (3 items) showed a reliability of ($\alpha = .76$) and effort regulation (persistence) learning strategy (4 items) indicated a reliability of ($\alpha = .69$). The pilot data for the current sample was used to compute the Cronbach's alpha for the MLSQ. The findings were as presented in Table 3.4.
Table 3.4

*Cronbach’s Alpha Reliability for the Music Learning Strategies Questionnaire*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Number of items</th>
<th>Cronbach’s Alpha (Pilot study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deep processing</td>
<td>5</td>
<td>.60</td>
</tr>
<tr>
<td>2. Surface processing</td>
<td>5</td>
<td>.68</td>
</tr>
<tr>
<td>3. Persistence</td>
<td>4</td>
<td>.62</td>
</tr>
<tr>
<td>4. Peer learning</td>
<td>3</td>
<td>.72</td>
</tr>
<tr>
<td>5. Overall</td>
<td>17</td>
<td>.76</td>
</tr>
</tbody>
</table>

*Note. N = 20. Source: Pintrich et al. (1991) and researcher's calculations (2019).*

From the data in Table 3.4, it is observed that the internal consistency for all the factors revealed satisfactory level of reliability coefficient ($\alpha = .60$ to $\alpha = .72$). This was close to the findings of Pintrich et al. (1991) that established reliability coefficient values of between ($\alpha = .64$ to $\alpha = .80$). The MSLQ was considered satisfactorily reliable and suitable for this study.

d) **Consensual Musical Creativity Assessment Scale (CMCAS).**

The participants’ creative compositions generated during the pilot phase were used to train the two expert judges and standardize the scoring procedures for the CMCAS to enhance the degree to which they gave consistent estimates of the students’ musical creativity. The correlation between the ratings of the two expert judges for the main study ($N = 201$) revealed an inter-rater reliability of $\alpha = .82$, which was comparable to the results of Auh (1997) and Kiehn (2003), that attained inter-rater reliabilities of ($\alpha$
= .75 and $\alpha = .85$) respectively. According Hickey (2001), an inter-rater reliability of at least ($\alpha = .70$) in musical creativity assessment is acceptable.

3.8 Data Collection

Data collection entailed two separate sessions. The first, lasting approximately 30 minutes was for administering the questionnaires and another, approximately 45 minutes for notation of participants’ creative composition. The questionnaires were administered by the researcher and with the assistance of the music teachers within the normal classroom conditions. In addition to the written instructions, the researcher explained the rating scales with illustrations and then requested the participants to complete the questionnaires. The researcher then personally collected the completed questionnaires to ensure confidentiality.

The creative composition task was conducted during the normal class hours in the presence of the researcher and with the assistance of the music teachers. Participants were reminded of the aspects of musical creativity, and then instructed to apply the elements and concepts they had learnt in their music course to write their own creative compositions. The researcher personally collected the participants’ creative compositions for further processing and rating for musical creativity.
3.9 Logistical and Ethical Considerations

3.9.1 Logistical Considerations

Authorization to conduct this study was secured in four phases. First the researcher obtained approval from Kenyatta University Graduate School. Next, the researcher acquired a research authorization letter and a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). Thereafter, permission to conduct research in secondary schools within Nairobi City County was acquired from the Nairobi City County Commissioner and Directorate of Education, Nairobi City County. Finally, the researcher visited each of the sampled schools to familiarize her with the schools, seek permission to conduct the study from the principals and organized for data collection. (See Appendix, J and K).

3.9.2 Ethical Considerations

All participants were treated in accordance with the American Psychological Association (APA) Ethical Code. The researcher sought each participant’s written consent to participate in the study using a consent form attached in appendix A. The nature of the study and the anticipated benefits were explained to the participants and the school principals. Additionally, emphasis was made that no risk was involved. Participation in the study was voluntary and participants were free to withdraw from the study without penalties. The researcher assured the participants of confidentiality and anonymity. Towards this end, all the participating schools and each participant
were given code numbers for use in the study. The researcher also promised to share the findings of the study with participating schools.

### 3.10 Data Analysis

The quantitative data obtained from the study instruments were coded and entered into the computer. The data were first cleaned to ensure there were no outliers and improper entries that would contaminate the results. Statistical Package for Social Sciences (SPSS) was used for data analysis. Descriptive statistics comprising of frequency distributions, measures of central tendency, variability and symmetry (skewness and kurtosis) were used to present the demographic characteristics of the participants and summarize the data. Relevant inferential statistics were used to test each hypothesis. The following null hypotheses were tested using the specified statistical tests at ($p = .05$).

- **$H_{01}$**: There is no significant relationship between musical self-concept and musical creativity.
  
  This was tested using Pearson’s product moment correlation coefficient.

- **$H_{02}$**: There is no significant relationship between achievement goal orientation and musical creativity.
  
  To make the second null hypothesis testable, the following three supplementary null hypotheses were formulated:
H02.1: There is no significant relationship between mastery-approach, achievement goal orientation and musical creativity.

H02.2: There is no significant relationship between performance-approach, achievement goal orientation and musical creativity.

H02.3: There is no significant relationship between performance-avoidance, achievement goal orientation and musical creativity.

The supplementary null hypotheses derived from hypothesis two were tested using Pearson’s product moment correlation coefficient.

H03: There is no significant relationship between learning strategies and musical creativity.

To make the third null hypothesis testable, the following four supplementary null hypotheses were formulated:

H03.1: There is no significant relationship between deep processing learning strategy and musical creativity.

H03.2: There is no significant relationship between surface processing learning strategy and musical creativity.

H03.3: There is no significant relationship between persistence learning strategy and musical creativity.

H03.4: There is no significant relationship between peer-learning learning strategy and musical creativity.

The supplementary null hypotheses derived from hypothesis three were tested using Pearson’s product moment correlation coefficient.
H₀⁴: There is no significant prediction equation of musical creativity from musical self-concept, achievement goal orientation and learning strategies.

The fourth null hypothesis was tested using multiple regression analysis.

Exploratory analysis of hypothesis four was done using general linear model (univariate) analysis, independent-samples T test, ANOVA and multiple regression analysis.
CHAPTER FOUR

PRESENTATION OF RESULTS, INTERPRETATION AND DISCUSSION

4.1 Introduction

In this chapter, the study findings, interpretations and discussions of the results are presented in line with the study objectives and hypotheses. The chapter is organized into four main sections. First is the introduction, followed by general and demographic information of the participants, then research findings, interpretations and discussions and lastly exploratory analysis.

4.2 General and Demographic Information

This section gives the general information on the return rate of the questionnaires and demographic data comprising the sampling unit (schools) and participants’ age and gender.

4.2.1 Return Rate

The creative composition task and the research questionnaires were administered to 205 participants. However, during data cleaning four questionnaires were discarded mainly due to multiple and incomplete responses. Thus, 201 participants were included in the analysis as shown in Table 4.1.
Table 4.1

Return Rate

<table>
<thead>
<tr>
<th>School Category</th>
<th>Target Return Rate</th>
<th>Actual Return Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gender</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>National</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td>Extra-County</td>
<td>-</td>
<td>57</td>
</tr>
<tr>
<td>County</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Private</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>142</td>
</tr>
</tbody>
</table>

Note. ( ) indicate percentage of the total target.

The data in Table 4.1 showed that 205 participants, including 63 males and 142 females were targeted for this study. However, the actual participants in the study were 201 form four music students, comprising of 62 males and 139 females. This accounted for ninety-eight percent of the targeted participants.

4.2.2 Demographic Characteristics of Participants

The participants’ age was analysed for mean, standard deviation, skewness and kurtosis. The results are presented in Table 4.2.
Table 4.2

*Description of Participants’ Age by Gender*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
</tr>
<tr>
<td>Males</td>
<td>17.48</td>
</tr>
<tr>
<td>Females</td>
<td>17.14</td>
</tr>
<tr>
<td>Total</td>
<td>17.24</td>
</tr>
</tbody>
</table>

*Note. N = 201. M = mean; SD = standard deviation; Sk = skewness; Kur = kurtosis*  

The data in Table 4.2 indicated that the mean age for males was 17.48 ($SD = .99$), this was slightly higher than that of females which was 17.14 ($SD = .64$). The combined mean age was 17.24 years ($SD = .78$). This was within the range of years of form four students in Kenya. An independent-samples $T$ test results indicated that the difference in mean ages for males and females was statistically significant ($t(85) = 2.54, p < .05$). The mean age for males ($M = 17.48, SD = .99$) was significantly higher than mean age for females ($M = 17.14, SD = .64$). The magnitude of the difference in the means was 0.35 years with a 95% confidence interval of .62 to .08.

The assumption of equality of variances was tested and satisfied through a Levene’s $F$ test ($F(199) = 10.70, p = 0.1$). The measures of distribution shape, that is, skewness ($Sk = .72$ and kurtosis ($Kur = 1.40$) for females’ age were below 2, and therefore indicated a normal distribution. On the other hand, skewness ($Sk = 2.47$) and kurtosis ($Kur = 8.31$) for males’ age were above two implying a leptokurtic distribution.
According to Gravetter and Wallnau (2014), the values for skewness and kurtosis of between -2 and +2 are considered acceptable limits of indicator for normal distribution of data. The participants were further grouped into three age categories as follows: 16 - 17 ($M = 16.89, SD = .32$); 18 - 19 ($M = 18.19, SD = .39$); and 20 - 22 ($M = 21.50, SD = .71$). These age categories were cross-tabulated according to gender and the summary presented in Table 4.3.

Table 4.3

*Description of Participants Age Category by Gender*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age Categories (Years)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-17</td>
<td>18-19</td>
<td>20-22</td>
<td>Total</td>
</tr>
<tr>
<td>Males</td>
<td>41 (66%)</td>
<td>19 (31%)</td>
<td>2 (3%)</td>
<td>62 (31%)</td>
</tr>
<tr>
<td>Females</td>
<td>110 (79%)</td>
<td>29 (21%)</td>
<td>0 (0%)</td>
<td>139 (69%)</td>
</tr>
<tr>
<td>Total</td>
<td>151 (75%)</td>
<td>48 (24%)</td>
<td>2 (1%)</td>
<td>201 (100%)</td>
</tr>
</tbody>
</table>

*Note. N = 201.*

The results presented in Table 4.3 revealed that participants' age ranged from 16 to 22 years. The highest percentage of male participants (66%) were aged between 16 and 17 years, while (31%) were aged between 18 and 19 years and only three percent fell in the category 20-22 years. The highest number of female participants (79%) fell in the category 16-17 years, while (21%) were aged between 18-19 years and none of the females was in the category 20-22 years. Generally majority of participants (75%) were aged between 16 and 17 years and only 1% were aged between 20 and 22.
The participants’ gender was cross tabulated with school type and category. The results are indicated in Table 4.4.

Table 4.4

*Description of Participants’ Gender, School Type and Category*

<table>
<thead>
<tr>
<th>Gender</th>
<th>School Category</th>
<th>National</th>
<th>E-County</th>
<th>County</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>STP GB</td>
<td>35 (25%)</td>
<td>57 (41%)</td>
<td>12 (9%)</td>
<td>11 (8%)</td>
<td>115 (83%)</td>
</tr>
<tr>
<td></td>
<td>GD</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>10 (7%)</td>
<td>6 (4%)</td>
<td>16 (11%)</td>
</tr>
<tr>
<td></td>
<td>MD</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>8 (6%)</td>
<td>0 (0%)</td>
<td>8 (6%)</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>35 (25%)</td>
<td>57 (41%)</td>
<td>30 (22%)</td>
<td>17 (12%)</td>
<td>139 (100%)</td>
</tr>
<tr>
<td>Males</td>
<td>STP BB</td>
<td>44 (71%)</td>
<td>0 (0%)</td>
<td>10 (16%)</td>
<td>0 (0%)</td>
<td>54 (87%)</td>
</tr>
<tr>
<td></td>
<td>BD</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (3%)</td>
<td>2 (3%)</td>
</tr>
<tr>
<td></td>
<td>MD</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>5 (8%)</td>
<td>1 (2%)</td>
<td>6 (10%)</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>44 (71%)</td>
<td>0 (0%)</td>
<td>15 (24%)</td>
<td>3 (5%)</td>
<td>62 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>79 (39%)</td>
<td>57 (28%)</td>
<td>45 (22%)</td>
<td>20 (10%)</td>
<td>201 (100%)</td>
</tr>
</tbody>
</table>

*Note.* N = 201. STP = school type; GB = girls’ boarding; BB = boys’ boarding; GD = girls’ day; BD = boys’ day; MD = mixed day; E-County = extra county.

The data in Table 4.4 showed that majority of the females (41%) were from extra county schools, (25%) and (22%) came from national schools and county schools respectively, while only 12 percent were from private schools. In the contrary, majority of the males (71%) were from national schools, while 24 percent came from county schools and only five percent came from private schools. Generally majority of the participants (39%) were from national schools (28%) and (22%) came from
extra county and county schools respectively, and only (10%) came from private schools. More than three quarters of the participants were from boy’s boarding and girl’s boarding schools, whereas less than a quarter of the participants came from day schools.

4.3 Relationship between Musical Self-concept and Musical Creativity

The first objective of the study sought to establish the relationship between musical self-concept and musical creativity. To achieve this, the relevant descriptive statistics for musical self-concept and musical creativity were first obtained, followed by specific inferential statistical analysis for hypothesis testing.

4.3.1 Description of Participants’ Musical Self-concept

Musical self-concept was operationalized by analysing the participants’ scores in the Music Self-perception Inventory (MUSPI). For each item in the MUSPI, scores ranged from 1 to 6 as participants responded to a six-point Likert-type scale ranging $1 = False$ to $6 = True$. The participants’ musical self-concept scores were analysed to obtain the range, mean, standard deviation, skewness and kurtosis. The results are presented in Table 4.5.
Table 4.5

*Description of Participants’ Musical Self-concept Scores*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singing</td>
<td>29.00</td>
<td>7.00</td>
<td>36.00</td>
<td>29.59</td>
<td>7.33</td>
<td>-1.21</td>
<td>0.71</td>
</tr>
<tr>
<td>Instrument</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>27.07</td>
<td>7.75</td>
<td>-0.73</td>
<td>-0.23</td>
</tr>
<tr>
<td>Reading</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>26.62</td>
<td>7.41</td>
<td>-0.79</td>
<td>0.11</td>
</tr>
<tr>
<td>Composing</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>24.89</td>
<td>7.41</td>
<td>-0.42</td>
<td>-0.46</td>
</tr>
<tr>
<td>Listening</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>23.44</td>
<td>7.99</td>
<td>-0.36</td>
<td>-0.70</td>
</tr>
<tr>
<td>Dancing</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>23.92</td>
<td>9.22</td>
<td>-0.37</td>
<td>-0.98</td>
</tr>
<tr>
<td>Rhythm</td>
<td>30.00</td>
<td>6.00</td>
<td>36.00</td>
<td>26.76</td>
<td>6.72</td>
<td>-0.78</td>
<td>0.07</td>
</tr>
<tr>
<td>Global</td>
<td>28.00</td>
<td>8.00</td>
<td>36.00</td>
<td>30.16</td>
<td>6.08</td>
<td>-1.23</td>
<td>1.05</td>
</tr>
<tr>
<td>MSC</td>
<td>190.00</td>
<td>98.00</td>
<td>288.00</td>
<td>212.46</td>
<td>38.44</td>
<td>-0.54</td>
<td>-0.25</td>
</tr>
</tbody>
</table>

*Note.* N = 201. MSC = musical self-concept; Sk = skewness; Kur = kurtosis; SD = standard deviation

The results presented in Table 4.5 showed that most of the musical self-concept subscales obtained the maximum possible range of 30. The highest mean was found in the global musical self-concept score ($M = 30.16$, $SD = 6.8$), whereas the lowest mean was found in the listening skill self-concept score ($M = 23.44$, $SD = 7.99$). The standard deviations were moderately large ranging from ($SD = 6.08$) for global self-concept to ($SD = 9.22$) for dancing self-concept, which indicated that the scores were widespread over a range of values. The minimum score in the overall musical self-concept was 98, while the maximum score was 288. The anticipated minimum and maximum scores were 48 and 288 respectively. The mean score was 212.46 ($SD = 38.44$).
The distribution of scores for all the musical self-concept subscales were found to be negatively skewed, which implied that participants rated themselves highly on these subscales. The coefficient of skewness and kurtosis values for all the musical self-concept subscales were less than ± 2. This indicated a normal distribution as per the criteria outlined by (Gravetter & Wallnau, 2014). Hence the data met the assumptions of Pearson’s product moment correlation coefficient bivariate analysis.

The participants’ musical self-concept scores were further used to categorize them as having high, moderate, or low musical self-concept. The scores which were one standard deviation above the mean and one standard deviation below the mean were categorized as high and low musical self-concepts respectively. On the other hand, scores within one standard deviation around the mean were considered as moderate musical self-concept. Ireri (2015) and Priest (2006) used the same criterion to categorize participants’ academic identity status and musical creativity in composition, respectively. The results are shown in Table 4.6.

Table 4.6

Participants’ Levels of Musical Self-concept

<table>
<thead>
<tr>
<th>Level</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low/Negative</td>
<td>37 (19%)</td>
<td>151.32</td>
<td>19.60</td>
<td>-.69</td>
<td>-.15</td>
</tr>
<tr>
<td>Moderate</td>
<td>121 (60%)</td>
<td>214.71</td>
<td>19.57</td>
<td>-.19</td>
<td>-1.26</td>
</tr>
<tr>
<td>High/Positive</td>
<td>43 (21%)</td>
<td>258.74</td>
<td>10.53</td>
<td>1.26</td>
<td>1.07</td>
</tr>
<tr>
<td>Total</td>
<td>201 (100%)</td>
<td>212.46</td>
<td>38.44</td>
<td>-.54</td>
<td>-.25</td>
</tr>
</tbody>
</table>

Note. N = 201. M = mean; SD = standard deviation; Sk = skewness; Kur = kurtosis.
The results in Table 4.6 indicated that majority of the participants (60%) were categorized as having moderate levels of musical self-concept, while (18%) and (21%) of the participants had negative and positive musical self-concept respectively. In this study, low levels of musical self-concept \((n = 37)\) represented negative musical self-concept, while high levels of musical self-concept \((n = 43)\) represented positive musical self-concept and moderate levels of musical self-concept \((n = 121)\) were considered moderate (Ireri, 2015; Priest 2006). Having analysed and interpreted the participants’ musical self-concept scores, Pearson’s product moment correlation coefficient bivariate analysis was computed to establish the inter-correlations among the musical self-concept subscales. The resultant correlation matrix is presented in Table 4.7.

The results in Table 4.7 indicated that the correlations between the musical self-concept subscales were weak to moderately strong. The strongest correlation was observed between sense of rhythm self-concept and listening skills self-concept \((r(199) = .65, p < .01)\). This was followed by the relationship between sense of rhythm self-concept and global musical self-concept \((r(199) = .60, p < .01)\) and the weakest correlation was found between dancing self-concept and music composition self-concept \((r(199) = .16, p < .05)\). There were significant positive correlations among all the subscales, except the relationships between singing and instrument playing self-concepts; dancing and reading music self-concepts and listening skill and instrument playing self-concepts that were nonsignificant.
Table 4.7

Correlational Matrix for the Subscales of Musical Self-concept

<table>
<thead>
<tr>
<th>Subscale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Singing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Instrument</td>
<td>.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reading</td>
<td>.19**</td>
<td>.43**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Composition</td>
<td>.39**</td>
<td>.34**</td>
<td>.54**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Listening</td>
<td>.25**</td>
<td>.30**</td>
<td>.52**</td>
<td>.52**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Dancing</td>
<td>.21**</td>
<td>-.04</td>
<td>-.04</td>
<td>.16*</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Rhythm</td>
<td>.30**</td>
<td>.42**</td>
<td>.53**</td>
<td>.56**</td>
<td>.65**</td>
<td>.19**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Global</td>
<td>.48**</td>
<td>.36**</td>
<td>.48**</td>
<td>.53**</td>
<td>.49**</td>
<td>.17*</td>
<td>.60**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. MSC</td>
<td>.55**</td>
<td>.56**</td>
<td>.69**</td>
<td>.77**</td>
<td>.73**</td>
<td>.37**</td>
<td>.80**</td>
<td>.77**</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 201. MSC = musical self-concept.
**. Correlation is significant at p < .01 (2-tailed).
*. Correlation is significant at p < .05 (2-tailed).

