Perceptions of Creativity in a Fashion Design Course

Bernadine M. Murray, B.Ed.

Department of Graduate and Undergraduate Studies in Education

Submitted in partial fulfillment of the requirements for the degree of Master of Education

Faculty of Education, Brock University
St. Catharines, Ontario

© August, 2004
Abstract

Creativity is important to the growth and development of society, to educational institutions, and to the personal growth of individuals. Students who are aware of their creativity are assumed to have innovative ideas and fresh insights. Limited research has been conducted to see if students can identify their own creative abilities. In this study, I explored the students' perceptions and experiences in a fashion design course. This study documented the creative journey from the concept stage of an apparel collection to the final product.

Participants were asked to reflect and document their creative moments, describe a creative process, and identify a creative environment. The participants were students who were enrolled in a fashion design course and were asked to participate in this study because they experienced all stages of the design process. Data were collected through personal reflection surveys, focus groups, and personal interviews. Themes of creative moments that emerged from this study were experiences that the participants had as they proceeded through the stages of the fashion design process.

All of the participants identified a creative process, but the stages varied for each participant. The participants identified themes related to promoting creativity in an environment, including the atmosphere, creative people, teachers, reflection, student needs, and assignments. The participants identified potential barriers in an environment, including rules and guidelines, teachers, the classroom, deadlines and time, feedback, and other important issues.

The results of this study suggest that there needs to be a better understanding of creativity and greater support and encouragement for creativity in the classroom. Instructors need to support environments that are conducive to creative development and lead to effective learning for students. Students need to learn how to enhance their creativity as well as understand the barriers that block their creative development.
Acknowledgments

I am indebted to the following special people:

My Thesis Advisor, Dr. Alice Schutz, for your continued guidance, support, feedback, and encouragement throughout this research study. Your insightful questions and attention to detail were greatly appreciated.

My Thesis Committee, Dr. Michelle McGinn and Dr. Alan Wheeler, for your support, feedback, and guidance.

My family, for your support, encouragement, and understanding of my academic goal. Special thanks to my parents Aeneas and Elsie Murray, for believing in me.

My colleagues at Ryerson University, who supported and encouraged me.

The participants in my study, who gave generously of their time and knowledge in order to provide data for this research study. Their invaluable input provided crucial information on creative moments, the process of creativity, and a creative environment.

Thank you
# Table of Contents

Abstract........................................................................................................... ii
Acknowledgments........................................................................................... iii
List of Tables.................................................................................................... iv

**CHAPTER ONE: THE PROBLEM.** .................................................................. 1
  Introduction..................................................................................................... 1
  Background to the Problem........................................................................... 2
  Statement of the Problem.............................................................................. 5
  Purpose of the Study..................................................................................... 5
  Research Questions....................................................................................... 8
  Rationale......................................................................................................... 8
  Importance of the Study................................................................................ 10
  Scope and Limitations of the Study.............................................................. 11
  Outline for the Remainder of the Document.............................................. 11

**CHAPTER TWO: REVIEW OF THE LITERATURE.** ............................... 13
  Organization of the Present Chapter............................................................ 13
  Overview of Theories of Creativity............................................................... 13
  Dimensions of Creativity............................................................................. 20
  Creative Moments.......................................................................................... 24
  Intrinsic Motivation...................................................................................... 36
  Theories and Processes of Creativity........................................................... 39
  A Creative Environment.............................................................................. 42
  Review of the Literature on Fashion Design.............................................. 50
  Summary of Literature Reviewed............................................................... 54

**CHAPTER THREE: METHODOLOGY AND PROCEDURES.**.................. 57
  Methodological Approach............................................................................ 57
  Pilot Study...................................................................................................... 58
  Data Sources.................................................................................................. 59
  Selection of Participants.............................................................................. 64
  Data Analysis Procedures............................................................................ 66
  Comparison of Data Sources....................................................................... 73
  Methodological Assumptions and Limitations.......................................... 82
  Establishing Credibility.............................................................................. 83
  Ethical Considerations.................................................................................. 84
  Summary of the Chapter............................................................................. 85

**CHAPTER FOUR: RESEARCH FINDINGS.**.................................................. 87
  Overview....................................................................................................... 87
  Creative Moments........................................................................................ 87
  The Creative Process..................................................................................... 117
  A Creative Environment.............................................................................. 126
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Steps in the 4th Year Fashion Design Course</td>
<td>6</td>
</tr>
<tr>
<td>2. Historical Approaches to Creativity</td>
<td>14</td>
</tr>
<tr>
<td>3. Coding Data into Themes: Creative Moments</td>
<td>69</td>
</tr>
<tr>
<td>4. Comparison Table: Themes from Creative Moments</td>
<td>74</td>
</tr>
<tr>
<td>5. Comparison Table: Steps in the Creative Process</td>
<td>76</td>
</tr>
<tr>
<td>6. Comparison Table: Themes from an Environment that Promote Creativity</td>
<td>79</td>
</tr>
<tr>
<td>7. Comparison Table: Themes from an Environment that Are a Barrier to Creativity</td>
<td>81</td>
</tr>
</tbody>
</table>
CHAPTER ONE: THE PROBLEM

Introduction

In this qualitative study, I explored the perceptions and experiences of 34 students in a fashion design course at the university level. I intended to investigate whether students could identify their moments of creativity, a creative process, and a creative environment. Six students took part in personal interviews, 9 students attended focus groups, and 19 students filled out personal reflection surveys. Individuals who are aware of their creative moments and skills are assumed to have innovative ideas and solutions to problems. Therefore, it is important to encourage people to be creative. According to Starko (2001), creativity brings joy and meaning to the human condition: "Without creativity we have no art, no literature, no science, no innovation, no problem solving, and no progress" (p. 1).

Guilford's (1950) claim that creativity is a neglected field is still valid today. Sternberg and Lubart (1999) have made a similar claim. Researchers have investigated who is creative (Fishkin & Johnson, 1998), explored how to enhance personal creativity (Csikszentmihalyi, 1996), attempted to link creativity with intelligence (Sternberg & Lubart, 1995), articulated a process for creative development (Csikszentmihalyi; Treffinger, Isaksen, & Dorval, 1994), and developed a classification system to assess creativity (Kirschenbaum, 1998). However, limited research has been conducted to see if students can identify their own creative abilities.

My intention was to discover whether students could recognize their own creative moments as they created apparel collections and followed assignment guidelines and criteria. I was interested to see if students could identify a creative process and a creative environment. People can enrich their lives by being innovative problem finders and problem solvers if they are aware of their own creativity. Creativity is a positive influence, and people feel rewarded and creative when they produce new products that are
innovative. Problems that were not considered before are discovered when individuals are curious to see how something works. A variety of problem-solving techniques are used because creative people have a willingness to try new combinations of ideas.

**Background to the Problem**

There is a need for innovative and practical applications of ideas that help to promote growth and creative development in society. A need to create innovative products, find problems, communicate ideas, solve problems, and develop new ideas exists today in business settings. In educational institutions, individuals may not have enough opportunities for creativity and innovation to occur. Individuals may not have opportunities in their careers to produce ideas or products that are considered innovative. More emphasis must be placed on providing a proper environment that encourages the development of creativity.

Society needs individuals who find and solve problems as well as communicate new ideas. Businesses need individuals who are independent thinkers, are flexible and skilful in making decisions, are curious, are willing to experiment and take risks, are interested to see things differently, are eager to learn, are fascinated with a challenge, and are delighted with the joy of discovery (Starko, 2001). Society needs to make use of individuals who can push the boundaries and think outside the box. The success of society depends on creative individuals who are able to bend the rules and break down barriers to see things in new ways.

The curriculum in Ontario schools has been based on a rigid system of testing, assignments, and evaluation. The Government of Ontario created standards and clear expectations in an attempt to ensure that all students in Ontario will receive a high quality education. That education, however, places little value on creativity as a focus. There is a tacit assumption that creativity just happens and does not need to be taught in the school
There appears to be a gap between what schools emphasize and what business is expecting of its future workers.

Certain trends in hiring have shown that employers look for certain employability skills in their employees. The skills that an individual has acquired will determine his or her success in the job market. The Conference Board of Canada (2002) says that employers are looking for individuals who have communication skills; problem-solving abilities; positive attitudes and behaviours; adaptability skills; ability to work well with others; and science, technology, and mathematics skills. Tullier (2002) maintains that the necessary skills for the future include:

- **Critical thinking**: Seeing the big picture and being analytical; Individuals should comprehend what they are reading.
- **Communication**: Individuals should be getting their points across effectively when they are writing and speaking.
- **Visionary qualities**: Brainstorming, looking to the future, and setting goals.
- **Self-motivation**: Showing a willingness to take the initiative.
- **Proficiency with information**: Being inquisitive, curious, and resourceful; Knowing how to conduct research.
- **Globally minded**: Understanding and showing an interest in other cultures and getting along with diverse groups of people.
- **Teamwork**: Working well with others to achieve common goals.

Creativity helps to promote growth and development in society, so we need our leaders and employees to think creatively and critically. Society needs leaders who guide us and help us envision the future of societies. Employers value individuals who are able to think creatively by brainstorming, broadening their perspectives by seeking outside information, maintaining a flexible position, and combining new combinations of objects together. These dispositions are considered valuable in the business sector. Corporations
will remain as leaders in the business sector if their employees are creative and critical thinkers. Therefore, schools need to help their students develop those skills in the classroom.

Societies benefit when people are creative because people develop new products, make new scientific discoveries, create new art and music, and find innovative solutions to problems. When people are productive, everyone sees progress in an economy where society has supported creative development. People benefit because they are happier when they are creative. Business and society benefit because they see progress and development. Cole, Sugioka, and Yamagata-Lynch (1999) state, “Creativity is an important relation to education and societal growth. As the degree of complexity and the amount of information in our society continue to increase, society’s problems require more creative solutions” (p. 1).

Life appears to be more interesting and exciting when individuals are creative. Csikszentmihalyi (1996) agrees and expresses reasons why creativity is important. He states:

The results of creativity enrich the culture and so they directly improve the quality of all our lives. But we may also learn from this knowledge how to make our own lives directly more interesting and productive.... To have a good life, it is not enough to remove what is wrong from it. We also need a positive goal, otherwise why keep going? Creativity is one answer to that question: It provides one of the most exciting models for living. (p. 10)

Making students aware of their creative moments may enhance their own sense of satisfaction, make them marketable, and contribute to the development of society.
Statement of the Problem

Since there is a societal and educational need for people to be creative, we need to promote creative visions, discoveries, and achievements. Educational institutions need to help students develop necessary skills for the future. If students can identify their moments of creativity and understand how to enhance their creativity, then this will make them more productive and creative. This will address the concerns of the professional communities and fulfill their need for capable and skilful employees.

The need for the research study was established because of the societal demand for creative people. I intended to investigate whether students could identify their moments of creativity, a creative process, and a creative environment and to compare themes that emerged from all sources of data collection. This study could influence course delivery and content in the future curriculum of our schools because there is a societal need. Akande (1997) states, “The ever changing world requires more creativity because of its complex problems and the necessity for people to use creative thinking skills as a way of solving vocational socio-personal and educational problems” (p. 89).

Purpose of the Study

The purpose of this study was to examine the participants’ perceptions of the creative process and creativity as it applies to the fashion design process. Specifically, participants were asked to identify their creative moments within structured class assignments. Participants were asked to describe their view of creativity, the creative process, and a creative environment. The participants were asked to describe the above during and after they finished the eight steps of the fashion design process as illustrated in Table 1.
Table 1

Steps in the 4th Year Fashion Design Course

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step one</td>
<td>Fashion Trends and Forecasting: Designers conduct research and use trend and forecast information for their collections. Fashion designers process this information into ideas in order to plan their apparel collections. Trend and forecast services provide information including colors palettes, textiles, and styling details for the designers.</td>
</tr>
<tr>
<td>Step two</td>
<td>Inspiration Boards: Designers create inspiration boards that help them stay focused and show their inspiration for the apparel collections. The inspiration boards are made up of a collage of photographs, fabric swatches, buttons, and trimmings. A customer profile is created as well.</td>
</tr>
<tr>
<td>Step three</td>
<td>Ideation Sketches: The ideation sketches show the evolution of the fashion designer's ideas. This is a transitional stage in translating concepts into fabric. These drawings act as communication tools for the designers. Designers create up to 30 sketches, which will be narrowed down to five outfits for the apparel collection.</td>
</tr>
<tr>
<td>Step four</td>
<td>Design Book: The design book helps designers visualize the entire collection. The design book is comprised of fashion illustrations, technical sketches, and a summary line sheet. Fashion illustrations include each piece of the entire outfit as it is presented on the runway. Technical sketches are flat drawings of the garments in the collection. The summary line sheet is an organizational tool that includes technical sketches of each outfit and fabric swatches.</td>
</tr>
<tr>
<td>Steps</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Step five</td>
<td>Test Muslins with First Patterns: The test muslins are created to test the fit and styling of the garment before it is cut and sewn in the actual fabric. The designers create patterns for each of the garments. Cotton fabric called muslin is sewn together and is used to test the fit of each of the garments, that the muslin reflects the sketch in proportion and design details, and the overall design works. The sketches have been turned into three dimensional garments.</td>
</tr>
<tr>
<td>Step six</td>
<td>Final Patterns: The patterns are transferred from soft paper to hard paper and labelled for production. The patterns are checked again for accuracy. The final garments are then cut out of the actual fabric using the final patterns.</td>
</tr>
<tr>
<td>Step seven</td>
<td>Final Garments with Cost Sheets: Garments are created in the actual fabric and are presented in the fashion show. Cost sheets are created for each garment in the collection. The cost of the garments is important to determine because designers need to know whether the price suits the intended target market. The designers create the formula to cost each garment for the collection. Fabrics, thread, notions, and sewing are considered in this formula.</td>
</tr>
<tr>
<td>Step eight</td>
<td>Designers present their apparel collections to a panel of fashion industry judges who evaluate and recommend changes to the cost of the garments, suitability of the design to the intended target market, and quality of the garments. The apparel collections are presented in a fashion show to the television and newspaper media, families of the designers, and fashion industry members.</td>
</tr>
</tbody>
</table>
Research Questions

This study answered the question, “What are selected fourth year fashion design students' perceptions and experiences of creativity?” Specifically, the following three questions guided the research:

1. Can students identify moments of creativity that they experienced as they proceeded through design stages?
2. Are students able to articulate the presence and nature of a creative process?
3. Can students identify an environment that encourages or creates barriers to creative development?

Rationale

The research questions are important because there is a societal need for students to be aware of their skills. Students must be able to execute employability skills if they are to remain competitive and progress in the job market of the future. Experts who study hiring trends say that employability skills are developed when students are getting their education (Tullier, 2002). Employability skills include critical thinking, communication, visionary qualities, proficiency with information, being globally minded, and teamwork. Educational institutions should provide students with the tools that they need now and will need in the future. Educational institutions need to work with the business sector to help students develop valued employability skills.

There is a need from professional organizations to find employees who have good problem-solving and communication skills if they want to be leaders in tomorrow's business sector. Educational institutions should address and meet the needs of the professional community if they are going to be the schools of choice. If our students are better prepared for the workplace with the required skills, then the business sector will be better equipped for trade and development.
I became interested in creativity because I teach in a creative discipline, namely fashion design. Fashion IV is an apparel design course that allows students to research, design, and develop an apparel collection. I assist students with the development of their collections, find and solve problems, and provide feedback that can improve the quality of the collection. Students know that they like being creative, but are they able to identify specific tasks and abilities related to creativity? Creativity happens when an individual takes an idea and modifies the idea until the final product is unique and different from the original idea. The individual uses problem-finding and problem-solving strategies to generate solutions. Researching, consulting with other individuals, and experimenting using various techniques are some approaches that creative individuals use to alter their original ideas.

In addition, a pilot study was conducted prior to the commencement of this research study. Some of the questions for the pilot study represented the fashion design process while other questions related specifically to creativity, the creative process, and a creative environment. The pilot study helped me to develop my questions for the present study. I intended to compare themes that emerged in the pilot study against themes that emerged in the focus group interviews, personal interviews, and personal reflection surveys of this study.

Educators should let students explore their curiosity, ask probing questions, find problems, create innovative solutions, and establish their creative environment. We need to create assignments that let students find problems in addition to solving problems. Schools need creative environments that will nurture creative development instead of creating barriers to creative development. Students should understand creativity, appreciate the process of creativity, and be able to identify a creative environment so that they are able to become future leaders for society.
Importance of the Study

This study was important because it addressed the concerns of educational and professional communities. Understanding creativity affects individuals as well as the community. From the individual perspective, Csikszentmihalyi (1996) states:

Most of the things that are interesting, important, and human are the result of creativity. The second reason creativity is so fascinating is that when we are involved in it, we feel that we are living more fully than during the rest of our life. (p. 6)

From the community perspective, creativity influences education and work environments. Sternberg and Lubart (1999) found the following:

Creativity is a topic of wide scope that is important at both the individual and societal levels for a wide range of task domains. At an individual level, creativity is relevant, for when one is solving problems on the job and in daily life. At a societal level, creativity can lead to new scientific findings, new movements in art, new inventions, and new social programs. The economic importance of creativity is clear because new products or services create jobs. Furthermore, individuals, organizations, and societies must adapt existing resources to changing task demands to remain competitive. (p. 3)

If individuals are to create new products, solve problems, and explore new inventions, it is in an individual's best interest that they try to understand why they are creative, how creativity happens, and be able to identify moments of creativity. For this reason, individuals are able to remain on the cutting edge of new technologies, innovative solutions, and explorations that help the economy. The findings of this study could significantly influence teaching strategies used in classrooms, which would promote a creative environment and creative thinking. Creative problem-finding and problem-solving techniques may be found in future employee training as well as being
incorporated into classrooms.

Scope and Limitations of the Study

This study may have been limited because I relied on the honesty of the participants as I gathered all of the data. I relied on their honesty and willingness to share information that was pertinent to the research topic. It is possible that participants withheld or forgot information that was important or pertained to the study. The study was conducted during the busiest time of year when the participants were preparing for their final presentations in their graduating year at university. I am hopeful that they told the truth instead of telling me what I wanted to hear. The study may have been limited by my presence in the focus group and personal interviews because I was teaching in that design course.

Outline for the Remainder of the Document

In this chapter, I introduced the study, “Perceptions of Creativity in a Fashion Design Course.” I presented an introduction, background of the problem, statement of the problem, purpose of the study, research questions, rationale, importance of the study, and scope and limitations of the study.

In Chapter Two, I review selected literature pertaining to creativity and fashion design. I present an overview of theories of creativity; dimensions of creativity; creative moments including problem finding, problem solving, and communicating information; intrinsic motivation; theories or processes of creativity, a creative environment; teaching for creativity; fostering creativity; barriers to creativity; review of the literature on fashion design; and a summary of the literature review.

In Chapter Three, I present the methodological approach to this study. I discuss the pilot study; data sources including the personal reflection surveys, focus group
interviews, and personal interviews; selection of participants; data analysis procedures for the personal reflection surveys, focus group interviews, and personal interviews; comparison of data sources; methodological assumptions and limitations; steps for establishing credibility; and ethical considerations.

I present the research findings from this qualitative study in Chapter Four. The themes developed from the study are analyzed and presented in this chapter. Finally, the interpretation of the findings from the research and a summary of the findings are discussed.

In Chapter Five, I summarize and present the results of the study. First, a summary of the study is presented followed by the findings. Next, a discussion of the themes that emerged during data collection are introduced. Then implications for practice, theory, and further research are presented. The chapter concludes with recommendations and a conclusion of the study.
CHAPTER TWO: REVIEW OF THE LITERATURE

Organization of the Present Chapter

The focus of this study was to discover if students were aware of their creative moments as they proceeded through various stages of the design process, whether they could identify a creative process, and how they perceived a creative environment. The literature reviewed in this chapter includes an overview of topics deemed relevant to creativity and the fashion design process. This chapter begins with an overview of theories of creativity. Next, I discuss the various approaches that have been used to study creativity. Dimensions of creativity and creative moments are discussed and include areas such as problem finding, problem solving, and communicating information. Then I explore intrinsic motivation and how it affects creative development.

Additionally, I explore various theories or processes of creativity developed by Dewey, Wallas, Guilford, Rogers, Torrance, Parnes and Osborn (cited in Sternberg, 1999), and Csikszentmihalyi (1996). Afterwards, a creative environment is discussed along with sections on teaching for creativity, fostering creativity, and barriers to creativity. The chapter also includes a review of the literature on creativity in fashion design. Finally, the chapter concludes with a summary of literature reviewed for this research study.

Overview of Theories of Creativity

The categories in this section are taken from Sternberg and Lubart's chapter in the Handbook of Creativity (Sternberg, 1999). I developed a chart that grouped some of the researchers together and the approaches that they have taken in their research on creativity (see Table 2).
Table 2

*Historical Approaches to Creativity*

<table>
<thead>
<tr>
<th>Historical approaches</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mystical approach</td>
<td>Ghiselin</td>
</tr>
<tr>
<td></td>
<td>Rothenberg and Hausman</td>
</tr>
<tr>
<td></td>
<td>Kipling</td>
</tr>
<tr>
<td>Pragmatic approach</td>
<td>von Oech</td>
</tr>
<tr>
<td></td>
<td>Adams</td>
</tr>
<tr>
<td></td>
<td>De Bono</td>
</tr>
<tr>
<td></td>
<td>Gordon</td>
</tr>
<tr>
<td></td>
<td>Osborn</td>
</tr>
<tr>
<td>Psychodynamic approach</td>
<td>Vernon</td>
</tr>
<tr>
<td></td>
<td>Freud</td>
</tr>
<tr>
<td>Psychometric approach</td>
<td>Baer</td>
</tr>
<tr>
<td></td>
<td>MacKinnon</td>
</tr>
<tr>
<td></td>
<td>Torrance</td>
</tr>
<tr>
<td></td>
<td>Parnes</td>
</tr>
<tr>
<td></td>
<td>Guilford</td>
</tr>
<tr>
<td>Cognitive approach</td>
<td>Sternberg and Davidson</td>
</tr>
<tr>
<td></td>
<td>Boden</td>
</tr>
<tr>
<td></td>
<td>Finke, Ward, and Smith</td>
</tr>
<tr>
<td></td>
<td>Weisberg</td>
</tr>
<tr>
<td>Historical approaches</td>
<td>Researchers</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Social-personality approach</td>
<td>Eysenck</td>
</tr>
<tr>
<td></td>
<td>Gough</td>
</tr>
<tr>
<td></td>
<td>Barron</td>
</tr>
<tr>
<td></td>
<td>Maslow</td>
</tr>
<tr>
<td></td>
<td>MacKinnon</td>
</tr>
<tr>
<td></td>
<td>Crutchfield</td>
</tr>
<tr>
<td></td>
<td>Golann</td>
</tr>
<tr>
<td></td>
<td>Rogers</td>
</tr>
<tr>
<td>Confluence approach</td>
<td>Gardner</td>
</tr>
<tr>
<td></td>
<td>Weisberg</td>
</tr>
<tr>
<td></td>
<td>Sternberg and Lubart</td>
</tr>
<tr>
<td></td>
<td>Gruber</td>
</tr>
<tr>
<td></td>
<td>Csikszentmihalyi</td>
</tr>
<tr>
<td></td>
<td>Simonton</td>
</tr>
<tr>
<td></td>
<td>Mumford and Gustafson</td>
</tr>
<tr>
<td></td>
<td>Woodman and Schoenfeldt</td>
</tr>
<tr>
<td></td>
<td>Amabile</td>
</tr>
<tr>
<td></td>
<td>Perkins</td>
</tr>
</tbody>
</table>

Adapted from Sternberg and Lubart (1999)
The Mystical Approach

Sternberg and Lubart (1999) maintain that an early approach to studying creativity included the mystical approach. The mystical approach was linked to mystical beliefs and divine intervention. Using this approach, the creative individual was seen as an empty vessel. Through divine intervention, the individual would be filled with inspiration. Some individuals believed that creativity was something that just didn't lend itself to scientific study because it was a spiritual process. The mystical approach resulted in believing that creativity was beyond human control and attributed to gods, the muses, or chance. Researchers who have used this approach include Ghiselin, Rothenberg and Hausman, and Kipling (cited in Sternberg & Lubart, 1999, p. 5).

The Pragmatic Approach

Another approach to studying creativity was the pragmatic approach. Researchers who used this approach were first concerned with developing creativity. A secondary focus was understanding creativity. Researchers who used this approach were not concerned with testing the validity of their ideas. Consequently, the pragmatic approach led individuals to believe that creativity was not a credible area to study. A well-known researcher who used the pragmatic approach is De Bono. De Bono's work on lateral thinking and other aspects of creativity has earned him considerable commercial success. De Bono's concern was with practice, not theory (cited in Sternberg & Lubart, 1999, p. 5). Other researchers as cited in Sternberg and Lubart (1999, p. 5) have included von Oech, Adams, Gordon, and Osborn.

The Psychodynamic Approach

Sternberg and Lubart (1999) claim that the psychodynamic approach was the first major 20th century theoretical approach to studying creativity. This approach was based
on the idea that creativity arises from the tension between conscious reality and unconscious drives. Freud (cited in Sternberg & Lubart, p. 6) proposed that artists and writers express their unconscious wishes in public ways. Unconscious wishes include the desire for power, riches, fame, honor, and love (Vernon, 1970). The psychodynamic approach offered some insight into creativity.

**The Psychometric Approach**

Guilford (1950) suggested that researchers should look to everyday subjects as research topics using a psychometric approach. Divergent thinking tests ask individuals to think about a number of uses for certain objects. The tests became one of the main instruments for measuring creative thinking. Sternberg and Lubart (1999) said that some researchers criticized that there was a negative side to Guilford's approach. They felt that paper-and-pencil tests were inadequate measures of creativity. However, researchers now had an objective assessment device that was easy to administer. Sternberg and Lubart (p. 6) point out that Torrance built on Guilford's work and developed the Torrance Tests of Creative Thinking. The tests are comprised of verbal tasks, figural tasks, and problem-solving tasks that involve divergent thinking.

Starko (2001) maintains that researchers have examined the effects of training in divergent thinking on students' creative performance in a number of domains. MacKinnon (1978) has conducted research around this area of creativity. MacKinnon suggested that no one approach will increase creative thinking for such diverse individuals. Gardner (1994, pp. 150-151) believed that complementing the psychometric work there have been efforts to determine the psychological dispositions of creative individuals.
The Cognitive Approach

According to Sternberg and Lubart (1999), researchers using the cognitive approach tried to understand the mental representations and processes underlying creative thought. Cognitive approaches based on the study of human subjects have been best represented by the work of Sternberg and Davidson and Finke, Ward, and Smith (cited in Sternberg & Lubart, p. 7). Finke et al. developed the Geneplore model. In this model, there were two processing phases in creative thought. An individual produced mental representations in the generative phase. In this phase, mental representations had properties that promoted creative discoveries. The properties were used to generate creative ideas in the exploratory phase. Processes of retrieval, association, synthesis, transformation, analogical transfer, and categorical reduction were mental processes that individuals might experience as they entered the two phases of creative invention.

The Social-Personality Approach

The social-personality approach focused on personality variables, motivational variables, and a sociocultural environment as sources for creativity. Eysenck, Amabile, Gough, Barron, and MacKinnon (cited in Sternberg & Lubart, 1999, p. 8) observed that certain personality traits were associated with creative individuals. Barron and Harrington (1981) identified a number of potential traits associated with creativity. Some traits include independence of judgement, self-confidence, attraction to complexity, aesthetic orientation, and risk taking. Maslow and Rogers (cited in Sternberg & Lubart, p. 8) have used creativity and self-actualization within the personality tradition. Some theorists such as Amabile, Crutchfield, and Golann (cited in Sternberg & Lubart, p. 8) focused on intrinsic motivation as a means of driving creative moments.
The Confluence Approach

Researchers who take the confluence approach believe that multiple components must connect in order for creativity to take place. Amabile (1983) describes creativity as the confluence of intrinsic motivation, domain-relevant knowledge and abilities, and creativity-relevant skills. A developmental evolving systems model was developed by Gruber and his colleagues (cited in Sternberg & Lubart, 1999, p. 10) to understand creativity.

Csikszentmihalyi (1996) believes that the interaction of the individual, the domain, and the field are important for creativity to occur. He states:

The answer that makes most sense is that creativity can be observed only in the interrelations of a system made up of three main parts. The first of these is the domain, which consists of a set of symbolic rules and procedures. Mathematics is a domain, or at a finer resolution algebra and number theory can be seen as domains....The second component of creativity is the field, which includes all the individuals who act as gatekeepers to the domain. It is their job to decide whether a new idea or product should be included in the domain.... Finally, the third component of the creative system is the individual person. Creativity occurs when a person, using the symbols of a given domain such as music, engineering, business, or mathematics, has a new idea or sees a new pattern, and when this novelty is selected by the appropriate field for inclusion into the relevant domain. (p. 27)

Gardner (cited in Sternberg & Lubart, 1999, p. 10) suggested that the development of creative work may originate from an anomaly within a system. Another confluence approach, which was developed by Sternberg and Lubart (p. 10), involves individuals who like to "buy low and sell high." They stated:

Buying low means pursuing ideas that are unknown or out of favor but have
growth potential. Often, when these ideas are first presented, they encounter resistance. The creative individual persists in the face of this resistance and eventually sells high, moving on to the next new or unpopular idea. (p. 10)

Confluence theories of creativity consider diverse aspects of creativity. This is the latest approach that has been taken to explain creativity.

Dimensions of Creativity

There are factors that affect whether creative development will occur. Cognitive processes, social and emotional processes, family aspects, education and preparation, domain and field, societal and cultural contextual influences, and historical influences are considered to be seven dimensions of creative development that play key roles in whether individuals will be creative (Feldman, 1999). Boden (1994, p. 75) states, “Creativity is a puzzle, a paradox, some say a mystery. Inventors, scientists, and artists rarely know how their original ideas arise. They mention intuition but cannot say how it works.” Creativity exists in places where society is open to change, individuals are free to create new ideas, and individuals are able to find problems and solutions to problems using a variety of techniques. If society is not open to change, then creative products, new literature, discoveries, and new music will not be created. Creativity exists because individuals are flexible, willing to make new combinations of ideas, and interact with individuals within their own community. Motivation and environment are key elements of creativity as well. Csikszentmihalyi (1996) says that creativity does not happen inside individuals' heads. It happens because of the interaction between an individual's thoughts and a sociocultural context.

According to Feldman (1999), Gardner used seven dimensions of creative development. The seven dimensions included cognitive processes, social and emotional processes, family aspects, education and preparation, domain and field, societal and
cultural contextual influences, and historical influences. Gardner (1993) studied the lives of creative individuals in different fields. He found that using the seven dimensions of creativity and the interaction among them increased the likelihood for creative achievements to occur. Gardner examined the lives of Sigmund Freud, Albert Einstein, Pablo Picasso, Igor Stravinsky, T. S. Eliot, Martha Graham, and Mohandas Gandhi.

Cognitive development is the source of creative processes. Each of the individuals in Gardner's (1993) study was found to have cognitive strengths that were specific to the relevant domain. Each of the individuals also worked around profound intellectual weaknesses as well. Gardner found that it takes a minimum of 10 years to progress from the novice level to master level in any domain. The critical period of time is spent when the individual is mastering the domain. Social and emotional processes originate from social and emotional development. MacKinnon (cited in Feldman, 1999, p. 174) found that individuals who are more creative tend to reflect a "high level of effective intelligence . . . openness to experience . . . freedom from petty restraints. . . unquestioning commitment . . . cognitive flexibility . . . independence . . . high level of energy . . . esthetic sensitivity."

Family aspects are established from family dynamics and genetics. In Gardner's (1993) study, families of creative individuals were inclined to be neither wealthy nor poor. They lived outside major cities but were not removed from the influence of people who affected their careers. The family atmosphere was not especially warm, but the children's needs were satisfied. The children were taught morals and expected to uphold them. The children's interests were supported and encouraged by their parents. Teachers, programs, and counselling directed these individuals toward their creative futures. Schools, teachers, mentors, and other sources of preparation were critical to the success of later creative work by these individuals. The guidance and support from a senior person have proven to be of great importance in the lives of some creative people (Cox,
Daniel, & Boston; Piirto cited in Feldman, 1999, p. 176). The apprenticeship traditions in
the visual arts are important to the development of great artists' skills (Csikszentmihalyi

The domain and field are another dimension to creative development and are
found in the history of subject matter. Domains change because they are transformed by
creative efforts. Close examination shows how creative work is accomplished if major
problems, fashions products, or poses new questions within a domain in a way that is
initially considered to be unusual but is eventually accepted within at least one cultural
group.” The field is the source of acceptance or rejection and the source of judgement
for creative individuals.

Societal and cultural influences include all individuals who lend support to those
who create works of art, literature, and discoveries. Cultural organisms allow and set the
conditions for creativity to exist. Historical events such as wars or natural disasters make
a difference in the developmental process and influence creative development. Patterns of
history, the structure of society, and the development of creativity all interact and affect
all types of creative work (Sternberg, 1999). Boden (1994) stresses the social aspects of
creativity, including the importance of a new idea being positively valued by a specific
social group if individuals are to be recognized as creative.

According to Akande (1997), creativity has three components: expertise,
imaginative thinking, and intrinsic motivation. Expertise provides an intensive knowledge
base from which to generate and critically evaluate solutions to problems. Imaginative
thinking helps people to see things in new ways and recognize novel patterns or
connections. People are the most creative when they are intrinsically motivated and they
feel challenged by a problem. Creativity refers to those aspects of an individual or process
that contribute to a new or innovative idea (Hughes, Ginnett, & Curphy cited in Akande,
Swede (1993, p. 70) has nine recommendations that will help individuals become more creative. First, individuals should remember to be creative. Individuals usually forget how to be creative when they are trying to meet deadlines. Second, individuals should think multicontextually by combining several different contexts into one product so that they create an original product. Third, individuals should keep their options open as long as possible. Flexibility is important to problem solving because individuals think of alternative solutions to problems. Fourth, individuals should try to remember accurately. Individuals remember accurately when they are interested in problems. Fifth, individuals should make problems visual by drawing or building a model. Visual representations help individuals to understand problems better. Sixth, individuals should not wait for inspiration to strike. A characteristic of creative individuals is that they have a commitment to engage in hard work. Seventh, individuals should set the task aside for a period of time. Individuals are able to look at products considering fresh ideas and new concepts after a period of time has elapsed. Eighth, individuals should select appropriate role models and try to adopt those individuals' tactics for success. Ninth, individuals should not let the fear of failure stop them. If individuals believe in themselves, they have more chances to be successful.

Csikszentmihalyi (1990) maintains that creative individuals reach pleasurable periods of complete immersion into the activity of creativity. The flow experience has the potential to make life richer, more intense, and more meaningful than individuals felt before this moment. This experience increases the strength and complexity of the self. Csikszentmihalyi refers to this experience as “flow states.” The flow experience allows individuals to experience creative activities without the fear of failure. The experience of flow allows creative individuals to feel satisfied and fulfilled. Creative individuals are able to experience conditions that enable them to become intrinsically rewarded.
Creative Moments

Creative moments are personal experiences that individuals have when they are being creative. Individuals are brainstorming ideas, gathering information, thinking of alternative solutions, problem solving, narrowing down to one solution when they are having creative moments. As individuals experience creative moments, they feel satisfied and fulfilled in their lives. Creative moments allow individuals the opportunity to become immersed in creating their work.

Gardner (1994) identified five different types of creative activities. First, creativity may involve solving a well-defined problem that is encountered in the course of training. Second, creativity may involve devising an encompassing theory. Examples of this type of work include Freud studying the unconscious or Einstein pondering the riddles of relativity. Individuals might reconfigure existing data and concepts that point the way to future research. Third, creativity may be reflected in the creation of a “frozen work.” There is a certain distance between the time when the work of an artist or creator is completed and the time that the work is examined, performed, exhibited, and evaluated by others who are knowledgeable in the domain. An example of this type of work is an artist who creates a painting that is displayed at an exhibit at a later date in time. Fourth, performing ritualized work may demonstrate creativity. Some works can be apprehended only in performance. Creativity lies in the particular process of that performance. An example of this is a creative performance in dance. Fifth, “high-stakes” performances such as protests, fasts, and nonviolent confrontations can be examples of creativity. In these kinds of activities, individuals carry out a series of actions in public in order to bring about social or political change. Scientific domains use the first two kinds of creative activity. The third and fourth activities are associated with artistic work. The final activity is connected with work in the political domain (Boden, 1994).

Creative moments are likely to happen when individuals are involved in certain
states that are associated with creativity. Creative individuals are known to be associated with perseverance, drive, commitment to task, curiosity, openness to experience, tolerance for ambiguity, broad interests, willingness to take risks, originality, intuition and deep emotions, and internally occupied or withdrawn behavior. According to Starko (2001), personality states help individuals to determine how to use their thinking.

Personality dispositions are focused on affective states, which are the emotional patterns and personal values that shape thinking patterns and actions.

MacKinnon (1978) claims that a willingness to take risks involves intellectual dangers that other people are not willing to think about or express. Creative risks open an individual to criticism or ridicule and can bring about the risk of failure. Individuals who create accept the risks that go along with being creative. Perseverance, drive, and commitment to task are required if individuals are to be successful when they are creative. Individuals need to have a willingness to continue when obstacles are present. They need to maintain motivation without receiving any immediate rewards. Remaining focused on tasks for long periods of time is essential to successful creative development.

Time is also a key element if a high level of creativity is to occur.

Curiosity is associated with creative individuals. Creative individuals want to know how things work, what people are thinking, and how something came to be this way. New sights and sounds bring about new questions to be answered. Intense curiosity allows creative individuals to address serious problems. Openness to experience is characterized by an individual's willingness to try new things. Creative individuals do not hesitate when they are asked to go somewhere or do something that was not planned. Since creative individuals are open to experiences, they provide themselves with constant sources of questions, ideas, and problems.

Tolerance for ambiguity includes the loose ends, unanswered questions, and the grey areas of a problem in the creative process. Individuals who can tolerate ambiguity
have much in common with others who are independent in judgement and who work well with novelty. Ideas that are underdeveloped or have possible solutions are tolerated by creative individuals who have a tolerance for ambiguity. These individuals are willing to keep experimenting even when they are not sure they are right. Individuals who are open to new experiences have broad interests and they see opportunities in everything they do.

Creative individuals value originality, new ideas, opportunities, flexibility, fewer restrictions, and being creative. They would rather produce a new idea than repeat an old idea. Creative individuals believe that the creative process is a valuable experience. Students who value originality appreciate assignments that are open and restriction free. Creative individuals are intuitive and display deep emotions. MacKinnon (1978) found that on the Myers-Briggs Type Indicator, most creative individuals preferred intuitive perception to sense perception.

Clark (cited in Starko, 2001, p. 105) lists seven conditions that foster intuition: a relaxed state, silence, focused attention, a receptive nonjudgmental attitude, an ability to synthesize all brain functions, novelty and variety in the environment, and a teacher who values and encourages intuitive processes. Such a teacher would provide opportunities for educated guessing, hypothesis setting, and probability testing, is comfortable with students' and personal errors, emphasizes personal discovery over memorization of facts, and models intuitive behavior.

Some creative individuals appear to be internally occupied or withdrawn when they are in the middle of creative activities. For many individuals, creative activity means that they need to spend a great deal of time alone. Creative individuals appear to possess contradictory dispositions simultaneously. They tend to be flexible yet logical, risk takers yet committed to tasks, and they escape entrenchment yet find order in chaos. Independence, courage, and persistence are three qualities that allow individuals to be creative (Starko, 2001). Yet creative individuals tend to have a combination of qualities
that allow them to be creative.

Creative individuals are remarkable for their ability to adapt to almost any situation. They deal with whatever is at hand so that they can reach their goals. There does not seem to be a particular set of traits that a person must have in order to come up with a novel idea (Csikszentmihalyi, 1996). Delias and Gaier (cited in Boden, 1994, p. 212) concluded that there are common personality traits among creative people. They found 13 personality traits that have some bearing on creativity in the abstract regardless of the field: independence in attitude and social behavior, dominance, introversion, openness to stimuli, broad interests, self-acceptance, flexibility, intuitiveness, social presence and poise, an asocial attitude, concern for social norms, radicalism, and rejection of external constraints.

Akande (1997) claims that certain temperamental dispositions are conducive to the production of novelty. For example, creative individuals are sensitive to subtleties in the environment. Creative individuals see differences when others see sameness, and they see sameness when others see differences. Creative individuals are able to recognize patterns and relationships among different events, to construct links between irreconcilable elements, and to bring order to chaos. This synthesizing function is described as a "sixth sense" or "leap of intuition." This is why creative individuals are usually characterized as being intuitive.

Creative individuals tend to search for problems and seek ways of solving those problems. They are not afraid to seek advice from other people. Alternative solutions will be examined until a correct solution is found. Creative individuals try to communicate their product to an intended target audience. Problem finding, problem solving, and communicating information are three aspects of creativity. Starko (2001) remarks that individuals are often creative in their efforts to find and solve problems and to communicate their ideas. Implementing these practices in the classroom allows creative
development to occur naturally.

In addition to an overview of creative moments, problem finding, problem solving, and communicating information are important considerations in the process of analyzing and studying or using creativity. They are important for my study because students who are able to identify their creative moments are able to push the boundaries and come up with a number of innovative ideas or solutions to problems. This in turn will help students be creative because they are able to recognize when they need to think of alternatives, brainstorm ideas, narrow solution options, or compare ideas.

**Problem Finding**

Starko (2001) states that many times the most important part of creativity is realizing that there is a problem. Finding an idea or theme to communicate and a societal problem or need is considered problem finding. Creative individuals are able to justify why there is a societal need for specific creative products. It is important for individuals to be curious when they look for problems because they look harder than most individuals. Csikszentmihalyi (1996, p. 53) claims:

> Without a good dose of curiosity, wonder, and interest in what things are like and how they work, it is difficult to recognize an interesting problem.... Problem finding helps us to focus on issues that will affect our experiences that otherwise might have gone unnoticed.

According to Nickerson (1999), many researchers have emphasized the importance of problem finding and problem definition or formulation. The researchers found that problem finding is as distinct as problem solving and is an important aspect of creativity. There is evidence to support the idea that students who have been taught to explore various ways to define problems may engage in more creative problem solving than they would usually use over the longer term (Baer, cited in Nickerson, p. 395).
Sometimes it takes years to find and perfect the correct problem. Creative individuals constantly search for problems to solve because they find it challenging. Csikszentmihalyi (1996) comments:

Creative individuals do not rush to define the nature of problems; they look at the situation from various angles first and leave formulation undetermined for a long time. They consider different causes and reasons. They test their hunches about what really is going on, first in their own mind and then in reality. They try tentative solutions and check their success — and they are open to reformulating the problem if the evidence suggests they started out on the wrong path. (p. 365)

Isaksen (1987) commented that all activities call for thought. He stated: “The portion of human activity that is held in highest esteem — pure science, fine art, technological invention, systemic philosophy — is devoted as much to discovering, creating, and formulating problems as it is to solving them” (p. 96).

Problem finding prompts individuals to think about things to consider. It forces individuals to search for potential problems from all viewpoints. Problem finding helps individuals to consider aspects of the problem that they did not consider. It is important to find problems because it makes individuals more creative when they are problem solving. It takes time to find problems and to consider alternative solutions. Runco and Sakamoto (1999) found support for the idea that creativity is more than problem solving. Their point is that insights often occur when a problem is discovered or defined rather than when solutions are formulated.

In order to practice the skill of problem finding, Csikszentmihalyi (1996, p. 364) proposes that individuals try the following four suggestions. First, individuals should try to find a way to express what moves them. Creative problems generate from areas of individuals' lives that are personally important. This can include problematic issues that arise in their lives. The first step in problem solving is to locate the problem by
formulating the vague unease into a concrete problem amenable to solution. Second, look at problems from as many viewpoints as possible. After individuals find a problem, they should consider it from different perspectives. How individuals define a problem points to the reason for the problem. It is important to identify the nature of the problem because the next step depends on it.

The third step of problem finding is figuring out implications of the problem. Once individuals have created a formulation, then they should consider possible solutions. Creative individuals experiment with alternative solutions until they are certain they have found the best possible solution. It is possible that individuals know a solution; however, they may still try to think of alternative solutions. Fourth, individuals should implement the solution. Solving problems creatively means making constant revisions to the solution. A solution will be original and appropriate the longer individuals keep making revisions to it. Creating innovative solutions to problems requires more effort than using a solution they have tried before.

Nadler, Hibino, and Farrell (1999) comment that problems should be defined in terms of purpose. Defining problems in this way maximizes the likelihood of identifying and solving the correct problem. Five components of a problem include purposeful activity substance, locus or place where something happens, values, goals, and objectives. When problems are defined in terms of the five components, then solutions to those problems are both expanded and integrated into a successful solution. By focusing attention to the problem and problem solving, individuals will limit the problem and the solutions that are available.

Insufficient time has been devoted to problem finding in education settings. Getzels and Houtz (cited in Nickerson, 1999, p. 395) found that students are given problems to solve, yet they are rarely given problems to find. Students are seldom taught how to search out problems for themselves (Sternberg, 1999). We need to focus more
attention to researching problem finding. Teachers need to challenge their students to find problems rather than find solutions to problems. Problem finding allows creative individuals the opportunity to challenge themselves to find potential problems. However, this should not reduce the importance of problem solving as a procedure in the creative process.

**Problem Solving**

Mayer (1999, p. 446) maintains that problem solving is a cognitive process that is aimed at figuring out how to move from a given state to a goal state. There is no clear solution that is available for the problem solver. The problem exists because the problem solver has a clear goal but does not know how to achieve the goal. Gruber and Wallace (1999) consider that the main point of problem solving is to develop a new point of view. This new perspective is where new problems are found and old problems are seen in a new light.

Wallas's (cited in Starko, 2001, pp. 25-27) four-stage theory of problem solving is often considered when thinking about different stages of problem solving. Preparation, incubation, illumination, and verification are stages in Wallas's theory. The creative individual has time to gather information and think about the problem in the preparation period. In the incubation period, the individual does not consciously think about the problem. Other activities are being conducted while the mind considers the problem in this stage. The illumination period is the stage where ideas fit together and a solution to the problem becomes clear. In the verification period, the solution may be elaborated as it is checked for practicality, effectiveness, and appropriateness (Starko).

Mayer (1999, p. 439) claims that two major phases in problem solving include problem representation and problem solution. In problem representation, the problem solver builds a mental representation of the problem from the problem statement.
Translating and integrating are two subprocesses that have been identified by cognitive psychologists. Translating pertains to the mental representation of a portion of the problem. Integrating is compiling the knowledge together into a coherent structure. In problem solution, the problem solver creates a plan to solve the problem. Planning, executing, and monitoring are subprocesses in the problem solution phase. Planning consists of creating a solution plan, and executing is engaging in action to carry out the plan. Monitoring pertains to an awareness and control of cognitive processing.

First, the individual asks a series of questions that will help to clarify the problem statement. What do I have? What do I want or need? Next a plan is devised where the problem solver has an opportunity to redefine the goals of the problem. The problem solver is able to consider related problems that he or she can solve. Can I restate the goals of the problem? Are there any other problems that have emerged? How can I solve this new problem? Next, a plan is implemented, and finally the individual reflects back to look at the overall logic of the solution. Did the techniques that I used work? Is there anything that I could have done differently?

Creative individuals use a variety of problem-solving techniques in order to help them discover answers to problems. Problem-solving techniques let creative individuals see problems from various perspectives and consider a variety of solutions. New ideas are developed, questions are asked, problems are analyzed, boundaries are broken, and ideas are expanded to create a unique product. Guilford (cited in Sternberg & O'Hara, 1999, p. 252) identified a number of factors involved in creative problem solving including a sensitivity to recognize problems, fluency of a number of ideas, flexibility in approaches to solve problems, and originality or unusualness of the idea.

The CPS (Creative Problem Solving) model developed by Treffinger et al. (1994) established that problem solving involves both creative thinking known as divergent thinking and critical thinking known as convergent thinking. Divergent and
convergent thinking techniques are used by effective problem solvers. Creative thinking helps us to think of alternative possibilities with different viewpoints in various ways. New or unusual possibilities help to elaborate on ideas using other alternatives. Critical thinking helps individuals to take many ideas and gather them together to move toward a single idea. Creative individuals make inferences and deductions by comparing their ideas, categorizing and sequencing options, improving and refining alternatives, and making effective judgements and decisions.

Creative thinking tasks such as “brainstorming” allow individuals to defer judgement and search for new and unique possibilities. Ideas flow without any criticism or praise. This method of thinking allows individuals to strive for many options and alternatives. All options are accepted even if some ideas are wild. In brainstorming sessions, the individual does not worry whether the ideas are suitable to others. The aim is for uniqueness or originality through being playful. Wild options can lead to new possibilities and alternatives. One idea leads into another as new combinations connect and create new ideas. Akande (1997) says that all group members think of multiple solutions to problems. Members of the group are encouraged to suggest innovative ideas and solutions to the problem. All ideas are studied because any idea or suggestion could lead to alternative solutions that might otherwise not be considered.

Critical thinking allows individuals to practice affirmative judgement by considering the positives and negatives of a problem. Here individuals emphasize the need to screen, choose, and support the choices that were made. Making choices and decisions is an effective critical thinking strategy. Critical thinkers think about the criteria that influence decisions. Effective critical thinkers consider both novelty and appropriateness, and they are focused on the ultimate goal when making their final decisions.

Akande (1997) reports that using the traditional scientific method can help us to
see things differently and provide a general framework for problem solving and creativity. In this creative process, individuals are defining the data, finding the solution, and testing the solution. The input-output method is used to study process-related problems. When using this method, individuals observe the input and the output of the process, then consider all of the steps that were taken to reach the solution. Direct association helps individuals to see things distinctively by using printed information to assist in generating ideas and thinking about possible solutions. Free association is a technique used to link words that are close to a function of that particular problem. Forced association is a creative thinking technique that looks at the relationship between objects that can lead to a solution. A word is chosen and properties and associations are forced to fit into the solution of the problem.

Analogies are used as a technique to make new observations by seeing one object as something else. New ideas and alternatives are identified by a group of people for discussion. Creating a picture instead of words is another way of finding the solution of a problem. Drawing pictures helps to develop an alternative side of the problem that was hard to express through words. The Gordon technique, which is similar to brainstorming, is an approach used to solve problems. The group leader is the only individual who knows the problem that is being considered and provides hints to the group to prompt a discussion (Akande, 1997).

Akande (1997) claims that value analysis is used to test the true value that each part contributes to a product. Each part is reviewed by considering what it is and does, what it costs, possible substitutes, and the cost of the substitutes. The Delphi technique is used to improve group decision making. Groups of people do not need to meet face to face when using this method. Group members gather judgements from the experts' decisions and develop forecasts. The checklist is a technique that develops idea clues by comparing a list of items with the problem. This method stimulates ideas by an
association to something.