The findings that most of the correlations between the musical self-concept subscales were weak to moderate indicated that most of the factors were distinct and were measuring different constructs or abilities. While the few subscales that had moderately strong correlations may not be distinguishable from each other. The relationships among the subscales and overall musical self-concept score were found to be moderate to strong ($r(199) = .37, p < .01$) to ($r(199) = .80, p < .01$).

4.3.2 Description of Participants’ Musical Creativity

Participants’ musical creativity was represented by the aggregate score obtained in a creative composition task as rated by the Consensual Musical Creativity Assessment
Scale (CMCAS). The participants’ scores in musical creativity were analysed to obtain the range, mean, standard deviation, skewness and kurtosis. The results are presented in Table 4.8.

Table 4.8

*Description of Participants’ Musical Creativity Scores*

<table>
<thead>
<tr>
<th>Dimensions of MC</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music craftsmanship</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>3.55</td>
<td>0.62</td>
<td>.53</td>
<td>-.47</td>
</tr>
<tr>
<td>Musical syntax</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>3.51</td>
<td>0.66</td>
<td>.01</td>
<td>-.20</td>
</tr>
<tr>
<td>Music originality</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>2.72</td>
<td>0.82</td>
<td>.43</td>
<td>.21</td>
</tr>
<tr>
<td>Aesthetic sensitivity</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>2.96</td>
<td>0.87</td>
<td>.03</td>
<td>-.72</td>
</tr>
<tr>
<td>Musical creativity (overall)</td>
<td>12</td>
<td>8</td>
<td>20</td>
<td>12.75</td>
<td>2.68</td>
<td>.37</td>
<td>-.36</td>
</tr>
</tbody>
</table>

Note. *N* = 201. MC = musical creativity; Min = minimum; Max = maximum; *SD* = standard deviation; *Sk* = skewness; *Kur* = kurtosis.

The data in Table 4.8 revealed that music originality and aesthetic sensitivity had the highest range of four each. Music craftsmanship had the highest mean (*M* = 3.55, *SD* = .62), followed by musical syntax (*M* = 3.51, *SD* = .66), then aesthetic sensitivity to music (*M* = 2.77, *SD* = .87), while music originality had the lowest mean (*M* = 2.72, *SD* = .82). Participants’ overall musical creativity scores had a range of 12, while the mean score was 12.75 (*SD* = 2.68). The coefficient of skewness and kurtosis values of bellow ± 2 for all the four dimensions of musical creativity and overall musical creativity score, implied a normal distribution as advanced by (Gravetter & Wallnau, 2014). The data therefore satisfied the assumptions for conducting Pearson’s *r*
analysis. The participants’ musical creativity scores were further used to categorize them as having low, moderate or high musical creativity. The scores which were one standard deviation above and below the mean were considered as high and low musical creativity respectively, while the scores within one standard deviation around the mean were considered as moderate musical creativity. Priest (2006) used the same criterion to categorize advanced music students’ musical creativity in composition. The results were as shown in Table 4.9.

Table 4.9

*Participants’ Levels of Musical Creativity*

<table>
<thead>
<tr>
<th>Musical Creativity</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>55 (27%)</td>
<td>9.60</td>
<td>0.71</td>
</tr>
<tr>
<td>Moderate</td>
<td>90 (45%)</td>
<td>12.60</td>
<td>1.18</td>
</tr>
<tr>
<td>High</td>
<td>56 (28%)</td>
<td>16.07</td>
<td>1.46</td>
</tr>
<tr>
<td>Total</td>
<td>201 (100%)</td>
<td>12.75</td>
<td>2.68</td>
</tr>
</tbody>
</table>

*Note. N = 201; SD = standard deviation.*

The data in Table 4.9 indicated that majority of the participants (45%) were categorized as having moderate level of musical creativity, while 27 percent and 28 percent of the participant had low and high musical creativity respectively. It was also revealed that the category of low musical creativity had a mean of 9.60 ($SD = 0.71$), while the moderate musical creativity group had a mean of 12.60 ($SD = 1.18$) and high musical creativity category obtained a mean of 16.07 ($SD = 1.46$). Figure F.1 of
Appendix F shows samples of participants’ compositions that were rated as highly creative. Having analysed and interpreted the participants’ musical creativity scores, the data were subjected to Pearson’s product moment correlation coefficient bivariate analysis to establish the inter-relationships among the dimensions of musical creativity. The results are presented in a correlation matrix in Table 4.10.

Table 4.10

Correlation Matrix for the Dimensions of Musical Creativity

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Music craftsmanship</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Musical syntax</td>
<td>.77**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Music originality</td>
<td>.72**</td>
<td>.75**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Aesthetic sensitivity</td>
<td>.68**</td>
<td>.74**</td>
<td>.83**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Musical creativity(overall)</td>
<td>.86**</td>
<td>.89**</td>
<td>.93**</td>
<td>.92**</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. N = 201.*

**Correlation is significant at p < .01 (2-tailed).

The results in Table 4.10 established that there were strong positive correlations among the dimensions of musical creativity. The highest correlation ($r(199) = .83, p < .01$) was observed between originality and aesthetic sensitivity to music, while the lowest correlation ($r(199) = .68, p < .01$) was between craftsmanship and aesthetic sensitivity to music. Similarly, overall musical creativity correlated very strongly and positively with all the dimensions. The relatively high inter-correlations among the
dimensions of musical creativity indicated that they were substantially equivalent and therefore measuring same construct or ability, in this case musical creativity.

4.3.3 Hypothesis Testing

In order to determine the relationship between musical self-concept and musical creativity, the following null hypothesis was advanced:

\[ H_{01}: \text{There is no significant relationship between musical self-concept and musical creativity.} \]

To test this hypothesis, data were subjected to a bivariate correlation analysis using the Pearson’s product moment correlation coefficient. The results indicated that musical self-concept had a positive and statistically significant correlation with musical creativity \((r(199) = .25, p < .01)\). The null hypothesis was therefore rejected. These results failed to support the null hypothesis, and it was concluded that musical self-concept was significantly related to students' musical creativity.

Further, considering that musical self-concept had eight subscales, the data were subjected to bivariate correlation analysis using the Pearson’s product moment correlation coefficient, to establish the correlations among musical self-concept dimensions and musical creativity. The results are presented in Table 4.11.
The results in Table 4.11 showed that six out of the eight dimensions of musical self-concept correlated significantly and positively with musical creativity. These included: instrument playing, music reading, music composition, listening skills, sense of rhythm and global self-concepts. Music reading and sense of rhythm self-concepts each had the highest positive correlations ($r(199) = .30$, $p < .01$) with musical creativity, while global self-concept had the lowest significant positive correlation ($r(199) = .15$, $p < .05$) with musical creativity. In the contrary, dance movement self-concept had a significant negative correlation ($r(199) = -.18$, $p < .05$), while musical creativity and singing self-concept had a nonsignificant correlation ($r(199) = .07$, $p > .05$) with musical creativity.
Based on these findings, an Independent-samples $T$ test was computed to compare mean musical creativity scores between participants with positive and negative musical self-concepts. Prior to performing the $T$ test, the assumption of normality was evaluated. The skewness and kurtosis values were used as measures of distribution shape for musical self-concept and musical creativity scores. As summarized in Table 4.6 and Table 4.8, skewness and kurtosis values below two indicated a normal distribution as per the criteria outlined by (Gravetter & Wallnau, 2014). Additionally, the assumption of homogeneity of variances was tested and satisfied through a Levene's $F$ test ($F(78) = 2.62, P > .05$). The $T$ test results are presented in Table 4.12.

Table 4.12

<table>
<thead>
<tr>
<th></th>
<th>$t$</th>
<th>$df$</th>
<th>Sig. (2 tailed)</th>
<th>$MD$</th>
<th>$SE$</th>
<th>$LL$</th>
<th>$UL$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musical Creativity</td>
<td>2.25</td>
<td>78</td>
<td>.03</td>
<td>1.29</td>
<td>0.58</td>
<td>0.15</td>
<td>2.44</td>
</tr>
</tbody>
</table>

*Note. N = 80. MD = mean difference; CI = confidence interval; SE = standard error; LL = lower limit; UL = upper limit.*

The results in Table 4.12 indicated that there was a significant mean difference in musical creativity scores ($t(78) = 2.25, p < .05$) for the positive musical self-concept ($M = 13.35, SD = 2.76$) and negative musical self-concept ($M = 12.05, SD = 2.33$). Participants who reported positive musical self-concept attained a significantly higher mean musical creativity score when compared to those who reported negative musical
self-concept. Additionally, a hierarchical regression analysis was conducted to evaluate how musical self-concept was related to participants’ musical creativity while controlling for gender which was considered as a moderator variable in this study. Prior to the hierarchical regression analyses, gender was converted to a dummy variable and then the independent variables were examined for collinearity (see Appendix F). Results of the variance inflation factor (VIF) were all less than 2, suggesting that the estimated Betas were well established in the regression models. According to Gravetter and Wallnau (2014), variance inflation factor (VIF) of 1 or 2 shows essentially no collinearity and a value greater than 10 suggest a high degree of multicollinearity. The hierarchical regression analysis results were as presented in Table 4.13.

Table 4.13

*Predicting Musical Creativity Based on Gender and Musical Self-Concept.*

<table>
<thead>
<tr>
<th>Model</th>
<th>Std. Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>(Constant)</td>
<td>-</td>
<td>56.46</td>
<td>.01</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Dummy gender</td>
<td>.32</td>
<td>4.79</td>
<td>.01</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>(Constant)</td>
<td>-</td>
<td>9.35</td>
<td>.01</td>
<td>-</td>
</tr>
<tr>
<td>2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Dummy gender</td>
<td>.29</td>
<td>4.31</td>
<td>.01</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>MSC</td>
<td>.20</td>
<td>3.01</td>
<td>.01</td>
<td>.97</td>
</tr>
</tbody>
</table>

*Note.* $N = 201$. Dependent variable: musical creativity; MSC = musical self-concept; SE = standard error estimate; VIF = variance inflation factor; Std. = standardized.

MS: Step 1<sup>a</sup> $R = .32$, $R^2 = .10$, Adjust. $R^2 = .10$, $SE = 2.54$, $R^2$ change = .10, $F(1, 199) = 22.95, p < .01$

MS: Step 2<sup>b</sup> $R = .38$, $R^2 = .14$, Adjust. $R^2 = .13$, $SE = 2.49$, $R^2$ change = .04, $F(1, 198) = 9.04, p < .01$
The results in Table 4.13 indicated that in step one gender alone accounted for a significant amount of participants’ musical creativity variability ($R^2 = .10, F(1, 199) = 22.195, p < .01$). In step two, musical self-concept accounted for a significant proportion of musical creativity variance after controlling for the effect of participants’ gender ($R^2$ change = .04, $F(1, 198) = 9.04, p < .01$). It was concluded that participants who had positive musical self-concept were likely to attain high musical creativity irrespective of their gender.

4.3.4 Discussion of the Findings

The first objective of the study sought to establish the relationship between musical self-concept and musical creativity. The findings indicated that there was a significant positive correlation between participants’ musical self-concept and musical creativity. Further analysis revealed that all the dimensions of musical self-concept, except singing self-concept had significant correlations with musical creativity. Whereas reading, composition, listening skills, sense of rhythm and global self-concepts correlated positively with musical creativity, dance movement self-concept correlated negatively. In addition, there was a significant mean difference in musical creativity for participants with positive musical self-concept and those with negative musical self-concept. Specifically, participants who had positive musical self-concept attained statistically significant higher musical creativity than their counterparts with negative musical self-concept.
The results further indicated that gender, a moderator variable in this study, accounted for a significant amount of participants’ musical creativity variability. However, musical self-concept still accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender. This implied that participants who had positive musical self-concept were likely to attain high musical creativity irrespective of their gender.

The finding that musical self-concept had a positive and statistically significant correlation with participants’ musical creativity implied that as musical self-concept scores increase, so does musical creativity scores. Therefore, students with positive musical self-concept are likely to attain high musical creativity. In contrast, those with negative musical self-concept are likely to attain low musical creativity. This was in line with Amabile’s (2012) componential model of creativity, which guided this study. The model regards intrinsic task motivation as a necessary component of creative performance. It suggests that students, who are intrinsically motivated, adopt deep processing learning strategies, put more effort and persistence in music learning tasks and may attain high musical creativity. Research have associated positive musical self-concept with intrinsic motivation (Hallam, 2002; Morin, et al., 2016). This may explain why participants with positive musical self-concept also got high musical creativity scores in the current study.

The results on the relationship between musical self-concept and musical creativity were consistent with the view held in earlier studies that positive musical self-concept
is favourable in creative achievement circumstances. For example, in a quasi-experimental study to establish the association between learners’ self-concept and creative ability in Spain, Franco (2006) reported that the self-concept and levels of creativity in the experimental group increased significantly as compared with the control groups. Similarly, Laycock (1992) study among high school students in Ohio, USA, revealed a strong relationship between musical self-concept and musical creativity. Similar findings have also been reported by Schmidt (2005) who indicated that musical self-concept strongly correlated with creativity in instrumental performance among secondary music students in the US.

The results further corroborated Demorest et al. (2017) study which examined singing ability, musical self-concept and future music participation among high school students in the USA. That study reported a significant relationship between students’ musical self-concept and their singing ability. Contrary, the study findings did not confirm Auh’s (1997) study which reported a non-significant correlation between musical self-esteem as measured by SEMA and musical creativity in composition.

The results on correlations between specific dimensions of musical self-concept and musical creativity suggested that six out of eight dimensions of musical self-concept had positive and significant correlations with musical creativity. However, a non-significant correlation was found between singing self-concept and musical creativity. Additionally, dancing self-concept was negatively correlated with musical creativity. These results were consistent with Vispoel’s (2017) model of musical self-concept,
which suggests that singing and dancing self-concepts are relatively distinct from other musical self-concept dimensions, and contribute less to overall perceptions of music ability. It should be noted that the current study was based on musical creativity in composition, which mainly involves application of music knowledge and principles in music creation. The implication is that dancing and singing self-concepts tap into relatively distinct domain of creativity in performance. This could explain the relationships between these two variables and participants’ musical creativity in the current study.

4.4 Relationship between Achievement Goal Orientation and Musical Creativity

The second objective of the study sought to establish the relationship between achievement goal orientation and musical creativity. To achieve this, the relevant descriptive statistics for achievement goal orientation were first obtained, followed by specific inferential statistical analysis for hypothesis testing.

4.4.1 Description of Participants’ Achievement Goal Orientation

Achievement goal orientation was operationalized by analysing the participants’ scores in the music achievement goal orientation questionnaire (MAGQ). The MAGQ comprised of nine items divided into three subscales (mastery-approach; performance-approach; and performance-avoidance) each with three items. For each item on MAGQ, scores ranged from 1 to 5 as participants responded on a five-point Likert-type scale ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. The participants’ scores in the achievement goal orientation subscales were analysed to obtain the range,
mean, standard deviation, skewness and kurtosis. The results of this analysis are presented in Table 4.14.

Table 4.14

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>9.00</td>
<td>6</td>
<td>15</td>
<td>12.19</td>
<td>2.24</td>
<td>-.71</td>
<td>-.08</td>
</tr>
<tr>
<td>PAP</td>
<td>12.00</td>
<td>3</td>
<td>15</td>
<td>11.76</td>
<td>2.92</td>
<td>-1.06</td>
<td>.77</td>
</tr>
<tr>
<td>PAV</td>
<td>12.00</td>
<td>3</td>
<td>15</td>
<td>11.10</td>
<td>3.74</td>
<td>-.80</td>
<td>-.55</td>
</tr>
</tbody>
</table>

*Note.* \(N = 201\). MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; Min = minimum; Max = maximum; SD = standard deviation; SK = Skewness; Kur = Kurtosis.

The data in Table 4.14 indicated that mastery-approach achievement goal orientation subscale scores ranged from 6 to 15. The scores in the performance-approach and performance-avoidance subscales each ranged from 3 to 15. The possible minimum and maximum scores for each subscale were 3 and 15, respectively. Mastery-approach achievement goal orientation had the highest mean of 12.19 (\(SD = 2.24\)), while the mean scores for the performance-approach and performance-avoidance achievement goal orientation were (\(M = 11.76, SD = 2.92\)) and (\(M = 11.10, SD = 3.74\)) respectively. The coefficient of skewness for all the subscales were negative, implying that majority of the participants rated themselves highly on these subscales. Additionally, the skewness and kurtosis values for all the subscales were below ± 2, which suggested that achievement goal orientation data were sufficiently normally distributed for the
purpose of conducting Pearson’s $r$ analysis, as per the criteria advanced by (Gravetter & Wallnau, 2014).

The participants were further categorized as either having mastery-approach, performance-approach or performance-avoidance achievement goal orientation. The criterion followed was that a participant was categorized as having the achievement goal for the subscale in which they obtained the highest score. Those participants whose highest scores were in mastery-approach subscale were coded as 1, while participants with highest scores in performance-approach or performance-avoidance were coded as 2 or 3 respectively. Additionally, any participant whose highest score was in more than one subscale was excluded from additional analysis. Thus 11% of the participants ($n = 23$) were excluded from additional analysis. Ireri (2015) used a similar criterion in the classification of participants’ achievement goal orientation. The results are shown in Table 4.15.

Table 4.15

*Participants’ Types of Achievement Goal Orientation*

<table>
<thead>
<tr>
<th>Achievement Goal Orientation</th>
<th>$n^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>77 (38%)</td>
</tr>
<tr>
<td>PAP</td>
<td>43 (21%)</td>
</tr>
<tr>
<td>PAV</td>
<td>57 (28%)</td>
</tr>
</tbody>
</table>

*Note. N = 201. MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance.*

*a ( ) indicate percentage of the total.*
The data in Table 4.15 showed that majority of the participants (38%) were classified as having mastery-approach achievement goal orientation, while 28% of the participants were considered to be in the category of performance-avoidance achievement goal orientation. It was also observed that 21% were classified as having performance-approach achievement goal orientation.

Having analysed and interpreted the participants’ achievement goal orientation scores, a bivariate Pearson’s product moment correlation coefficient analysis was computed to determine the inter-correlations among the three achievement goal orientation subscales. The resultant correlational matrix is presented in Table 4.16.

### Table 4.16

*Correlation Matrix of the Achievement Goal Orientation Subscales*

<table>
<thead>
<tr>
<th>Subscales</th>
<th>MAP</th>
<th>PAP</th>
<th>PAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>1</td>
<td>.10</td>
<td>-.25**</td>
</tr>
<tr>
<td>PAP</td>
<td>.10</td>
<td>1</td>
<td>.54**</td>
</tr>
<tr>
<td>PAV</td>
<td>-.25**</td>
<td>.54**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note. N = 201. MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance. **. Correlation is significant at p < .01 (2-tailed).*

The results in Table 4.16 shows that the highest and positive correlation \(r(199) = .54, p < .01\) was found between performance-approach achievement goal orientation and performance-avoidance achievement goal orientation. In the contrary, there was a
significant negative correlation \((r(199) = -.25, p < .05)\) between mastery-approach achievement goal orientation and performance-avoidance achievement goal orientation. The relationship between mastery-approach achievement goal orientation and performance-approach achievement goal orientation was nonsignificant \((r(199) = .10, p > .05)\).