Creative problem solvers try using various techniques that help them expand or narrow down their focus to certain problems. Nickerson (1999) claims that problem solvers sometimes break down complex problems into a sequence of simpler subproblems. They solve the problems by combining the solutions from the subproblems together. Different researchers have reported on various strategies for problem solving, but none have designated one technique as sufficient by itself to assist in the problem-solving process (Sternberg, 1994).

**Communicating Information**

Creative people have a desire to communicate a new idea or product. Individuals create because they want to express their ideas in new ways. Creative individuals want other people to interpret and create meaning for their idea or product. Others want to satisfy the needs of a group of people or to attain social acceptance. Some people want to create a new idea that is innovative or cutting edge. Starko (2001, p. 13) claims “individuals create works of art or literature because they have something to communicate…. They want the audience to make meaning in new ways or share a vision of the world.”

During the creative process, the individual receives feedback from outside sources that could influence the final product. There is a need to convince others within the domain that one has created a unique product and has made a creative contribution to society. Sternberg (1999) states:

Finally, the ability to convince the field about the virtue of the novelty one has produced is an important aspect of personal creativity. The opportunities that one has to get access to the field, the network of contacts, the personality traits that make it possible for one to be taken seriously, the ability to express oneself in
such a way as to be understood, are all part of the individual traits that make it easier for someone to make a creative contribution. (p. 327)

Artists' and inventors' work is examined, performed, exhibited, and evaluated by other people who are knowledgeable in the domain. Individuals must learn to be effective communicators if they are going to have creative impact in a domain. They must teach others about the value of their ideas. Rogers (1954) claimed that creativity must occur through a process of self-evaluation instead of the concern of being evaluated by others. This will develop in an environment that excludes external evaluation but includes the presence of freedom. He argues that people need freedom in order to achieve playful forms of thought that produce creative insights (Sternberg, 1999).

Intrinsic Motivation

Intrinsically motivated individuals are driven to create because they love their work. They love to see the development of their ideas from the concept through to the final product. However, individuals who create because of external motivation usually create because there is some type of reward. Researchers such as Amabile, Crutchfield, and Golann (cited in Sternberg & Lubart, 1999, p. 8) believe that intrinsic motivation enhances an individual's creativity. According to Runco and Sakamoto (1999), intrinsic motivation has been recognized as a disposition in studies of the creative personality. Research shows that intrinsic motivation is tied to the creative process and the creative individual. Amabile (1987) explains that most people are creative when they are motivated by a passionate interest in their work. This is called intrinsic motivation. "It is the motivation to work or create something primarily for its own sake, because it is enjoyable, satisfying, challenging, and captivating" (p. 224).

Sternberg (1999, p. 298) reports that creative production requires a high level of motivation. The novelist, John Irving, spends up to 12 hours per day for several
consecutive days writing his books. He was asked what drove him to work so hard and he replied, "The unspoken factor is love. The reason I work so hard at my writing is that it's not work for me." Harrington (1999, p. 327) stated, "People are motivated to engage in creative activities due to a wide range of pleasures and satisfactions." Motivation, culture, and timing have influenced individuals to make creative contributions to the world (Starko, 2001).

Amabile (1983) conducted and reviewed studies that suggested the importance of intrinsic motivation to creativity. Creative individuals are more likely to succeed and respond creatively if the reward is intrinsic instead of extrinsic. Research also shows that extrinsic rewards undermine intrinsic motivation. Intrinsic motivation along with the motivation to excel are important in creative development. Success comes to those who are rewarded intrinsically and those who work hard to achieve a goal (Sternberg & Lubart, 1995).

Runco and Chand (cited in Collins & Amabile, p. 300) found intrinsic motivation to be a critical component in the model and process of creativity. They found the role of motivation to be secondary to cognitive processes. Research has found that creative individuals are intrinsically motivated if they have challenging tasks. Amabile (1987, p. 224) said "intrinsic motivation is conducive to creativity and extrinsic motivation is detrimental.

Csikszentmihalyi (1990) described the outcome of seeking challenges that match an individuals' skills as the "flow" experience. During the "flow" experience, individuals use their skills to adapt to challenging conditions. They are able to be completely immersed in the activity because the goal is clear and there is immediate feedback. The task is their focus; therefore they feel as though they are in total control during the activity. Time does not seem to pass the way it usually does, and the individual loses an awareness of self. Csikszentmihalyi states:
Concentration is so intense that there is no attention left over to think about anything irrelevant, or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult, or dangerous. (p. 71)

Cropley (1999, p. 635) suggests motivational prerequisites for creativity, which include curiosity, willingness to take risks, tolerance for ambiguity, dedication, stamina, and a fascination for the task. The most important prerequisites are dedication and tolerance for ambiguity. Tolerance for ambiguity includes a willingness to see anything that can be combined with something else. Creative individuals have a fascination or obsession for the task. They are willing to overcome any physical and mental challenges that they face. Intrinsic motivation is stronger when the individual is fascinated with the task and feels a sense of invincibility.

Bloomberg (1973) states:

The condition of intrinsic motivation would seem to be one in which the creative task appears almost to take on a purposive character and direction of its own. Many creators have described experiences in which a creative idea has seemed to grow and develop in an autonomous fashion, seemingly without deliberate direction of the person himself: the poem "writes itself," the events in the novel "flow spontaneously" from what has gone before. The most characteristic thing about these descriptions is that the self seems to recede in importance, to play no essential role in the process. This throwing of oneself wholly into the task, of becoming immersed and lost in the task, seems to be one of the hallmarks of the creative process. (p. 71)
Theories and Processes of Creativity

Researchers have created theories that show stages of the creative process. Isaksen (1987) found that much of the emphasis surrounding the creative process involves teaching explicit methods and techniques in order to solve problems and think more effectively. Starko outlines theories of the creative process from Dewey, Wallas, Guilford, Rogers, Torrance, Parnes, and Osborn (cited in Starko, 2001, pp. 25-27, 48-49). Csikszentmihalyi's (1996) theory of the creative process is also important.

Dewey’s Theory

Dewey’s (cited in Starko, 2001, pp. 25-27) theory of problem solving included five main steps. First, the individual notices that a difficulty is felt. Second, the difficulty is located and defined. Third, possible solutions are considered to solve the problem. Fourth, consequences of these solutions are weighed. Finally, one of the solutions is accepted.

Wallas’s Theory

Wallas (cited in Starko, 2001, pp. 25-27) developed a theory of creativity that includes four components. First, the preparation stage occurs, where the individual gathers information and thinks about the problem. The incubation stage is the second stage, where the individual continues with other activities while the mind considers the problem. The illumination stage is the third stage, where ideas fit together and the solution is clear. The fourth stage is the verification stage. At this point, the solution is checked for practicality, effectiveness, and appropriateness. The solution may be elaborated or fine-tuned at this stage.
**Guilford's Theory**

Guilford's Structure of the Intellect (SOI) theory (cited in Starko, 2001, pp. 48-49) includes 180 components. Content, product, and operations are combined to form separate cells of a cube, which are associated with particular intellectual abilities. Visual, auditory, symbolic, semantic, and behavioral components are categories of content. Units, classes, relations, systems, transformations, and implications are examples of products. Evaluation, convergent production, divergent production, memory retention, memory recording, and cognition are operations. This model of intelligence is different than previous theories because it includes divergent thinking.

**Rogers's Theory**

Rogers's (1962) approach viewed creativity as a product of healthy human growth. Rogers viewed creativity as the emergence of novel products through the interaction of an individual and the environment. Rogers identified three characteristics associated with creativity that allow interaction to occur. The first characteristic is openness to experience. Rogers believed that creative individuals are free of psychological defenses that would keep them from experiencing their environments. Internal locus of evaluation, the second characteristic in Rogers's model, is the reliance on one's own judgement when gauging creative products. The third characteristic is the ability to toy with elements and concepts. Rogers believed that creative individuals need to be able to play with ideas, to imagine impossible combinations, and to generate wild hypotheses (Starko, 2001).

**Torrance's Theory**

Torrance (1988) developed a four-stage process theory of creativity as a basis for research. The first step included sensing problems or difficulties. Making guesses or hypotheses about problems is included in the second stage. The third stage involved
evaluating the hypotheses and possibly revising them. Communicating the results of the product or idea is required in the fourth stage. This theory is different than Dewey's and Wallas's theories in the final stage because it involves doing something with the idea. Communicating the final product or idea is the final step in Torrance's theory, which is missing from both Dewey's and Wallas's theories of problem solving.

**Parnes and Osborn's Theory**

Parnes and Osborn (cited in Starko, 2001, pp. 27-32) were influenced by Torrance in the creation of their theory of problem solving. The Parnes-Osborn theory of Creative Problem Solving (CPS) was developed over a period of 20 years. It was designed to describe and explain the creative process and to allow individuals to use the theory effectively. Mess-finding, data-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding are processes that were designated for finding the ideas needed at each state of creativity. In the early 1990s, this theory emerged into three general components: understanding the problem, generating ideas, and planning for action (Starko, 2001).

**Csikszentmihalyi's Theory**

Csikszentmihalyi (1996) developed the systems theory of creativity. This theory included the domain, the field, and the individual. The domain consisted of a set of symbolic rules and procedures that are nested in culture or the symbolic knowledge shared by a particular society. The field included all individuals who act as gatekeepers to the domain. The individuals decide whether a new idea or product will be included in the domain. The final component of the systems theory is the individual who interacts with other individuals in the field. The interaction of the domain, field, and the individual cause creative events to take place. This is similar to Rogers's approach because there is
some interaction with the environment. Rogers and Csikszentmihalyi agree that there must be interaction with the environment for creative activities to occur. Individuals may experience different stages in their process due to the activity they have completed.

A Creative Environment

Researchers have conducted several studies attempting to understand perceptions of creative learning environments and creativity within individuals that encourage or discourage creative development. The studies suggest that what promotes or inhibits creativity for individuals may be different from one individual to the next. Ekvall and Täneberg-Andersson (cited in Isaksen & Dorval, 1993, p. 322) conducted studies and identified dimensions of the climate for innovation and creativity. Challenge, freedom, idea time, dynamism and liveliness, trust and openness, playfulness and humor, idea support, debate, and risk-taking characterize environments that are supportive of innovation and creativity. Conflict has a negative effect on creative learning environments.

Students should feel comfortable asking probing questions, revealing their curiosity, finding alternative solutions, combining new ideas, and brainstorming a number of solutions to problems. The curriculum and the environment of the classroom should allow students the freedom to be creative. Csikszentmihalyi (1996, p. 1) says, "It is easier to enhance creativity by changing conditions in the environment instead of trying to make people think more creatively." Instructors can teach students various techniques such as brainstorming, problem finding, and problem solving to enhance creative activities, but changing conditions in the environment also helps individuals feel creative.

Conditions within the environment of the classroom and society either encourage or discourage creative development. This is why creative individuals like to be in a specific room, school, or possibly a certain city. The environment and individuals can create a nurturing environment that welcomes other creative people. Edelson (1999, p. 6)
states, "The interaction with the environment in enhancing human creativity helps explain why creative individuals will gravitate to certain cities or institutions where they can find positive reinforcement from others who are working in the same domain."

Harrington (1999, p. 325) reports that very good environments are not necessary in order to promote creativity. Creative activities sometimes occur around difficult or hostile environments. However, if the environment is good, this increases the chances for creative development to happen. Environments that are perceived as good usually help to increase the chances that an individual will engage in creative activities and be successful. If the environment is supportive of creative development and innovative ideas, then creativity is likely to happen.

Environments that promote creativity allow creative individuals to take risks and to be independent thinkers. Opinions and views can be different from other viewpoints. New ideas and innovative work are embraced by all individuals in the environment. Creative individuals show their ideas even if those ideas are different from a group of people. A creative environment allows creative individuals to play. Play encourages the individuals to relax and have fun in their environment. Play also lets creative individual imagine or pretend when something is being created.

Educational environments that support creativity help students find problems, solve problems, and communicate their ideas in various ways. Students should be able to find problems and ask probing questions to facilitate their learning. Cole et al. (1999) conducted a study to investigate a supportive classroom environment for developing creativity. Environments that support and encourage independence, risk-taking, and intrinsic motivation are most conducive to creative development. Shaughnessy (cited in Cole et al., p. 278) recommend an educational environment that includes communication, consensus, consistency, clarity, coherence, consideration, community, cohesiveness, commitment, concern, care, and co-operation.
The characteristics of a creative environment are important considerations when studying or using creativity. They are important for my study because educators are able to create an environment that is conducive to creative development, and students are able to change their environment if they are not in an environment that fosters creativity.

**Teaching for Creativity**

Teaching for creativity allows teachers the opportunity to provide an environment that promotes creative development. Starko (2001) states:

Teaching for creativity entails creating a community of inquiry in the classroom, a place in which asking a good question is at least as important as answering one. Building this climate includes organizing curriculum around the processes of creativity, providing students with content and processes that allow them to investigate and communicate within disciplines, teaching general techniques that facilitate creative thinking across disciplines, and providing a classroom atmosphere that is supportive of creativity. (p. 20)

Students develop their creativity in the classroom by defining problems and asking questions. Students should share their opinions about problems with other individuals. Sternberg and Lubart (1995) found a teacher who was willing to show how to "teach for thinking." The teacher did not tell the students the problem that they would solve. They were asked to share something about human behavior. The teacher waited when there was silence then the students started to respond. Sternberg and Lubart (1995, p. 160) stated, "The students were asked to define problems rather than have the teacher do it for them." The children were intrinsically motivated to seek answers.

Educators should encourage different opinions and view points. Let students show their creative thinking abilities. Students should have the opportunity to be creative instead of the educators creating the activities. The main focus of the activity should
revolve around the students. Let students define the problem in their work. Cole et al., 1999) recommend that educators promote and encourage creative thinking, tolerate dissent, and encourage students' own judgements. There should be an emphasis to students that they are capable of being creative. Educators should serve as an incentive for creative thinking through brainstorming and modeling.

Edelson (1999) reports that educators are able to promote and support creativity in many ways. Educators can organize for innovation in the classroom. All innovative work should be supported. Educators can enhance students' motivation to create by praising all innovations. Intrinsic and extrinsic motivation can be encouraged. Educators can promote self-efficacy by presenting a supportive demeanor, omitting criticism, and creating opportunities for professional growth. Professional development will help staff develop expertise. Conferences are beneficial as a means of promoting professional development. Schools or businesses could assign some days as “creative days.” Flexible release-time might permit leave from work and allow time for innovative activities.

Time should be allowed for discussions about new or innovation ideas. A supportive and objective manner should be taken. Play at work would take on a new meaning by focusing on satisfaction that comes from being immersed in activities. Institutions could encourage employees and students to customize the work space and equipment with their individuality. Another procedure promoted by institutions would include a plan for accidents and the unplanned events that lead to creativity. Staff selection is important because creative individuals need to see things from different perspectives. Group interaction helps creative individuals work with complex problems and hear many different viewpoints.

Starko (2001) states:

Giving students opportunities to be creative requires allowing them to find and solve problems and communicate ideas in novel and appropriate ways. Learning
takes place best when learners are involved in setting and meeting goals and tying information to their experiences in unique ways. Students develop expertise by being immersed in problems of a discipline. Creativity aside, we know that solving problems, tying information to personal and original ideas, and communicating results all help students learn. How much better is it, then, to find and solve problems in new ways that facilitate original ideas and to give students tools to communicate novel thinking. (p. 16)

**Fostering Creativity**

The need to foster creativity in the classroom has been an ongoing issue in education for many years. Cropley (1999, p. 630) remarks that this goal first caused controversy and opposition. Some individuals thought that creativity was “mysterious and unknowable”; therefore people were not capable of fostering creativity at all. Another argument said that creativity is found in only a few individuals. An elite group of students would be created if educators fostered creativity. There was also fear that fostering creativity would create students who would become victims of creativity fanaticism.

Fostering creativity in the classroom lets educators prepare students for the future. Educators can foster creativity by teaching students the necessary skills that will make them effective planners, decision makers, and leaders. Creative development and behaviors should be part of the curriculum. Assignments should encourage innovative idea discovery, experimentation, and independent learning. Assignments should be created with the student in mind. Starko (2001, p. 19) remarks, “Structuring education around the goals of creativity involves shifting our visions of teachers and learners. Learning activities that are designed to foster creativity cast students in the role of problem solvers and communicators rather than observers of knowledge.”

There are many individuals that affect an individual’s creative development.
Parents, educators, group leaders, managers, and coworkers can foster creativity by encouraging individuals to be creative, providing a safe nurturing environment, encouraging risk-taking, asking students to find problems as well as solve them, emphasizing divergent and convergent thinking strategies, and allowing freedom for choice. Ripple (1999) states:

Whether we are parents, teachers, work-group leaders, or organizational managers, if we are interested in promoting creativity in our children, students, workers, or colleagues, the focus of our efforts is best directed at cognitive abilities, attitudes, interests, and motivating environments. Historically, emphasis has been placed on cognitive ability variables. However, recent focus has shifted to the affective domain, working on attitudes, interests, and motivational factors. (p. 633)

Cropley (1999, p. 634) points out that educators can promote the cognitive side of creativity in their students. Students should possess general knowledge as well as knowledge in one or more special fields. An active imagination, ability to find and create problems, skill at seeing logical connections and remote associations are cognitive aspects that educators can promote in the classroom. Students should be able to find numerous ways to solve problems, show a preference for accommodating, be willing to self-evaluate their work, and acquire the ability to communicate about their product to other people.

Couger (1995) says that there are other factors that can influence creative development and the environment. Trust, positive stress, idea trapping, reflection time, and leadership strategies are important factors affecting the atmosphere for creativity. Trust is broken into three components. Skepticism, caution, and confidence must be acquired before trust is completely given to an individual. Positive stress can be associated with creativity when the stress allows the individual to use tasks and abilities
related to creativity, when the stress is legitimate, and individuals can share all aspects of their success.

In an idea trap, individuals take ideas from anywhere in the environment. Idea traps can be arranged as sessions where individuals use any tools and strategies for creativity. Time for reflection allows creative individuals time to think and contemplate problems. Individuals can do this alone or with a group of people. Leadership strategies include story telling, innovation meetings, and the "try it now" viewpoint, which all foster innovation and creativity. These strategies inform and inspire other individuals to be creative alone or as part of a team.

Students choose a topic to learn about because they have an interest in this particular topic. When students love what they are doing, there are better chances for success. The freedom to choose something creates an incentive and fosters creativity. Sternberg (1999) reports:

The best way to help people maximize their creative potential is to allow them to do something they love (Amabile, 1996; Runco & Chand, 1995; Torrance, 1995). The freedom to choose what to work on allows individuals to seek out questions that they are highly intrinsically motivated to pursue. This high level of intrinsic interest will lay the groundwork for creative achievement. Teachers may incorporate this approach into the classroom by allowing students to choose their own topics for individual or group projects. (p. 305)

**Barriers to Creativity**

Davis (1999, p. 166) maintains that there are five types of barriers associated with creativity. The barriers include learning and habit, rules and traditions, perceptual barriers, cultural barriers, and emotional barriers. It is useful to know what the barriers are and how they block creative thoughts and abilities in individuals. Learning and habit
barriers are “correct” responses, routines, and patterns of behavior that individuals learn from other individuals. It is hard to break away from old routines and create new ideas. Rules and tradition barriers come from social groups, family, education, corporate, national, and international groups. These groups function well with rules, regulations, policies, and traditions. Rules, regulations, policies, and traditions often restrict, inhibit, or prohibit creative behavior.

Perceptual barriers are accumulated from a lifetime of learning. Perceiving things in familiar ways makes it difficult to break down the barriers to see things in new ways or to create new relationships and ideas. Thinking with perceptual barriers is the opposite of flexible and innovative thinking. Cultural barriers are social influences, expectations, and conformity pressures that are based on social and institutional norms. Individuals conform to the ways that other people expect them to behave. People who encounter cultural barriers lose individuality and creativity. Emotional barriers interfere with an individual’s thinking by causing the person to “freeze.” Some emotional barriers include anger, fear, anxiety, hate, and love. Barriers interfere with the creation of ideas, and some will block the adoption and implementation of ideas.

Barriers exist when a society is not ready or willing to embrace creativity. Creative development is less likely to happen when it is harder for society to see the value of creativity. It is harder for creative individuals to find support and communicate their new ideas. Csikszentmihalyi (1996, p. 9) maintains “that in cultures that are uniform and rigid, it takes a greater investment of attention to achieve new ways of thinking.” Creative individuals need to work harder than usual to achieve acceptance within in a society that is uniform and rigid. Therefore, individuals could see projects or works of art discontinued due to the barriers that exist.

Another barrier working against creative development is time. An individual needs time to develop an idea. Usually there is not enough time allowed for individuals to
be creative. Students are searching for the correct answers instead of searching for new problems or developing a number of solutions. Runco (1999) states:

Time is thus relevant to several cognitive and metacognitive processes that might be involved in some creative thinking. It is related to incubation and necessary for the remote associates that tend to provide original ideas. Time can be used strategically, in “let it happen” tactics, and it may be indicative of investments and intrinsic motivations of creative persons. It should be explicitly deemphasized when using tests of creative potential. (p. 663)

First, individuals usually make associations that are obvious and unoriginal. After a period of time, individuals make remote associations that are more original than the first choices.

Creative individuals will encounter internal and external blocks at different points of their careers. Learning how to manage the blocks benefits the creative individual. Parnes (1999, p. 467) claims that individuals overcome internal and external blocks to creativity by creating new associations. Individuals overcome the blocks by increasing the associative mechanisms from sources such as books, people, environments, and experiences. Another technique allows creative individuals complete freedom for “mental exploration.”

Review of the Literature on Fashion Design

Creativity in fashion design occurs throughout the development of an apparel collection. Problem finding, problem solving, and communicating about the product are components used in the development and presentation of the collection. The designer finds inspiration for the collection from fabrics, a trip overseas, colours, animals, or a story. At this stage, designers start to gather information from outside sources. Brown and Rice (2001) state:
Both designers and merchandisers must creatively focus on business goals and the wants and needs of the target market.... They take their inspiration from fabric, from the arts, from history, from current events, from people-watching, from suppliers and vendors, or from anywhere they can get a creative, marketable idea. (p. 79)

Research is essential in order to be a good designer. Gathering information helps the designer focus on the collection by seeing what other designers are doing and seeking information from sources such as trend and forecasting services. Styling trends, fabric and colour forecasts, market research, world events, customer profiles, inspiration, and industry suppliers help the designer expand an awareness. Frings (2002) states:

Designers surround themselves with photographs of ideas, fabric swatches, and anything else that will stimulate their creativity. They leave their studios to shop, visit museums, study nature, attend the theatre, or people-watch.... Awareness is the key to creativity. Designers must learn most of all to keep their eyes open, to develop their skills of observation, to absorb visual ideas, blend them, and translate them into clothes that their customers will like. (p. 84)

Colussy (2001) also supports the idea that research is an important element in creativity for the designer. First, designers create a customer profile. Designers gather their visions and inspirations, which enable them to develop innovative products for the customer. Designers look to the past to see what has been developed. Then they look to the future by searching trend and forecast information. Finally, designers create collections that look modern using new colours, fabrics, silhouettes, details, and notions. Rasband (1996) claims that the artistic approach to clothing selection and co-ordination encourages creativity because the designer can manipulate the artistic media through the elements of design, which include line, shape, colour, texture, and pattern.

Rosenau and Wilson (2001, p. 134) maintain "that the driving force behind
effective line development is creativity. This ability to visualize a concept that will
capture the essence of a consumer's buying urge almost a year in advance is not easily
quantifiable.” Designers gather trend and forecasting information and take some of the
information and discard the remainder. Designers have the ability to look ahead and
create a product that is unique and new. They create many ideation sketches, then narrow
down to the best in the group. Designers also need to have good communication skills
and a technical vocabulary (Kadolph & Langford, 1998).

Designers gather and discard information to create their collections. They seek
information from various sources to see new perspectives. Brannon (2000) points out that
designers use various techniques that help them compile the information together using
creative problem solving. They use analytical thinking skills that are based on facts and
reason. They use intuition, feeling, and insights to help them see how things merge
together. Designers also use divergent thinking to create many ideas and convergent
thinking skills to narrow down to one idea.

Fashion designers learn to work around limitations in the fashion business. Designers search for creative solutions to those limitations. They should think of
limitations as challenges instead of barriers. Limitations could include cost, supplies,
time, rules and restrictions, or the image of the target market. Johnson and Moore (2001)
expressed:

Creativity in the “real world” is as often a matter of finding creative solutions to
practical challenges as much as it is a matter of “expressing oneself.” The reality
of what you can and can't work with should not be viewed as a restriction but as a
“dare.” You need to see the “possible” rather than the “impossible.” The most
brilliant achievements are often a matter of making much out of very little. In
garments there are lots of technical limitations — in fabric, in sewing. There are
sociological limitations, too — in what “average” people will wear. (p. 7)
Designers may work on higher and lower priced garments. A company could have two collections that are at different price points; therefore the designers would search for different ways that they can produce garments at that particular price point. Problem-finding and problem-solving techniques help the designers to achieve their goals. Kadolph and Langford (1998) claim:

Designers need to be sure that their work meets the appropriate laws, regulations, and codes. Designers may need to be flexible enough to work at several quality levels and to work with knock-offs or less expensive copies of higher priced items. Most design work means problem solving and satisfying the company's target market while continuing to make a profit. (p. 377)

The point Kadolph and Langford make is that designers must follow rules and regulations when they create apparel collections. Designers need to be flexible enough to find creative ways in the development and production of their collections.

Researchers such as Gardner and Bloom (cited in Policastro & Gardner, 1999, p. 216) found that individuals need to be in a domain for extended periods of time in order to make any important breakthroughs. Time is needed for individuals to gain the knowledge and experience that is required for creativity to occur. Rosenau and Wilson (2001) express:

In fashion as in most creative endeavours, there are two elements that affect creativity—craft and art. In order to release the art, or that which affects the sense of beauty, it is critical to have mastered the craft, the skill in using the tools that create the art. In fashion, this involves drawing, pattern making, and garment construction techniques. (p. 135)

Mathis and Connor (1994) report that creativity has four definite stages. Preparation, incubation, illumination, and verification are stages in Wallas's theory of creativity (cited in Starko, 2001, pp. 25-27). In the preparation stage, individuals
gather images, ideas, data, or any materials that will help solve the problem. All of the data collected in the preparation stage is organized, and patterns are developed during the incubation stage. In the illumination stage, solutions are developed. New ideas and fresh insights are considered. The verification stage is where the creative individual applies the skills and knowledge that were mastered in the domain so that ideas are implemented.

Every individual has the capability to be creative whether it is problem finding, problem solving, or communicating ideas. Individuals will excel in different areas of creativity. Research shows that the environment plays a key role in the development of creative behavior (Cole et al., 1999; Csikszentmihalyi, 1996; Edelson, 1999; Harrington, 1999). Rosenau and Wilson (2001) are in agreement with other researchers about the supportive environment. They stated:

A critical role of merchandising in the line development process is to establish an effective, creative environment. This involves developing design spaces where all creative personnel can interact and share inspiration and ideas outside the bounds of corporate structures, confining offices, and rigid controls. Merchandisers must establish this environment of free expression but still maintain control of the line development process in order to meet deadlines and line plan objectives. (p. 168)

**Summary of Literature Reviewed**

In this chapter, I reviewed the literature and explored whether there was a creative process, creative moments, and a creative environment. A number of interesting concepts emerged from the review. There are many components that affect creative development. Creativity is more likely to occur if individuals are intrinsically motivated, skills are mastered in the domain, and there is interaction in the environment. All components work together to aid in the development of creative work.

Creative individuals experience a process as they proceed through various stages
of creativity. Using Wallas's theory (cited in Starko, 2001, pp.25-27), there is a preparation stage where information is gathered together. The incubation stage is where the individual continues with other activities while the mind considers the problem. The illumination stage is where the ideas and information are gathered together into patterns and the solution is clear. In the verification stage, the solution is checked for practicality, effectiveness, and appropriateness. Torrance (1988) included communicating the product as the final stage in the process of creativity. In this stage, the individual presents the new product to the domain for approval.

Creative individuals are curious, open to new experiences, independent in their thinking, flexible, intrinsically motivated, tolerant of ambiguity, willing to take risks, and persistent. Creative individuals have any combination of these dispositions. Intrinsic motivation is a very important quality that leads to creativity. Individuals are intrinsically motivated by a passionate interest in their work and when they are challenged by tasks. Concentration is very intense as the individual is completing the work.

Problem finding, problem solving, and communicating information are three aspects of creativity. Problem finding allows individuals to define the problem and find things that they would not have considered. New perspectives are introduced for the problem finder because they look at things from various angles. Problem solving allows individuals to use divergent and convergent thinking to discover answers to problems. These strategies are used to gain other perspectives and to narrow information to one goal. New or unusual possibilities are considered. Inferences and deductions are made by comparing ideas. Communicating ideas teaches others about the value of an individual's ideas. Creative individuals want others to find meaning in their ideas. Their goal is to convince others that their idea is unique and it has a purpose.

A creative environment encourages and supports innovative and creative development. In this kind of environment, individuals ask questions, reveal their
curiosity, search for alternative solutions, combine new ideas, and find a number of solutions to problems. Creative individuals are willing to take risks and be independent thinkers in a creative environment. Teaching for creativity lets students define problems, ask probing questions, and share their experiences. Educators can promote creativity by praising the smallest of innovations. Time should be allowed to develop new ideas and see those ideas mature.

Fostering creativity means educators will provide students with the necessary skills and provide encouragement for creative endeavours. Students' assignments should encourage innovative ideas, discovery, experimentation, and independent learning. Creativity is hindered when students look for one answer, follow the rules, or conform to social pressures, time pressures, and expectations. Barriers block creative thoughts and abilities. Barriers in the environment include learning and habits, rules and traditions, perceptual barriers, cultural barriers, and emotional barriers.

Chapter Three includes the methodology and procedures that were used in this study.
CHAPTER THREE: METHODOLOGY AND PROCEDURES

In Chapter Two, I reviewed the literature and investigated a number of components relevant to creativity. I examine the methodological approach, pilot study, data sources, and the selection of participants in this qualitative study in Chapter Three. I report the data analysis procedures, comparison of data sources, and methodological assumptions and limitations of the study. I discuss establishing credibility and ethical considerations as well.

Methodological Approach

I designed this study in an attempt to see if students could identify their moments of creativity and a creative process as they produced their apparel collections. I wanted to see if they could describe a creative environment by reporting what enhances or hinders creative development. Therefore, I determined that it was appropriate to work within a qualitative research tradition in order to best reveal a clear understanding of the participants' views. According to Merriam (1998), qualitative research allows the researcher to adapt to unforeseen events and change directions in pursuit of meaning. The investigator is the primary instrument for gathering and analyzing data in a qualitative study. Therefore, the investigator can respond to the situation by maximizing opportunities for collecting and providing meaningful data (p. 20).

Creswell (2002, p. 58) claims that qualitative research allows the researcher to focus on procedures of conducting research and is useful for exploring and understanding a phenomenon. Researchers can focus on procedures such as writing qualitative research questions, conducting interviews and observations, and analyzing the data when developing codes and themes. Researchers who conduct qualitative data collection procedures strive to be sensitive to participants and respect the dignity of each individual who volunteers as a participant for a research study.
Pilot Study

I had an opportunity in a class to conduct a pilot study interview. I obtained approval from Brock University's Ethics Board and contacted a graduate who had successfully completed the fashion design course (See Appendix A). I invited her to volunteer to be a participant in the pilot study. After the graduate was informed about the study, she agreed to participate. A series of detailed questions about creativity were developed prior to the interview. Some of the questions represented segments of the fashion design process while other questions related specifically to creativity.

The participant agreed to an interview time, then read and signed the consent form prior to the interview. The consent form stated the purpose of the research, the involvement of the participant, and informed the participant that all personal data would be kept confidential. The face-to-face personal interview was semi-structured, recorded, and was 45 minutes in length. The frequency of this interview was one session. I transcribed the interview and sent the transcription to the participant for her approval.

I gathered rich data from the transcribed interview, which was coded by segmenting and labelling the text. Finally, themes emerged from the coded text to form some major ideas about creativity. Seven themes that emerged were independence of judgement; flexibility and skill in decision making; ability to express something in different ways; desire to interrelate and make new combinations of objects, notes, numbers, colours, and words that satisfy needs or desires; ability to produce new ideas and fresh insights; ability to broaden your perspective; and problem solving.

I was interested to see if new themes emerged from new data or if the themes would remain the same. Therefore, I asked the participant to approve the inclusion of the themes in future research, conferences, or papers. The pilot study interview gave me the chance to modify or add new questions before the commencement of this research study. Themes developed from the pilot study were compared with all the data sources
used in this study.

Data Sources

Three methods of data collection were used in an attempt to compare the themes developed from each procedure. I obtained approval for modifications from Brock University's Ethics Board (See Appendix B). Then I obtained approval from Ryerson University's Ethics Board (See Appendix C). I solicited participation for this study by using a verbal script (See Appendix D and E). Personal reflection surveys, focus group interviews, and personal interviews were conducted to identify key themes from the data and to compare them against themes that were developed in the pilot study. The themes were compared to see if they were identical or if new themes had emerged.

The participants were interviewed to see if they could recognize a process to creativity, identify key moments when they were creative, and identify a creative environment. The participants agreed to a time for the interview and received the questions prior to the interview. Prior to the commencement of the interviews, the participants were asked to read and sign consent forms (See Appendix F, Appendix G, and Appendix H). The personal interviews and the focus group interviews were conducted in a meeting room where the participants attended school.

I used three methods of data collection to enhance rigor and trustworthiness in this qualitative study. Different types of data collection helped to support other data sources. The participants had the opportunity to contribute to the study using different data sources. Personal reflection surveys, focus group interviews, and personal interviews were used to apply this strategy. Creswell (2002) maintains that a study is more accurate when the information is not drawn from a single source (p. 280).

The personal reflection surveys, focus group interviews, and the personal interviews in this research study were semi-structured and meant to focus on creativity,
the design process, and a creative environment. Both the focus group and the personal interviews were flexible in nature so that rich data were gathered for the analysis. Fontana and Frey (2000) suggest that the interviewer should play a neutral role, never interjecting an opinion into a participant's answer. The interviewer must establish balanced rapport. Using this technique, the interviewer should appear casual and friendly on one hand, but directive and impersonal on the other hand (p. 650).

I informed the participants about the structure of the interview. Then I gave the participants an opportunity to ask questions regarding any procedures that would be encountered during the interview. Converse and Schuman (cited in Fontana & Frey, 2000, p. 650) found that the interviewer must perfect a technique called interested listening. This method rewards the respondent's participation but does not evaluate the responses. The questions on the personal reflection surveys, focus groups, and personal interviews were semi-structured so that I could hear the participants' voices well. I listened to the participants' answers and used probing questions to stimulate further discussions. The personal reflection surveys were available to the participants throughout the year. There were two focus group and six personal interviews in this research study.

**Personal Reflection Surveys**

Some participants' involvement in the study included personal reflection surveys regarding their experiences and opinions throughout the design process. The personal reflection surveys were meant to be submitted anonymously in a drop box in the classroom. Surveys were left by the drop box in the classroom; therefore, participants were able to have access to the survey forms at all times. Using this method of distribution and collection allowed those who wanted to participate to do so without feeling obligated. The personal reflection surveys were semi-structured and meant to focus on the participants' experiences and their ability when identifying moments of
creativity at different stages of fashion design.

Participants were asked to identify their thoughts and feelings as they proceeded through various segments of the fashion design process. They were asked to identify any moments when they felt creative. The questions on the personal reflection surveys included:

1. Identify your thoughts and feelings as you proceeded through the trends and forecasting, inspiration board, ideation sketches, and the design book. Identify any moments when you felt creative.

2. Identify your thoughts and feelings as you proceeded through the first patterns, test muslins, final garments, and the cost sheets. Identify any moments when you felt creative.

Focus Group Interviews

The focus group interviews were conducted after the participants completed their apparel collections. By this time, the participants had completed all stages of the fashion design process. I wanted to see if the participants experienced a creative process when they designed their collections and if they could identify a creative environment. I solicited the participants in this study by distributing a participation flyer (See Appendix D). The two focus group interviews were recorded and were 30 minutes in length. There were 4 participants in one group and 5 participants in the other focus group.

In the focus group interviews, the participants expressed their feelings about stages in a creative process. The participants were encouraged to add anything about creativity that was important to them. The focus group interviews were semi-structured and the questions included:

1. Describe an environment that promotes creativity.

2. Describe an environment that hinders creativity.
3. How are you creative?

4. Is there a process that you go through when you are creative? If yes, describe that process. If no, why?

5. Is there anything about the creative process that you wish to add that I haven't asked you?

The focus group interviews were conducted in a meeting room at the institution where the participants attended school. I obtained approval from the Director of the school to conduct the interviews at that location. The location was private and accommodated the participants in the focus group interviews. I arranged the interview schedules with the participants at a mutually agreed upon time. In the focus group interviews, I asked the participants to distribute the time for the responses equally among the participants. Although the questions were developed prior to the interviews, I gave the participants an opportunity during the interviews to incorporate any information that I had not considered.

The interviews were recorded so that I could focus completely on the participants and their responses. This gave me the opportunity to select comments or sentences from the participants' responses and to ask for clarification if it was needed. Participants were given copies of the transcribed focus group interviews for their approval. They were informed that they could add or modify information in the transcriptions. Member checking was a strategy used as a means of establishing trustworthiness in this study. Creswell (2002) says that member checking is a process where the researcher asks one or more participants from the study to check the accuracy of the data (p. 280). I asked the participants to check the data by reading the transcription. The participants were asked to validate the accuracy of the report. One of the participants made minor revisions to the transcription to clarify her point of view, and then she gave her approval. The other participants gave their approval for the transcription immediately.
**Personal Interviews**

The personal interviews were another means of collecting data. I solicited participants for the personal interviews by distributing a participation flyer (See Appendix E). The participants' involvement in the study included personal interviews regarding their experiences and opinions about creativity. The participants were asked to express their opinions about factors that nurture or are a barrier to creative development. The personal interviews were meant to be a detailed account of each participant's thoughts and feelings about creativity. The aim of the personal interviews was to understand if the participants experienced creative moments applied to fashion design.

Six participants were interviewed for 45 minutes for the personal interviews. They were asked a series of detailed questions about creativity, the creative process, and asked to describe creative moments in their structured class assignments. Questions in the personal interviews included:

1. Why did you take the Fashion Design course: Design Critique?
2. How do you think that fashion design students express their creativity?
3. Do you feel a need to be creative?
4. When do you feel that you are most creative?
5. Is there a process that you go through when you are creative?
6. Are there any techniques that you use when you are being creative?
7. When do you feel that you are least creative?
8. As you proceeded through each of the fashion design stages, identify any moments where you felt creative?
   A. Inspiration board
   B. Fashion trends and forecasting
   C. 25 ideation sketches
   D. Final five ideation sketches
E. Design book: fashion illustrations, technical sketches, and summary line sheet

F. Test muslins with first patterns

G. Final garments with cost sheets

H. Final patterns

9. Is there anything about the creative process that you wish to add that I haven't asked you?

The personal interviews were arranged at a mutually agreed upon time. The participants were encouraged to elaborate on questions that I proposed during the interviews. The personal interviews were conducted in the same meeting room as the focus group interviews. I conducted the interviews at that location since it was private. The personal interviews were recorded and transcribed. Participants were given copies of the transcribed personal interviews for their approval and asked to give written approval of the transcript. They were informed that they could add or modify information in the transcriptions. The participants gave their approval for the transcripts. Padgett (1998) says that member checking is one of the most important ways to bring trustworthiness to a qualitative study (p. 100).

Selection of Participants

The participants were a group of individuals who have common career goals. They attended a school for fashion design which provided the grounding for careers in the fashion industry. The participants could find themselves as designers, pattern drafters, pattern graders, illustrators, apparel technicians, or production managers in the fashion industry. In any case, the participants would be using creative problem-solving techniques that could make them successful in their careers. They could be leaders in all aspects of the fashion industry in Canadian and international markets.
The participants studied in a variety of design studio situations that included designing independently or as part of a team. The participants created design journals and inspiration boards throughout the 4 years at school. Participants documented their inspirations, colour selections, fabrics, and design concepts. They were further encouraged to enter design competitions to experience creative outlets beyond the school. The design criteria for each contest varied. One competition was to design a line of clothing for travellers in the future. Another competition was to design garments in which the inspiration was freedom. In any case, the participants were challenged by seeking solutions to the problems or design situations that prompted them to see their ideas in new ways.

The participants were fourth year undergraduate students who were designing their final apparel collections. The ages of the participants ranged from 21 to 30 years. The genders could not be represented equally because the majority of the students in the class were female. I did not consider gender as an important characteristic for the participants of this study. The participants represented a group of students who were interested in fashion design as a career choice. For the participants, the most important characteristic was their enrollment in a course called Fashion IV. Design problems arose that forced the participants to explore solutions by consulting peers and faculty. The participants experimented with solutions to the problems and used prior knowledge from other classes. New problems arose that prompted the participants to seek alternative solutions by finding new ways of combining ideas or incorporating new objects into their solutions.

Purposeful sampling was used to ensure that the participants had the required characteristics that were needed to successfully answer the interview questions for this study. The participants were chosen because they were enrolled in a design course that specifically included all segments of the fashion design process. The participants
experienced the design process as they developed their apparel collections. The participants communicated their experiences and understood the questions that I asked them during the interviews.

After I received approval from the schools' ethics boards, I invited the entire class of 46 students to participate in the study (See Appendix B and Appendix C). Since the personal reflection surveys were submitted anonymously in a box, I do not know if any of the participants were in my section of the design course. In the two focus group interviews, all of the participants were female. In the personal interviews, 1 participant was male and 5 participants were female. By the time the interviews were completed, the participants had completed all stages of the fashion design process from the inspiration board to the final garments. They had presented their apparel collections to an industry panel of judges and had exhibited their apparel collections in a fashion show. The participants in this study were recruited by using solicitation flyers (See Appendix D and Appendix E).

**Data Analysis Procedures**

All data sources were analyzed individually for emerging themes, then comparisons were made across all data sources. A general overview of the data analysis procedures is included below. This occurred as follows:

- The personal reflection surveys were compiled and coded. Themes were developed and all surveys were included in the analysis.
- In focus group interviews, the text was coded and themes emerged from the data.
- In the personal interviews, themes were developed using the same analytic strategy as the focus group interviews.
- In all data sources, the themes were compared with the themes from the pilot study interview.
Personal Reflection Surveys

Data analysis began when the personal reflection surveys were completed and submitted in a box that was located in the classroom. This technique was used so that the participants would remain anonymous. The data were compiled into a section of the binder. The survey sheets were numbered to make them easy to identify for the analysis of this study. All of the reflection surveys were included in the data analysis. There were 19 participants who responded to the surveys out of a class of 46 students. I examined the responses to check for inconsistencies in the data. I compared themes developed in the pilot study to the themes that emerged in the surveys.

Using the analytic strategy by Tesch and Creswell (cited in Creswell, 2002, pp.266-267), I read the data and placed ideas in the margins. I coded the quotes in the text that related to creativity. Code words were written in the margins of the paper. I grouped all of the coded text on a separate paper, and I developed themes from this list. The list was checked again to ensure that the code words were with the correct themes. The reflection surveys represented the participants' views regarding their moments of creativity.

Focus Group Interviews and Personal Interviews

The focus group interviews and the personal interviews were transcribed soon after the interviews were completed. This format was used so that my recollections of the interviews were current and clear. I transcribed all of the interviews using a transcribing machine and typed the data onto the computer. This gave me an opportunity to understand the data using one of Creswell's (2002) methods of analyzing the data.

The analytic strategy suggested by Tesch and Creswell (cited in Creswell, 2002, p. 266) recommended six steps to code data from an interview. In step one, I read through the whole transcript to get a sense of the material. Ideas were written in the margins of the
paper. In the second step, I reread the document and considered the underlying meaning of the transcribed interview. I placed boxes around a few selected words. Brackets were placed around segments of the text that related to creativity. In step three, text segments were identified and assigned code words that accurately described those words. I checked that brackets were placed around the text that identified with creativity.

In the fourth step, I developed code words from the entire text, then I compiled a list on a separate sheet of paper. The objective was to reduce the list into 30 code words that were compared for their similarity. In step five, I took the list and returned to the data to see whether new codes emerged. Codes were compared between the personal reflection surveys, the interviews, and the pilot study. Specific quotes or words were circled that supported the codes. In step six, the list of codes was reduced to 15 themes. Themes are similar codes grouped together that form a major idea. Key themes were developed that best described the code words.

Creswell (2002) claims that one should identify dialogue that provides support for the themes. I incorporated some of the participants' reflections about creativity from the interviews in the analysis of the data. The data were opened to a comparative analysis so as to identify common themes that emerged from all data collections and recordings. This type of approach allowed me to see if new themes developed from all three sources of data collection. A negative case analysis was used to establish whether there were parts that were missing. I identified any details that were omitted. This analysis means that I looked at the data from a devil's advocate point of view. The analysis of the interviews used a systemic coding approach and presented a discussion of ideas and findings from the interviews (p. 275). The code words and themes have been compiled in Table 3.
Table 3

**Coding Data into Themes: Creative Moments**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Transcript excerpts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to broaden your perspectives</td>
<td>Gathering</td>
<td>Seeking for information</td>
</tr>
<tr>
<td></td>
<td>Outside sources</td>
<td>Outside sources</td>
</tr>
<tr>
<td></td>
<td>Compiling</td>
<td>Compiling information</td>
</tr>
<tr>
<td></td>
<td>Criticism</td>
<td>Constructive criticism</td>
</tr>
<tr>
<td></td>
<td>Finding objects</td>
<td>Finding pictures</td>
</tr>
<tr>
<td>Ability to produce new ideas and fresh insights</td>
<td>Drawing</td>
<td>Drawing on ideas</td>
</tr>
<tr>
<td></td>
<td>Finding</td>
<td>Finding the theme</td>
</tr>
<tr>
<td></td>
<td>Creating</td>
<td>Creating the initial idea</td>
</tr>
<tr>
<td></td>
<td>New ideas</td>
<td>Creating something new</td>
</tr>
<tr>
<td>Desire to interrelate</td>
<td>Combining</td>
<td>Combining ideas together</td>
</tr>
<tr>
<td></td>
<td>Using materials</td>
<td>Nontraditional materials</td>
</tr>
<tr>
<td></td>
<td>Figuring out</td>
<td>How things worked together</td>
</tr>
<tr>
<td></td>
<td>Numbers</td>
<td>Creative with numbers</td>
</tr>
<tr>
<td></td>
<td>Pieced together</td>
<td>Pieced together the work</td>
</tr>
<tr>
<td></td>
<td>Visual component</td>
<td>Creative with a visual component</td>
</tr>
<tr>
<td>Ability to express something in different ways</td>
<td>Adding details</td>
<td>Finding and adding details</td>
</tr>
<tr>
<td></td>
<td>Inspirational</td>
<td>Inspirational</td>
</tr>
<tr>
<td></td>
<td>Stimulation</td>
<td>Visual Stimulation</td>
</tr>
<tr>
<td></td>
<td>Visualizing</td>
<td>Visualizing the collection</td>
</tr>
<tr>
<td></td>
<td>Reflecting</td>
<td>Reflecting</td>
</tr>
<tr>
<td>Themes</td>
<td>Codes</td>
<td>Transcript excerpts</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Independence of judgement</td>
<td>Freedom</td>
<td>Freedom making own choices</td>
</tr>
<tr>
<td></td>
<td>Ownership of ideas</td>
<td>In love with your ideas</td>
</tr>
<tr>
<td></td>
<td>Thinking</td>
<td>I was thinking</td>
</tr>
<tr>
<td></td>
<td>Doing it different</td>
<td>Different from everybody</td>
</tr>
<tr>
<td></td>
<td>Connecting</td>
<td>Making connections to the work</td>
</tr>
<tr>
<td></td>
<td>Changing</td>
<td>Changing directions while working</td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td>Changing and evolving</td>
</tr>
<tr>
<td>Flexibility and skill in decision making</td>
<td>Flexibility</td>
<td>Flexibility with a problem</td>
</tr>
<tr>
<td></td>
<td>Decisions</td>
<td>Making decisions</td>
</tr>
<tr>
<td></td>
<td>Options</td>
<td>Giving options and choices</td>
</tr>
<tr>
<td></td>
<td>Refining</td>
<td>Compiling items and refining</td>
</tr>
<tr>
<td></td>
<td>Modifying</td>
<td>Modifying the designs</td>
</tr>
<tr>
<td>Perseverance, drive and commitment to the task</td>
<td>Focusing</td>
<td>Focusing on the goal</td>
</tr>
<tr>
<td></td>
<td>Solutions</td>
<td>Came up with some solutions</td>
</tr>
<tr>
<td></td>
<td>Loving the task</td>
<td>I loved it and I cared about it</td>
</tr>
<tr>
<td></td>
<td>Challenging</td>
<td>It was challenging and fun</td>
</tr>
<tr>
<td></td>
<td>Process of creating</td>
<td>The process of creating the final product</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Creative solutions</td>
<td>Creative solutions</td>
</tr>
<tr>
<td></td>
<td>Problem solving</td>
<td>Problem solving</td>
</tr>
<tr>
<td></td>
<td>Techniques</td>
<td>Using techniques</td>
</tr>
<tr>
<td></td>
<td>Refining</td>
<td>Refining things</td>
</tr>
<tr>
<td>Themes</td>
<td>Codes</td>
<td>Transcript excerpts</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Outpouring of ideas</td>
<td>Outpouring</td>
<td>Creative bursts</td>
</tr>
<tr>
<td></td>
<td>Release</td>
<td>Turned a switch on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inside me</td>
</tr>
<tr>
<td></td>
<td>More ideas</td>
<td>I sketched and other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ideas came</td>
</tr>
<tr>
<td>Willingness to experiment</td>
<td>Experimenting</td>
<td>Dyeing and bleaching my denim</td>
</tr>
<tr>
<td></td>
<td>New techniques</td>
<td>I invented new techniques</td>
</tr>
<tr>
<td></td>
<td>Experimented</td>
<td>Experimented using different ideas</td>
</tr>
<tr>
<td></td>
<td>Experimentation</td>
<td>Doing experimentation</td>
</tr>
<tr>
<td></td>
<td>Experimenting</td>
<td>Experimenting using different techniques</td>
</tr>
<tr>
<td>Mistakes</td>
<td>Big mistakes</td>
<td>Mistakes are the creative portion</td>
</tr>
<tr>
<td></td>
<td>Mistakes</td>
<td>Mistakes are part of the game</td>
</tr>
<tr>
<td></td>
<td>Integrate mistakes</td>
<td>Mistakes in garments</td>
</tr>
<tr>
<td>Problem finding</td>
<td>Inspecting</td>
<td>Look how things go together</td>
</tr>
<tr>
<td></td>
<td>Finding the theme</td>
<td>I had to find the flow of the theme</td>
</tr>
<tr>
<td></td>
<td>Find problems</td>
<td>Find problems</td>
</tr>
<tr>
<td></td>
<td>Important</td>
<td>Problem finding is important</td>
</tr>
<tr>
<td>Themes</td>
<td>Codes</td>
<td>Transcript excerpts</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Communicating ideas</td>
<td>Convince someone</td>
<td>Convince someone how I would make a pattern</td>
</tr>
<tr>
<td></td>
<td>Communicating</td>
<td>Communicating an idea</td>
</tr>
<tr>
<td></td>
<td>Presenting</td>
<td>Presenting the final product</td>
</tr>
<tr>
<td>Convergent thinking</td>
<td>Narrow focus</td>
<td>Narrowing my focus</td>
</tr>
<tr>
<td></td>
<td>Eliminating</td>
<td>You pick up what is going to be the next cool thing</td>
</tr>
<tr>
<td></td>
<td>Combining ideas</td>
<td>Compiling information and ideas together</td>
</tr>
<tr>
<td></td>
<td>Being selective</td>
<td>I narrowed my vision down and was selective</td>
</tr>
<tr>
<td></td>
<td>Narrowing down</td>
<td>Narrowing down the sketches</td>
</tr>
<tr>
<td>Divergent thinking</td>
<td>Many ideas</td>
<td>Forcing out as many ideas and variations</td>
</tr>
<tr>
<td></td>
<td>Expressing ideas</td>
<td>Allowed me to express ideas</td>
</tr>
<tr>
<td></td>
<td>Get ideas together</td>
<td>Getting your ideas pulling the thoughts together</td>
</tr>
</tbody>
</table>
Comparison of Data Sources

Themes from the personal reflection surveys regarding creative moments were compared against themes from the personal interviews, focus groups, and the pilot study. I accomplished this by compiling the data into Table 4. The table allowed me to create a visual image of the information together. I wanted to see if new themes emerged in the personal reflection surveys, personal interviews, and the focus groups.