### 4.4.2 Hypothesis Testing

In order to establish the relationship between achievement goal orientation and musical creativity, the following null hypothesis was advanced.

\(H_0^2\): There is no significant relationship between achievement goal orientation and musical creativity.

To make the null hypothesis testable, the following supplementary null hypotheses were formulated:

\(H_{0.1}^2\): There is no significant relationship between mastery-approach achievement goal orientation and musical creativity.

\(H_{0.2}^2\): There is no significant relationship between performance-approach achievement goal orientation and musical creativity.

\(H_{0.3}^2\): There is no significant relationship between performance-avoidance achievement goal orientation and musical creativity.

To test the supplementary null hypotheses, a bivariate Pearson’s product moment correlation coefficient analysis was conducted to establish the relations among
mastery-approach, performance-approach and performance-avoidance achievement goal orientation and musical creativity. The results are shown in Table 4.17.

Table 4.17

*Relationships between Achievement Goal Orientation and Musical Creativity*

<table>
<thead>
<tr>
<th>Achievement Goal Orientations</th>
<th>( r^a )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MAP</td>
<td>.39**</td>
</tr>
<tr>
<td>2. PAP</td>
<td>-.19**</td>
</tr>
<tr>
<td>3. PAV</td>
<td>-.28**</td>
</tr>
</tbody>
</table>

*Note. N = 201. MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance.
** Correlation is significant at \( p < .01 \) (2-tailed).
\( a \) Correlation with musical creativity.*

The results in Table 4.17 indicated that there was a statistically significant positive correlation between mastery-approach achievement goal orientation and musical creativity (\( r(199) = .39, p < .01 \)). Additionally, a statistically significant negative correlation (\( r(199) = -.19, p < .01 \)) was found between performance-approach achievement goal orientation and musical creativity. Similarly, there was a statistically significant negative correlation (\( r(199) = -.28, p < .01 \)) between performance-avoidance achievement goal orientation and musical creativity.

The first supplementary null hypothesis stated that there was no significant relationship between mastery-approach achievement goal orientation and musical creativity. The correlational results presented in Table 4.17 indicated that the
relationship between mastery-approach achievement goal orientation and musical creativity was statistically significant \( (r(199) = .39, p < .01) \). The null hypothesis was therefore rejected. For the reason that the correlational results failed to support the null hypothesis, it was concluded that mastery-approach achievement goal orientation was significantly related to students' musical creativity.

Results in Table 4.17 further showed that there was a statistically significant correlation between performance-approach achievement goal orientation and musical creativity \( (r(199) = -.19, p < .01) \). Therefore, the second supplementary null hypothesis, which stated that there is no significant relationship between performance-approach achievement goal orientation and musical creativity, was rejected. It was concluded that performance-approach achievement goal orientation was significantly related to students' musical creativity, because correlational results did not support the null hypothesis.

The third supplementary null hypothesis stated that there is no significant relationship between performance-avoidance achievement goal orientation and musical creativity. The correlational results in Table 4.17 showed that performance-avoidance achievement goal orientation had a statistically significant relation with musical creativity \( (r(199) = -.28, p < .01) \). Therefore, the null hypothesis was rejected. The results failed to support the null hypothesis, and it was concluded that performance-avoidance achievement goal orientation was significantly related to students' musical creativity.
Consequently, a One-way ANOVA was conducted to establish the differences in the participants’ musical creativity scores across the three types of achievement goal orientation. The descriptive statistics associated with participants' musical creativity across the three achievement goals were as summarized in Table 4.18.

Table 4.18

Musical Creativity Scores across the Achievement Goal Orientation

<table>
<thead>
<tr>
<th>AGO</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>95% CI</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>77</td>
<td>14.26</td>
<td>2.52</td>
<td>.29</td>
<td>13.69</td>
<td>14.83</td>
<td>.37</td>
</tr>
<tr>
<td>PAP</td>
<td>43</td>
<td>11.95</td>
<td>2.85</td>
<td>.44</td>
<td>11.08</td>
<td>12.83</td>
<td>.37</td>
</tr>
<tr>
<td>PAV</td>
<td>57</td>
<td>11.65</td>
<td>2.03</td>
<td>.27</td>
<td>11.11</td>
<td>12.19</td>
<td>.37</td>
</tr>
<tr>
<td>Total</td>
<td>201</td>
<td>12.75</td>
<td>2.68</td>
<td>.19</td>
<td>12.37</td>
<td>13.12</td>
<td>.37</td>
</tr>
</tbody>
</table>

Note. AGO = achievement goal orientation; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; M = mean; SD = standard deviation; SE = standard error of the mean; CI = confidence interval for the mean; LL = lower limit; UL = upper limit; Sk = skewness; Kur = kurtosis.

The results in Table 4.18 indicated that master-approach goal had the highest mean musical creativity score ($M = 14.26$, $SD = 2.52$) while performance-approach and performance-avoidance goals had mean scores of $M = 11.95$ ($SD = 2.85$) and $M = 11.65$ ($SD = 2.03$) respectively. The skewness and kurtosis values of below two for each achievement goal orientation suggested a normal distribution for the purpose of conducting ANOVA, as per the criteria advanced by (Gravetter & Wallnau, 2014).
Additionally, the assumption of homogeneity of variances was tested and satisfied through a Levene's $F$ test ($F(3,197) = .83, P > .05$). The predictor variable was achievement goal orientation with the three levels: mastery-approach, performance-approach and performance avoidance, and the outcome variable was musical creativity. The results of ANOVA were as presented in Table 4.19.

Table 4.19

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>$df$</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>288.53</td>
<td>3</td>
<td>9.62</td>
<td>16.54</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1145.53</td>
<td>197</td>
<td>5.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1434.06</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 201."

The data in Table 4.19 indicated that there was a significant difference in the mean musical creativity scores for the three achievement goals ($F(3,197) = 16.54, p < .01$). Tukey’s (HSD) post-hoc analysis was used to determine the nature of the difference in mean musical creativity scores for the three achievement goals orientation, and results were as presented in Table 4.20.

Table 4.20

*Post-hoc Analysis of Musical Creativity for the Different Achievement Goals*
Note. \( N = 201. \) AGO = achievement goal orientation; PAP = performance-approach; PAV = performance-avoidance; MAP = mastery-approach; * \( . \) The mean difference is significant at \( p < .05. \)

<table>
<thead>
<tr>
<th>(I) Type of AGO</th>
<th>(J) Type of AGO</th>
<th>Mean Difference (I-J)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>PAP</td>
<td>2.31*</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>PAV</td>
<td>2.61*</td>
<td>.00</td>
</tr>
<tr>
<td>PAP</td>
<td>MAP</td>
<td>-2.31*</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>PAV</td>
<td>.30</td>
<td>.81</td>
</tr>
<tr>
<td>PAV</td>
<td>MAP</td>
<td>-2.61*</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>PAP</td>
<td>-.30</td>
<td>.81</td>
</tr>
</tbody>
</table>

The results in Table 4.20 revealed that participants who adopted mastery-approach achievement goal orientation had a significantly higher mean musical creativity score \( (M = 14.26, SD = 2.52) \) than those who adopted performance-approach and performance-avoidance goal orientation. On the other hand, the mean score for participants with performance-approach goal orientation \( M = 11.95 \) \( (SD = 2.85) \) was not significantly different from that of participants with performance-avoidance goal orientation \( M = 11.65 \) \( (SD = 2.03) \).

Considering that gender was a moderator variable in this study, a hierarchical regression analysis was conducted to evaluate how achievement goal orientation subscales were related to participants’ musical creativity while controlling for gender. Prior to hierarchical regression analysis, the independent variables were examined for collinearity. The variance inflation factors were all less than 2.0, suggesting that there
was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The results were as presented in Table 4.2.

Table 4.2

<table>
<thead>
<tr>
<th>Predicting Musical Creativity Based on Gender and Achievement Goal Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>1   Dummy gender</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>2   Dummy gender</td>
</tr>
<tr>
<td>MAP</td>
</tr>
<tr>
<td>PAP</td>
</tr>
<tr>
<td>PAV</td>
</tr>
</tbody>
</table>

Note. N = 201. MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; VIF = variance inflation factor; MS = model summary.

MS: step 1a  \( R = .32, \ R^2 = .10, \ \text{adjusted} \ R^2 = .10, \ SE = 2.54, \ R^2 \ \text{change} = .10, \ F(1, 199) = 22.95, p < .01 \)

MS: step 2b  \( R = .51, \ R^2 = .26, \ \text{adjusted} \ R^2 = .25, \ SE = 2.33, \ R^2 \ \text{change} = .16, \ F(3, 196) = 13.95, p < .01 \)

The results in Table 4.21 indicated that in step one gender alone accounted for a significant amount of participants’ musical creativity variability (\( R^2 = .10, F(1, 199) = 22.195, p < .01 \)). In step two, the three subscales of achievement goal orientation accounted for a significant proportion of musical creativity variance after controlling for the effect of participants’ gender (\( R^2 \ \text{change} = .16, F(3, 196) = 13.95, p < .01 \)). Mastery-approach goal was a statistically significant predictor (\( \beta = .34, p < .01 \), but
performance-approach goal (β = - .07, p = .36) and performance-avoidance goal (β = -.17, p = .07) were not statistically significant predictors. It was concluded that participants who adopted mastery-approach goal orientation were likely to attain high musical creativity irrespective of their gender.

### 4.4.3 Discussion of the Findings

The second objective of the study sought to establish the relationship between achievement goal orientations and musical creativity. The findings revealed that there were low to moderate, but significant correlations between achievement goal orientations and musical creativity. Whereas mastery-approach achievement goal was positively correlated with musical creativity, performance-approach and performance-avoidance achievement goals correlated negatively and significantly with musical creativity. This means that high scores in mastery-approach achievement goal corresponded to high scores in musical creativity. In contrast, high scores in performance-approach and performance-avoidance goals corresponded to low scores in musical creativity.

The results further indicated that the three achievement goal orientation subscales still accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender, which was a moderator variable in this study. Mastery-approach goal had a statistically significant predictive value on participants’ musical creativity, while performance-approach goal and performance-avoidance were not statistically significant predictors. This implied that participants who had
adopted mastery-approach goal were likely to attain high musical creativity irrespective of their gender. Further, there was a significant difference in mean musical creativity scores of participants with mastery-approach goal orientation and those with both performance-approach and performance-avoidance goals. Specifically, participants who adopted mastery-approach achievement goal had significantly higher mean musical creativity score than their counterparts who adopted performance-approach and performance-avoidance goals. However, musical creativity mean scores for participants with performance-approach and performance-avoidance goals did not differ significantly.

The findings that mastery-approach achievement goal was positively and significantly correlated with musical creativity, while performance-approach and performance-avoidance goals negatively and significantly correlated with musical creativity were consistent with the views held in earlier studies that mastery-approach goal is more favourable than performance goals in creativity circumstances. Mastery-approach goals has been associated with intrinsic interest in the task, use of deep processing strategy, persistence and effort in problem solving which may generate greater musical creativity. On the contrary, performance-approach and performance-avoidance achievement goals are associated with extrinsic task motivation and surface processing of information which may hinder musical creativity (Elliott et al., 1999; Janssen & Van Yperen, 2004; Ruscio et al., 1998). Furthermore, these study findings are aligned to Elliot and McGregor (2001) achievement goals theory which informed the current
study. According to this model, students who adopt mastery-approach goals are motivated by task mastery and development of competence while those who adopt performance-approach goals focus on demonstration of normative competence. Equally, performance-avoidance goals motivate students to evade demonstrating normative incompetence. Elliot and McGregor (2001) also contend that mastery-approach oriented students are intrinsically motivated in learning task, while those who adopt performance-approach and performance-avoidance goals are extrinsically motivated.

Amabile’s (2012) componential model of creativity which guided the current study, regards intrinsic task motivation as a necessary component of creative performance. It is therefore apparent that mastery-approach goal orientation may enhance students’ musical creativity, while performance goal orientation may hinder creativity. This may explain why mastery-approach achievement goal was positively correlated with musical creativity, while performance-approach and performance-avoidance achievement goals were negatively correlated with musical creativity in the current study. The study findings are consistent with those of Schmidt (2005) who examined achievement motivation orientation in relation to instrumental performance. He reported that mastery-approach goal orientation was positively correlated with instrumental performance achievement, while performance-approach goal orientation was negatively correlated with solo instrumental performance achievement. Similarly, the results supported those by Miksza (2011) who investigated the impact of
achievement goal motivation on practice effectiveness of undergraduate wind instruments players. Miksza reported that the sample generally endorsed a mastery achievement goal more than a performance achievement goal, with the mastery-approach achievement goal having the highest mean among the achievement goal subscales.

Likewise, Tan and Miksza (2017) study among university music students in the US and Singapore, indicated that mastery-approach orientation attained the highest mean compared to other achievement goal orientation subscales. Similar findings were also reported by Miksza (2009) who established a significant positive relationship between mastery-approach orientation and instrumental performance achievement. The sample used in Miksza (2009) study was similar to the one used in the current study in terms of the level of schooling, while the nature of musical creativity was different (instrumental performance versus creative composition). Thus, irrespective of cross-cultural differences, study locations and nature of musical creativity, mastery-approach achievement goal orientation was found to be positively correlated to musical creativity.

Moreover, the results corroborate those by Diaz (2010) which reported relatively high means for variables associated with mastery orientation and relatively low means for variables regarded as performance orientation. On the contrary, the study findings depart from those by Nielsen (2008) who found that achievement goal orientation variables were not related with instrumental performance creativity.
Additionally, the findings that there was a significant difference in mean musical creativity of participants with mastery-approach goal orientation, while musical creativity means for participants with performance-approach and performance-avoidance goals did not differ significantly corroborated Wang et al. (2018) study among collegiate music students in Singapore, which reported nonsignificant difference between performance-approach and performance-avoidance goal orientation.

4.5 Relationship between Learning Strategies and Musical Creativity

The third objective of the study was to determine the relationship between learning strategies and musical creativity. To achieve this, the relevant descriptive statistics for learning strategies were first obtained, followed by specific inferential statistical analysis for hypothesis testing.

4.5.1 Description of Participants’ Music Learning Strategies

Participants’ scores in the Music Learning Strategies Questionnaire subscales were analysed to obtain the range, mean, standard deviation, skewness and kurtosis. The results are presented in Table 4.22.

Table 4.22

<table>
<thead>
<tr>
<th>MLSQ Subscale</th>
<th>Items</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
</tr>
</thead>
</table>

Description of Participants’ Music Learning Strategies Scores
## Table 4.22

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>DPLS</th>
<th>SPLS</th>
<th>Motivational</th>
<th>PLS</th>
<th>PLLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPLS</td>
<td>5</td>
<td>12</td>
<td>35</td>
<td>24.51</td>
<td>5.38</td>
</tr>
<tr>
<td>SPLS</td>
<td>5</td>
<td>10</td>
<td>35</td>
<td>27.86</td>
<td>5.82</td>
</tr>
<tr>
<td>Motivational</td>
<td>PLS</td>
<td>4</td>
<td>11</td>
<td>22.40</td>
<td>4.07</td>
</tr>
<tr>
<td>PLLS</td>
<td>3</td>
<td>3</td>
<td>21</td>
<td>13.72</td>
<td>4.36</td>
</tr>
</tbody>
</table>

*Note. N = 201. MLSQ = music learning strategies questionnaire; SD = standard deviation; SK = skewness; Kur = kurtosis; DPLS = deep processing; SPLS = surface processing; PLS = persistence; PLLS = peer learning.*

The data in Table 4.22 shows that the subscales consisted of varied number of items. The mean score for the deep processing strategy was 24.51 (SD = 5.38), while the mean score for surface processing strategy was 27.86 (SD = 5.82). Persistence learning strategy had a mean of 22.40 (SD = 4.07) and peer learning strategy had mean of 13.72 (SD = 4.36). The coefficients of skewness for all the music learning strategies subscales were negative implying that majority of the participants rated themselves highly on the subscales. Additionally, the skewness and kurtosis values for all the learning strategies subscales were less than ± 2, suggesting that the distributions of scores were approximately normal for the purpose of conducting Pearson’s correlation analysis as per the criteria advanced by (Gravetter & Wallnau, 2014).

The participants were further categorized as either favouring deep processing learning strategy or surface processing learning strategy. The criterion followed was that a participant was categorized as having the learning strategy for which they obtained the highest score. Participants whose highest scores were in deep processing learning strategy were coded as 1, while those whose highest scores were in surface processing
were coded as 2. Participants with same score in both subscales were to be excluded from additional analysis. Thus 2% of the participants \((n = 5)\) were excluded from additional analysis. Elliot et al. (1999) used a similar criterion to categorize undergraduate students’ cognitive learning strategies. The results were as presented in Table 4.23.

Table 4.23

*Participants’ Types of Cognitive Learning Strategies*

<table>
<thead>
<tr>
<th>Cognitive Learning Strategies</th>
<th>(n^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep processing</td>
<td>58 (29%)</td>
</tr>
<tr>
<td>Surface processing</td>
<td>138 (69%)</td>
</tr>
<tr>
<td>Excluded</td>
<td>5 (2%)</td>
</tr>
</tbody>
</table>

*Note. \(N = 201\).*

\(^a(\ )\) indicate percentage of the total.

The data in Table 4.23 indicated that over two thirds of the participants (69%) were categorized as having surface processing learning strategy, while less than a third (29%) were categorized as having deep processing learning strategy. In order to determine the inter-correlations among the four music learning strategies subscales, Pearson’s product moment correlation coefficient was computed. The resultant correlational matrix is presented in Table 4.24.

Table 4.24

*Correlation Matrix of the Music Learning Strategies Subscales*

<table>
<thead>
<tr>
<th>Learning Strategies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Persistence -
2. Peer learning .31** -
3. Surface processing .31** .06 -
4. Deep processing .20** .10 -.08 -

*Note. N =201.*
**. Correlation is significant at p < .01 (2-tailed).

From Table 4.24, it was observed that the correlations among the music learning strategies subscales were generally low. The highest significant correlation \( r(199) = .31, p < .01 \) was observed between peer learning and persistence learning strategy. This was similar to the correlation between surface processing learning strategies and persistence learning strategy. They were followed by the relationship \( r(199) = .20, p < .01 \) between deep processing learning strategy and persistence learning strategy. It was also revealed that surface processing and peer learning strategy had very weak, positive, non-significant correlation \( r(199) = .06, p > .05 \). Similarly, deep processing learning strategies had very weak, positive, non-significant correlation \( r(199) = .10, p > .05 \) with peer learning strategy. In addition, the relationship between deep processing and surface processing learning strategies was negative and non-significant \( r(199) = -.08, p > .01 \). The relatively low correlations among the learning strategy subscale suggested that they were measuring distinct constructs.

4.5.2 Hypothesis Testing

In order to determine the relationship between learning strategies and musical creativity, the following null hypothesis was advanced:
H$_{03}$: There is no significant relationship between learning strategies and musical creativity.

To make the null hypothesis testable, the following four supplementary null hypotheses were formulated:

H$_{03.1}$: There is no significant relationship between surface processing learning strategies and musical creativity.

H$_{03.2}$: There is no significant relationship between deep processing learning strategies and musical creativity.

H$_{03.3}$: There is no significant relationship between persistence learning strategy and musical creativity.

H$_{03.4}$: There is no significant relationship between peer learning strategy and musical creativity.

To test the supplementary null hypotheses, data was subjected to bivariate correlation analysis using Pearson’s product moment correlation coefficient. The results are presented in Table 4.25.