The participants in the personal interviews and focus groups were asked if they experienced a process when they were creative. I compared the response from each participant and assembled the data into Table 5. I wanted to see if all of the participants experienced a process and to see if they experienced similar steps in this process. Table 5 shows the processes of all participants in the personal interviews and the focus groups. The participants of the focus groups were asked about the environment that promotes or creates barriers to creativity. They were asked to describe this environment. In order to compare the focus groups, I compiled the themes into Table 6 and Table 7. I describe these themes from the data of creative moments, the environment, and the creative process in detail in Chapter Four.
Table 4

Comparison Table: Themes from Creative Moments

<table>
<thead>
<tr>
<th>Themes</th>
<th>Pilot study</th>
<th>Personal reflection surveys</th>
<th>Personal interviews</th>
<th>Focus groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence of judgement</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Flexibility and skill</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ability to express something in different ways</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Desire to interrelate:</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ability to make new combinations of objects,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>numbers, colours, and words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to produce new ideas and fresh insights</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ability to broaden your perspective</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Problem solving</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Perseverance, drive, and commitment to the task</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Outpouring of ideas</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Willingness to experiment</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Convergent thinking</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Divergent thinking</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Themes</td>
<td>Pilot study</td>
<td>Personal reflection surveys</td>
<td>Personal interviews</td>
<td>Focus groups</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------</td>
<td>-----------------------------</td>
<td>---------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Communicating ideas</td>
<td></td>
<td>√</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Mistakes</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Problem finding</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
### Table 5

**Comparison Table: Steps in the Creative Process**

<table>
<thead>
<tr>
<th>Personal interviews</th>
<th>Focus groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kate</strong></td>
<td></td>
</tr>
<tr>
<td>1. Getting inspiration</td>
<td>1. Brainstorming ideas</td>
</tr>
<tr>
<td>2. Writing down the idea</td>
<td>2. Combining ideas</td>
</tr>
<tr>
<td>3. Return to the idea later</td>
<td>3. Brainstorming new ideas</td>
</tr>
<tr>
<td>4. Expanding the idea</td>
<td>4. Eliminating and narrowing the focus</td>
</tr>
<tr>
<td>5. Finalizing the idea</td>
<td>5. Refining the details</td>
</tr>
<tr>
<td><strong>Eva</strong></td>
<td></td>
</tr>
<tr>
<td>1. Developing the idea or goal</td>
<td>Group 1: Lisa</td>
</tr>
<tr>
<td>2. Seeking outside sources and looking for inspiration</td>
<td>1. Creating a practical, functional idea</td>
</tr>
<tr>
<td>3. Brainstorming ideas</td>
<td>2. Problem solving</td>
</tr>
<tr>
<td>4. Finalizing the idea</td>
<td>3. Revising the idea</td>
</tr>
<tr>
<td>5. Narrowing down</td>
<td>Group 2: Mercedes</td>
</tr>
<tr>
<td>6. Refining ideas</td>
<td>1. Getting inspiration from shape and colour</td>
</tr>
<tr>
<td>7. Implementing</td>
<td>2. Translating ideas into sketches</td>
</tr>
<tr>
<td>8. Reflecting</td>
<td>3. Pulling ideas together using a theme</td>
</tr>
<tr>
<td><strong>Anna</strong></td>
<td></td>
</tr>
<tr>
<td>1. Developing an idea</td>
<td>4. Taking breaks from the ideas and sketches</td>
</tr>
<tr>
<td>2. Gathering information</td>
<td>5. Making possible changes</td>
</tr>
<tr>
<td>3. Organizing items</td>
<td></td>
</tr>
<tr>
<td>4. Refining the items</td>
<td></td>
</tr>
<tr>
<td>Personal interviews</td>
<td>Focus groups</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Tiberiu</td>
<td>Group 2: Evelyn</td>
</tr>
<tr>
<td>1. Getting inspiration</td>
<td>1. Conducting research</td>
</tr>
<tr>
<td>2. Projection of my vision</td>
<td>2. Thinking of a theme</td>
</tr>
<tr>
<td>3. Executing the idea</td>
<td>3. Finding new ideas</td>
</tr>
<tr>
<td>4. The final product: the message</td>
<td>4. Thinking of combinations</td>
</tr>
<tr>
<td>Maureen</td>
<td>Group 1: Nadine</td>
</tr>
<tr>
<td>1. Getting inspiration</td>
<td>1. Finding inspiration</td>
</tr>
<tr>
<td>2. Gathering information</td>
<td>2. Thinking about the idea</td>
</tr>
<tr>
<td>3. Refining</td>
<td>3. Sketching out the ideas</td>
</tr>
<tr>
<td>4. Implementing</td>
<td>4. Generating more ideas</td>
</tr>
<tr>
<td>Marie</td>
<td>5. Adding details</td>
</tr>
<tr>
<td>1. Building up using outside sources</td>
<td>6. Problem solving</td>
</tr>
<tr>
<td>2. Deciding to implement</td>
<td>7. Making adjustments</td>
</tr>
<tr>
<td>3. Refining</td>
<td>Group 1: Cassandra</td>
</tr>
<tr>
<td>4. Implementing the plan and testing out the product</td>
<td>1. Defining the idea</td>
</tr>
<tr>
<td>5. Creating the final product</td>
<td>2. Executing the idea</td>
</tr>
<tr>
<td></td>
<td>3. Narrowing down the idea</td>
</tr>
<tr>
<td>Focus groups</td>
<td>Focus groups</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Group 1: Claudia</td>
<td>Group 2: Josee</td>
</tr>
<tr>
<td>1. Searching for inspiration</td>
<td>1. Starting an idea</td>
</tr>
<tr>
<td>2. Collecting and compiling</td>
<td>2. Continuing with inspiration</td>
</tr>
<tr>
<td>3. Brainstorming ideas</td>
<td>3. Collecting sample materials, media, and drawings</td>
</tr>
<tr>
<td>4. Revision of the ideas</td>
<td></td>
</tr>
<tr>
<td>5. Creating the final product</td>
<td>4. Finalizing the ideal choices</td>
</tr>
<tr>
<td>5. Creating the idea using all the research</td>
<td></td>
</tr>
<tr>
<td>Group 2: Chanster</td>
<td></td>
</tr>
<tr>
<td>1. Visualizing the concept of the final product</td>
<td></td>
</tr>
<tr>
<td>2. Considering the details</td>
<td></td>
</tr>
<tr>
<td>3. New combination with a theme</td>
<td></td>
</tr>
<tr>
<td>4. New combinations with colours</td>
<td></td>
</tr>
<tr>
<td>5. Considering option and choices</td>
<td></td>
</tr>
<tr>
<td>6. Combining ideas</td>
<td></td>
</tr>
<tr>
<td>7. Asking questions</td>
<td></td>
</tr>
<tr>
<td>8. Finalizing the design</td>
<td></td>
</tr>
</tbody>
</table>
Table 6

Comparison Table: Themes from an Environment that Promote Creativity

<table>
<thead>
<tr>
<th>Themes</th>
<th>Code words from Focus Group 1</th>
<th>Code words from Focus Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmosphere</td>
<td>Visual stimulation</td>
<td>Spend time elsewhere</td>
</tr>
<tr>
<td></td>
<td>Fun and relaxing atmosphere</td>
<td>Needs visual stimulation from outside sources</td>
</tr>
<tr>
<td></td>
<td>Music</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical appearances</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resources and equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Different environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comfortable</td>
<td></td>
</tr>
<tr>
<td>Creative people</td>
<td>Collaborating with peers</td>
<td>Peers spark creativity</td>
</tr>
<tr>
<td></td>
<td>Use advice or input from others</td>
<td>Interrelate with others</td>
</tr>
<tr>
<td></td>
<td>People who critique your work</td>
<td>Instructor gave us advice</td>
</tr>
<tr>
<td></td>
<td>Creative people</td>
<td>Constructive criticism is important</td>
</tr>
<tr>
<td>Time to reflect</td>
<td>Looking back</td>
<td>Think about it</td>
</tr>
<tr>
<td></td>
<td>Go back and reason</td>
<td>Time to go out</td>
</tr>
<tr>
<td></td>
<td>Go back and look</td>
<td>Reflect</td>
</tr>
<tr>
<td></td>
<td>Reflection</td>
<td>Time to think</td>
</tr>
<tr>
<td></td>
<td>Evaluation like reflection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>days</td>
<td></td>
</tr>
<tr>
<td>Themes</td>
<td>Code words from Focus Group 1</td>
<td>Code words from Focus Group 2</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Student needs</td>
<td>Guidelines force creativity</td>
<td>Need a goal</td>
</tr>
<tr>
<td></td>
<td>Share ideas</td>
<td>Gives a direction</td>
</tr>
<tr>
<td></td>
<td>Feedback</td>
<td>Outside sources of inspiration</td>
</tr>
<tr>
<td></td>
<td>Don't think of it as work</td>
<td>Need deadlines</td>
</tr>
<tr>
<td></td>
<td>No pressure</td>
<td>Need pressure</td>
</tr>
<tr>
<td></td>
<td>Trust between peers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need time to be creative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spontaneous and fun</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need to love the course</td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>Open minded</td>
<td>Teachers who give direction</td>
</tr>
<tr>
<td></td>
<td>Encouraging</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interested in the students' work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Helping students who need help</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Critiquing students at the same time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher's presence in the classroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust the teacher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Making connections</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Passionate about the students</td>
<td></td>
</tr>
<tr>
<td>Assignments</td>
<td>Room for their ideas</td>
<td>Do what you want to do</td>
</tr>
<tr>
<td></td>
<td>Suggestions for work</td>
<td>Allowed to be free</td>
</tr>
<tr>
<td></td>
<td>Projects that are fun</td>
<td>Change directions</td>
</tr>
<tr>
<td></td>
<td>More marks for creativity</td>
<td>Things spark your interest</td>
</tr>
<tr>
<td></td>
<td>Explore</td>
<td>Figure out as you go</td>
</tr>
</tbody>
</table>
Table 7

*Comparison Table: Themes from an Environment that Are a Barrier to Creativity*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Code words from Focus Group 1</th>
<th>Code words from Focus Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules and guidelines</td>
<td>Limitations</td>
<td>Restrictions</td>
</tr>
<tr>
<td>Teachers</td>
<td>Teacher's teaching style</td>
<td>Looking for certain things</td>
</tr>
<tr>
<td></td>
<td>Students evaluations</td>
<td>in your work</td>
</tr>
<tr>
<td>The classroom</td>
<td>Formality of the classroom</td>
<td>The classroom</td>
</tr>
<tr>
<td>Deadlines and time</td>
<td>Deadlines and time</td>
<td>Deadlines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hindered by deadlines</td>
</tr>
<tr>
<td>Feedback</td>
<td>Critiques with other students</td>
<td>Classroom deadlines</td>
</tr>
<tr>
<td></td>
<td>Teacher negative feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of feedback from teachers</td>
<td></td>
</tr>
<tr>
<td>Other important issues</td>
<td>Financial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achieving high grades</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competing for marks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student's expectations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art is subjective</td>
<td></td>
</tr>
</tbody>
</table>
Methodological Assumptions and Limitations

This study was designed to assess students' identification of creative moments, a creative process, and a creative environment. The participants were recruited for this study because they experienced a course called Fashion IV Collection Development. Personal reflection surveys were created to find what the participants experienced in various segments of the design process and to identify moments of creativity within the assignments. Focus group interviews were organized to see if the participants could identify a creative process and a creative environment. In the personal interviews, participants were asked a series of detailed questions about creativity, the creative process, and their creative moments.

One limitation of the study existed because the participants had strict schedules for due dates of the assignments. If more time existed between the due dates, participants might have been more creative in their solutions. Due to the time restraint, the participants did not consider a multitude of creative solutions to the problems. The reader should also remember that if the participants had more time to work on their apparel collections and their responses to my questions, the responses could have been more detailed or different since the participants would have time to reflect on their responses.

Another limitation of the study existed because participants had lists of criteria that could stifle their creativity. The participants received assignment packages that clearly provided detailed instructions and criteria for each assignment. There were strict industry guidelines that they conformed to in order to be accepted into the fashion show. The participants presented five outfits to a panel of industry judges. The judges rated the participants' work according to a judging criteria sheet. There existed the potential fear of failure with strict deadlines to meet. In the critique sessions with the professors, the participants received constructive criticism on their sketches, design books, ideas, and their garments. This format for marking the assignments could have caused the
participants to feel restricted when producing the assignments.

Establishing Credibility

Padgett (1998) says that rigor refers to the degree to which a qualitative study's findings are authentic and its interpretations credible (p. 88). I used four strategies to establish rigor and credibility in this study. First, I used different data sources to establish rigor in this study. Three methods of data collection and recording were used in an attempt to establish credibility. I conducted personal reflection surveys, focus group interviews, and personal interviews in an attempt to collect rich, meaningful data. I compared the data to see if similar themes emerged from a pilot study interview, personal reflection surveys, focus groups, and personal interviews.

Second, I used a method called negative case analysis. This was a devil's advocate approach in the analysis in an attempt to see if there was anything missing. This analytic approach considered what was not said or done in the interviews, data collections, and the analysis of the data. Third, a member checking approach was used to check and validate the accuracy of the transcriptions from the interviews. The participants were asked for their validation of the accuracy of the report and their written approval of the transcript. The participants were told that they could modify the document if they felt that clarification was needed. According to Lincoln and Guba (1985, p. 314), member checks are the most crucial technique for establishing credibility in a study.

Fourth, an audit trail was compiled, since this strategy enhances reproducibility of the study and enhances rigour. The auditing components are the notes, personal reflection surveys, solicitation flyers, interview questions, literature, and data collections. The components of the audit trail are stored in a locked filing cabinet in my home. Lincoln and Guba (1985) state:

In our efforts to open the black box of qualitative research methods, we leave an
audit trail so that our findings may be confirmed by others. Leaving an audit trail means adopting a spirit of openness and documenting each step taken in data collection and analysis. (p. 101)

In Chapters Four and Five, the final findings will be compared with the literature.

**Ethical Considerations**

A verbal script and flyers were used to solicit and recruit participants in order to provide data for this thesis. Invitations were extended to the students to participate in reflection surveys, focus group interviews, and personal interviews. I informed the students that the study was designed to assess students' identification of creative moments. The purpose of this study was to satisfy my interest in creativity. The students were informed that their participation would be voluntary and that they could withdraw from the study at any time without penalty. The students read the consent forms so they would have an understanding of the study and their participation within the study.

I discussed any potential risks, potential benefits, confidentiality, my phone number to call for questions, and the time commitment for the participants in the study. There were no known risks that were associated with the study. There were no known or anticipated direct benefits to the participants of this study. Participants who were in the focus group interviews were told to respect the confidentiality of other participants in that group. After the consent forms were signed, I left the personal reflection surveys and a box in the classroom. I informed the potential participants that I was flexible with the collection date of the surveys in the box.

One potential problem from the recruitment process existed since I was in a position of power over some of the participants in this study. Since there were two professors teaching in this course, I offered to interview participants who were from the other professor's section so that the position of power was eliminated. Students in my
section could participate in the personal reflection surveys since they were submitted anonymously in a box in the classroom. Consent forms were created specifically for this group of people (See Appendix H).

Three informed consent forms were created for this research project. All consent forms stated the purpose of the research, the involvement of the participant, and confidentiality for the participants. An Informed Consent Form was created for the reflection surveys and a focus group interview. There was an Informed Consent Form for the personal interview as well. In order to further enhance ethical considerations, Informed Consent Forms were created for participants who were students in my section of the course who wanted to participate in the personal reflection surveys.

There were 34 students out of a class of 46 who volunteered to participate in this study. The class was divided into two sections because there were two professors who were guiding the students and critiquing the students' work. Some participants completed the personal reflection surveys or attended a focus group interview. Others were included in the personal interviews. Participants of the personal reflection surveys volunteered to submit the forms anonymously. After reading the solicitation flyer, some students volunteered to be participants in either the personal interviews or the focus group. The opportunity allowed me to select participants from a large pool of applicants. Therefore, if any participants could not continue for any reason, other participants would be recruited for the study. No participants terminated their participation in this study.

**Summary of the Chapter**

This chapter set out to establish the purpose of the research, which was to explore if students could identify their creative moments within structured class assignments in a design course. Rich data and themes were taken from a pilot study interview prior to data collection for the personal reflection surveys, focus group interviews, and the personal
interviews. The personal reflection surveys were meant to focus on identifying moments of creativity at different stages of design. The focus group interviews were conducted to see if participants experienced a process as they created their apparel collections. The personal interviews were meant to be a detailed account of a participant's thoughts and feelings about creativity. This qualitative study used semi-structured interviews so that the collected data consisted of participants' rich experiential accounts.

The reader should remember that one limitation that existed in the study was time. Time restraints gave the participants a short period of time to work on their assignments and less time to respond to the personal reflection surveys. The participants had little time available to generate a number of solutions to the problems in their assignments. However, when creating apparel collections, ideation sketches are made for the collection by generating a large number of ideas. Designers selected the best designs that suited their collection. Creative solutions were built into the assignment criteria of the design course. A second limitation was the long list of assignment criteria that could stifle creativity. The limitations are presented here and are addressed in Chapter Four in the data analysis.
CHAPTER FOUR: RESEARCH FINDINGS

Overview

I set out to explore the perceptions and experiences of students in a fashion design course. I intended to investigate whether students could identify their moments of creativity, a creative process, and a creative environment. The participants were asked a series of questions related to creativity and fashion design. There were a maximum of 34 individuals in a class of 46 who took part in this research study. In this course, the class was divided into two sections with two professors who critiqued the students' work. There were 19 individuals who participated in the personal reflection surveys (RS 1-19), 9 individuals participated in the focus group interviews (FG-name), and 6 individuals in the personal interviews (PI-name). Since the personal reflection surveys were submitted anonymously, I do not know whether the same participants took part in the surveys and an interview.

Chapter Four presents the findings that emerged from the data in this study. This chapter includes the emerging themes from the personal reflection surveys and the interviews. I discuss the themes from creative moments, the creative process, and a creative environment. Next, a comparison of emerging themes from creative moments, the creative process, and a creative environment in this study are compared against each other and against themes from a pilot study. Then, I include a summary of the findings.

Creative Moments

The participants were asked to identify moments of creativity in the personal reflection surveys, personal interviews, and the focus groups. The literature reviewed regarding creative moments revealed that there are many ways that individuals can be creative. It was apparent from the literature review that individuals can be creative by problem finding, problem solving, being committed to the task, being curious, being open
to new experiences, being tolerant for ambiguity, being willing to take risks, valuing originality, being intuitive and having deep emotions, being internally occupied or having withdrawn behavior, and communicating information (Starko, 2001). The participants in the personal interviews were asked why they took the fashion design course. The participants reported that they took the course because they wanted to produce apparel collections, wanted to get feedback about their ideas, were interested in fashion, or they considered the course a challenge.

According to the participants, fashion design students express their creativity through their visual work, colours and fabrics, being unique individuals, how they dress, how they express themselves, and by the people with whom they associate. The participants said that they felt a need to be creative. They claimed that creativity was an output for stress, and the participants felt that being creative made them feel relaxed and gratified. Individuals enhance their personal creativity by making time for reflection and relaxation in their lives (Csikszentmihalyi, 1996).

Creativity gave the participants a purpose, and they felt that this purpose kept them alive. When the participants were creative, they felt fulfilled. The participants felt that creative individuals needed to express something and they wanted to be different from other individuals. Creativity was important because it satisfied their personal needs. Anna (PI) said that there was a need to be creative because of the requirements in the fashion industry. The participants were asked when they were most creative. They responded:

- I am most creative under pressure (PI-Kate).
- I am most creative when I am exhausted from work (PI-Tiberiu).
- In the ideation stage of any project or when I am coming up with ideas (PI-Eva).
- I am creative when there is no stress or pressure (PI-Maureen).
I am most creative when I have a goal (PI-Maureen).

I am most creative when I have freedom in my assignments (PI-Marie).

I am creative when I am reflecting (PI-Anna).

When I asked the participants whether they used any techniques when they were being creative, they responded with a multitude of answers. The participants said that they liked listening to music, seeing something visually stimulating, experimenting with different materials, playing around with things, changing their environments, making mistakes, writing down information, and mapping ideas as techniques to enhance their creativity. They felt that students should be allowed to make changes in their class assignments and projects. Searching for people who have the same ideas as themselves, asking peers or professors for help, and getting other people's opinions were strategies used when they wanted to interact with others to enhance their creativity. Reflecting, tying ideas together, thinking outside the box, working on the idea, creating a step-by-step analysis, and perfecting ideas were strategies that were used as well. Creative moments seem to occur when there is interaction within the environment (Edelson, 1999).

The participants felt least creative when they had no goals, objectives, or deadlines. Some participants said they were not creative when they were removing details from their designs, experiencing routine activities, working on technical assignments, and after completing the ideation stage of the design process. The participants felt that holding busy schedules, having too much work, having no time to create lots of ideas, and feeling under pressure were obstacles when they were trying to be creative. In the personal interviews, focus groups, and personal reflection surveys, the participants identified creative moments, which I developed into themes.

Some of the participants were emotional as they created their apparel collections. Some of them were fearful of missing the strict deadlines while other participants
expressed love for their work. Tiberiu said he was emotional when he created the design book:

The fashion illustrations, I think, were the most creative. The technical sketches, I don't find them very creative. I usually just listen to music and try to be in my own world and let the hand do the work. You know, I am somewhere else. The fashion illustrations totally. That's very creative. If I look at the technical sketches, I have no feelings. When I look at the fashion illustrations, the illustrations actually give me a feeling of fear and some of them love. When I express emotions I think that's when creativity took place. When I am sketching the drawing, it gives me emotions. (PI-Tiberiu, p. 5)

The participants who completed the personal reflection surveys submitted the forms in a box so that they would remain anonymous. Some of these participants commented about creativity, but they neglected to discuss their creative moments in the assignments. The participants decided not to answer the questions that I asked on the survey. Instead, some participants decided to give answers regarding creativity in general.

The themes that emerged from the data included independence of judgement, flexibility and skill in decision making, ability to express something in different ways, desire to interrelate, ability to produce new ideas and fresh insights, ability to broaden your perspective, problem solving, commitment to the task, outpouring of ideas, willingness to experiment, convergent thinking, communicating ideas, mistakes, problem finding, and divergent thinking. See Table 4 for a breakdown of the themes from each data source.

Although some of the participants who completed the personal reflection surveys did not comment specifically about their creativity as they completed specific assignments, they commented about their motivation behind creative moments or they
defined creativity. Intrinsic motivation drives individuals to be creative (Amabile, 1983).

Participant 10 commented:

Creativity is not forced from me. It's something that is triggered by an internal or external factor. It's a feeling of exhilaration which seems to occur behind my lungs. It has never occurred within any process but while my mind was somewhere else. It comes from behind and grabs me and says, “Stop, wait, and look at this. Develop this.”

Some of the themes that emerged from the pilot study, personal reflection surveys, personal interviews, and the focus groups are characteristics of an individual. The themes are also creative moments that the participants experienced as they proceeded through all stages of the fashion design process.

**Independence of Judgement**

The participants from this research study demonstrated an independence of judgement when they changed directions while working on their assignments or changed their original ideas. Individuals who are independent in judgement usually work well with novelty (Starko, 2001). Participant 4 from the personal reflection surveys demonstrated an independence of judgement by seeking information from new images and revising the theme to accommodate new ideas when creating the inspiration board.

Participant 4 stated:

Carelessly tearing out pages that may not contain perfect images for the theme that I first selected. It's close enough and it will have to do for now. I was seeking inspiration from new images and revising the theme to accommodate new ideas. Kate demonstrated an independence of judgement by making choices, changing directions while working, and experimenting using different techniques. Kate stated:

Test muslins were a great way of being creative because we didn't have a lot of
guidance from the teachers as to how to go about putting things together or the kind of techniques to use to sew. What kind of zipper to insert? What kind of finishing edges to use? That was kind of fun because that allowed us to actually put the decisions in our hands. During the muslin stage, I was the most creative because once I started with the fabric and manoeuvred things, the designs changed. Everything after that point changed. What I had put down in my design book was one thing and this was something that I knew might change because I knew myself. As soon as I started working with the fabric, I was creative because the fabric was really drapey and my designs changed. Everything changed because it was tangible, it was more hands on, and I could see it. The fact that I have options to change lets me be creative because I think that the design process should always be changing and evolving and becoming better. I think when you cement your ideas down 6 months before something is due, I don't really feel for myself that's the best circumstance. I feel that openness and change was better for me because I know that things evolve with me. An idea that may have started out a certain way with time, I feel that this changes and becomes modified for the better not for the worse. (PI-Kate, p. 6)

Kate said that she felt creative because her designs evolved and changed from the sketch to the final garment.

Evelyn revealed an independence of judgement when she changed directions and worked on her ideas as the work was in progress. Evelyn commented:

I think in the design crit, it was kind of hard in the beginning how we had to submit our ideas so early. I felt it was good because it gave us something to look towards, but at the same time I was stuck within that boundary. If I wanted to add new ideas, I was restricted. I did a lot of creative things as I went along working on things. I think that draping was more creative than sketching in a way.
When I was draping, I figured it out as I went along. (FG2-Evelyn, p. 4)

**Flexibility and Skill in Decision Making**

The participants from the personal reflection surveys demonstrated flexibility and skill in decision making by revising their themes to accommodate new ideas, asking questions, and experimenting. Creative individuals are remarkable for their ability to adapt to situations and deal with whatever is at hand so that they can reach their goals (Csikszentmihalyi, 1996). Participant 18 stated:

> When I was creative, I asked myself lots of questions. Has this been done before? How can it be better? How can I push myself further? I kept drawing until I got it all out. When I felt as though I'm forcing it to come out, I knew it was time to stop. It usually flows out naturally.

Pulling together ideas, using techniques and outside resources, and refining the ideas to arrive at solutions caused participants to experience creative moments. Eva said:

> I went back to the refining process where I had to go through and really refine the ideas and pull together what I thought would work together into one cohesive group. I ended up using techniques that I ended up not drawing.... I had a moment where I was going to use pieces of paper and I only used things that I had. I ended up using toilet paper and paper towel and different kinds of paper. I gathered things from different people and I used my resources in one place with different mediums like guoache and acrylics. I pasted everything onto black paper and acetate. I found the whole process really liberating from drawing. (PI-Eva, p. 7)

All of the participants in the personal interviews responded that they were creative when they created their design books. The participants from the personal interviews were creative because they had options and choices that they made, and they felt that creating the design book was fun. They refined their work and compiled this information into the
design book.

Tiberiu said he felt creative when he created the final patterns:

The final patterns. There was creativity in the final patterns because they have to be perfect. I think trying to make the patterns perfect.... It increased my creativity. It helped me be perfect. That's perfection. It a bit of a mathematical perfection because I had to calculate my patterns. Everything had to match perfectly to calculate the ease in the garments. I couldn't be somewhere with my thoughts. I had to be there, be creative, and be focused. (PI-Tiberiu, p. 7)

Tiberiu alluded to the fact that he had to be skilful by using mathematics to help him inspect the pattern for accuracy.

All of the participants in the personal interviews responded that they were creative when they produced their final garments. The participants felt creative when they used certain materials and techniques. Creative moments happened when they changed an idea and used problem-solving techniques. They said creating the final garments was challenging for them; therefore, they felt creative. Maureen said there were creative moments when creative solutions and flexibility helped to solve problems:

It depends, maybe there's two different kinds of creativity. One when you are creative and thinking of solutions and problem-solving creativity and one where you are being more artistic. I had my ideas and I put them down on paper. The final garments had some interesting creative solutions that I had to dye. It was fun. I feel more technical because I was more concerned about getting the topstitching straight. By then everything was already decided. Everything was predetermined, and now I was doing the part to make it happen.... The dyeing turned out the way I expected, but I didn't really have very firm expectations. I was going along with it. I wanted to go in this direction, so I had some problems. The colours were too similar. I had to dye again. I had little pink dots on stuff, so I
decided to use pink topstitching thread. I worked with the problem, and in the end I was happy with it. The problem took some getting used to. (PI-Maureen, p. 7)

Designers need to be flexible enough to find creative ways in the development and production of a collection because they must follow rules and regulations (Kadolph & Langford, 1998).

**Ability to Express Something in Different Ways**

In the personal reflection surveys, the participants demonstrated the ability to express something in different ways by using color in new ways. The artistic approach in the co-ordination of clothing encourages creativity because designers manipulate the artistic media through the elements of design, which include line, shape, colour, texture, and pattern (Rasband, 1996). Participant 19 stated:

- I felt really creative when I saw my final garments. I loved my color combinations because I used color differently than others would have used it. I put colors together that would not normally be together. The fit was great, and the reaction from others reassured me that I made something new and creative that was marketable in the real world. (RS-19, p. 3)

Tiberiu demonstrated the ability to express something in different ways by interpreting and combining ugliness and beauty. He stated:

- I think the whole process was creative. I tried to find creativity in ugliness. Ugliness and creativity are opposites. I tried to combine the two together and make it one, and out of ugliness came beauty. This gave the viewer the optical illusion that ugliness was actually beauty. It could be beauty if I saw it from different angles. I’ve been really creative throughout the whole process by getting the idea of what I wanted to do, scanning the pictures, and putting them together. I made a poster more than a collage. I was interested because I had
to find balance on the inspiration board. I had to find the flow of the theme. I had to make all the different images look like they went very well together even though some of the pictures were black and white. Some of them were colour, and I wanted the pictures to flow and to tell a story. It was really hard to pick up 50 pictures from 50 different places and place them all together onto one board.

(PI-Tiberiu, p. 4)

Tiberiu expressed that he liked individuals to interpret his work in different ways. Some individuals saw beauty and some individuals saw ugliness when they looked at the object.

**Desire to Interrelate**

The participants who completed the personal reflection surveys commented that they were creative as they created the final garments because they were making new combinations, creating something new, experimenting, and problem solving. Designers must learn to blend their ideas in order to create a product that their customers will like (Frings, 2002). The participants felt creative when they altered something, came up with solutions, visualized the final collection on the runway, and communicated their ideas. Planning and figuring out something also made them feel creative. Participant 11 stated:

I felt creative when I created the final garments. Especially on the finishing part where I did all the beading and embroidery. I felt that the sewing was just the silhouette of the garment and the beading helped pull my theme together... I love details so I thought of beautiful patterns or graphics that I might add on top of the garment to make it look unique and different. (RS-11, p. 1)

Participant 3 said that making new combinations with colours and fabrics was a creative experience:

Every fabric I chose sparked something different in me. Whether it was something wild and orange, crisp and navy, or calming baby blue, when put together they
worked for me. This took me back to my original inspiration rock music. Each song made you feel something different, whether it was crazy or relaxing. All of these songs are on my favourite album and they all worked together in some way. I guess I felt creative here as I made new combinations.

Only 1 participant from the personal reflection survey felt that the cost sheets were not creative. Two participants from the personal interviews said that the cost sheets were not creative. There were 2 participants who said the cost sheets were not creative but also stated that the sheets were creative because they were trying to use a computer program, combining information, and playing with numbers. The participant experienced a desire to interrelate by combining and playing with numbers. Another participant said the cost sheets were creative in a problem-solving way. The last participant said the cost sheets were creative because working with numbers was creative.

Anna demonstrated a desire to interrelate by making new combinations with numbers so that her garments were priced properly within the apparel collection:

I had different prices in my collection. There was a big range of my shirt prices with my pant prices. I found costing a little creative because the prices were astronomical and I had to play around with the numbers. I found that funny because, in all honesty, I would not pay 200 or 300 for a pair of pants. With the type of collection that I was doing, obviously I had to compromise. (PI-Anna, p. 7) Anna looked at her prices within the collection and found that one garment was priced too high or too low. She calculated the price of the garment again so that all prices suited the intended target market.

Marie felt creative when she was combining objects, ideas, and colours. She stated:

For the inspiration board, probably a week before, I'd already had an idea of what I wanted to do. This year I definitely had a idea what I wanted to do so I had
already been pulling out pictures and ideas and colours and things that I wanted to work with. (PI-Marie, p. 5)

One participant in focus group two expressed a desire to interrelate by combining techniques that helped her create different combinations. Evelyn stated:

I think being creative was finding new ways to do something that's been done. Combining new techniques. I think for me it was helpful to know many techniques, because the more ways that I knew how to do things, the different combinations I could create and the more creative I was. (FG2-Evelyn, p. 7)

**Ability to Produce New Ideas and Fresh Insights**

Creative individuals value originality, new ideas, opportunities, and being creative (Starko, 2001). Participants who completed the personal reflection surveys commented that they were creative when they produced their ideation sketches because they were finding and creating many new ideas. Participant 4 (RS-4) said that creativity happened as a result of finding new ideas while drawing and forcing out as many ideas and variations as possible of the same idea. Two participants from the surveys stated that they felt creative because they were expanding on their ideas. Participant 8 claimed:

I really felt the most creative when I was alone in public places like walking through the mall, and all of a sudden something hit me. I needed a piece of paper immediately to sketch my ideas. When I designed this collection, everything influenced me. Emotions, details, scents, and people. Looking through magazines was crying inspiration. I sketched for hours afterwards. At home when I had the time to myself, my mind would wander. Expanding and expanding on other ideas. Once my mind started on the designs, I felt as though I was on a roll. I just wanted to do it all and I couldn't stop the process. (RS-8, p. 1)

Some participants said they experienced creative moments because they created
something new, they used different tools, and their design books were different from everybody's in the class. Marie commented:

I think it was about pushing yourself to so something new. I wanted to push myself and learn something new and use that. I don't know how to explain that. I did something that I have never done before. I didn't use any of my drawings or my sketches. I wanted to use strictly photographs, so I played around with the layout more, and normally layout wouldn't do it for me. That was creative because it kept me thinking all of the time. I was always thinking. It wasn't doing the technical drawings or the actual illustrations. It was the layout and the writing in it more that I had to push myself to be creative with. (PI-Marie, p. 6)

Marie alluded to the fact that she felt creative because she was constantly thinking of new ways of looking at the layout of the design book.

Josee found that being inspired by the fabric and books helped her create and visualize the designs:

Personally in designing with fashion, I am always inspired by the fabric. I had to have my fabric. Otherwise my designs would end up not being what I visualized because I can't visualize a certain fabric if I can't find it. Then it's discouraging. I have my fabric first, then I know exactly what I want to do. Creativity for me was I needed to be inspired by something. To be by myself or in an environment where there's lots of different things happening. Lots of things to look at and colours, shapes, or anything like that to inspire me. (FG2-Josee, p. 8)

*Ability to Broaden Your Perspective*

The participants who completed the personal reflection surveys commented that they were creative when they used the trend and forecast information, because they gathered information and researched using outside sources. Designers surround
themselves with photographs, fabric swatches, and anything else that will stimulate their creativity. They leave their studios to shop, visit museums, study nature, attend the theatre, or people-watch to be inspired (Frings, 2002). Participant 19 said:

I looked at the trends and forecasting but I already had an idea of the direction I wanted to go. Looking at the trends helped to justify my ideas. I jotted down more ideas to add to the ones I already had. (RS-19)

The participants who completed the personal reflection surveys remarked that they were creative when they researched and gathered data by collecting photographs and pictures for their inspiration boards. They said that they were inspired by those images. Participant 2 (RS-2) said that color helped pull the theme and the inspiration board together. Participant 5 (RS-5) commented that visualizing ideas was a creative moment. Participant 4 (RS-4) identified a number of creative moments during the creation of the inspiration board:

1. I was carelessly tearing out pages that may not contain perfect images for the theme.
2. I was being very open minded.
3. I was seeking inspiration from new images and revising the theme to accommodate new ideas.

Participant 8 commented about creative moments during the creation of the inspiration board:

The inspiration board helped a lot. The visual material really got the juices going. Looking through magazines and really paying attention to the designs around me made my mind race. I was excited to see what other people were doing. It made me want to exceed them and build on already worked ideas. (RS-8, p. 1)

All of the participants in the personal interviews responded that they were creative when they created their inspiration boards. When the participants from the personal
interviews created their inspiration boards, they were creative when they gathered information that helped the ideas come together for the collection. Marie commented:

So that definitely was probably the most creative part of everything, was getting the ideas together. I didn't like it when things had to be precise. I liked to give the impression of what it was that I wanted to do so I had already ripped out a lot of pictures from before, and then I was just working on the layout. I didn't care as much about that. I liked to find pictures, and I found putting them together brought the idea together. I didn't really care as much about the layout as I did about the impact of the pictures. (PI-Marie, p. 5)

This was also evident in the personal reflection surveys. Participant 1 commented:

The pictures for my inspiration board were collected in the summer when I had time to go through thousands and thousands of magazines. I made several cassettes of "theme music" to listen to while I made collages and sketches.

(RS-1, p. 1)

There were 3 participants from the personal interviews who commented that they were creative when they gathered information from outside sources. Eva commented about using sources such as the internet, the library, and the reference library:

This portion I found very similar to the information gathering. Gathering up may not be the way I looked at fashion trends and forecasting. I didn't actually look at those books a lot of the times because I didn't find them relevant to how I thought. I ended up going to past and some present sources. I looked at all the ideas that other people had and I kind of amalgamated them into one idea. I showed how what I was doing was similar to what they were doing. So the creative process was knowing where to look for information from different sources such as the internet, the library, and the reference library. Knowing where to go and creatively taking other people's things and translating them into what you want to do. (PI-
Eva gathered information from the past and the present, which helped her create new ideas. She used three different sources until she found the information she wanted to use.

Josee found that books and magazines helped her to broaden her perspectives and visualize the designs:

I read a lot of magazines and spend a lot of time looking at books and reading up on things, so that's usually what triggered me when I had a project to do. I remembered, “Oh, I read that book once,” or I wrote things down. In the middle of the summer I had an idea for a design or a project and I wrote it down because one day, “Oh, what was that,” and I have it. (FG2-Josee, p. 8)

**Problem Solving**

Only 2 participants from the reflection surveys commented that the first patterns made them feel creative. I do not know how the other participants felt because they did not comment on the first patterns. The two participants who commented said that they were creative because they were interpreting a design from a sketch, then producing the pattern. They had to plan the pattern, which had to be accurate. They felt creative because this was the first time that they were working on this pattern. Creative moments also came when they were solving problems. Individuals are creative in their efforts to find and solve problems and to communicate their ideas (Starko, 2001). Participant 15 said:

As I proceeded through the first patterns I was over confident in my skills. Perhaps it was because of lack of time but I found that little things went wrong. Waistbands not being the right length. Things that, when I discovered them, I couldn't understand how I could have made the mistake. I found that creativity came when I had to draft things that I had never done before. Creativity in a problem solving way. I preferred to try and figure things on my own instead of
referring to a textbook. Maybe that's why I enjoyed pattern making. It's a way to problem solve and be creative. Most people would not see pattern making as creative.... Working through the muslin process, I could see where things went wrong again and I went through the pattern making creative problem solving process again. By doing this you really learned a lot. When I developed new techniques I retained that knowledge and used them if similar problems arose. (RS-15, p. 1)

The participants who completed the personal reflection surveys commented that they were creative when they assembled the test muslins. The participants felt that they were creative when they were accurate, found problems, invented new techniques, and when they assembled the muslins together. This was the first time that they saw their designs sewn and displayed on a mannequin. They felt creative when they were problem solving and improving the garments with feedback from their teachers and peers. Using various techniques helps designers compile information together using creative problem solving (Brannon, 2000).

Participant 17 stated:

The only moments, actually there are many, of creativity came with problem solving – the issue of making the muslin pattern work on the final garment and fabrics. The way that I fought through the issues was by spending much time experimenting and by sleeping – subconsciously I figured out solutions. (RS-17, p. 1)

From the personal interviews, Maureen and Marie noted that there are two possible types of creativity that individuals experienced. Maureen believes there is artistic creativity and there is problem-solving creativity. She commented:

Maybe there's two different kinds of creativity. One when you were creative and thinking of solutions and problem solving creativity and one where you were
being more artistic. I developed my ideas and I was putting them down on paper. The final garments had some interesting creative solutions that I had to dye. It was fun. I felt more technical because I was more concerned about getting the topstitching straight. By then everything was already decided. (PI-Maureen, p. 7)

Marie commented that the jury presentation and the fashion show were important components in the process or development of creativity that were “good for helping me reflect on what I've made and how the product could be improved. I think the creativity that comes with creation was very different from the creativity used for problem solving” (PI-Marie, p. 9).

Eva commented that she used creative problem solving to cover mistakes in the dyeing of the garments:

The final garments were interesting because I ended up dyeing all of my own fabric. That whole process was creative because the dyeing didn't necessarily work. That blue didn't match the other blues. Some of it wasn't necessarily creative. Some of it was creative problem solving because two of my garments didn't work out. The felted ones. One ended up being way too little. The garments were too small, and I attempted to stretch them. The felt ended up being slimer green and way too small. How I was to fix that problem? I tried to redye the felt and I ended up not getting it blue. The colour never made it to blue but to a duller slimer green, and then it was much too small. So I ended up having to think of a way it could be worn and still be functional. I ended up making it an off-the-shoulder outfit so the sleeves fit. It just draped over the body, and the garment was very interesting because I ended up having to let the whole process go. This was what I was doing and so this was just how it had to be. (PI-Eva, p. 9)

Eva alludes to the idea that she used problem-solving techniques to help her solve the problem with the fabric dyeing and the fit of her garment.
In the focus group, Natasha remarked how problem solving was a way that helped her to solve problems while she was working. Natasha stated:

Problem solving, when the supplier ran out of my fabric or when I couldn't sew the way I wanted to do. I was figuring out different ways of doing things or compromising my designs sometimes because it was not going to work that way. It's not going to look the way it does in the illustration. That's what that means. It's not going to look like my drawing. What am I going to do? (FG1-Natasha, p. 6)

In focus group two, Evelyn remarked that problem solving with peers helped her to be creative. She stated:

I worked at home, and sometimes if I was stuck on something I'd just call Chanster. I'd ask her questions even though our collections were very different. She was using silk too, so she had some problems that were similar. That way we helped each other a bit. We complained to each other and figured it out after. We needed to scream it out. (FG2-Evelyn, p. 12)

Perseverance, Drive, and Commitment to the Task

Participant 8 from the personal reflection surveys demonstrated perseverance, drive, and commitment to the task by spending hours working on sketches. Individuals who have the ability to remain focused on tasks for long periods of time are successful with creative activities (Starko, 2001). Participant 8 stated:

When I was designing this collection everything influenced me including emotions, details, scents, and even people. Looking through magazines was crying inspiration. I sketched for hours after at home. When I had time to myself, my mind would wander and expand on other ideas. Once your mind started on the design tip, it's on a roll. I just wanted to do it all and I couldn't stop the process.

Participant 8 addressed the time commitment that designers need to create many
illustrations for their apparel collections.

Anna reflected on the moments of creativity that she experienced during the creation of the final garments. She felt connected to the work and loved working on the garments:

I think the final garments summed up my creativity. After I saw all five of them together it was like, “Wow, this was something I’ve done from the beginning to the end and it looks fabulous.” So it gave me a sense of, “Wow, I’ve been here for 4 years and this is something that I wanted to do.” It was 4 years of suffering and I’m finished. I’ve completed it and I loved it... Creative? I think it’s more of the emotional high that I got from it. I felt very creative... I really did, making shirts, pants, and jackets. It was the emotional tie that I had to each garment. Everything that I bled on from the pin prick. Every stitch that I had to unstitch. I think it’s the emotional aspect that reflected who I was. What kind of direction I was going in? (PI-Anna, p. 7)

**Outpouring of Ideas**

All of the participants in the personal interviews responded that they were creative when they created their ideation sketches. When the participants from the personal interviews created their inspiration boards, they felt creative because they generated more ideas and combined those ideas together. Participant 9 responded:

I can’t pinpoint the start of any creative moment I’ve ever had but I can say that any creative bursts I’ve had were the result of much internal sub-conscious processing of influences. After being given a task to come up with something and to involve creativity, I suffered creative blocks for some time experiencing sudden creative moments to do with answering the creative-based task I was given. I felt that this was the result of a sub-conscious analysis of the creative things I saw
around me everyday. When I had these creative moments it was as if someone had
turned on a switch inside me to “creative” from “normal”. These moments of
creativity were exhilarating and I had adrenaline pushes throughout my body
which acted as a catalyst for other creative ideas. I felt that once one idea had
come out of me, the rest having to do with the same task flows out effortlessly.
(RS-9, p. 1)

In this case, participant 9 felt exhilarated and fulfilled by this creative experience.
Creative individuals reach pleasurable periods of complete immersion into the activity of
creativity. The flow experience allows individuals to experience creative activities
without the fear of failure. Creative individuals feel satisfied and fulfilled during the flow
experience (Csikszentmihalyi, 1990). The outpouring of ideas was also evident from the
data in a personal interview. Tiberiu commented:

I was being really creative when I sat in the fashion lounge for 2 hours sketching
the 25 ideation sketches. I had to do the sketches really fast. I didn't have a lot of
time, so being stressed out helped me a lot. I was being creative throughout the
whole process. I think at the end I was more creative because, as I sketched, other
ideas came to me. At the beginning, I was kind of tense about it and stressed
out. That's the point where I had to focus hard, and then I sketched and sketched
and sketched and at the end I was kind of tensed off. My hand was going on the
paper like crazy. I wanted to add more to the other sketches, and I saw the details
that needed to be added to the first sketches at the end. (PI-Tiberiu, p. 5)

He alludes to an outpouring of ideas, which helped the creative moments to emerge and
develop in a short period of time.
Willingness to Experiment

In the personal reflection surveys, participants demonstrated a willingness to experiment by experimenting with nontraditional materials or when they were creating new sewing techniques. The traditional scientific method helps individuals to see things differently and provide a general framework for problem solving and creativity. In this creative process individuals are able to define the data, find the solution, and test the solution (Akande, 1997). Participant 14 stated:

I pulled a lot of late nights dyeing and bleaching my denim but I enjoyed doing it. Although the bleach vapors were killing me, I felt really creative altering the dark denim and creating something new. My parents kept interrupting me and asking me what I was doing. I felt really creative when I had to explain my ideas to someone because it was at that moment that my vision really came alive to someone else. (RS-14, p. 1)

Participant 14 expressed that experimenting with nontraditional material helped to create a new product.

Participant 15 experimented by inventing new techniques during the pattern making and muslin stages. “The muslins followed in much the same way. I figured out how to put things together and sometimes I invented new techniques, which I also found creative” (RS-15, p. 1).

Kate was willing to experiment using a variety of techniques when she created the test muslins. She commented:

I kept experimenting using different techniques. I experimented using different ideas, and then I had all the options. I mean, with my draping fabric I had pins. So I'd pin things and step back and I didn't like it. Step back and I didn't like it. Then once I had all those options, I decided on the one idea that was the best. (PL-Kate, p. 7)
Tiberiu felt creative as he experimented while creating textures, using different media, and different techniques in his apparel collection. He commented:

I was doing a lot of experimentation, especially when I was doing sketches. Creating texture on the sketches helped me improve my technical aspect, like the sewing part. I created a sketch that had a weird texture and in that way I pushed myself to make the garment as close to the sketch. By using different media in my sketches, I was designing and using different textures on the garments. I used a lot of different techniques, and also with the sewing I used different techniques. Sometimes I used pattern making and the garment looked very structured. Sometimes I used a lot of draping. Sometimes I combined the two of them. It always changed. (PI-Tiberiu, p. 3)

**Problem Finding**

Problem finding and problem definition are important aspects of creativity (Nickerson, 1999). There were 3 participants from the personal interviews who responded that they were creative when they created their final patterns because they were taking an idea and they were finding problems. In the focus group interviews, Lisa felt that problem finding was a technical aspect. She felt that problem finding needed to be in the process of creativity. However, Natasha felt that problem finding was a part of creativity but it depended on the activity:

It all depends on if I was looking at the fit and things like tailoring and pocket placement. It's not as creative. If I looked at how things go together and how my pieces were co-ordinating, that could be creative. Maybe I was saying, “Maybe I shouldn't have done such a short skirt. Maybe I should have a short skirt, a long skirt, or maybe I should be putting this top with this top.” That's more creative than saying, “Well, I think that I should have taken this in a quarter of an inch. I
should be moving this pocket up here or down here.” (FG1-Natasha)

During the second focus group interview, the participants were asked if they believe that finding problems is creative. Mercedes commented:

For me that's the most important thing. When I was in the jury presentation, I was disappointed with the people that I had because I felt they didn't give me enough constructive criticism. The criticism that they gave me was maybe in their eyes constructive but not in mine. They didn't exactly understand what I was trying to accomplish. For me that was the most important thing, the way it surpassed anyone saying anything positive. Having good, solid, constructive criticism and for me to reflect on that was so important. It's the ticket to my creativity in terms of how to expand....Things sparked my interest as I worked with it. I realized I should do this, or I had two pairs of pants that were virtually the same, and from doing one pair of pants I did it the way that I thought I should do it, and then after completing them I was, “No, no, this is the way it should be done,” so then I fixed the problem the second time around. I found that it helped a lot. (FG2-Mercedes, p. 4)

Mercedes was looking at the problem from various angles, searching for ideas as different things sparked her interest before she arrived at a solution. Problem finding allows individuals to look at problems from as many viewpoints as possible (Csikszentmihalyi, 1996).