Table 4.25

*Relationships between Participants’ Learning Strategies and Musical Creativity*

<table>
<thead>
<tr>
<th>Learning Strategies</th>
<th>$r^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Surface processing</td>
<td>-.24**</td>
</tr>
<tr>
<td>2. Deep processing</td>
<td>.52**</td>
</tr>
<tr>
<td>3. Persistence</td>
<td>-.05</td>
</tr>
</tbody>
</table>
The results in Table 4.25 indicated that a significant negative correlation \( r(199) = -0.24, p < .01 \) was found between surface processing learning strategy and musical creativity. Additionally, correlation between deep processing learning strategy and musical creativity was statistically significant and positive \( r(199) = .52, p < .01 \). The results also revealed that statistically non-significant negative correlation \( r(199) = -0.05, p > .05 \) occurred between persistence learning strategy and musical creativity. Similarly, the correlation between peer learning strategy and musical creativity \( r(199) = -0.05, p > .05 \) was nonsignificant and negative.

The first supplementary null hypothesis stated that there is no significant relationship between surface processing learning strategies and musical creativity. Correlational results in Table 4.24 showed that the relation between surface processing learning and musical creativity \( r(199) = -.24, p < .01 \) was negative and statistically significant. Based on this result, the null hypothesis was rejected. It was concluded that surface processing learning strategies was significantly related to participants' musical creativity.

The second supplementary null hypothesis stated that there is no significant relationship between deep processing learning strategies and musical creativity. As
shown in Table 4.24, the obtained correlation was statistically significant ($r(199) = .52, p < .01$). Therefore, the null hypothesis was rejected. The results did not support the null hypothesis. It was concluded that deep processing learning strategies was significantly related to participants’ musical creativity.

Additionally, the results indicated that the correlation between persistence learning strategy and musical creativity was statistically non-significant ($r(199) = -.05, p > .05$). Therefore, the third supplementary null hypothesis which stated that there is no significant relationship between persistence learning strategy and musical creativity was retained. It was concluded that persistence learning strategy was not significantly related to students' musical creativity.

The fourth supplementary null hypothesis stated that there is no significant relationship between peer learning strategy and musical creativity. As indicated in Table 4.24, the obtained correlation was statistically non-significant ($r(199) = -.05, p > .05$). Therefore, the null hypothesis was retained. It was concluded that peer learning strategy did not significantly correlate with students' musical creativity.

Following these findings, an independent-samples $T$ test was computed to compare mean musical creativity scores across the participants who were categorized as having deep processing learning strategy and those having surface processing learning strategy. The predictor variable was cognitive learning strategies with the two levels: deep processing and surface processing while the outcome variable was musical
creativity. The assumption of homogeneity of variances was tested and satisfied through a Levene’s $F$ test ($F(194) = .02, p = .88$).

The descriptive statistics associated with participants' musical creativity across the two cognitive learning strategies indicated that deep processing learning strategy category had a higher mean ($M = 14.43, SD = 2.60$) than that of the surface learning strategy category ($M = 12.04, SD = 2.40$). The $T$ test results were as presented in Table 4.2.

Table 4.2

$T$ Test for Musical Creativity for the Deep and Surface Processing Categories

<table>
<thead>
<tr>
<th></th>
<th>$t$</th>
<th>$df$</th>
<th>Sig. (2-tailed)</th>
<th>$MD$</th>
<th>$SE$</th>
<th>LL</th>
<th>UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musical creativity</td>
<td>6.20</td>
<td>194</td>
<td>.01</td>
<td>2.39</td>
<td>.38</td>
<td>1.63</td>
<td>3.15</td>
</tr>
</tbody>
</table>

Note. $N = 196$. $MD = \text{mean difference}; SE = \text{standard error of the difference}; CI = \text{confidence interval of the difference}; LL = \text{lower limit}; UL = \text{upper limit}.$

The results in Table 4.2 indicated a significant difference ($t(194) = 6.20, p < .01$) in mean musical creativity score for the deep processing learning strategy and the surface processing learning strategy. It was concluded that participants in the deep processing learning strategy category had a significantly higher mean musical creativity score when compared with their counterparts in the surface processing learning strategy category.
Further, a hierarchical regression analysis was conducted to evaluate how participants’ learning strategies were related to musical creativity while controlling for gender which was considered as a moderator variable in this study. Prior to hierarchical regression analysis, the independent variables were examined for collinearity (see Appendix F). The variance inflation factors (VIF), were all less than 2, suggesting that there was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The results were as presented in Table 4.27.

The data in Table 4.27 indicated that in step one gender alone accounted for a significant amount of participants’ musical creativity variability ($R^2 = .10, F(1, 199) = 22.95, p < .01$). In step two, the four learning strategies accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender ($R^2 \text{ change} = .24, F(4, 195) = 17.58, p < .01$). Two of the learning strategies, deep processing ($\beta = .48, p < .01$) and surface processing ($\beta = -.16, p < .01$) were statistically significant predictors, but the predictive values of persistence ($\beta = -.08, p > .05$) and peer learning strategies ($\beta = -.02, p > .05$) were non-significant. It was concluded that regardless of their gender, participants who had adopted deep processing learning strategy were likely to attain high musical creativity, while those who adopted surface processing learning strategy were likely to decline in musical creativity.
Table 4.2

*Predict Musical Creativity based on Gender and Achievement Goal Orientation*

<table>
<thead>
<tr>
<th>Model</th>
<th>Std. Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>Std. Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td>56.5</td>
<td>.00</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Dummy gender</td>
<td>.32</td>
<td>4.79</td>
<td>.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>8.18</td>
<td>.00</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Dummy gender</td>
<td>.16</td>
<td>2.50</td>
<td>.01</td>
<td>.85</td>
<td>1.18</td>
<td></td>
<td></td>
<td>1.18</td>
</tr>
<tr>
<td>PLS</td>
<td>-.08</td>
<td>-1.18</td>
<td>.24</td>
<td>.78</td>
<td>1.29</td>
<td></td>
<td></td>
<td>1.29</td>
</tr>
<tr>
<td>PLLS</td>
<td>-.02</td>
<td>-.34</td>
<td>.74</td>
<td>.85</td>
<td>1.18</td>
<td></td>
<td></td>
<td>1.18</td>
</tr>
<tr>
<td>SPLS</td>
<td>-.16</td>
<td>-2.51</td>
<td>.01</td>
<td>.87</td>
<td>1.15</td>
<td></td>
<td></td>
<td>1.15</td>
</tr>
<tr>
<td>DPLS</td>
<td>.48</td>
<td>7.61</td>
<td>.00</td>
<td>.85</td>
<td>1.17</td>
<td></td>
<td></td>
<td>1.17</td>
</tr>
</tbody>
</table>

*Note.* N = 201. PLS = persistence learning strategy; PLLS = peer learning strategy; SPLS = Surface Processing; DPLS = deep processing learning strategy; std. = standardized; VIF = variance inflation factor; MS = model summary.

MS: Step 1<br>
\[ R = .32 \quad R^2 = .103 \quad \text{Adj.} \quad R^2 = .10 \quad \text{SE} = 2.54 \quad R^2 \text{ Change} = .10 \]
\[ F(1, 199) = 22.95, p < .01 \]

MS: Step 2<br>
\[ R = .58 \quad R^2 = .341 \quad \text{Adj.} \quad R^2 = .32 \quad \text{SE} = 2.20 \quad R^2 \text{ Change} = .24 \]
\[ F(4, 195) = 17.58, p < .01 \]

### 4.5.3 Discussion of the Findings

The third objective of the study sought to determine the relationship between learning strategies and musical creativity. The findings revealed that cognitive learning strategies significantly correlated with musical creativity, while the correlation between motivational learning strategies and musical creativity were non-significant. Musical creativity correlated positively with deep processing learning strategy while it correlated negatively with surface processing learning strategy. In addition, there was a significant difference in mean musical creativity scores for the two types of
cognitive learning strategies. Specifically, participants who had deep processing learning strategy attained significantly higher mean musical creativity score than those who had surface processing learning strategy.

Additionally, after controlling for the effect of gender the four learning strategies accounted for a significant proportion of participants’ musical creativity variance. Two of the learning strategies, deep processing and surface processing were statistically significant predictors, but the predictive values of persistence and peer learning strategies were non-significant. This implied that regardless of their gender, participants who had adopted deep processing learning strategy were likely to attain high musical creativity, while those who adopted surface processing learning strategy were likely to decline in musical creativity.

The finding that deep processing learning strategy correlated positively with musical creativity, while surface processing learning strategy correlated negatively with musical creativity were aligned to Craik (2002) levels of processing theory. According to this theory, students subject stimuli to different levels of mental processing and retain only the information that has been subjected to the most thorough processing. Shallow processing leads to a fragile memory trace or recall, while deep processing results in a more durable memory trace. The authors suggest that it is only elaborative rehearsal which improves long-term memory. It is posited that deep processing is favourable to students’ creativity while surface processing may hinder students’ creativity. This perhaps explains why participants who had deep processing strategy
attained higher musical creativity scores than their counterparts who adopted surface processing strategy in the current study.

It is important to note that notation of creative musical compositions involves integration of musical elements comprising of rhythm, pitch, key, time, structure, balance, modulation and application of their governing principles in musical creations. Similarly, deep processing learning strategy involves dimensions of application, elaboration, structuring and organization of information and critical thinking which is likely to enable information to get into the long-term memory bank. On the contrary, surface processing of information is essentially allied to rehearsal and memorization of facts, which may hardly get to the long-term memory storage. Therefore, deep processing strategy is likely to enhance students’ musical creativity, especially in creative composition task, while surface strategy may hinder students’ musical creativity in this area. This then may explain why deep processing positively correlated with participants’ musical creativity, while surface processing negatively correlated with participants’ musical creativity in this study.

Surprisingly, motivational learning strategy related to task persistence, did not significantly correlate to musical creativity. This finding was unexpected since one would expect that learners who spend extra time and effort trying to understand challenging music learning tasks and are determined to continue learning even in the face of obstacles would attain high musical creativity as compared to their counterparts who either give up on difficult music tasks or only study the easy parts. A possible
explanation to this would be that most of the participants in this study may have under reported the use of this strategy regardless of their musical abilities.

The findings of the present study also suggested a non-significant correlation between peer learning and students’ musical creativity. Peer learning strategy which involves using peers in collective problem solving and to collaboratively understand learning material was expected to enhance students’ musical creativity. Majority of the participants in this study, 75% were aged between 16 and 17 years which is an adolescent stage. Students in this age group are likely to focus on other social activities, especially when working with peers and this may negatively impact on their musical creativity. According to Smith (2005), sociological or psychological factors of adolescent students such as pressure to conform socially, may cause them to shy away from engaging in creative behaviour.

Additionally, the findings of the current study partially support earlier research findings by McCormick and McPherson (2003), who investigated music learning strategy dimensions of rehearsal, elaboration, organization and effort management, and music instrumental performance. Their findings indicated that the relations between these learning strategies to instrumental performance were nonsignificant.
4.6 Prediction of Musical Creativity from Musical Self-concept, Achievement Goal Orientations and Learning Strategies

The final objective of this study was to investigate the role of musical self-concept, achievement goal orientation and learning strategies in predicting participants’ musical creativity. Prior to the analyses, a cross-tabulation between participants’ cognitive learning strategies, levels of musical self-concept and achievement goal orientation was computed. The findings are presented in Table 4.28.

Table 4.28

Cross-tabulation of Participants’ Cognitive Learning Strategies, Musical Self-concept and Achievement Goal Orientation

<table>
<thead>
<tr>
<th>CLS</th>
<th>LMSC</th>
<th>Achievement Goal Orientation</th>
<th>Excluded</th>
<th>MAP</th>
<th>PAP</th>
<th>PAV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Excluded</td>
<td>5 (4%)</td>
<td>3 (2%)</td>
<td>5 (4%)</td>
<td>16 (12%)</td>
<td>29 (21%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAP</td>
<td>10 (7%)</td>
<td>31 (23%)</td>
<td>23 (17%)</td>
<td>21 (15%)</td>
<td>85 (62%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAP</td>
<td>3 (2%)</td>
<td>9 (7%)</td>
<td>5 (4%)</td>
<td>7 (5%)</td>
<td>24 (17%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAV</td>
<td>5 (4%)</td>
<td>16 (12%)</td>
<td>5 (4%)</td>
<td>7 (5%)</td>
<td>24 (17%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>18 (13%)</td>
<td>43 (31%)</td>
<td>33 (24%)</td>
<td>44 (32%)</td>
<td>138 (100%)</td>
</tr>
<tr>
<td>Surface</td>
<td>Moderate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Excluded</td>
<td>0 (0%)</td>
<td>4 (7%)</td>
<td>2 (3%)</td>
<td>1 (2%)</td>
<td>7 (12%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAP</td>
<td>4 (7%)</td>
<td>18 (31%)</td>
<td>6 (10%)</td>
<td>5 (9%)</td>
<td>33 (57%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAP</td>
<td>1 (2%)</td>
<td>10 (17%)</td>
<td>2 (3%)</td>
<td>5 (9%)</td>
<td>18 (31%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAV</td>
<td>5 (9%)</td>
<td>32 (55%)</td>
<td>10 (17%)</td>
<td>11 (19%)</td>
<td>58 (100%)</td>
</tr>
<tr>
<td>Surface</td>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Excluded</td>
<td>5 (9%)</td>
<td>32 (55%)</td>
<td>10 (17%)</td>
<td>11 (19%)</td>
<td>58 (100%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAP</td>
<td>0 (0%)</td>
<td>4 (7%)</td>
<td>2 (3%)</td>
<td>1 (2%)</td>
<td>7 (12%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAP</td>
<td>4 (7%)</td>
<td>18 (31%)</td>
<td>6 (10%)</td>
<td>5 (9%)</td>
<td>33 (57%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAV</td>
<td>1 (2%)</td>
<td>10 (17%)</td>
<td>2 (3%)</td>
<td>5 (9%)</td>
<td>18 (31%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>5 (9%)</td>
<td>32 (55%)</td>
<td>10 (17%)</td>
<td>11 (19%)</td>
<td>58 (100%)</td>
</tr>
</tbody>
</table>

Note. \( N = 201 \); CLS = cognitive learning strategy; LMSC = Level of musical self-concept; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance.
The data in Table 4.2 showed that majority of the participants in the deep processing learning strategy category (55%) had also adopted mastery-approach achievement goal orientation, while 17% and 19% had adopted performance-approach goal orientation and performance-avoidance goals orientation, respectively. Additionally, 32 percent of those in the surface processing learning strategy category also had performance-avoidance goal orientation, while 31% and 24% were in the mastery-approach and performance-approach goals respectively.

Further, bivariate Pearson’s correlation analyses were computed to determine the inter-correlations among the predictor variables. This was for the purpose of establishing whether multicollinearity was an issue in the data. The results were as presented in Table 4.29.

The results in Table 4.29 showed that the correlations among the study variables ranged from very weak to moderate, except for the relation between performance-approach and performance-avoidance goal orientation ($r(199) = .54$, $p < .01$), which was also the highest positive correlation. The lowest positive correlation ($r(199) = .17$, $p < .05$) was observed between mastery-approach goal and deep processing learning strategy. Contrary, the highest negative correlation was found between performance-avoidance goal and mastery-approach goal ($r(199) = -.25$, $p < .01$). While the lowest negative correlation ($r(199) = -.23$, $p < .01$) was observed between music self-concept and performance-avoidance goal. However, some of the correlations were very weak.
and non-significant. Generally, weak correlations among predictor variables implied no multicollinearity which was necessary for multiple regression analysis.

Table 4.2

Correlation Matrix for the Subscales of Musical Self-Concept, Achievement Goal Orientations and Learning Strategies

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSC</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLS</td>
<td>.29**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLLS</td>
<td>.12</td>
<td>.31**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPLS</td>
<td>-.00</td>
<td>.31**</td>
<td>.06</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPLS</td>
<td>.38**</td>
<td>.20**</td>
<td>.10</td>
<td>-.08</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAP</td>
<td>.21**</td>
<td>.11</td>
<td>.09</td>
<td>-.08</td>
<td>.17**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAP</td>
<td>-.09</td>
<td>.10</td>
<td>.08</td>
<td>.28**</td>
<td>-.00</td>
<td>-.10</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>PAV</td>
<td>-.23**</td>
<td>.04</td>
<td>.03</td>
<td>.28**</td>
<td>-.08</td>
<td>-.25**</td>
<td>.54**</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. N = 201. MSC = musical self-concept; PLS = persistence; PLLS = peer learning; SPLS = surface processing; DPLS = deep processing; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance.

**. Correlation is significant at p < .01 (2-tailed).
*. Correlation is significant at p < .05 (2-tailed).

4.6.1 Hypothesis Testing

In order to establish the prediction equation of musical creativity from musical self-concept, achievement goal orientation and learning strategies, the following null hypothesis was advanced:
H$_{04}$. There is no significant prediction equation of musical creativity given musical self-concept, achievement goal orientation and learning strategies.

To test the fourth null hypothesis, a standard multiple regression analysis was conducted to examine the combined effect of the three independent variables on participants’ musical creativity. The linearity assumptions were confirmed with partial scatter plots of the predictor variables (musical self-concept, achievement goal orientation and learning strategies) and the outcome variable (musical creativity). They indicated that linearity was present in all the variables (see Appendix F). Additionally, the variance inflation factors (VIF) were all less than 2, suggesting that there was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). Results were as presented in Table 4.30.

The results in Table 4.30 indicated that the multiple regression model for predicting participants’ musical creativity from musical self-concept, achievement goal orientation and learning strategies was significant ($F(8,192) = 18.47, p < .01$), with (adjust. $R^2 = .41$). The fourth null hypothesis was therefore rejected. The resultant standard regression equation is given in equation (1).

$$\hat{y} = 0.47 \text{(DP)} + 0.28 \text{(MAP)} – 0.12 \text{(PLS)} (R^2 = .41, \ p < .01)$$  

(1)

Where: $\hat{y}$ = predicted musical creativity; DP = deep processing learning strategy; MAP = mastery-approach goal orientation; and PLS = persistence learning strategy.
Table 4.30

*Predicting Musical Creativity Based on Musical Self-concept, Learning Strategies and Achievement Goal Orientation*

<table>
<thead>
<tr>
<th>Model</th>
<th>Std. Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>5.00</td>
<td>.00</td>
<td>-</td>
</tr>
<tr>
<td>MSC</td>
<td>.02</td>
<td>.37</td>
<td>.72</td>
<td>.75</td>
</tr>
<tr>
<td>PLS</td>
<td>-.12</td>
<td>-1.94</td>
<td>.05</td>
<td>.74</td>
</tr>
<tr>
<td>PLLS</td>
<td>-.07</td>
<td>-1.23</td>
<td>.22</td>
<td>.90</td>
</tr>
<tr>
<td>SPLS</td>
<td>-.10</td>
<td>-1.57</td>
<td>.12</td>
<td>.80</td>
</tr>
<tr>
<td>DPLS</td>
<td>.47</td>
<td>7.95</td>
<td>.00</td>
<td>.83</td>
</tr>
<tr>
<td>MAP</td>
<td>.28</td>
<td>4.94</td>
<td>.00</td>
<td>.89</td>
</tr>
<tr>
<td>PAP</td>
<td>-.05</td>
<td>-1.74</td>
<td>.46</td>
<td>.69</td>
</tr>
<tr>
<td>PAV</td>
<td>-.11</td>
<td>-1.65</td>
<td>.10</td>
<td>.63</td>
</tr>
</tbody>
</table>

Model*: $R = .66$, $R^2 = .44$, Adjust. $R^2 = .41$, $SE = 2.05$; $F(8,192) = 18.47, P < .01$

*Note. N = 201. Dependent variable: musical creativity; MSC = musical self-concept; PLS = persistence; PLLS = peer learning; SPLS = surface processing; DPLS = deep processing; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; VIF = variance inflation factors.  
*aRegression model summary.*

The equation (1) indicated that students' musical creativity increased by 0.47 and 0.28 points for each standard deviation of deep processing learning and mastery-approach goal orientation respectively, and it reduced by 0.12 points for each standard deviation of persistence learning strategy. The coefficient of determination ($R^2 = .41$), indicated that approximately 41% of the variance in participants' musical creativity could be accounted for jointly by deep processing learning, mastery-approach goal orientation and persistence learning.
Deep processing learning had the highest significant positive predictive value ($\beta = .47$, $p < .01$), followed by mastery-approach achievement goal orientation value ($\beta = .28$, $p < .01$). On the other hand, persistence learning had significant negative predictive values ($\beta = - .12$, $p < .05$) on participants’ musical creativity. Musical self-concept and the remaining four subscales of achievement goal orientation and learning strategies were non-significant predictors of participants’ musical creativity.