**Communicating Ideas**

All of the participants from the personal interviews responded that they were creative when they created their test muslins. When the participants created their test muslins, they felt creative because they were making decisions and putting the muslin garments together. The construction component was a creative experience for the
participants because they were creating the first garment and they were adding details to the garment. Eva felt creative because she convinced someone about an idea and had to communicate the information about that technique to other individuals:

I was making some felt pieces, which was making a pattern out of the outline 30% bigger. The creative process was actually convincing someone that this was how I would make a pattern for this muslin. Convincing someone that I can't actually make a muslin for it. It's not possible without the actual fibres. (PI-Eva, p. 8)

Josee commented how presenting her ideas was creative. She comments: Presenting to people was important, not just for my garments but for me to be creative in how I presented. For me to show people these are my clothes. Can I think of interesting ways of presenting my clothes? But I think it was a good element to creativity in presenting. (FG2-Josee, p. 5)

Starko (2001, p. 13) claims: “Individuals create works of art or literature because they have something to communicate.... They want the audience to make meaning in new ways or share a vision of the world.”

**Convergent Thinking**

One participant stated that narrowing her focus from options made her feel creative because she was eliminating from millions of options. Divergent and convergent thinking techniques are used by effective problem solvers (Treffinger et al., 1994). Maureen said that the fashion trends and forecasting information were inspirational and visually stimulating:

I think the fashion trends and forecasting are two things. The trends can be really inspirational or kind of restrictive depending on what you are using. Some of the books in the library with the fashion trends have really amazing images in them.
It's more visual, the pictures give you inspiration already pasted down. I find that can be very inspirational because they find the most amazing images that you wouldn't find flipping through *Vogue* magazine or whatever you have beside you. If they are sketches and they are really showing "this sweat is in," then it can be restrictive. If you have to stay within those guidelines, then you don't have that much to be creative with. It depends on how thoroughly you use the trend and forecasting... I always feel that I sense market trends. This seems weird maybe, because of being in the store a lot, I see what people are into, having done this since 10 years old or something. You can pick up on what is going to be the next cool thing. Sometimes my ideas go in that direction. I don't focus too much on the trends and forecasting. (PI-Maureen, p. 5)

Tiberiu said that he did not find using fashion trends and forecast information creative. Anna commented, "Not really, only taking some information." Compiling information and combining ideas together were other ways that the participants felt creative. Collecting information and compiling the data helped the participants to focus on their goals and define their themes. Kate stated:

I was narrowing down. I was sort of focusing in on something and I had millions of options. For the inspiration board, we had to choose photos that we thought would be the direction that our collections would be going. So I felt that I was narrowing my vision down and being really selective as to where things were going to go. (PI-Kate, p. 4)

When the participants were narrowing down to the final five ideation sketches, Tiberiu and Marie in the personal interviews stated that this stage was not creative. Kate and Anna said that they were creative because they were narrowing down their ideas and modifying the designs. Anna stated:

What was creative was I came to the final five, and then afterwards I still had to
do some modifications to the designs. I had the final five, but then afterwards the pant or the shirt didn't match the whole thing as a collection. So I had to remodify it in order for it to be, "Wow, this is a collection. It does fit into the final five garments." The most creative was when I still had the ability to modify everything from the colours, style, and fit. I still had freedom to work with it before I got to where I wanted to be. (PI-Anna, p. 5)

Refining the work and constructive criticism generated creative moments for Maureen:

I think definitely the inspiration board. I felt creative doing it. I was sitting on my floor with all this paper near me. The timing of the inspiration board was most exciting. During the summer before school started and I was taking pictures out of magazines. I was creating sketches and putting together ideas with fabrics and having fun with it. Researching was like digging for things and piecing together things. I found that time was the most enjoyable. I came up with the most creative ideas. That led into the inspiration board and into the sketches. Those two times were the most creative. Then you get into refining things and others people's opinions about what you should keep. That part was a little bit crazy because I couldn't lose touch of my initial vision and of other people's opinions. If they understand where I am going that's really great because I was getting really good constructive criticism. If they don't understand the direction I was going, then it could be harmful and hurtful. It could steer me off track and I could be unhappy with the whole thing by the end. (PI-Maureen, p. 5)

Participant 19 was creative narrowing down the sketches to the final five outfits. Other participants said they were creative because they were making new combinations for their apparel collections. Participant 3 felt creative when putting ideas on paper for other people to see. There were other participants who felt creative because they were
having fun, they spent hours sketching, and they were visualizing the collection.

Participant 5 comments:

I allowed myself to be very free with this part. I wished I could sketch faster so that I could get all of my ideas onto paper as quickly as they came to me. I spent hours sketching and would continue to get flashes of inspiration before I fell asleep. Thoughts in terms of action, stage appeal, music, lights, choreography, and how everything would look all together. I would close my eyes at this point and practically touch my finished designs. (RS-5, p. 1)

Mistakes

The participants felt creative because they were narrowing down and refining their sketches, and the information and ideas were coming together into one theme. Kate (PI, p. 5) was creative because the assignment allowed her the freedom to do anything she wanted to do. Eva commented that making mistakes helped her experience creative moments:

Just sitting down and actually sitting and drawing it. You may have all these ideas, what it's going to look like, in your head, but until you actually draw it, that's when everything kind of comes together. I had a few of my impulsive moments, kind of aha moments, within the ideation sketches that just happened. I have an ink blot on a shirt, and that happened because I actually spilt some ink and I was like, "Hey that'll be cool." Let's put that on a shirt and so it was the creativeness of just kind of sitting down and focusing on the one project so that everything could fit together, all the information gathering. Big mistakes are the most creative portion of anything. I don't know if you noticed, but our general saying in the lab is that if something goes wrong, "Oh it's a design detail." What ends up being an intrinsic quality within something sometimes, that makes it a
little bit different, is a mistake. It wasn't meant to be there, but I think that some of those things are the most interesting and beautiful things that happen. (PI-Eva, p. 6)

Tiberiu commented that mistakes play a role in an individual's creativity:
I'm usually pattern making, draping, and then sometimes I just like to make mistakes. I love mistakes. I think mistakes are part of the game, and it's really good. Mistakes are the best, and Comme Des Garçons actually believes in mistakes. Ever since I started school I've made mistakes. I'm just cutting through the fabrics and I try to make lots of mistakes. When I make a mistake, even if it looks ugly, I'm trying to change the mistake as much as I can and try to make it look perfect. At the end it usually looks good... I could see the defect or the mistakes that I could have made in the real garments. I think that correcting the mistakes and changing the muslins was a creative process. (PI-Tiberiu, p. 3)

Maureen integrated her mistakes into the garments. She considered the mistakes details on the fabric and she was happy with her solutions to the problem:
I think the solutions were creative. They were like problem solving sort of. You spend all this money over again and redye, or you try and think of a way to integrate the mistake into the garments. I guess it's creative. (PI-Maureen, p. 7)

The participants encountered mistakes on their garments caused by errors from improper calculations. Sometimes the mistakes were made when individuals were working on their garments. Insights happened when the individual realized that a mistake occurred, then started to formulate some ideas about a solution. Insights often occur when a problem is discovered or defined rather than when solutions are formulated (Runco & Sakamoto, 1999).
Divergent Thinking

Participant 4 used divergent thinking skills to create numerous ideation sketches for the apparel collection. “Forcing out as many ideas and variations on the same ideas as quickly as possible. Finding new ideas while drawing the collection would be fun for a full-time job” (RS-4, p. 1). Individuals used divergent thinking strategies when problems needed to be solved, new ideas needed to be created, and better ideas needed to be developed. Divergent thinking tests still continue to be a popular measure of the creative process and potential. Individuals who take divergent thinking tests are required to create several responses to specific questions (Plucker & Renzulli, 1999).

Eva commented that she evaluated and discarded ideation sketches after the information gathering period:

The information gathering period before that was very well defined. I discarded hopefully most of the bad things. This process was definitely the moment when everything had to come together, so 25 sketches was actually probably not enough. I'd have to say the amount should have gone up, but time was an issue. This allowed me to express everything that came together in my mind on paper concretely. (PI-Eva, p. 6)

Marie was creative when she was pulling her ideas together to create her apparel collection. She felt creative when she used pictures and fabric swatches that helped her create ideas for the collection. Marie commented:

Oh, I liked doing that. That was good. I think that the most fun was getting your ideas together, having all of these thoughts pulled together, and actually visualizing them into the collection that I wanted to make in the end. So I'd say it was the most creative time of all. I use a lot of ripped-out pictures to illustrate where that person would be in the clothes and lot of little fabric swatches and ideas. (PI-Marie, p. 6)
The Creative Process

The literature reviewed revealed that there are different theories or processes that researchers have developed regarding the creative process. Each researcher had different stages within their theory. Starko outlined theories of the creative process from Dewey, Wallas, Guilford, Rogers, Torrance, Parnes, and Osborn (cited in Starko, 2001, pp. 25-27, 48-49). Csikszentmihalyi's (1996) theory of the creative process was included in Chapter Two. All participants in this study identified a process when they were creative. The participants in the personal interviews and the focus group were asked if they experienced a process when they were creative.

Personal Interviews

Anna's creative process had four steps. The steps included developing ideas, gathering information, organizing the items, and refining the items. Anna stated:

Well, the first thing that comes to mind is my idea. What it is. What type of pictures I should use. Afterwards it's time where you have to place things a certain way so one side is not heavy or it's not top heavy or bottom heavy. The process is basically, I have an idea and I find objects for it. I place it on a board in a certain way. Then I clean it up. Basically that's it. (PI-Anna, p. 2)

Maureen's creative process had four steps and included getting inspiration, gathering information, refining ideas, and implementing:

It depends on what I am doing. If I were designing a garment, first I gather everything that is inspiring to me and surround myself with it. Either glue it down or put it up on the wall or surround myself with things that are inspirational. Then refining it and picking out my own ideas out of that. Then doing it. Getting right down to it. Finding creative solutions for sewing or designing a garment. Usually that entails talking to people and bouncing ideas off of other people. Calling up
Mercedes and saying, “This is what is going on and this is what I’m going to do,” and then she will throw in her two cents. Then I will discuss it with my partner and my mom. Finally, I decide what direction to go to when sewing the garments. Creative solutions. (PI-Maureen, p. 3)

The creative process, according to Eva, had eight steps and included developing the idea or goal, seeking outside sources and looking for inspiration, brainstorming ideas, finalizing the idea, narrowing down, refining the idea, carrying out the idea, and reflecting. Eva’s comments follow:

Number one would be the looking for inspiration. I’d have to say that. Sorry, I have to stop. Before looking for information you need to have some goal in which makes you want to look for information, so a stimulus. A stimulus for the end goal, and then there would be looking for inspiration, and then the aha moment. The aha moment. The “Oh, I’ve got it.” Then the intense information gathering and then the refinement. Then carrying it out, which is the longest but shortest step all at the same time. At the very end, I would have to do the overview of what actually has gone on. Looking at everything from a distance, sometimes being removed from the idea, because by this point you feel like you’ve carried out the entire thing and you need to look at it from way back here and say, “Oh I like that. I might not have done that.” Looking at reviewing basically what one has been done. (PI-Eva, p. 2)

Marie’s creative process had seven steps that included building up ideas using outside sources, deciding to implement, refining, getting feedback, implementing the plan, testing out the product, and creating the final product. Marie stated:

I guess it’s inspiration from what’s around me more than anything. It would be more like most of the time I like organic. I like to work with organic materials. I’m not sure where my ideas come from. I know what I like. I like nature. I like natural
colours. I like things to be practical. I'll just sit down and think about a person that would wear the garments, usually me, and then I come up with ideas from that. Sometimes I'm inspired by theatre a little bit.... The next step is to decide whether I want to do it or not or if I see something built out of it or if it's just going to stay in my idea book. So it depends how I feel at that time.... After I make a decision I'll fine tune it and sketch it over and over and over again and get some friends or my mom to take a look at it. Then I'll check it out well. I'm talking in terms of clothes right now. So I'll go and see if the materials exist that I want or figure out if I want to dye something.... Once I've refined it, I'll make muslins and build basic ideas and sketch right onto the muslins and see where I want to place things on it. I'm a really messy worker. So I'll have sketches over sketches over sketches on my muslins, and I'll outline the one I like in marker or something darker to stand out. I try it on a few different people sometimes to get an idea whether I like it or not. Usually even if I don't like it, at that point I'll go ahead with it because a lot of times you question yourself half way through. I'll try and fix it up as much as I can. I think I'm pretty good at visualizing how something will look after the muslin stage. Usually it's pretty successful.... After a muslin, then I'll go right into cutting it out and sewing it up. Sometimes I have to do it two or three times, and I sew it up. I guess that's the end of it. (PI-Marie, p. 3)

Tiberiu's creative process had four steps. These steps included finding inspiration, projecting the vision, performing the actual labour, and sending the message of the final product. Tiberiu stated:

Well, I would say there would be the inspiration. The projection of my vision or inspiration into pieces of clothing when sketching. As you know, people get inspired by weird stuff that's not necessarily related to fashion. The actual labor, choosing the real colours, materials, variety of textures, pattern making, and the
actual labour. Magically, the message becomes sent to the audience.

The creative process, according to Kate, had six steps and included finding the inspiration, writing down the idea, mulling the idea over, expanding on the idea, mulling over the idea again, and finalizing the idea. Kate's comments follow:

Inspiration from something. Something triggers it. I see something that interests me or I feel it has very good aesthetic appeal and it prompts me into thinking about modifying that or changing it or incorporating that into something else. I think that is my first step. Getting inspired to put things down on paper or anything like the back of a receipt. I'll just jot something down really quickly and then go back to it later and expand on it. Then that's it. Different variations of the same thing. A varying of things. Let's say it's this amazing pocket detail I saw on something. Sketch it down and go back to it later and put it on different things. Throw the pocket on a jacket or modify it and put it on a pair of pants. Expand and make variations of the pocket till something that I see works. If it doesn't work, what do I do? I don't know. I try and try and then if it doesn't work I leave it and go back to it later or sometimes I forget about it. Sometimes I mull it over and things suddenly come to me. If that makes sense. I mull it over and sometimes things just come to me. Putting the aha idea down on paper.

Focus Group J

The creative process, according to Cassandra, had three steps and included defining the idea, executing the idea, and narrowing down to one idea:

I think that the creative process always starts with the idea, and from that you have to go on executing the idea. To do with our collection, we would come up with the idea and then we would have the design sketches or the ideation sketches. Then, from there we narrowed it down. For me the creative part always continued
in terms of inspiration because we got fabric swatches and from there I was even more inspired. (FG1-Cassandra, p. 13)

I asked for clarification of the steps in the process of creativity. Cassandra commented:

I guess for me it was defining what I very much wanted it to do. Something that reflected on me in the collection or the idea. Even jotting down ideas I like. I could go gothic or dramatic or I could do evening wear. Playing around with ideas. What would I have fun at doing? That was a big part of it. (FG1-Cassandra, p. 14)

Natasha's creative process had six steps and included brainstorming ideas, combining ideas, brainstorming new ideas, eliminating and narrowing the focus, refining the details, and evaluating the product. Natasha stated:

I would do my brainstorming first and see what comes out of it. Tie the elements together and then brainstorm again. I try to see how I would rework things. Then come up with a final thesis statement. It might be something that I'd start off with, and as I was going through the process things could change. I find it's almost like brainstorming. It's almost like warming up for the creative process. Just getting things moving. How am I going to start? I'd start warming things up doing some sketches, and then I see how some things work well together and then I'd dive in. It's like I am creating masses of things. We were having to create so many different things. I think that's why the group part with design is the creativity. I find that once I repeat things I would cut out things simply but almost subconscious. "Oh, I didn't put that element in this sketch because I didn't need it to be there." Development in creativity evolves as I was going through it.

Personally, I find that I have to go through those steps. I don't know if it's that I don't have a strong design background. I make myself go through those different processes of brainstorming and initial sketches and then diving into it and creating
massive quantities of things and then in the end eliminating certain things and narrowing the focus. The refining process is the last stage. Narrowing down, then refining. When I was doing the clothing, then the process is going to be different depending on the type of art that I do. For us, you do samples and then see how things work together. Refining is making sure that the proportions are correct. Making it suitable for production. Then I have to see how the final product is going to work out. Then there will be a final evaluation of the product.

Claudia’s creative process had five steps including searching for inspiration, collecting and compiling information, brainstorming ideas, revising ideas, and creating the final product. Claudia stated:

I think that, yes, there is definitely a process that takes place when I am creative. Though I’m not sure whether it always happens in the same way. In school it was more structured, and so it happened like this. Look for inspiration surrounding us. Example, on the streets, in our homes, out in nature, in magazines, on TV, movies, etc. Collect and compile this inspiration, sometimes unconsciously. I would say it is here, at this point, that the ideas begin to surface. A time for sketches, writing, scribbling, and brainstorming. Revision of ideas, overcoming obstacles, and roadblocks by editing the final product. Fixing problems as they come along. The final product. I would say that this sort of process happens more unconsciously for non-school-related creativity and for smaller projects and ideas.

According to Lisa, her creative process had three steps and included creating a practical functional idea, problem solving, and revising the idea. Lisa commented:

I just do things that are functional. I am very functional. My creativity is at home when I’m just relaxing playing piano, writing, or painting. Whereas at school I
like to design things that people can wear. It's not really creative. It's personally creative, but I don't think of it as being out there. My process is more like, what is practical? What's functional? Kind of problem solving to make things that already exist but sort of different. My process is more spontaneous as far as the other side of my brain goes. As far as the school side goes, it is more problem solving.

Seeing what I like and changing it. (FGI-Lisa, p. 15)

Nadine's creative process had seven steps including finding inspiration, thinking about the idea, sketching out the ideas, generating more ideas, adding details, problem solving, and making adjustments, as she explained:

I find inspiration from something around me through, for example, music, clothing, photographs, or colours. I think about the idea and play with it in my head while making mental sketches and mental notes. When I get to a comfortable and relaxed environment, I sketch out my ideas on paper. When sketching, I usually do a few rough sketches just for the general mood, shape, and feeling for the object I want to create. When I see my sketches on paper, I usually get more ideas on how to make it look more interesting aesthetically. I try to sketch it in different colours or different drawing styles. Then I create very technical, very detailed sketches of each side of the front, back, and side of the object I want to create. At this stage, I add in very detailed elements. For example, in a garment, I would put in topstitching, printing detail, or exact proportions. I add more functional details such as closures, pockets, darts, and lining if necessary. Then I am finished creating the sketch or garment. It's so exciting. I try to follow my technical sketches, but I manage to stray away because to see the sketch or garment in production in full scale usually triggers more ideas. I may be limited to the selection of fabrics and notions. Sometimes when cutting a garment, I come across little problems with the fabric such as not having enough fabric, and I will
find creative solutions to seam a pattern piece or do other adjustments to create my garment with as little compromise as possible.

**Focus Group 2**

Josee's creative process had five steps. The steps included starting with an idea, finding inspiration, gathering data, finalizing the idea, and creating the idea. Josee stated:

Step one starts with an idea. I want to create a skirt. Step two continues with the inspiration. Example, lampshades. It is important for me to have inspiration because it opens my mind to other ideas and concepts that maybe I would not have thought of otherwise. Steps one and two can be reversed depending if I find an idea first or an inspiration first. Step three, collect sample materials, media, and drawings. Step four, finalize the ideal choices. Step five, create the idea using all the research. (FG2-Josee, p. 1)

Chanster's creative process had eight steps and included visualizing the concept of the final product, considering the details, making new combinations with a theme, making new combinations with colours, considering option and choices, combining ideas, asking questions, and finalizing the design. Chanster stated:

When I'm in the process of creativity I tend to think in layers. Just like using layers, a computer function in Photoshop. For example, I'll have the final product in mind and apply layers. Layer one, think of the final product. Not the finalized design, just a concept of expectations I try to reach. Layer two, I'll start to think in only black and white. Without colours. It can be the silhouette, sharps, and cohesiveness of the collection. Layer three, add a theme in the design, for example the flamingos in my collection, placement, and balance. Layer four, add colours to my "pre-finalized" designs. Layer five, think of the weight of these
garments and the choice of the fabrics. Layer six, put everything together including basic silhouette, theme, colours, and weight of the fabric. Layer seven, I have a pretty clear picture in mind how my designs look. This layer is to add details. I'll ask myself, “What can I do to add the final touch or mood to my collection?” For example, in my collection, I have chosen to use crystals since it's haute couture. Layer eight, finalize the designs. I'll draw my designs in colours and make sure the designs will meet my expectations on layer one. (FG2-Chanster, p.1)

The creative process, according to Evelyn, had five steps and included conducting research, thinking of a theme, finding new ideas, thinking of combinations that fit with the theme, and formulating the idea. Evelyn's comments follow:

Other times when designing, I research magazines, music, books, the internet, and television to find what is trendy and what the public eye is interested in. I take those ideas and think of a theme that I find encapsulates the public mood or that is emerging in the design world. I go to fabric stores and find what is new, and I think of things that might work with my theme. Next I formulate a trend board with fabrics, the theme that led me to design, and colours already in mind. (FG2-Evelyn, p. 13)

Mercedes's creative process had five steps and included getting inspiration, translating ideas, pulling ideas together, taking a break from the ideas, and returning to ideas for possible revisions. She stated:

The creative process for me begins with shape and colour. Then I translate shape or colour, my inspiration, into a compilation of sketches, clippings, photos, and swatches. Occasionally, I am inspired by a theme, for example war or sailing. I try to pull shapes and colours from the theme to create a final product. It could be a garment, object, piece of art, or furniture. In general, when I see shape or colour I
automatically know what the end product is going to be. I tend not to sketch out a lot of different ideas. I find taking a break from the idea, then in a few days returning back to the idea, then seeing whether the initial idea needs to be developed or sometimes scrapped altogether. (FG2-Mercedes, p. 14)

A Creative Environment

Challenge, freedom, idea time, dynamism and liveliness, trust and openness, playfulness and humor, idea support, debate, and risk-taking characterize environments that are supportive of innovation and creativity. There are some items that promote or inhibit creativity for some individuals, and these items may be different for other individuals (Ekvall & Tängeberg-Andersson, 1986).

The participants in the focus group interviews were asked a series of questions regarding a creative environment. Skills, techniques, different objects, and activities influenced the participants to be creative in the classroom environment. The participants attempted skills such as combining ideas together, visualizing, using outside sources, planning activities, creating as they worked, sharing ideas, and using nontraditional materials in order to be creative. The participants were influenced by colours and fabrics that were used in their apparel collections.

The participants in the focus group interviews were asked how they were creative. They responded that they were creative when they were creating something new and unusual, getting new perspectives, and using techniques to help them be creative. Natasha said:

For me, being creative is when I create things that are new. Doing things differently. Going against the norm. That's the way I am. I don't want to be creating things for mass production. Creative things are things that only you appreciate. New and unusual things. (FG1-Natasha, p. 12)
Chanster said that visualizing was the most important element:

For myself, to be creative, I always think of colours in my mind. I'll play with the colour combinations in my brain, and then I'll go and look for the fabric because I think I'll have more choice. I'm sure that finding the right material will be a problem but I'd rather not find the right fabric. Choose the colour first, and then I create my designs. (FG2-Chanster, p. 8)

Marie (PI) and participant 13 (RS) stated that when they visualized the final product, they were really creative. The participants said that they were creative when they were using a variety of techniques. Combining ideas together, visualizing, using outside sources, planning activities, creating as they worked, sharing ideas, and using some non traditional materials were some techniques that students used when they were creative.

Evelyn stated:

I think finding new ways to do something that's been done. Combining new techniques. It's helpful to know many techniques. The more ways that you know how to do different combinations when you create, then you are more creative.

(FG2-Evelyn, p. 7)

Some participants felt as though they were getting a new perspective and looking at things differently when they were creative. Maureen said that there were different types of creativity. Problem finding, problem solving, communicating ideas, and reflecting were other ways that the participants said that they were creative. Nadine commented about finding creative solutions to problems. She stated:

I had a lot of problems, which I had to find creative ways to solve. For example, to make my garments somewhat sellable, all of the detailing had to be detachable. I hadn't thought of that in the beginning. I don't want to make it ugly and detachable, so I ended up going to see a lot of hardware suppliers. Looking back now, I wish I had thought of that in the beginning. It would have been cool to put
Mercedes described a creative environment, which was the textile lab, and the importance of using nontraditional materials that helped her to feel creative. She stated: In terms of being creative in an actual room, the textile lab is where I go and see a bunch of nails lying on the ground and a ruler. I wonder what it would look like if I attached nails to a ruler and dragged them over the fabric. I wonder what it is going to look like. For me that kind of environment is supercreative. The class in terms of the lab upstairs is different. Construction, techniques, and thinking are really creative. I guess when I am by myself and I am doing something, I find myself with peers, and everyone in my opinion is influenced by the people they are around. That helps to spark creativity. (FG2-Mercedes, p. 6)

The participants in the focus group interviews were asked to describe an environment that promotes creativity as well as an environment that hinders creativity. The participants said that an environment that promoted creativity included such themes as the atmosphere, creative people, teachers, reflection, student needs, and assignments. The participants also identified potential barriers in an environment, including rules and guidelines, teachers, the classroom, deadlines and time, feedback, and other important issues.