Consequently, the researcher sought to determine how each predictor variable would independently predict musical creativity. First, a standard multiple linear regression was computed to predict participants’ musical creativity based on musical self-concept. The variance inflation factors (VIF) were all less than 2, indicating that there was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The results were as presented in Table 4.31.

The results in Table 4.31 showed that the regression equation for predicting participants’ musical creativity from musical self-concept was significant ($F(8,192) = 5.07$, $p < .01$), with Adjusted $R^2 = .14$. The resultant standard regression equation is presented in equation (2).

$$\hat{y} = 0.22 \text{(RTM)} - 0.21 \text{(DNC)} \quad (R^2 = .14, p < .01) \quad (2)$$

Where: $\hat{y}$ = predicted musical creativity; RTM = sense of rhythm self-concept; and DNC = dancing self-concept.
Table 4.31

*Predicting Participants’ Musical Creativity Based on Musical Self-concept*

<table>
<thead>
<tr>
<th>Predictors (MSC)</th>
<th>Std. Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>9.30</td>
</tr>
<tr>
<td>Singing</td>
<td>.03</td>
<td>.36</td>
</tr>
<tr>
<td>Instrument</td>
<td>.10</td>
<td>1.27</td>
</tr>
<tr>
<td>Reading</td>
<td>.12</td>
<td>1.34</td>
</tr>
<tr>
<td>Composition</td>
<td>.03</td>
<td>.30</td>
</tr>
<tr>
<td>Listening</td>
<td>.08</td>
<td>.88</td>
</tr>
<tr>
<td>Dance</td>
<td>-.21</td>
<td>-3.02</td>
</tr>
<tr>
<td>Rhythm</td>
<td>.22</td>
<td>2.16</td>
</tr>
<tr>
<td>Global</td>
<td>-.10</td>
<td>-1.09</td>
</tr>
</tbody>
</table>

Model\(a\): \(R = 0.42, \ R^2 = 0.17\), Adjust. \(R^2 = 0.14\), \(SE = 2.48; F(8,192) = 5.07, P < .01\)

*Note.* \(N = 201\). Dependent variable: musical creativity; MSC = musical self-concept; VIF = variance inflation factors.

\(a\) Regression model summary.

The equation (2) suggested that students’ musical creativity increased by 0.22 points for every standard deviation of sense of rhythm self-concept, and decreased by 0.21 points for every standard deviation of dancing self-concept. The coefficient of determination value adjusted \(R^2 = .14\), indicated that approximately 14% of the total variance in participants’ musical creativity could be explained by the combined effect of the sense of rhythm and dancing dimensions of musical self-concept. Only two musical self-concept dimensions, sense of rhythm \((\beta = .22, p < .05)\) and dancing self-concept \((\beta = -.21, p < .05)\) were significant predictors of musical creativity. The
obtained beta values indicated that while sense of rhythm had a higher and positive predictive value on participants’ musical creativity, dancing self-concept had a lower and inverse predictive value on participants’ musical creativity. The analysis also revealed that singing, instrument playing, music reading, composing, listening skill and global dimensions of musical self-concept were non-significant predictors of musical creativity.

Next, a standard multiple linear regression analysis was conducted to predict participants’ musical creativity based on their achievement goal orientation. The predictor variables were mastery-approach, performance-approach and performance-avoidance, and the dependent variable was musical creativity. The variance inflation factors (VIF) were all less than 2, suggesting that there was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The results were as presented in Table 4.32.

Table 4.32

*Predicting Participants’ Musical Creativity Based on Achievement Goal Orientation*

<table>
<thead>
<tr>
<th>Predictor (AGO)</th>
<th>Std. Coefficients</th>
<th>Collinearity Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>7.49</td>
<td>.01</td>
</tr>
<tr>
<td>Mastery-approach</td>
<td>0.34</td>
<td>5.17</td>
<td>.01</td>
</tr>
<tr>
<td>Performance-approach</td>
<td>-0.06</td>
<td>-0.82</td>
<td>.42</td>
</tr>
<tr>
<td>Performance-avoidance</td>
<td>-0.17</td>
<td>-2.12</td>
<td>.04</td>
</tr>
</tbody>
</table>

Model*: $R = .42$, $R^2 = .19$, Adjust. $R^2 = .18$, $SE = 2.48$; $F (3,197) = 15.61$, $P < .01$

Note. $N = 201$. Dependent variable: musical creativity; AGO = achievement goal orientation; VIF = variance inflation factors. * Regression model summary.
The findings in Table 4.32 indicated that the multiple regression model for predicting students’ musical creativity from achievement goal orientation was significant \((F(3,197) = 15.61, p < .01)\), with \(R^2 = .18\). The resultant standard regression equation is presented in equation (3).

\[
\hat{y} = 0.34 \text{(MAP)} - 0.17 \text{(PAV)} (R^2 = .18, p < .01) \tag{3}
\]

Where: \(\hat{y}\) = predicted musical creativity; MAP = mastery-approach achievement goal orientation; and PAV = performance-avoidance achievement goal orientation.

The equation (3) suggested that students' musical creativity increased by .34 points for every standard deviation of mastery-approach goal orientation, and decreased by .17 points for every standard deviation of performance-avoidance goal orientation. The coefficient of determination value adjusted \((R^2 = .18)\), indicated that approximately 18% of the total variance in students’ musical creativity could be explained using the combined effect of the achievement goal orientation sub-scales.

The analysis revealed that mastery-approach goal orientation had the highest significant positive predictive value (\(\beta = .34, p < .01\)) on participants’ musical creativity, while performance-avoidance goal orientation had a significant negative predictive value (\(\beta = - .17, p < .05\)) on participants’ musical creativity. However, performance-approach goal orientation was not a significant predictor of participants’ musical creativity (\(\beta = - .06, p = .42\)).
Finally, a standard multiple linear regression was conducted to predict participants’ musical creativity based on their music learning strategies. The predictor variables were persistence, peer learning, surface processing and deep processing, and the dependent variable was musical creativity. The results were as shown in Table 4.33.

Table 4.33

*Predicting Participants’ Musical Creativity Based on Music Learning Strategies*

<table>
<thead>
<tr>
<th>Predictors (MLS)</th>
<th>Std. Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>8.39</td>
</tr>
<tr>
<td>Surface processing</td>
<td>-.17</td>
<td>-2.73</td>
</tr>
<tr>
<td>Deep processing</td>
<td>.53</td>
<td>8.63</td>
</tr>
<tr>
<td>Persistence</td>
<td>-.08</td>
<td>-1.26</td>
</tr>
<tr>
<td>Peer learning</td>
<td>-.06</td>
<td>-.98</td>
</tr>
</tbody>
</table>

Model*: $R = 57, R^2 = 32$, Adjust. $R^2 = .31$, $SE = 2.23; F(4,196) = 23.06, P < .01$

*Note. N = 201. Dependent variable: musical creativity; MLS = music learning strategies; VIF = variance inflation factors.*

*a Regression model summary.

The results presented in Table 4.33 indicated that the multiple regression model for predicting students’ musical creativity from music learning strategies was significant ($F(4,196) = 23.06, p < .01$), with adjusted $R^2 = .31$. The resultant standard regression equation is given in equation (4).

$$
y = 0.53 \text{(DPLS)} - 0.17 \text{(SPLS)} \quad (R^2 = .31, p < .01)
$$  (4)
Where: $\hat{y} = \text{predicted musical creativity}$; DPLS = deep processing learning strategy and SPLS = surface processing learning strategy.

The Equation (4) suggested that students’ musical creativity increased by 0.53 points for each standard deviation of deep processing learning strategy, and decreased by 0.17 points for each standard deviation of surface processing learning strategy. The coefficient of determination value ($R^2 = .31$), indicated that approximately 31% of the total variance in participants’ musical creativity could be explained by the combined effect of the learning strategies sub-scales. Deep processing learning strategy had the highest significant positive predictive value ($\beta = .53, p < .01$) on participants’ musical creativity, while surface processing learning strategy was found to have a significant negative predictive value ($\beta = -.17, p < .05$) on participants’ musical creativity. The analysis also revealed that persistence ($\beta = -.08, p = .21$) and peer learning strategies ($\beta = -.06, p = .33$) were non-significant predictors of participants’ musical creativity.

The findings in equation (2), (3) and (4) showed that when studied separately, learning strategies accounted for the highest variance (31%) in participants’ musical creativity. This was followed by the achievement goal orientation which accounted for (18%), while musical self-concept accounted for the least (14%) variance in participants’ musical creativity.

Further, a hierarchical regression analysis was conducted to evaluate how participants’ musical self-concept, achievement goal orientation and learning strategies predicted
musical creativity while controlling for gender which was considered as a moderator variable in this study. The variance inflation factors (VIF) were all less than 2. This suggested that there was no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The results were as presented in Table 4.34.

Table 4.34

Predicting Musical Creativity Based on Gender, Musical Self-Concept, Achievement Goal Orientation and Learning Strategies

<table>
<thead>
<tr>
<th>Model</th>
<th>Std. Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>1a</td>
<td>(Constant)</td>
<td>-</td>
<td>56.46</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Dummy gender</td>
<td>.32</td>
<td>4.79</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>(Constant)</td>
<td>-</td>
<td>5.02</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Dummy gender</td>
<td>.12</td>
<td>2.06</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>MSC</td>
<td>.01</td>
<td>.16</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>PLS</td>
<td>-.11</td>
<td>-1.82</td>
<td>.07</td>
</tr>
<tr>
<td>2b</td>
<td>PLLS</td>
<td>-.04</td>
<td>-.67</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>SPLS</td>
<td>-.09</td>
<td>-1.41</td>
<td>.16</td>
</tr>
<tr>
<td></td>
<td>DPLS</td>
<td>.44</td>
<td>7.28</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>MAP</td>
<td>.28</td>
<td>4.81</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>PAP</td>
<td>-.05</td>
<td>-.83</td>
<td>.41</td>
</tr>
<tr>
<td></td>
<td>PAV</td>
<td>-.11</td>
<td>-1.59</td>
<td>.11</td>
</tr>
</tbody>
</table>

*Note. N = 201. Dependent variable: musical creativity; MSC = musical self-concept; PLS = persistence; PLLS = peer learning; SPLS = surface processing; DPLS = deep processing; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; VIF = variance inflation factors.*

Model 1a  
\[ R = .32, \quad R^2 = .10, \quad \text{Adjust. } R^2 = .10, \quad SE = 2.54; \quad R^2 \text{ change} = .10, \quad F(1,199) = 22.95, \quad p < .01 \]

Model 2b  
\[ R = .67; \quad R^2 = .45; \quad \text{Adjust. } R^2 = .42, \quad SE = 2.04; \quad R^2 \text{ change} = .34, \quad F(8,191) = 14.85, \quad p < .01 \]
The results in Table 4.34 indicated that in step one gender alone accounted for a significant amount of participants’ musical creativity variability \((R^2 = .10, F(1, 199) = 22.95, p < .01)\). The predictive value of gender \((\beta = .32, p < .01)\) on participants musical creativity was positive and significant. In step two, the three predictor variables accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender \((R^2 \text{ change} = .34, F(8, 191) = 14.85, p < .01)\). Two subscales, deep processing \((\beta = .44, p < .01)\) and mastery-approach goal orientation \((\beta = .28, p < .01)\) were positive and statistically significant predictors of participants’ musical creativity while the remaining six subscales were nonsignificant predictors. It was concluded that participants who had adopted deep processing learning strategy and mastery-approach goal orientation were likely to attain high musical creativity regardless of their gender.

### 4.6.2 Discussion of the Results

The present study hypothesized that musical self-concept, achievement goal orientation and learning strategies had no significant predictive values on musical creativity. It was observed that when the three independent variables were jointly analysed, deep processing learning strategy and mastery-approach achievement goal orientation positively predicted participants’ musical creativity, while persistence learning strategy negatively predicted participants’ musical creativity. Additionally, musical self-concept and four other subscales of achievement goal orientation and learning strategies remained non-significant predictors of participants’ musical
creativity. Deep processing learning strategy emerged as the strongest predictor of participants’ musical creativity. Further, when the three independent variables were studied separately, learning strategies accounted for the highest variance in participants’ musical creativity, followed by achievement goal orientation, while musical self-concept accounted for the least variance on participants’ musical creativity.

The coefficient of determination value \( R^2 = .41 \), indicated that approximately 41% of the total variation in participants’ musical creativity was explained by the combined effect of participants’ musical self-concept, achievement goal orientations and learning strategies. This implied that about 59% of participants’ musical creativity in this study was explained by other factors apart from participants’ musical self-concept, achievement goal orientations and learning strategies. These factors may be related to the individual participants’ characteristics such as intelligence, knowledge, thinking styles, personality, motivation and environmental elements including teacher characteristics, teaching strategies, school culture, home environment and parental support which may influence students’ musical creativity.

Equation (1) indicated that the explained variation in participants’ musical creativity from the three predictor variables combined was more than the explained variation from musical self-concept, achievement goal orientation and learning strategies when studied separately, as shown in equations (2), (3) and (4). This implied that students who adopt deep processing learning and mastery-approach goal and in addition, have
positive musical self-concept are likely to attain high musical creativity. Moreover, deep processing learning and mastery-approach goal orientation still accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender. This implied that participants who had adopted deep processing learning strategy and mastery-approach goal orientation were likely to attain high musical creativity regardless of their gender.

The findings that musical self-concept was not a significant predictor of participants’ musical creativity when combined with other variables, but it significantly predicted musical creativity when studied alone confirmed Demorest et al. (2016) study which concluded that musical self-concept was a unique predictor of students’ singing ability. The findings also supported an earlier study by Auh (1997) who noted that when jointly analysed with other factors, musical self-concept is nonsignificant predictor of musical creativity.

The findings that mastery-approach achievement goal orientation positively predicted participants’ musical creativity, while persistence learning strategy negatively predicted participants’ musical creativity did not support the study by Nielsen (2008), who investigated the achievement goals, learning strategies and instrumental performance. The author reported that achievement goal orientation variables were not related with instrumental performance. Nonetheless, as indicated in the literature review this study did not establish the prediction of musical creativity by the study variables.
4.7 Exploratory Analysis

Based on the preceding findings, the researcher conducted exploratory analyses focusing on objectives four of the study. Specifically, the researcher explored how age, gender, school type and category interacted with musical self-concept, achievement goal orientation and learning strategies in predicting participants’ musical creativity. Gender differences in the prediction models of musical creativity were also evaluated.

4.7.1 Participants’ Age and Musical Creativity

In this study participants’ age were classified into three age categories, that is between 16 -17, 18 -19, and 20 - 22 respectively. A cross-tabulation of participants’ age group and their level of musical creativity were computed, and findings were as presented in Table 4.35.

Table 4.35

*Description of Participants’ Levels of Musical Creativity by Age Category*

<table>
<thead>
<tr>
<th>Musical Creativity</th>
<th>16 - 17</th>
<th>18 - 19</th>
<th>20 - 22</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>46 (23%)</td>
<td>10 (5%)</td>
<td>0 (0%)</td>
<td>56 (28%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>66 (34%)</td>
<td>21 (10%)</td>
<td>1 (1%)</td>
<td>90 (45%)</td>
</tr>
<tr>
<td>Low</td>
<td>37 (18%)</td>
<td>17 (9%)</td>
<td>1 (1%)</td>
<td>55 (27%)</td>
</tr>
<tr>
<td>Total</td>
<td>151 (75%)</td>
<td>48 (24%)</td>
<td>2 (1%)</td>
<td>201 (100%)</td>
</tr>
</tbody>
</table>

*Note. N = 201; ( ) = percentage of the total.*
The findings in Table 4.35 showed that majority of the participants (45%) across the three age groups had moderate levels of musical creativity, with age 16 - 17 comprising 75 percent of the participants, while age group 18 - 19 had 24 percent and only one percent fell in category 20 - 22. Further, Pearson’s bivariate correlation was computed to determine relationships between the study variables and participants’ age. The findings were as presented in Table 4.36.

Table 4.36

*Relationship between Study Variables and Participants’ Age*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>( r^a )</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musical self-concept</td>
<td>212.46</td>
<td>38.44</td>
<td>-.09</td>
<td>.22</td>
</tr>
<tr>
<td>Mastery-approach</td>
<td>12.19</td>
<td>2.24</td>
<td>.04</td>
<td>.55</td>
</tr>
<tr>
<td>Performance-approach</td>
<td>11.76</td>
<td>2.93</td>
<td>.04</td>
<td>.58</td>
</tr>
<tr>
<td>Performance-avoidance</td>
<td>11.10</td>
<td>3.74</td>
<td>.11</td>
<td>.12</td>
</tr>
<tr>
<td>Deep processing</td>
<td>24.51</td>
<td>5.38</td>
<td>.12</td>
<td>.10</td>
</tr>
<tr>
<td>Surface processing</td>
<td>27.86</td>
<td>5.82</td>
<td>.02</td>
<td>.80</td>
</tr>
<tr>
<td>Persistence</td>
<td>22.40</td>
<td>4.70</td>
<td>.05</td>
<td>.51</td>
</tr>
<tr>
<td>Peer learning</td>
<td>13.72</td>
<td>4.36</td>
<td>-.01</td>
<td>.95</td>
</tr>
<tr>
<td>Musical creativity</td>
<td>12.75</td>
<td>2.68</td>
<td>-.13</td>
<td>.06</td>
</tr>
</tbody>
</table>

*Note. N = 201. SD = standard deviation.

\( a \) Correlation with participants’ age.

*. Correlation is significant at \( p < .05 \)
The results in Table 4.36 indicated that the correlations between participants' age and the study variables were all very weak and statistically nonsignificant. It was concluded that age was not significantly related to the study variables.

### 4.7.2 School Type and Musical Creativity

Participants in this study were drawn from five types of schools including girls’ boarding, boys’ boarding, girls’ day, boys’ day and mixed day. These schools were also categorized as national, extra county, county or private schools. A cross-tabulation of participants’ type of school with their musical creativity was computed and the findings presented in Table 4.37.

Table 4.37

*Levels of Musical Creativity by School Type*

<table>
<thead>
<tr>
<th>School Type</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB</td>
<td>7 (13%)</td>
<td>19 (35%)</td>
<td>28 (52%)</td>
<td>54 (100%)</td>
</tr>
<tr>
<td>BD</td>
<td>2 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (100%)</td>
</tr>
<tr>
<td>GB</td>
<td>32 (28%)</td>
<td>56 (49%)</td>
<td>27 (24%)</td>
<td>115 (100%)</td>
</tr>
<tr>
<td>GD</td>
<td>4 (25%)</td>
<td>11 (69%)</td>
<td>1 (6%)</td>
<td>16 (100%)</td>
</tr>
<tr>
<td>MD</td>
<td>10 (71%)</td>
<td>4 (29%)</td>
<td>0 (0%)</td>
<td>14 (100%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55 (27%)</strong></td>
<td><strong>90 (45%)</strong></td>
<td><strong>56 (28%)</strong></td>
<td><strong>201 (100%)</strong></td>
</tr>
</tbody>
</table>

Note. \( N = 201 \). BB = boys’ boarding; BD = boys’ day; GB = girls’ boarding; GD = girls’ day; MD = mixed day. ( ) = percent within type of school.
The data in Table 4.37 indicated that more than three quarters (84%) of the participants were from boys’ and girls’ boarding, while less than a quarter (16%) were from boys’ day, girls’ day and mixed day. The data showed that majority of participants from boys’ boarding (52%) had high levels of musical creativity, while majority of participants from girls’ boarding (49%) had moderate levels of musical creativity.

### 4.7.3 School Category and Musical Creativity

The participating schools were categorised into national, extra county, county and private schools. Participants’ musical creativity was cross-tabulated with their school category. The descriptive statistics associated with participants’ musical creativity across the four school categories and the cross-tabulation results were as summarised in Table 4.38.

Table 4.38

*Levels of Musical Creativity by School Category*

<table>
<thead>
<tr>
<th>SC</th>
<th>M</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTL</td>
<td>14.57</td>
<td>2.39</td>
<td>.37</td>
<td>-.36</td>
<td>43(21%)</td>
<td>31(15%)</td>
<td>5(2.5%)</td>
<td>79(39%)</td>
</tr>
<tr>
<td>ECNT</td>
<td>11.83</td>
<td>2.47</td>
<td>.37</td>
<td>-.36</td>
<td>11(6%)</td>
<td>22(11%)</td>
<td>24(12%)</td>
<td>57(29%)</td>
</tr>
<tr>
<td>CNT</td>
<td>11.47</td>
<td>1.89</td>
<td>.37</td>
<td>-.36</td>
<td>1(0.5%)</td>
<td>26(13%)</td>
<td>18(9%)</td>
<td>45(22%)</td>
</tr>
<tr>
<td>PRT</td>
<td>11.05</td>
<td>1.50</td>
<td>.37</td>
<td>-.36</td>
<td>1(0.5%)</td>
<td>11(6%)</td>
<td>8(4%)</td>
<td>20(10%)</td>
</tr>
<tr>
<td>Total</td>
<td>12.75</td>
<td>2.68</td>
<td>.37</td>
<td>-.36</td>
<td>56(28%)</td>
<td>90(45%)</td>
<td>55(27%)</td>
<td>201(100%)</td>
</tr>
</tbody>
</table>

*Note.* N = 201. *M* = mean; *SD* = standard deviation; *Sk* = skewness; *Kur* = kurtosis; SC = school category; NTL = national; ECNT = extra county; CNT = County; PRT = Private. ( ) = percent of the Total.
The findings in Table 4.38 indicated that national schools had the highest mean musical creativity score ($M = 14.57; SD = 2.39$) while private schools had the least mean musical creativity score ($M = 11.05; SD = 1.50$). Extra county and county schools had mean scores of $M = 11.83$ ($SD = 2.47$) and $M = 11.47$ ($SD = 1.89$) respectively. Additionally, it was observed that majority of participants from the national schools (21%) had high levels of musical creativity when compared to the extra county, county and private schools, which had majority of their participants in the category of low and moderate levels of musical creativity.

In line with these findings, the data was subjected to analysis of variance (ANOVA) to compare participants’ musical creativity with respect to category of school. As shown in Table 4.37, the skewness and kurtosis values for musical creativity scores for all school categories suggested a normal distribution for the purpose of conducting ANOVA. Additionally, the assumption of homogeneity of variances was tested and satisfied through a Levene's $F$ test ($F(3, 197) = 5.50, P > .05$). The predictor variable was school category with four levels: national, extra county, county and private. The outcome variable was musical creativity. The results were as presented in Table 4.39.
Table 4.39

ANOVA for Musical Creativity for the School Categories

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>442.30</td>
<td>3</td>
<td>147.43</td>
<td>29.29</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>991.76</td>
<td>197</td>
<td>5.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1434.06</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 201. Dependent variable = musical creativity; MS = Mean Square

The results in Table 4.39 indicated that there was a significant mean difference in musical creativity when school categories were considered ($F(3,197) = 29.29, p < .01$).

Further, Tukey’s HSD post hoc analysis was used to determine the nature of the musical creativity differences between participants from the four school categories. The results are presented in Table 4.40.

The findings in Table 4.40 indicated that participants from national schools had significantly higher mean musical creativity score when compared to those of students from extra county, county and private schools. However, the mean differences in musical creativity between students from extra county, county and private school were not significant.
Table 4.40

**Post-hoc Analysis for Musical Creativity for the School Categories**

<table>
<thead>
<tr>
<th>(I) SC</th>
<th>(J) SC</th>
<th>MD</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(I-J)</td>
<td></td>
<td></td>
<td>LL</td>
</tr>
<tr>
<td>NTL</td>
<td>CNT</td>
<td>3.10*</td>
<td>.42</td>
<td>.01</td>
<td>2.02</td>
</tr>
<tr>
<td>PRT</td>
<td>NTL</td>
<td>3.52*</td>
<td>.56</td>
<td>.01</td>
<td>2.06</td>
</tr>
<tr>
<td>ECNT</td>
<td>PRT</td>
<td>2.75*</td>
<td>.39</td>
<td>.01</td>
<td>1.74</td>
</tr>
<tr>
<td>NTL</td>
<td>ECNT</td>
<td>-3.10*</td>
<td>.42</td>
<td>.01</td>
<td>-4.19</td>
</tr>
<tr>
<td>CNT</td>
<td>PRT</td>
<td>.42</td>
<td>.60</td>
<td>.90</td>
<td>-1.15</td>
</tr>
<tr>
<td>ECNT</td>
<td>CNT</td>
<td>-.36</td>
<td>.45</td>
<td>.85</td>
<td>-1.52</td>
</tr>
<tr>
<td>NTL</td>
<td>ECNT</td>
<td>-3.52*</td>
<td>.56</td>
<td>.01</td>
<td>-4.98</td>
</tr>
<tr>
<td>PRT</td>
<td>CNT</td>
<td>-.42</td>
<td>.60</td>
<td>.90</td>
<td>-1.98</td>
</tr>
<tr>
<td>ECNT</td>
<td>NTL</td>
<td>-.77</td>
<td>.58</td>
<td>.55</td>
<td>-2.29</td>
</tr>
<tr>
<td>PRT</td>
<td>ECNT</td>
<td>-2.75*</td>
<td>.39</td>
<td>.01</td>
<td>-3.76</td>
</tr>
<tr>
<td>ECNT</td>
<td>CNT</td>
<td>.36</td>
<td>.45</td>
<td>.85</td>
<td>-.80</td>
</tr>
<tr>
<td>PRT</td>
<td>NTL</td>
<td>.77</td>
<td>.58</td>
<td>.55</td>
<td>-.74</td>
</tr>
</tbody>
</table>

* The mean difference is significant at \( p < .05 \).

**Note.** \( N = 201 \). SC = school category; NTL = national; CNT = county; ECNT = extra county; PRT = private; MD = mean difference; SE = standard error of the mean; CI = confidence interval for the mean; LL = lower limit; UL = upper limit.

### 4.7.4 Participants’ Musical Creativity by Gender

To establish whether musical creativity differed in terms of participants’ gender, a cross-tabulation of participants’ musical creativity with their gender was computed. The descriptive statistics associated with participants' musical creativity across gender and the findings of the cross-tabulation were as presented in Table 4.41.
Table 4.11

Description of Participants’ Musical Creativity by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>SD</th>
<th>Sk</th>
<th>Kur</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14.03</td>
<td>3.03</td>
<td>.08</td>
<td>-.80</td>
<td>14 (22%)</td>
<td>20 (32%)</td>
<td>28 (45%)</td>
<td>62 (100%)</td>
</tr>
<tr>
<td>Female</td>
<td>12.17</td>
<td>2.29</td>
<td>.17</td>
<td>-.76</td>
<td>41 (30%)</td>
<td>70 (50%)</td>
<td>28 (20%)</td>
<td>139 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>12.75</td>
<td>2.68</td>
<td>.37</td>
<td>-.36</td>
<td>55 (27%)</td>
<td>90 (45%)</td>
<td>56 (27%)</td>
<td>201 (100%)</td>
</tr>
</tbody>
</table>

Note. N = 201. SD = standard deviation; Sk = skewness; Kur = Kurtosis. ( ) = percentage within gender.

The data in Table 4.11 showed that males had a higher mean musical creativity score ($M = 14.03; SD = 3.03$) than females ($M = 12.17; SD = 2.29$). Additionally, a higher percentage of males (45%) than females (20%) had high levels of musical creativity, while majority of females had low (30%) and moderate (50%) levels of musical creativity.

Consequently, an independent-samples $T$ test was computed to compare mean musical creativity scores for males and females. Prior to performing the $T$ test, the assumption of normality was evaluated. The skewness and kurtosis values were used as measures of distribution shape for musical creativity scores by gender. As summarized in Table 4.35, skewness and kurtosis values below two indicated a normal distribution as per the criteria outlined by (Gravetter & Wallnau, 2014). Additionally, the assumption of
variances was tested through a leven’s test of equality of variances ($F(199) = 4.72, p = .03$). The results were as presented in Table 4.42.

Table 4.42

<table>
<thead>
<tr>
<th></th>
<th>Sig.</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$t$</td>
<td>df</td>
</tr>
<tr>
<td>Musical creativity</td>
<td>4.31</td>
<td>93.47</td>
</tr>
</tbody>
</table>

*Note. N = 201. MD = mean difference; SE = standard error of the difference; CI = confidence interval of the difference; LL = lower limit; UL = upper limit.*

The results in Table 4.42 indicated that there was a significant difference ($t(93.47) = 4.31, p < .01$) in the mean musical creativity scores for the males and females. The magnitude of the difference in the means was 1.86 with a 95% confidence interval of 1.00 to 2.72. Males had a significant higher mean musical creativity score ($M = 14.03, SD = 3.03$) when compared to females ($M = 12.17, SD = 2.29$).

Following these findings, the researcher further explored whether the regression coefficients would differ in terms of participants' gender. The data was split by gender with males coded as one and females coded as two. A standard multiple regression was computed to predict musical creativity based on musical self-concept, achievement goals orientations and learning strategies by participants’ gender. The resultant variance inflation factors (VIF) were all less than 2, suggesting that there was
no multicollinearity as per the criteria advanced by (Gravetter & Wallnau, 2014). The resultant multiple regression models for predicting males’ and females’ musical creativity from musical self-concept, achievement goal orientation and learning strategies were as presented in Table 4.43 and Table 4.44.

Table 4.43

Predicting Males’ Musical Creativity Based on Musical Self-Concept, Achievement Goals Orientations and Learning Strategies

<table>
<thead>
<tr>
<th>Model</th>
<th>Males Std.β</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>2.79</td>
<td>.01</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MSC</td>
<td>-.06</td>
<td>-.47</td>
<td>.64</td>
<td>.66</td>
<td>1.51</td>
</tr>
<tr>
<td>MAP</td>
<td>.30</td>
<td>2.64</td>
<td>.01</td>
<td>.87</td>
<td>1.15</td>
</tr>
<tr>
<td>PAP</td>
<td>.09</td>
<td>.70</td>
<td>.49</td>
<td>.76</td>
<td>1.32</td>
</tr>
<tr>
<td>PAV</td>
<td>-.24</td>
<td>-1.82</td>
<td>.08</td>
<td>.67</td>
<td>1.49</td>
</tr>
<tr>
<td>SPLS</td>
<td>-.22</td>
<td>-1.69</td>
<td>.10</td>
<td>.69</td>
<td>1.44</td>
</tr>
<tr>
<td>PLS</td>
<td>-.08</td>
<td>-.68</td>
<td>.50</td>
<td>.76</td>
<td>1.32</td>
</tr>
<tr>
<td>PLLS</td>
<td>-.06</td>
<td>-.50</td>
<td>.62</td>
<td>.82</td>
<td>1.22</td>
</tr>
<tr>
<td>DPLS</td>
<td>.33</td>
<td>2.51</td>
<td>.02</td>
<td>.68</td>
<td>1.48</td>
</tr>
</tbody>
</table>

MS: $R = .62, R^2 = .39$, Adjust. $R^2 = .30$, SE$= 2.54; F(8,53) = 4.22, p < .01$

Note. $N = 62$. MSC = musical self-concept; DPLS = deep processing; SPLS = surface processing; PLLS = peer learning; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; PLS = Persistence; VIF = variance inflation factors; MS = model summary

The data in Table 4.43 showed that the regression model for predicting males’ musical creativity was significant ($F(8, 53) = 4.22, p < .01$), with adjusted $R^2 = .30$. Deep
processing learning strategy had the highest positive and significant predictive value
($\beta = .33, p < .05$), followed by mastery-approach goal orientation ($\beta = .30, p = .01$),
while six subscales remained nonsignificant predictors for males’ musical creativity.
The resultant multiple regression equation for predicting males’ musical creativity is
presented in equation (5).

\[
\hat{y} = 0.33 \text{(DPLS)} + 0.30 \text{(MAP)} \quad (R^2 = .30, p < .01)
\] (5)

Where, $\hat{y}$ = predicted musical creativity score; DPLS = deep processing learning
strategy and MAP = mastery-approach goal orientation.

Equation (5) indicated that males' musical creativity increased by 0.33 and 0.30 points
for every standard deviation increase in mastery-approach achievement goal
orientation, and deep processing learning strategy respectively. The coefficient of
determination adjusted ($R^2 = .30$) indicated that approximately 30% of the variance of
males’ musical creativity could be accounted for jointly by the study variables.

The result in Table 4.44 indicated that the multiple regression model for predicting
females’ musical creativity was significant ($F(8,130) = 12.96, p < .01$), with adjusted
$R^2 = .41$. Deep processing learning strategy had the strongest positive and significant
predictive value ($\beta = .54, p < .01$), followed by mastery-approach ($\beta = .32, p < .01$). In
contrast, persistence learning strategy had significant negative predictive value ($\beta = -
.16, p < .05$), while the remaining five subscales were nonsignificant predictors. The
resultant multiple regression equation for predicting females' musical creativity is given in equation (6).

$$\hat{y} = 0.54 \text{(DPLS)} + 0.32 \text{(MAP)} - 0.16 \text{(PLS)} \ (R^2 = .41, p < .01) \quad (6)$$

Where, $\hat{y}$ = predicted musical creativity score; DPLS = deep processing learning strategy score; MAP = mastery-approach achievement goal orientation score; and PLS = persistence learning strategy score.

Table 4.44

Predicting Females’ Musical Creativity Based on Musical Self-Concept, Achievement Goals Orientations and Learning Strategies

<table>
<thead>
<tr>
<th>Model</th>
<th>Females Std.β</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
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<td>3.97</td>
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<td>-</td>
</tr>
<tr>
<td>MSC</td>
<td>.05</td>
<td>.71</td>
<td>.48</td>
<td>.77</td>
<td>1.30</td>
</tr>
<tr>
<td>MAP</td>
<td>.32</td>
<td>4.60</td>
<td>.01</td>
<td>.88</td>
<td>1.14</td>
</tr>
<tr>
<td>PAP</td>
<td>-.19</td>
<td>-2.30</td>
<td>.23</td>
<td>.63</td>
<td>1.57</td>
</tr>
<tr>
<td>PAV</td>
<td>.01</td>
<td>.06</td>
<td>.95</td>
<td>.60</td>
<td>1.67</td>
</tr>
<tr>
<td>SPLS</td>
<td>.02</td>
<td>.22</td>
<td>.82</td>
<td>.83</td>
<td>1.20</td>
</tr>
<tr>
<td>PLS</td>
<td>-.16</td>
<td>-2.00</td>
<td>.05</td>
<td>.71</td>
<td>1.41</td>
</tr>
<tr>
<td>PLLS</td>
<td>-.06</td>
<td>-.82</td>
<td>.41</td>
<td>.90</td>
<td>1.11</td>
</tr>
<tr>
<td>DPLS</td>
<td>.54</td>
<td>7.64</td>
<td>.01</td>
<td>.86</td>
<td>1.15</td>
</tr>
</tbody>
</table>

MS: $R = .67, R^2 = .44, \text{ Adjust. } R^2 = .41, SE = 1.7; F(8,130) = 12.96, p < .01$

Note. N = 201. MSC = musical self-concept; DPLS = deep processing; SPLS = surface processing; PLLS = peer learning; MAP = mastery-approach; PAP = performance-approach; PAV = performance-avoidance; PLS = Persistence; VIF = variance inflation factors; MS = model summary.
Equation (6) suggested that females’ musical creativity increased by 0.54 points and 0.32 points for every standard deviation increase in deep processing learning strategy and mastery-approach achievement goal orientation respectively, and decreased by 0.16 points for every standard deviation increase in persistence learning strategy. The coefficient of determination adjusted $R^2 = .41$ indicated that approximately 41% of the variance of females’ musical creativity could be accounted for jointly by the study variables.

From equations (5) and (6), it was observed that the study variables had varied predictive weight on participants’ musical creativity with respect to gender. Specifically, the coefficient of determination adjusted ($R^2 = .41$) for females and ($R^2 = .30$) for males, indicated that the study variables could account for approximately 41% and 30% of the variance of females’ and males’ musical creativity respectively. Deep processing learning emerged as the best predictor of both males’ and females’ musical creativity. However, it had a higher predictive value ($\beta = .54, p < .01$) on the females’ musical creativity than on the males’ ($\beta = .33, p < .05$). In addition, the multiple regression model for females’ musical creativity comprised of three significant predictor variables, while the multiple regression model for males’ musical creativity involved only two significant predictor variables. Deep processing learning strategy and mastery-approach goal orientation were the only positive and significant predictors among both males and females. Persistence learning had a negative and significant predictive value ($\beta = -.16, p < .05$) on females’ musical creativity alone.
Equation (1) indicated that when both gender were investigated together, approximately 41 percent of the participants’ musical creativity could be accounted for by the study variable. However, when males and females are studied separately, the prediction weight of the study variables on males’ musical creativity relatively reduced (30%) while for females was maintained at (41%). This implied that about 70 percent of the males’ musical creativity and 59 percent of females’ musical creativity in this study was explained by other factors apart from their musical self-concept, achievement goal orientation and learning strategies. These factors may be related to the participants’ intelligence, knowledge, thinking styles, personality, motivation, and social environment which have been associated with general creativity, and may also influence musical creativity (Barbort et al., 2011; Besancon & Lubart, 2008; Sternberg, 2006).

4.7.5 Interaction of Age Group, School Type and Category, and the Study Variables in Predicting Musical Creativity

Finally, a general linear model (univariate) analysis was computed to establish the interaction effects between age, gender, school type and category as covariates, and musical self-concept, achievement goal orientation and learning strategies as the factors, in predicting students’ musical creativity. Results are presented in Table 4.45.
Table 4.45

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
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<td>87</td>
<td>2.17</td>
<td>.00</td>
<td>.63</td>
</tr>
<tr>
<td>Intercept</td>
<td>193.29</td>
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<td>40.63</td>
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<td>.26</td>
</tr>
<tr>
<td>MSC</td>
<td>.43</td>
<td>1</td>
<td>.09</td>
<td>.77</td>
<td>.00</td>
</tr>
<tr>
<td>CLS</td>
<td>.10</td>
<td>1</td>
<td>.02</td>
<td>.88</td>
<td>.00</td>
</tr>
<tr>
<td>AGO</td>
<td>11.88</td>
<td>3</td>
<td>.83</td>
<td>.48</td>
<td>.02</td>
</tr>
<tr>
<td>Sex</td>
<td>1.85</td>
<td>1</td>
<td>.39</td>
<td>.53</td>
<td>.00</td>
</tr>
<tr>
<td>Age</td>
<td>.58</td>
<td>1</td>
<td>.12</td>
<td>.73</td>
<td>.00</td>
</tr>
<tr>
<td>SC</td>
<td>10.47</td>
<td>1</td>
<td>2.20</td>
<td>.14</td>
<td>.02</td>
</tr>
<tr>
<td>ST</td>
<td>.87</td>
<td>1</td>
<td>.18</td>
<td>.67</td>
<td>.00</td>
</tr>
<tr>
<td>MSC<em>CLS</em>AGO*ST</td>
<td>2.46</td>
<td>7</td>
<td>.07</td>
<td>.10</td>
<td>.01</td>
</tr>
<tr>
<td>MSC<em>CLS</em>AGO*SC</td>
<td>31.88</td>
<td>14</td>
<td>.48</td>
<td>.94</td>
<td>.06</td>
</tr>
<tr>
<td>MSC<em>CLS</em>AGO*Age</td>
<td>25.84</td>
<td>14</td>
<td>.39</td>
<td>.98</td>
<td>.05</td>
</tr>
<tr>
<td>MSC<em>CLS</em>AGO*Sex</td>
<td>7.09</td>
<td>3</td>
<td>.50</td>
<td>.69</td>
<td>.01</td>
</tr>
<tr>
<td>MSC<em>CLS</em>AGO<em>Sex</em>Age<em>SC</em>ST</td>
<td>57.17</td>
<td>10</td>
<td>1.20</td>
<td>.30</td>
<td>.10</td>
</tr>
<tr>
<td>Error</td>
<td>537.63</td>
<td>113</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34090.00</td>
<td>201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>1434.06</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \( N = 201 \). SS = sum of squares; \( \eta^2 \) = eta Squared; MSC = levels of musical self-concept; CLS = type of cognitive learning strategy; AGO = type of achievement goal orientation; ST = school type; SC = school category.

\(^a\) \( R^2 = .63 \) (adjusted \( R^2 = .34 \)).

The results in Table 4.45 suggested that the interaction effect between participants’ age, gender, school type and category, and level of musical self-concept, type of cognitive learning strategy and type of achievement goal orientation in predicting participants’ musical creativity was not significant \( F(10,113) = 1.20, P = .30 \), partial \( \eta^2 = .10 \). The coefficient of determination (adjusted \( R^2 \)) for the interaction model was found to be .34, which indicated that participants’ age, gender, school type and
category, and level of musical self-concept, type of cognitive learning strategy and type of achievement goal orientation could account for approximately (34%) of the variance in participants’ musical creativity. However, compared to the findings given in equation (4), where the adjusted $R^2$ value was .41 (41%), a decline of .7 (7%) was observed. The implication was that the inclusion of age group, gender, school type and category into the general linear model for predicting participants’ musical creativity, substantively weakened the model's predictive ability.

4.7.6 Discussion of the Results

This study explored how age, gender school type and category interacted with musical self-concept, achievement goal orientation and learning strategies in predicting participants’ musical creativity. Gender differences in the prediction of musical creativity models were also evaluated. The study established that age was not significantly related to the study variables. The finding that age was not significantly related to participants’ musical creativity did not confirm earlier findings by Laycock (1992) who found that age was significantly correlated to the musical creativity of high school students aged between 15 to 18 years. However, it is noted that the participants in the current study were all form four students in secondary schools, with majority of the students (75%) falling in the 16 - 17 years age category. Therefore, a comparison of participants at different levels of schooling, for instance among learners in form one, form two, form three and form four is more likely to yield different results.
In this study differences in participants’ musical creativity were not significantly related to school type. In addition, school type did not interact significantly with the study variables in predicting participants’ musical creativity. Notably, there were significant disparities in representation of participants across the five types of school. More than three quarters of the participants were from boys boarding and girls boarding while less than a quarter were from boys’ day, girls’ day and mixed day. As such, further analyses in relation to school type were not probable.

The results indicated a significant difference in the mean musical creativity scores when school categories were considered. Participants from national schools attained significantly higher mean musical creativity score when compared to those from extra county, county and private schools. However, the mean difference in musical creativity between participants from extra county, county and private school were not significant. These findings aligned well with the assertion by Auh’s (1997) that home and school context are important for the development of students' musical self-concept and musical creativity. The implication is that factors within the schools may be responsible for explaining the variance in students' musical creativity. These factors may be the schools’ unique learning experiences, facilities, security, intelligence and culture.

In this study a significant difference in the mean musical creativity scores for the males and females was observed in favour of males. The results further indicated that learning strategies predict musical creativity differently among males and females.
Deep processing learning was a stronger predictor of females’ musical creativity than for males. Additionally, it was found that persistence learning had significant negative predictive value on females’ musical creativity, but it was a nonsignificant predictor of males’ musical creativity.

The findings of significant gender differences in musical creativity corroborated Kiehn’s (2003) study, which examined musical creativity of elementary school students ($N = 89$) and found significant gender differences in musical creativity scores, with males scoring higher than females. However, the findings did not confirm Schmidt (2005) research, which reported nonsignificant gender differences in musical creativity in instrumental performance. Similarly, Auh (1997) findings, also reported that gender was not significantly related to musical creativity in composition among elementary school students in the US. Additionally, the findings indicated that the interaction effect between participants’ age, gender, school type and category as covariates, and musical self-concept, learning strategy and achievement goal orientation as the factors in predicting musical creativity was nonsignificant.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is divided into four sections. The first section summarizes the study findings. The second section presents the implications of the findings. This is followed by the conclusions based on the research findings. The final section gives the study recommendations for policy and areas for further research.

5.2 Summary

This study was designed to establish the predictors of musical creativity among secondary school students in Nairobi County, Kenya. The goal was to identify the model for predicting participants’ musical creativity from musical self-concept, achievement goal orientation and learning strategies. Specifically, relationships among musical self-concept, achievement goal orientation and learning strategies, and participants’ musical creativity were determined. In the exploratory analyses, the study evaluated whether participants’ age, gender, school type and category were related to musical creativity. The study was guided by four research objectives and four research hypotheses.

The first objective of the study sought to determine the relationship between musical self-concept and musical creativity. The study findings indicated that there was a
significant positive correlation between participants’ musical self-concept and musical creativity. Further analysis revealed that out of the eight subscales of musical self-concept, six subscales including singing, instrument playing, reading, composition, listening skills, sense of rhythm and global, had significant positive relationships with musical creativity. Dancing self-concept had a significant negative correlation with musical creativity, while singing self-concept was found to have a positive but nonsignificant relationship with musical creativity. Participants with positive musical self-concept had significantly higher musical creativity scores compared to those with negative musical self-concept. In addition, musical self-concept still accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender.

The second objective of the study established the relationship between achievement goal orientation and musical creativity. The analysis revealed that mastery-approach achievement goal orientation had a significant positive relationship with participants’ musical creativity, while both performance-approach and performance-avoidance achievement goal orientation had significant negative correlations with participants’ musical creativity. Further analysis showed that the three subscales of achievement goal orientation accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender. Additionally, there was a significant difference in participants’ musical creativity, with those having mastery-approach goal orientation scoring higher than those who had performance goal
orientation. However, there was no significant difference among participants who had performance-approach and performance-avoidance goal orientation.

The third objective sought to determine the relations between learning strategies and musical creativity. It was found that the cognitive learning strategies had significant correlation with participants’ musical creativity, while the motivational learning strategies had non-significant correlation with participants’ musical creativity. Specifically, musical creativity correlated positively to deep processing learning strategy and negatively with surface processing learning strategy. Peer learning and persistence learning strategies were found to have weak, negative nonsignificant correlations with participants’ musical creativity. Further analysis indicated that the four learning strategies still accounted for a significant proportion of participants’ musical creativity variance after controlling for the effect of gender. Moreover, participants who adopted deep processing learning strategy attained significantly higher musical creativity compared to those who adopted surface processing learning strategy.

The fourth objective of the study determined the prediction equation of musical creativity from musical self-concept, achievement goal orientation and learning strategies. The following four equations were generated using Standard Multiple Regression Analysis:

\[ \hat{y} = 0.47 \text{(DPLS)} + 0.28 \text{(MAP)} - 0.12 \text{(PLS)} \ (R^2 = .41, \ p < .01) \]  \ (1)
\( \hat{y} = 0.22 \text{ (RTM)} - 0.21 \text{ (DNC)} \ (R^2 = .14, \ p < .01) \)  
(2)

\( \hat{y} = 0.34 \text{ (MAP)} - 0.17 \text{ (PAV)} \ (R^2 = .18, \ p < .01) \)  
(3)

\( \hat{y} = 0.53 \text{ (DPLS)} - 0.17 \text{ (SPLS)} \ (R^2 = .31, \ p < .01) \)  
(4)

Where \( \hat{y} \) is the predicted musical creativity score; DPLS = deep processing learning strategy score; MAP = mastery-approach achievement goal score; PLS = Persistence learning strategy score; DNC = dance movements self-concept score; RTM = sense of rhythm self-concept score; PAV = performance-avoidance self-concept score; SPLS = surface processing learning strategy score.

In equation (1), musical creativity was predicted from musical self-concept, achievement goal orientation and learning strategies. A significant prediction model for musical creativity was found, with deep processing learning strategy as the best predictor of participants’ musical creativity. Deep processing learning strategy and mastery-approach achievement goal orientation had positive predictive value on participants’ musical creativity, while persistence learning strategy had negative predictive value on participants’ musical creativity.

Equation (2) involved predicting musical creativity from musical self-concept. In this equation, only sense of rhythm and dance movements self-concepts were significant predictors. Sense of rhythm self-concept contributed positively, while dance movement self-concept contributed negatively in predicting participants’ musical creativity.
In equation (3), musical creativity was predicted from achievement goal orientation. Mastery-approach achievement goal orientation had a significant positive predictive value on musical creativity, while performance-avoidance achievement goal orientation had a significant negative predictive value on participants’ musical creativity.

Equation (4) involved predicting musical creativity from learning strategies. Deep processing learning strategy had a positive contribution in predicting participants’ musical creativity, while surface processing learning strategy had a negative contribution.

In the exploratory analyses, the study examined whether participants' age, gender, school type and category were related to musical creativity. With age, gender, school type and category as covariates and musical self-concept, achievement goal orientation and learning strategies as the factors, a nonsignificant interaction effect in predicting participants’ musical creativity was found. Further investigation analysed participants’ musical creativity by gender, using multiple regression. The following two equations were generated:

Males: $\hat{y} = 0.33 \text{(DPLS)} + 0.30 \text{(MAP)} \left(R^2 = .30, p < .01\right)$ (5)

Females: $\hat{y} = 0.54 \text{(DPLS)} + 0.32 \text{(MAP)} - 0.16 \text{(PLS)} \left(R^2 = .41, p < .01\right)$ (6)

Where, $\hat{y} =$ predicted musical creativity; DPLS = deep processing learning strategy; MAP = mastery-approach achievement goal and PLS = persistence learning strategy.
In the males’ model, deep processing learning strategy and mastery-approach goal approach contributed positively in predicting males’ musical creativity, with deep processing learning emerging as the best predictor of males’ musical creativity in this study. For the females’ model, deep processing learning strategy and mastery-approach achievement goal orientation contributed positively in predicting females’ musical creativity, while persistence learning strategy contributed negatively. Deep processing learning strategy emerged as the best predictor of females’ musical creativity in this study.

A significant gender difference in participants’ musical creativity was observed, with males scoring higher than females. Similarly, differences in participants’ musical creativity with respect to school categories were observed. Participants’ from national schools obtained significantly higher mean musical creativity scores compared to their counterparts from extra county, county and private schools. However, musical creativity did not differ significantly with respect to age.

5.3 Conclusions

This study investigated the interaction of musical self-concept, achievement goal orientation and learning strategies in predicting musical creativity. The results suggested that among these three predictor variables, learning strategies was the most substantial to students’ musical creativity, followed by achievement goal orientation. Musical self-concept was not a significant predictor of participants’ musical creativity when combined with other variables, but it significantly predicted musical creativity
when studied alone. Deep processing learning and mastery-approach goal interacted positively and significantly in predicting participants’ musical creativity. However, deep processing learning was a stronger predictor of participants’ musical creativity as compared to mastery-approach goal orientation. The implication is that the two predictor variables are complementary and should therefore be nurtured among music students to enhance musical creativity.

The results on the relation between musical self-concept and musical creativity were consistent with the view that positive musical self-concept is favourable in creative achievement circumstances. A positive and significant correlation was found between musical self-concept and musical creativity. This means that participants who have positive musical self-concept are more likely to attained higher musical creativity than their counterparts with negative musical self-concept. In music education context, programmes geared towards enhancing positive musical self-concept may enable students to attain high musical creativity which is the main objective of music education.

The results further indicated that all the dimensions of musical self-concept, except singing self-concept were significantly correlated with musical creativity. However, sense of rhythm self-concept was more substantial to students' musical creativity. These findings were crucial in understanding how specific dimensions of musical self-concept may influence students’ musical creativity.
Regarding the relationship between achievement goal orientation and musical creativity, the results generally supported the view that achievement goal orientation may account for individual differences in musical creativity. While mastery-approach achievement goal orientation made a significant positive contribution in predicting musical creativity, both performance-approach and performance-avoidance goals orientation made negative contributions. In academic set ups, students who adopt mastery-approach goals are more likely to thrive in musical creativity than those who adopt both performance-approach and performance-avoidance goals.

On the relation between learning strategies and musical creativity, the results suggested that deep processing learning strategy is likely enhance musical creativity, while use of surface processing learning strategy may hinders musical creativity achievement. While deep processing learning strategy made a significant positive contribution in predicting participants’ musical creativity, surface processing learning strategy made a significant negative contribution. The study further found nonsignificant correlations between peer learning and persistence learning strategies, and musical creativity. This was contrary to the findings of studies based on general creativity among high school students in America.

Generally, students who are determined to continue learning even in the face of obstacles are expected to attain higher achievement on musical creative tasks. Moreover, music education being an elective subject calls for persistence, otherwise students are likely to opt for the easier subjects, especially when faced with difficult
musical tasks. Additionally, in view that collaborative learning and collective problem solving has been associated with positive learning outcomes, the role of peer learning in creative circumstances cannot be ignored. Thus, music students should be encouraged to embrace peer learning during their studies and persist on challenging music tasks.

In the exploratory analyses, this study showed that participants’ gender and school category were some of the factors that accounted for differences in musical creativity. Participants’ from national schools obtained significantly higher musical creativity compared to participants from extra county, county and private schools. Additionally, male students attained significantly higher musical creativity than females. This implied that some factors within national schools and among male students may be promoting the development of musical creativity. Conversely, some factors within extra county, county and private schools as well as among the females may be hindering the development of musical creativity.

5.4 Recommendations
The findings of this study hold a number of implications for educators and students in secondary school settings in Kenya on how musical self-concept, achievement goal orientation and learning strategies influences students' musical creativity. The following recommendations were made for consideration in policy and further research.
5.4.1 Policy Recommendations

i. The current study established that positive musical self-concept tends to enhance students’ musical creativity. Participants who had positive musical self-concept attained significantly higher musical creativity than their counterparts with negative musical self-concept. Based on these results, musical self-concept is an important predictor of musical creativity. Hence, teachers’ and parents’ attention should be drawn to the positive impact that positive musical self-concept has on students’ musical creativity. In this regard, music teachers should be aware of how their interactions with students could act to nurture or hinder the development of positive musical self-concept.

Moreover, teachers and administrators should identify those students with negative musical self-concept for whom individualized help would be beneficial. They may be able to provide guidance and device ways of encouraging such students to participate in musical activities such as creative compositions to enhance their musical self-concept. Secondary schools could also initiate recital programmes to allow adequate musical self-expression through performances that include instrumentals, singing and dance movements. Such opportunities would create a sense of accomplishment and enhance positive musical self-concept among music students.

ii. Mastery-approach achievement goal orientation was found to have positive predictive value on participants’ musical creativity. Participants who adopted
mastery-approach goal attained significantly higher musical creativity than those who adopted performance achievement goal. The implication is that students who favour mastery-approach achievement goal are likely to demonstrate higher musical creativity abilities, while performance achievement goal orientation may diminish students’ musical accomplishments. Music teachers and parents should therefore monitor students’ goal orientation for learning, perhaps they could teach them to adopt mastery-approach goal and discourage performance goal towards accomplishment of music learning tasks and practice.

Additionally, parents and teachers should aim at creating conducive home and school learning environments which will help students to adopt mastery-approach achievement goal orientation. Specifically, home and school environments could become more cooperative and task oriented as opposed to competitive and ego-oriented.

iii. Deep processing learning strategy had the highest predictive value on participants’ musical creativity. The implication is that deep processing learning strategies tend to enhance musical creativity, while surface processing learning strategies are likely to hinder musical creativity. Hence, music teachers, parents and other stakeholders in education should pay more attention to the development of deep processing learning strategies and consider it as a key variable in determining students' musical creativity. For music teachers to help students to adopt deep processing learning strategies, they could embrace student centred activities and
discovery learning approaches that allow music students to engage in knowledge application, organization, elaboration and critical thinking. This will enable students and teachers to realize excellence in musical creativity.

iv. Significant mean differences in musical creativity with respect to category of school and gender of participants were observed in this study. The Ministry of Education should ensure that there is equity in access to music learning experiences for all students in secondary schools, irrespective of the type or category of school. The same should also apply to musical resources such as musical instruments. Additionally, the Ministry of Education could organize educational seminars to help parents, teachers and students understand that everyone has a musical potential and everyone can improve their musical skills with persistence and practice.

5.4.2 Recommendations for Further Research

The following suggestions were made for consideration for future research:

i. This study used self-report questionnaires to measure participants’ musical self-concept, achievement goal orientation and learning strategies. However, questionnaires are prone to subjective response bias. Future investigations in this area should integrate qualitative designs through interviews and focused group discussions to allow for crosschecking the consistency of the participants’ responses. This would also provide an in-depth understanding of the reasons for students’ learning strategies use and goal orientation for learning.
ii. The findings of this study were based on secondary school music students. Thus, the findings may be generalizable to music students with similar characteristics but with caution. In order to enhance the understanding of the relationship(s) between musical self-concept, achievement goal orientation and learning strategies, and musical creativity of students at different levels of schooling, a replication and extension of this study with samples drawn from music students in primary schools, colleges and universities is warranted. The research instruments used in this study could be adjusted and standardized to suite students at the different levels of schooling.

iii. This study established that deep processing learning strategy and mastery-approach goal orientation correlated positively to predict musical creativity. Musical creativity can be demonstrated through composition, improvisation, performing, listening, writing and analysis. However, in the current study musical creativity was solely based on participants’ composition. This raises the question of whether the same findings would be established with other domains of musical creativity. Future research involving other measures of musical creativity such as performing and/or improvisation is recommended among secondary school music students. This would provide a more comprehensive view of musical creativity.

iv. This study revealed inverse and nonsignificant relationships between persistence and peer learning strategies, and secondary school students’ musical creativity. However, studies in other domains of education have found significant relations
between persistence and team learning strategies, and general creativity. These inconsistencies call for further research in this regard to explore the results in greater detail. Further research is also needed to investigate the appropriateness of using this subscale in studies involving students in different cultures.

v. The results of this study revealed that there were no significant age differences in musical creativity. Since the participants in the current study were all drawn from a sample of form four students, with the majority of the students falling into the 16 – 17 years age category, the age differences may be negligible. To fully establish whether age has an effect on musical creativity, a longitudinal study examining age differences in musical creativity through different levels of secondary school may be warranted. This would help clarify the relationship between age and musical creativity.

vi. In the current study, significant gender difference in participants’ musical creativity was observed in favour of males. However, other studies have indicated gender difference in musical creativity in favour of female students at the secondary level. In contrast, other studies found nonsignificant difference in the musical creativity of male and female students. These inconsistencies call for further investigation in this regard in order to make the findings more conclusive. Factors that lead to gender difference in musical creativity could also be examined so as to introduce the necessary intervention strategies to bridge the gap.
REFERENCES


abilities of high school students. Unpublished doctoral dissertation, Case Western Reserve University, USA.


APPENDICES

Appendix A

Participants’ Consent Form

This research study is designed to investigate social cognitive factors which predict students’ musical creativity. The purpose of the study is to advance positive musical self-concept and encourage the adoption of appropriate music learning strategies and achievement goals to nurture musical creativity among secondary school students.

I wish to invite you to participate in this study. You are therefore, required to honestly respond to the research questionnaires and undertake the creative composition task. I take this opportunity to assure you that no risk will be involved in this study. Furthermore, all the attained information will be handled with ultimate confidentiality. Please sign in the space provided underneath if you have willingly accepted to participate in the study.

Sign (……………………) date (……………………)

Your support is highly appreciated.

Yours Faithfully,

Lucy Lugo Mawang

Ph.D. student, Kenyatta University
Appendix B

Questionnaire for Music Students

This is not a test - there are no right or wrong answers. Just make sure that your answers show how you really feel about yourself. Do not leave out any question. You should have only one answer for each question. If you want to change an answer, cross it out and tick the answer that you prefer. Please note that the answers you give to the questionnaire will be confidential and under no circumstances will they be revealed to anyone other than the researcher.

Part I: Background Information

Please read the following questions carefully and fill in the blank spaces or put a tick (√) in the brackets where appropriate.

1. Registration no. ______________________________

2. Gender: Male (    ) Female (   )

3. Age in years (16) (17) (18) (19) (20) (21) (22)

4. School category: National (  ); County (  ); Sub-county (  ); Private (  )

5. Type of school: Girls school (  ); Boys school (  ); Mixed school (  )

6. Residential status: Boarding school (  ); Day school (  )
Part II: Music Self-Perception Inventory (MUSPI)

In this questionnaire, you will be asked to describe your abilities in different music-related areas. The questionnaire consists of 48 statements that may or may not describe the way you view your skills in music. Read each statement carefully and circle the appropriate number to indicate the extent to which each statement is a true or false description of you.

<table>
<thead>
<tr>
<th></th>
<th>False</th>
<th>Mostly False</th>
<th>More False Than True</th>
<th>More True Than False</th>
<th>Mostly True</th>
<th>True</th>
</tr>
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</tr>
</tbody>
</table>

1. I am skilled at singing.
2. Playing a musical instrument is harder for me than for other people of my age.
3. Reading music is easy for me.
4. I have never been very good in creating music.
5. I am confident in my ability to identify characteristics of music by ear.
6. Creating dance movements to music is difficult for me.
7. I have a better sense of rhythm than do most people of my age.
8. I am skilled at doing most music-related activities.
9. Singing is harder for me than for other people of my age.
10. Playing a musical instrument is easy for me.
11. I have never been very good at reading music.
12. I am confident in my ability to create music.
13. Identifying characteristics of music by ear is difficult for me.
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>I am skilled at creating dance movements to music.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>15.</td>
<td>I am hopeless when it comes to keeping a steady beat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>16.</td>
<td>Doing most music-related activities is harder for me than for other people of my age</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>17.</td>
<td>Singing is easy for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>18.</td>
<td>I have never been very good at playing a musical instrument.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>19.</td>
<td>I am confident in my ability to read music.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>20.</td>
<td>Creating music is difficult for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>21.</td>
<td>I am skilled at identifying characteristics of music by ear.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>22.</td>
<td>Creating dance movements to music is harder for me than for other people of my age</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>23.</td>
<td>I am confident in my ability to perform music with good timing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>24.</td>
<td>Doing most music-related activities is easy for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>25.</td>
<td>I have never been very good at singing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>26.</td>
<td>I am confident in my ability to play a musical instrument.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>27.</td>
<td>Reading music is difficult for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>28.</td>
<td>I am skilled at creating music.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>29.</td>
<td>Identifying characteristics of music by ear is harder for me than for other people of my age</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>30.</td>
<td>Creating dance movements to music is easy for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>31.</td>
<td>Most people of my age have a better sense of rhythm than I do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>32.</td>
<td>I have never been very good at doing most music-related activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>33.</td>
<td>I am confident in my ability to sing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>34.</td>
<td>Playing a musical instrument is difficult for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>35.</td>
<td>I am skilled at reading music.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>36.</td>
<td>Creating music is harder for me than for other people of my age.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
37. Identifying characteristics of music by ear is easy for me. 1 2 3 4 5 6
38. I have never been very good at creating dance movements to music. 1 2 3 4 5 6
39. I can repeat rhythms I hear with high accuracy. 1 2 3 4 5 6
40. I am confident in my ability to do most music-related activities. 1 2 3 4 5 6
41. Singing is difficult for me. 1 2 3 4 5 6
42. I am skilled at playing a musical instrument. 1 2 3 4 5 6
43. Reading music is harder for me than for other people of my age. 1 2 3 4 5 6
44. Creating music is easy for me. 1 2 3 4 5 6
45. I have never been very good at identifying characteristics of music by ear. 1 2 3 4 5 6
46. I am confident in my ability to create dance movements to music. 1 2 3 4 5 6
47. I have never had a good sense of rhythm. 1 2 3 4 5 6
48. Doing most music-related activities is difficult for me. 1 2 3 4 5 6

End of the Questionnaire
Please go back over your responses to make sure that you answered every item.
Part III: Achievement Goal Orientations Questionnaire
Please rate your agreement or disagreement with each of the following statements in relation to your goals in the music course. Use the following response guide and Circle the appropriate choice. Be as honest as possible in your rating.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My goal is to completely master the material presented in the music course.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>2. My aim is to perform well relative to other students in the music class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. My goal is to avoid performing poorly compared to others in the music class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My goal is to learn as much as possible in the music course.</td>
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<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>5. My goal is to perform better than other students in the music class.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I am striving to avoid performing worse than others in music course.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I am striving to understand the music course content as thoroughly as possible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I am striving to do well, compared to other students in the music class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. My aim is to avoid doing worse than other students in the music class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Part VI: Music Learning Strategies Questionnaire

In this questionnaire, you are asked to describe your approaches to learning in the music course. Please indicate the degree to which each of the statements represents your current learning approaches in music-related areas. Use the following response guide and Circle the appropriate choice. Be as honest as you can in rating the items.

<table>
<thead>
<tr>
<th>Not at all True of me</th>
<th>Moderately untrue of me</th>
<th>Slightly untrue of me</th>
<th>Neutral</th>
<th>Slightly true of me</th>
<th>Moderately true of me</th>
<th>Very True of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

1. I try to work with other music students to complete the music course assignments. 1 2 3 4 5 6 7

2. Even when the music course materials are boring and uninteresting, I manage to keep working until I finish. 1 2 3 4 5 6 7

3. I memorize key words to remind myself of important concepts in the music course. 1 2 3 4 5 6 7

4. I often find myself questioning materials presented in the texts or by the teachers, to decide if I find them convincing. 1 2 3 4 5 6 7

5. I try to apply ideas from the music course readings in other class activities such as aural and practical lessons. 1 2 3 4 5 6 7

6. I treat the music course material as a starting point and try to develop my own ideas about it. 1 2 3 4 5 6 7

7. I try to memorize everything that I think will be on the music exam. 1 2 3 4 5 6 7
8. When studying for music, I often try to explain the material to a classmate or friend.

9. When I become confused about something I am reading for the music course, I go back and try to figure it out.

10. When studying for the music course, I read my class notes and the text books over and over again to help me remember the material.

11. When reading the music course books, I outline the materials to help me organize my thoughts.

12. When something that I am studying in music becomes difficult, I spend extra time and effort trying to understand it.

13. When studying for the music course, I go through the text books and class notes and try to find the most important ideas to memorize.

14. When reading for the music course, I try to relate the materials to what I already know.

15. When studying for the music course, I try to memorize as many facts as I can.

16. When studying for music, I often set aside time to discuss the course material with a group of students from the music class.

17. Regardless of whether or not I like the music course contents, I work hard to learn it.

End of the Questionnaire
Please go back over your responses to make sure that you answered every item.
Appendix C

Consensual Musical Creativity Assessment Scale

Part I: Instructions to the Judges.

Thank you for agreeing to participate and providing your expertise in this creative composition assessment exercise. Please read the following instructions carefully before you begin to rate the compositions on the CD, and feel free to contact me at any time with questions.

Instructions:

1) Each composition has an ID number. Please write the ID number at the top of the assessment form on which you grade that particular composition.

2) First, listen to all the students’ compositions and categorize them into “Pleasant” or “Less pleasant” set. This will aid you to determine the scores.

3) Second, listen to each participant’s composition and independently rate it according to the FOUR dimensions of composition indicated in the assessment form.

4) Rate the compositions relative to each other on a Likert-type scale ranging from (1 = low to 5 = high).

5) Do not feel the need to complete all the assessment at once. You may take a break of 5-10 minutes after each hour of scoring.
Part II: Assessment Form

Name of Evaluator____________ Composer____________

1) First: Listen to, and categorize each participant’s composition as (Pleasant or Less pleasant) appropriately.

2) Second: Listen to, and rate each participant’s composition according to the four dimensions of composition. Place a TICK (√) in the box that represents your judgment as indicated below.

<table>
<thead>
<tr>
<th>Creative Dimension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Craftsmanship</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Low technical mastery</td>
<td>BA</td>
<td>A</td>
<td>AA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Musical syntax</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low logical structure</td>
<td>BA</td>
<td>A</td>
<td>AA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Musical originality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not unique and different</td>
<td>BA</td>
<td>A</td>
<td>AA</td>
<td></td>
<td></td>
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<tr>
<td><strong>Aesthetic sensitivity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low aesthetic sensitivity to music</td>
<td>BA</td>
<td>A</td>
<td>AA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: BA = Below average; A = Average; AA = Above average*
Appendix D

Creative Composition Task

Part I: Instructions to Participants

Write a Single voice composition of 12 to 24 measures in the attached manuscripts.

Your composition should have a beginning, middle and an end. Use the following guidelines:

- You may choose your own clef, key signature and time signature.
- Please indicate an appropriate title for your composition on the title line.
- Put your code number on the line to the right as the composer.
- You may apply any of the elements and concepts you have learned in your music course.
- Techniques such as musical phrasing, form and structure, cadences and modulation to related keys may help in your composition.
- You will have 45 minutes to complete your creative composition task.
- Thank you for your cooperation.
Part II: Creative Compositional Task Manuscript

{Composer No}_______________            {Sch. No. }__________________
Appendix E

Sampled Creative Compositions

Figure E.1. Samples of Highly Creative Compositions
Appendix F

Linearity Plots

Figure F.1. Histogram of the musical self-concept, achievement goal orientation and learning strategies predicted residuals.

Figure F.2. Normal p-p plot for the musical self-concept, achievement goal orientation and learning strategies prediction model
Figure F.3. Scatterplot for musical self-concept, achievement goal orientation and learning strategies prediction model

Figure F.4. Scatterplot for musical self-concept prediction model
Figure F.5. Scatterplot for mastery-approach goal orientation prediction model

Figure F.6. Scatterplot for performance-approach goal prediction model
Figure F.7. Scatterplot for performance-avoidance goal prediction model

Figure F.8. Scatterplot for deep processing learning prediction model
Figure F.9. Scatterplot for deep processing learning prediction model

Figure F.10. Scatterplot for peer learning prediction model
Figure F.11. Scatterplot for persistence learning prediction model
Appendix G

KCSE Music Enrolment and Performance in Nairobi City County

Table G.1

Schools and Candidates Registered for KCSE Music (2017) in Nairobi City County

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Candidates</th>
<th>Name of School</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenana School</td>
<td>08</td>
<td>Ngara Girls</td>
<td>15</td>
</tr>
<tr>
<td>Nairobi School</td>
<td>22</td>
<td>Riara Springs</td>
<td>14</td>
</tr>
<tr>
<td>Ruthimiti Sec.</td>
<td>07</td>
<td>The Kenya High Sch.</td>
<td>23</td>
</tr>
<tr>
<td>Starehe Boys</td>
<td>12</td>
<td>St, Mary’s Sch.</td>
<td>02</td>
</tr>
<tr>
<td>Moi Forces Acad.</td>
<td>05</td>
<td>St. George’s Girls</td>
<td>10</td>
</tr>
<tr>
<td>Starehe Girls</td>
<td>13</td>
<td>Moi Girls Sch. Nairobi</td>
<td>16</td>
</tr>
<tr>
<td>Nile Road Sec.</td>
<td>12</td>
<td>The Aga Khan Sec.</td>
<td>02</td>
</tr>
<tr>
<td>Buruburu Girls</td>
<td>08</td>
<td>State House Girls</td>
<td>15</td>
</tr>
<tr>
<td>Church Army Sec.</td>
<td>01</td>
<td>Precious Blood Riruta</td>
<td>17</td>
</tr>
<tr>
<td>Pumwani Sec.</td>
<td>11</td>
<td>Good Hope Sec.</td>
<td>01</td>
</tr>
<tr>
<td>Kahawa Garrison</td>
<td>04</td>
<td>Loreto Convent</td>
<td>06</td>
</tr>
<tr>
<td>Makini School</td>
<td>01</td>
<td></td>
<td></td>
</tr>
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</table>

Total: 23 schools; 225 candidates

Note. Source: Kenya National Examination Council, 2017

Table G.2


<table>
<thead>
<tr>
<th>Year</th>
<th>Music Candidature</th>
<th>Music Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>National</td>
<td>Nairobi City County</td>
</tr>
<tr>
<td>2013</td>
<td>1,222</td>
<td>172(14%)</td>
</tr>
<tr>
<td>2014</td>
<td>1,291</td>
<td>183(14%)</td>
</tr>
<tr>
<td>2015</td>
<td>1,335</td>
<td>209(16%)</td>
</tr>
<tr>
<td>2016</td>
<td>1,607</td>
<td>216(13%)</td>
</tr>
<tr>
<td>2017</td>
<td>1,836</td>
<td>225(12%)</td>
</tr>
</tbody>
</table>

### Appendix H

**Essential KCSE Statistics on Performance by Subjects**

#### Table H.1

<table>
<thead>
<tr>
<th>Subject</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
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</thead>
<tbody>
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<td>English</td>
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<td>122</td>
<td>121</td>
<td>101</td>
<td>102</td>
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<tr>
<td>Kiswahili</td>
<td>102</td>
<td>History and Government</td>
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<td>313</td>
<td>121</td>
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<tr>
<td>Mathematics Alternative A</td>
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<td>CRE</td>
<td>313</td>
<td>Home Science</td>
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<tr>
<td>Biology</td>
<td>231</td>
<td>IRE</td>
<td>314</td>
<td>Art &amp; Design</td>
<td>442</td>
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<td>Physics</td>
<td>232</td>
<td>Electricity</td>
<td>449</td>
<td>Aviation Technology</td>
<td>450</td>
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<td>Drawing &amp; Design</td>
<td>449</td>
<td>Aviation Technology</td>
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<td>503</td>
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<td>504</td>
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<td>Geography</td>
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<td>Kenyan Sign Language</td>
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<td>Music</td>
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<tr>
<td>CRE</td>
<td>313</td>
<td>Business Studies</td>
<td>565</td>
<td>Business Studies</td>
<td>565</td>
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<tr>
<td>IRE</td>
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<tr>
<td>Home Science</td>
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<tr>
<td>Agriculture</td>
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<tr>
<td>Aviation Technology</td>
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<tr>
<td>French</td>
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<tr>
<td>Arabic</td>
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<tr>
<td>Music</td>
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<tr>
<td>Business Studies</td>
<td>565</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Source: Kenya National Examination Council (2017)*
Appendix I

Permission to Adopt Research Instruments

Date: Monday, 13 February 2017, 07:10 AM
lucy mawang <lugomawang@gmail.com> to Walter-vispoel

Dear sir,
My name is Lucy Mawang. I am a Ph.D. student at Kenyatta University in Kenya. I intend to study students’ musical self-concept and musical creativity. This is to kindly request to use your instrument, the Music Self-perception Inventory (MUSPI), and for you to provide a copy of the same.
Thanks. Lucy Mawang.

Date: Wednesday, 15 February 2017, 02:46 AM
Vispoel, Walter P walter-vispoel@uiowa.edu via iowa.onmicrosoft.com

Hi Lucy,
I have attached Form A of the MUSPI and scoring guide for your age group. This form has a new rhythm scale that I recently added to the instrument. Please let me know the nature of your research.
Thanks,

Walter Vispoel, Ph.D.
Professor of Educational Measurement and Statistics, and Educational Psychology
College of Education; University of Iowa
361 Lindquist Center; Iowa City, Iowa 52242

Date: Friday, 6 October 2017, 7:11 AM
Myung-Sook Auh <mauh@une.edu.au> to me

Dear Lucy,
Your research plan sounds good. The four composition dimensions will be appropriate. Which reference of mine will you be quoting in the references of your study? And are you doing your doctoral dissertation?
That looks good, Lucy! All the best!
Myung.

Dr Myung-sook Auh
Program Director of the Asia Connexions
Senior Lecturer, School of Education
University of New England; Armidale, NSW 2351 Australia
Appendix J

Research Permit

THIS IS TO CERTIFY THAT:
MS. LUCY LUGO MAWANG
of KENYATTA UNIVERSITY, 43844-100
nairobi, has been permitted to conduct
research in Nairobi County

on the topic: PREDICTORS OF MUSICAL
CREATIVITY AMONG SECONDARY
SCHOOL STUDENTS IN NAIROBI COUNTY,
KENYA.

for the period ending:
13th February, 2018

Applicant’s

Signature:

Director General
National Commission for Science, Technology & Innovation

CONDITIONS
1. You must report to the County Commissioner and
the County Education Officer of the area before
embarking on your research. Failure to do that
may lead to the cancellation of your permit.
2. Government Officer will not be interviewed
without prior appointment.
3. No questionnaire will be used unless it has been
approved.
4. Excavation, mining and collection of biological
specimens are subject to further permission from
the relevant Government Ministries.
5. You are required to submit at least two (2) hard
copies of the (1) soft copy of your final report.
6. The Government of Kenya reserves the right to
modify the conditions of this permit including
its cancellation without notice.

National Commission for Science, Technology & Innovation
RESERACH CLEARANCE
PERMIT

Serial No. A12865

CONDITIONS: see back page
Appendix K

Research Authorizations

[Image]

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-2251371,
2241369,3316571,2239420
Fax: +254-20-318249,318249
Email: dp@nacost.go.ke
Website: www.nacost.go.ke
when replying please quote
Ref: No. NACOSTI/P/17/41151/15675

Lucy Lugo Mawang
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Predictors Of Musical Creativity Among Secondary School Students In Nairobi County, Kenya.” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 13th February, 2018.

You are advised to report to, the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

[Signature]
RONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.
MINISTRY OF EDUCATION
State Department of Basic Education

Telegrams: "SCHOOLING", Nairobi
Tel. 0202453699
Fax 2244051 Nairobi
Email: rcenairobi@gmail.com
cdenairobi@gmail.com
When replying please quote

Republic of Kenya

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O.BOX 74629- 00200
NAIROBI

REF: RCE/NRB/1/14/(29) 20th February 2017

Lucy Lugo Mawang
Kenyatta University
P. O. Box 438844-00100
Nairobi

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on “Predictors Of Musical Creativity Among Secondary Schools Students In Nairobi County, Kenya”.

This office has no objection and authority is hereby granted for a period ending 13th February, 2018 as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

MAINA NGURU
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

C.C

Director General/CEO
National Commission for Science, Technology and Innovation
Nairobi
Appendix L

Map of Nairobi City County