The participants in the personal interviews were asked if there was anything about creativity that they wished to add, something that I hadn't asked them. Maureen commented on a creative environment. Maureen stated:

A creative environment includes having objectives and some guidelines. More freedom and time to really enjoy. Really go from one idea to the other rather than just cutting through all and just grabbing an idea because you don't have any time to be creative. (PI, Maureen, p. 8)

Participants 18 and 19 commented on an environment that promotes or creates
barriers to creativity. Participant 18 stated:

The environment that promotes creativity would have to be the outdoors, but not just nature, everything from people to buildings. I like action and movement. Colors, structures, and weird shapes always get the mind rolling. Flea markets really help because they are eclectic. Old clothing stores have a vintage appeal. The environment that stops creativity and forces my mind into a state of conditioned technical thinking, like a math class, is any place that stops the mind from moving freely and limits the focus to one specific topic. When you loose the freedom to think on your own and explore what's inside then you can't be creative. (RS-18, p. 1)

Participant 19 commented about inspiration and individuals in the environment:
A creative environment is one where the atmosphere is inspiring and the people in the environment encourage you to think beyond the box. Basically, if someone gives you the option to do as you please, you can take that freedom to the next level and really incorporate creative ideas into assignments without feeling as though you need to conform to anyone's specific wishes. An environment that hinders creativity is one where you feel as though your ideas would be unappreciated because someone is instructing you to do something according to a plan. Not that you cannot be creative with an idea even if there are specifications that need to be met. If you feel as though your ideas will not be well received and hold out on trying certain things just to please others then you are not using your creativity to your full potential. (RS-19, p. 5)

**Fostering Creativity**

The literature reviewed indicated that fostering creativity has been an ongoing issue for many years. There is an importance for educators to prepare students for the
future by providing the environment necessary for creative development and teaching students the skills that they need to become effective planners, decision makers, and leaders. Educators can provide the proper environment for creativity by promoting and encouraging creative thinking, tolerating dissent, and encouraging students' own judgements. There should be an emphasis made to students that they are capable of being creative (Cole et al., 1999).

Therefore, the participants in the focus group interviews of this study were asked to describe an environment that promoted creativity. The participants of the focus group interviews identified six themes that promoted creativity in an environment. The themes included the atmosphere, creative people, time to reflect, student needs, teachers, and assignments.

*Atmosphere.* All of the participants were able to identify an atmosphere where they felt a need or wanted to be creative. Three participants wanted an environment that was visually stimulating. They said that when they are visually stimulated, they are more likely to be creative. Cassandra stated:

> Well, my take on it personally is obviously an environment that has a lot of creative things around or within this environment. I think one thing that makes me more creative in my own environment is to see art, inspiration, or to see visually beautiful things that inspire me to be creative. (FG1-Cassandra, p. 1)

The participants indicated that they wanted the atmosphere to be comfortable, fun, and relaxing. It was clear that they wanted an environment free from tension and stress. Natasha said:

> I find an environment that promotes creativity is a place that I am really comfortable in. It's difficult for me to express myself in a place where there's a lot of other issues going on. I need some place that is nice and quiet. I also like to
have inspiration around me that I can feed off of. I find it's good to be in the classroom where there is other students doing the same type of work, because you can get inspiration from them. It helps if there is somebody there for me because I don't have a strong artistic background, and to have somebody that pushes you to look at things differently. (FG1-Natasha, p. 1)

The participants informed me that the physical appearance was important as well as resources and music. They commented about the environment in a classroom setting and also about going to a different environment when they wanted to be creative. They were inspired by other environments outside the classroom. Josee states:

I feel the classroom is a basis that gives me the direction that I need. I don't become creative in a classroom. I need to step away from it in another environment by myself to do something on my own. Do drawings, look in magazines for inspiration, or read a book or something, and then I have my clear focus. It's there but it's never fully in the classroom. Outside sources are important because outside sources have no boundaries. I'm given my boundaries in the classroom. You're allowed to do this and this and this with your project, and sometimes that's frustrating, so if you go out you are able to see different things. The classroom doesn't really provide a lot of visual imaging, and I'm a very visual person so I need to look to other things to get my own creativity working. (FG2-Josee, p. 2)

Creative people. The participants felt a need to be around creative people. They believed that being around other creative people helped them to be more creative. Creative people were able to push them to see things differently. They were able to discuss, get advice, and get constructive criticism from creative people. The participants felt that interaction with other creative people was critical to their creativity. Their peers
spark their creativity through their collaborations, consulting, and their advice. Claudia commented how creative people helped her to be creative. She commented, “I think it helps to have creative people around you just to feed off of each other’s energy” (FG1-Claudia, p. 2). Natasha spoke about getting a different perspective from creative people who critiqued her work. She commented:

Some people were telling me, “Your drawings all look the same,” and to me nothing looks the same. A terrible illustrator, like you draw illustrations of yourself. Do you not realize that? I said, “What are you talking about?” Other people looked at my work and that’s one thing. It’s how the other people critiqued your work for you because you get a whole different perspective on things. They opened you up because there are some things that you might think are terrible or really good but to somebody else they feel differently. That’s good because you can develop your sense of style differently from what other people think. (FG1-Natasha, p. 3)

Mercedes pointed out how important it was to get feedback from her peers. She stated:

I think if we did more sharing in class. I’d like that. In terms of sharing designs and things like that. We do it as peers, but we flock to the same people. It is interesting if you are doing couture, and even though I don’t know anything about couture I could say, “Try something.” I think that pairing people up or mixing things that way would be interesting to see what other peoples’ ideas are. I find that even if somebody does something or says something but it’s not necessarily what I am doing, it will spark something else. You could think, “Oh, I could do it this way.” Just because she isn’t doing couture doesn't mean she can’t spark something in you to be creative to figure something out. (FG2-Mercedes, p. 11)
Time to Reflect. Most of the participants reported that they needed time to reflect on their work. Claudia stated that it was interesting to go back and reason why certain decisions were made. When she looked at something that she completed, she thought of better ways of doing the same task. She wanted time to reflect about her work. She liked the idea of having evaluations like a reflection day. Claudia stated:

We have done the whole process right. We selected all the pictures, then we did some sketches. Selected some fabrics and we made it into garments. It's cool to look back to see where you were a couple of months ago. You don't really realize that you are going along this creative pathway. You totally are. When you look back, you seem as though you've done a handful. (FG1-Claudia, p. 12)

Student Needs. The participants said that students need goals, direction, and guidelines that force students to be creative. They wanted to share ideas with others, search for outside sources of inspiration, and receive feedback from others because these tasks gave them different perspectives. Approval of their work gave the students their confidence. If they did not receive positive feedback, they said that this made them push harder. Students did not want to think of the assignments as work. They wanted to have fun with the assignments. They wanted a familiar person who gave them approval on their assignments. Students wanted to feel trust among their peers as well as between the students and the teacher. Natasha commented:

In classroom situations, you'll have people telling you ,“Oh, I love it,” but then it's hard to take that. Sometimes you don't know if it's true or not. Even with professors you might get that sometimes or certain elements of it. They won't like the whole thing. You'll get your mark back and they give you all these comments, and you say why didn't you tell me about that when you were telling me? (FG1-Natasha, p. 7)
Some participants said that they didn't want any pressure while some participants stated that they needed the deadlines and pressure to be creative. They believed that they needed the time to be creative and relax. It was important for the participants to love what they were doing in the course. The participants were asked whether presenting to the industry in the jury presentation or the fashion show was creative. They communicated that it was important to present their final apparel collections to the fashion industry and in the fashion show. The following quote was a conversation among three of the focus group participants:

Chanster: I think so, because without somebody seeing the collection there is no point in taking fashion.
Josee: It is rewarding. Your final step is to be able to showcase your collection. An artist will showcase paintings in an art gallery or else what's the point of doing this if you are not going to have a purpose for it? There needs to be a purpose.
Chanster: I think that the fashion show was the picture frame of our picture. So actually going to the show, I told myself that I'm creative enough. Like to tell me if my product is going to look good on the runway. So I think that's really important.
Evelyn: Just like seeing all aspects of it come together, because when you see it on a hanger it's totally different from when you see it on the runway. You can add elements such as accessories and music. That's all part of your creativity too.
Josee: Presenting to people is important, not just for your garments, but for you to be creative in how you present. For you to show people these are my clothes. I know there's not terribly interesting ways of presenting your outfits. But I think it is a good element to creativity in presenting. (FG2-Chanster, Evelyn, Josee, p. 5)
**Teachers.** Teachers were important in fostering creative development in students according to the participants. The participants said that they wanted teachers who were openminded and knowledgeable. It was important for teachers to give students a direction or focus. They wanted teachers to think outside the box and encourage them in their work. It was very important for the participants to build a bond of trust with the teacher. They wanted teachers who were interested in the students' work.

It was meaningful for the participants to make connections with teachers and to feel the teachers' presence in the classroom. They felt that teachers should be passionate about the students and their work. They wanted to build relationships with the teachers. The participants wanted to experience critiques with all students at the same time so that all could learn from other people's mistakes. They felt that this would be a valuable learning experience. It was important for the participants to experience teachers that help students who need help and not just those students who are talented.

**Assignments.** The participants said that they wanted room for their own ideas in their assignments. They wanted assignments that allowed them to explore and experiment. The participants said that more marks should be given toward creativity. Assignments were more interesting to them if they could do whatever they wanted and if they were able to change directions when working. The participants said that some objects sparked their interest as they worked with them, which allowed individuals to be more creative. The participants wanted projects and assignments to be spontaneous and fun. They wanted to enjoy what they were studying, and they didn't want to think that the subject area was work.
Barriers to Creativity

The literature reviewed regarding barriers to creativity revealed that there were different barriers that prevent or prohibit creativity. Therefore, the participants in the focus group interviews were asked to describe an environment that hindered their creativity. The participants in this study identified six themes that were barriers to creativity. They included rules and guidelines, teachers, the classroom, deadlines and time, feedback, and other important issues.

Rules and guidelines. Rules, guidelines, and limitations made the participants feel as though they were not expressing themselves. They felt that they were conforming and that the work was not a representation of what they wanted to accomplish. Some teachers, they thought, looked for certain criteria in their work due to the rules, guidelines, and limitations. Another participant stated that when students satisfied the criteria of the assignment usually they received better marks. A lot of times when they satisfied the criteria, they felt that this hindered their creativity to be really expressive in their work. They believed that rules, guidelines, and limitations prohibit the students' creativity in some way.

Teachers. The participants said that teachers' teaching styles affected their creativity. One participant said students tend to tailor their work towards the teacher marking them because teachers had certain likes and dislikes. According to the participants, teachers had teaching styles or methods that focussed on the weaknesses of students. Cassandra claimed:

There's other teachers' styles that feels like the teacher is plotting against me. Not to take it personally. Maybe plot against everybody. I find that is not the kind of learning that helps me be creative more so than just annoys me. Here is two points
off for that. I'm not learning anything from that assessment, and it makes me angry more than anything. Those kinds of teaching methods focus on the shortcomings rather than your accomplishments. (FG1-Cassandra, p. 10)

The participants felt that the students' evaluation was a barrier to their creative development. Two of the participants commented that they were able to get better grades with teachers when they simplified their designs and removed some of the details from the garments. They felt as though they fulfilled the criteria and what the teacher wanted them to do, but they sacrificed creativity in their designs.

**The classroom.** The classroom can be a barrier to students' creativity due to the formality of the setting and the interaction between the teacher and the students. The participants perceived the classroom to be a place where they received guidelines from teachers. They found the large number of students in the classroom a frustrating experience. Students wanted a visual component in the classroom that appealed to them. They felt that they needed to be in an environment where they felt inspired. There was one participant of this study who thought that their lab was just a workroom and felt that students needed to experience different environments.

**Deadlines and time.** Deadlines and time hindered students' creativity since it took time to reflect on choices that were made and ideas took time to develop. Sometimes the time that was allotted for the completion of the assignment was not sufficient and students started to cut corners. Mercedes stated:

> I find that I'm hindered by classroom, time, and deadlines because during the school year ideas will come to me at the last minute. In the summertime when I'm planting and I don't listen to any radio. I don't listen to any music nothing. I don't read any magazines. I am in the bush and all I see is the mountains, and by seeing
the way the twigs are bumped up against each other, it totally sparks things for me. (FG2-Mercedes, p. 8)

**Feedback.** Feedback was another potential barrier for the participants. They felt that lack of feedback or negative feedback from teachers hindered their creativity. Nadine stated:

On one particular project where I was trying to be creative, I showed my designs to two teachers. One that said that my pattern making and sewing skills were not good enough and I would never be able to do it. Another one that said that the design was impossible to do. After the first teacher's assessment, I felt really bad and I wanted to quit school. Maybe I should just do an ugly, boring jacket like everyone else. Then the other teacher said, “It's impossible.” I guess that I should just give up and drop out of school. That made my whole year not be very creative, because after that I felt like I'd better not be so creative on my evening wear. It might me impossible, or my sewing skills might be bad. That hindered my creativity. (FG1-Nadine, p. 10)

Whether the students received higher or lower grades, it was important for the students to receive some type of feedback. If students received a high grade but not much feedback, they felt the mark was not worth as much. Lisa commented why feedback was important:

It gives you another perspective of what you are doing. From that perspective you can get new ideas, and new ideas trigger creativity. So I think it's important... I have a good mark but it didn't mean anything. I didn't even want to show my work anymore because the people who were doing worse were getting more time. It wasn't even that it was well done. It was just a little out of the realm. It was something different. It was 2 seconds and 10 out of 10. You can't just give
someone a mark like that without any kind of explanation or any kind of feedback. Not getting feedback is really frustrating. Frustration hinders creativity. (FG1-Lisa, p. 17)

*Other important issues.* There were some other important issues that the participants commented on during the interview. Other issues that had the potential to hinder their creativity included financial problems, art was subjective, and grades. One participant commented that when students don't have the money, they couldn't do what they wanted to do in the assignment. Students who have financial difficulties may have to compromise and settle for something else. Another participant claimed that art was subjective and students who tried to be really creative did not have good marks on their academic record.

Grades were an issue for the participants as well. They felt that there were some students who were competitive about grades and they asked other students what their grades were on the assignments. There were some participants who experienced pressure from their parents about their grades. Claudia stated:

They really focus on numbers. We grow up and we are focusing on grades. My parents were, "You have to get good marks." I received a B average in first year and they were mad at me. When you are focused on numbers it hinders creativity because you are trying to satisfy the criteria instead of being creative. You are not advancing yourself because you just want to get good marks. (FG1-Claudia, p. 10)

**Comparison of Themes**

I created Table 4 to illustrate the themes that emerged from the pilot study, personal reflection surveys, the personal interviews, and the focus groups. The seven themes that emerged from the pilot study included independence of judgement, flexibility
and skill in decision making, ability to express something in different ways, desire to interrelate, ability to produce new ideas and fresh insights, ability to broaden your perspective, and problem solving. In the pilot study, I interviewed one participant who had taken the fashion design course.

The seven themes that emerged in the pilot study were found in the personal reflection surveys and the personal interviews as well. However, eight new themes emerged from the personal reflection surveys, the personal interviews, and the focus groups. The new themes included perseverance, drive, and commitment to the task; outpouring of ideas; willingness to experiment; convergent thinking; divergent thinking; communicating ideas; mistakes; and problem finding. There were 19 participants who completed the personal reflection surveys. New themes from the personal reflection surveys included perseverance, drive, and commitment to the task; outpouring of ideas; willingness to experiment; convergent thinking; and divergent thinking.

There were six personal interviews that were completed for this research study. The new emergent themes from the personal interviews included perseverance, drive, and commitment to the task; outpouring of ideas; willingness to experiment; convergent thinking; communicating ideas; mistakes; and divergent thinking. In the two focus group interviews, there were 9 participants: 5 participants were in one group and 4 in the other group. Similar themes that were in the pilot study and the focus groups included independence of judgement; desire to interrelate; ability to produce new ideas and fresh insights; ability to broaden your perspectives; and problem solving. The new emergent themes from the data in the focus group interviews were problem finding and communicating ideas. It is possible that the same themes emerged because all of the participants had taken the same fashion design course.
Summary of the Findings

There were a number of themes that emerged from the data relating to creative moments. I reviewed creative moments, a creative process, and a creative environment. My intent was to compare themes of creative moments from the pilot study with emergent themes from the personal reflection surveys, the personal interviews, and the focus groups. I also intended to describe the creative process and a creative environment as reported by the participants of this study. The findings from this research study supported the literature review.

All of the participants experienced creative moments throughout various stages the fashion design course. Some of the participants experienced different creative moments in the same stage. All of the participants said that they experienced a creative process when they were creative. The number of stages and the events in each stage varied for all of the participants as they described their creative process. Some participants described a range from three to eight steps of their processes.

All of the participants described an environment that helped to promote creative development. The participants of the focus group interviews identified six features that promoted creativity including atmosphere; creative people; time to reflect; student needs; teachers; and assignments. The participants in this study also identified six potential barriers to creativity including rules and guidelines; teachers; the classroom; deadlines and time; feedback; and other important issues. All of the participants informed me about particular issues or situations that either promoted or hindered creativity.

Chapter Five includes the summary, findings, discussion, implications for practice, implications for theory, implications for further research, recommendations, and a conclusion to the study.
Overview

Creativity is important to the growth and development of society and to the growth of an individual. Therefore, creativity has been an educational issue for many years. There is a need for innovative and practical applications of ideas that help solve the world's complex problems. Researchers have studied various aspects of creativity, but few researchers have focused on whether students are able to identify moments of creativity. A need to create innovative products, find problems, communicate ideas, solve problems, and develop new ideas exists today.

I became interested in creativity because I teach in a creative discipline, namely fashion design. I wondered whether students could identify creative moments within their course assignments, recognize a creative process, and identify an environment that promoted creative development. It was this question that prompted me to research, first in a pilot study, and finally through the focus group interviews, personal reflection surveys, and personal interviews for this research study.

In this study, I intended to explore the students' perceptions and experiences in the classroom after they completed the stages of the fashion design process. Therefore, I asked the participants to reflect and identify their creative moments after they had experienced the stages of that process. I was interested to see why they took the fashion course and how they expressed their creativity. I wondered whether they felt a need to be creative and when they felt that they were most and least creative. A summary of the study is presented in this chapter along with the findings, discussion, implications for practice, implications for theory, implications for further research, recommendations, and a conclusion to this study.
Summary of the Study

I designed this research study in order to explore the perceptions and experiences of students in a fashion design course. I intended to investigate whether students could identify their moments of creativity, a creative process, and a creative environment and to compare the themes from this study with the themes from a pilot study. The participants were a group of students who were enrolled in a fashion design course. They had created apparel collections as a requirement in the design course.

In this study, I used a qualitative approach and used three data sources. Personal reflection surveys were distributed two times during the course. The surveys were submitted anonymously in a box, then analyzed for emerging themes. Group interviews and personal interviews were taped, transcribed, and analyzed for themes. During the interviews, the participants were asked to respond to several questions, but they were also encouraged to share their feelings and opinions about creative experiences.

A total of 34 individuals in a class of 46 took part in this research study. There were 19 individuals who participated in the personal reflection surveys, 9 individuals participated in the focus group interviews, and 6 individuals in the personal interviews. Since the personal reflection surveys were submitted anonymously, I do not know whether there were the same participants through all sources of data. The participants were fourth-year fashion design students who had completed all stages of the fashion design process by the time the academic year was completed. These individuals had generously volunteered their time and personal experiences to this study because they have an interest in being creative individuals.

Many of the participants of this study believed that they had experienced moments of creativity as they proceeded through the fashion design stages. All of the participants said that they experienced a creative process when they were creative. All of the participants were able to describe a creative environment and the barriers that affected
their creative development.

Findings

All of the participants in this research study had experienced the fashion design process from the concept stage through to the final apparel product. I recorded the students' perceptions and experiences regarding creative moments, a creative process, and the creative environment. Fifteen themes emerged from the rich data regarding creative moments in the personal reflection surveys, the focus group interviews, and the personal interviews. The themes were corroborated by the literature and included: independence of judgement; flexibility and skill in decision making; ability to express something in different ways; desire to interrelate; ability to produce new ideas and fresh insights; ability to broaden your perspective; problem solving; commitment to the task; outpouring of ideas; willingness to experiment; convergent thinking; divergent thinking; communicating ideas; mistakes; and problem finding. See Table 4 for a breakdown of the themes from each data source.

One of the themes to emerge from the data was the independence of judgement. The participants wanted the freedom to make choices and change directions while they worked on their assignments. They wanted the assignments to be reflections of their inner selves. The participants felt connected to their work, and they wanted to communicate their ideas to others. They wanted to create products that were unique and different. This is a finding that matches Starko (2001). The second theme to appear was flexibility and skill in decision making. The participants wanted options and choices that helped them when they made decisions. They were flexible because they listened to other people's opinions and constructive criticism, then modified their designs. The participants were willing to change their designs to make them better. They compiled information before they made any decisions. Often the participants said they had experimented with different
techniques and materials, which sometimes influenced their decisions. Some of the participants found that mistakes helped them make some decisions regarding their garments. This finding corresponds with Csikszentmihalyi (1996).

The ability to express something in different ways was the third theme that emerged. The participants found that they searched for inspiration from a variety of sources that stimulated them visually. They used the inspiration that helped them create their apparel collections, but they had a desire to express themselves differently than other students in their class. The participants told me that they needed time to reflect on their work. It helped them to think of additional ways to do something. This is a finding that matches Rasband (1996). The fourth theme to emerge was desire to interrelate. The participants used nontraditional materials and various tools to help them come up with different techniques or results that they used on their garments. They liked to figure out how things worked together and combine or pull their ideas together. They combined fabrics, colours, numbers, and textures, which helped to inspire them to make their collections unique. This is a finding that compares with Frings (2002).

The ability to produce new ideas and fresh insights was the fifth theme. The participants of this study wanted to find inspiration for an idea and create something new that had not been seen before. They created apparel collections that they were proud of, and they wanted to exhibit their collections in the fashion show. The participants felt it was important to create new, innovative ideas or develop new techniques that would make their collections stand out from the crowd. This is a finding that compares with Starko (2001). The sixth theme to become apparent was the ability to broaden your perspectives. The participants broadened their perspectives by seeking, collecting, and compiling information from trends information, forecast information, and from other people who inspired them when they created their collections. They collected pictures, photographs, and other visual images that inspired them in the creation of their apparel
collections. This is a finding that reflects Frings (2002).

Problem solving was the seventh theme that appeared in this study. Participants used various techniques that helped them to problem solve or be creative. They combined ideas, visualized, used outside sources, planned activities, created as they worked, shared ideas, and used some nontraditional materials that made them feel creative. The participants found problems as they proceeded through their work which prompted them to find some creative solutions. The participants used techniques that helped them generate, refine, and narrow their ideas. This is a finding that compares with Starko (2001) and Brannon (2000). Perseverance, drive, and commitment to the task was the eighth theme. It was apparent that the participants were committed to their work because they said they loved working on their collections. They spent many hours sketching, changing ideas, making patterns, creating test muslins, and making the final garments. They stayed focused on the main goal and found the whole process of creating a collection was a challenging experience for them. This theme matches Starko (2001).

Outpouring of ideas was the ninth theme that emerged from this study. The participants experienced creative bursts that led to an outpouring of ideas that emerged and developed in a short period of time. Their ideas began to flow freely and effortlessly. The participants found an outpouring of ideas an exhilarating and relaxing experience. This is a finding that compares with Csikszentmihalyi (1990). The 10th theme to become apparent was willingness to experiment. The participants used nontraditional materials, created new techniques, used various textures, and used different media that helped them while they were experimenting, creating interesting designs, and solving problems. Some participants experimented using different techniques so that they could narrow down from so many ideas that they had created. This finding reflects Akande (1997).

Problem finding was the 11th theme. The participants felt creative moments because they were taking ideas and finding problems that existed. Finding problems was
a way of getting constructive criticism and feedback about the participants' design ideas. This is a finding that matches Nickerson (1999). Communicating ideas was the 12th theme. The participants felt creative because they were convincing someone about their ideas and they communicated information about various techniques to other individuals. This is a finding that parallels with Starko (2001).

Convergent thinking was the 13th theme that appeared in this study. The participants felt creative as they narrowed their focus, eliminated from millions of options, combined ideas together, and made choices about their apparel collections. This finding reflects Treffinger et al. (1994). The 14th theme to emerge was mistakes. The participants felt that mistakes helped them to experience creative moments. Creative solutions were used to cover up or incorporate the mistakes into the design of the garments. The participants felt that mistakes are sometimes the most interesting aspect of the garment. This is a finding that matches Runco and Sakamoto (1999).

Divergent thinking was the 15th theme to emerge from this research study. Participants used divergent thinking skills to create numerous ideation sketches for the apparel collection. Individuals use divergent thinking strategies when problems need to be solved, new ideas need to be created, and better ideas need to be developed. New ideas were considered, and new combinations were made. This finding compares to Plucker and Renzulli (1999).

The participants in the personal interviews and the focus group interviews were asked if they experienced a process when they were creative. All of the participants said that they experienced a creative process when they created their collections. Although the number of stages and the events in each stage varied for all of the participants, it was clear that they all experienced a process. Each of the participants described different stages to their creative processes. Some of the stages included developing the idea or goal, gathering information, organizing items, refining items, brainstorming ideas,
executing ideas, narrowing down the idea, visualizing the concept of the final product, considering the details, making new combinations, considering options and choices, combining ideas, asking questions, finalizing their ideas, reflecting on the experience, testing out products, and creating the final product. These findings match Dewey, Wallas, Guilford, Rogers, Torrance, Parnes, and Osborn (cited in Starko, 2001, pp. 25-27, 48-49) and Csikszentmihalyi's (1996).

All of the participants described an environment that fostered or created barriers to creativity. There were six themes that emerged from the data that promoted creativity in an environment: atmosphere, creative people, teachers, reflection, student needs, and assignments. Some of the participants wanted an environment that was visually stimulating. They indicated that they wanted the atmosphere to be comfortable, fun, and relaxing. The participants felt that the resources of equipment, sources of information, and music were important aspects in this environment. They were inspired by other environments that were outside the classroom as well. These findings reflect Ekvall and Tängeberg-Andersson (1986) and Cole et al. (1999).

The participants felt a need to be around creative people because they believed that creative people helped them to be even more creative. Creative people pushed them to see things in new or different ways. Their peers, teachers, and other designers sparked their creativity through collaborations, consultations, and advice. The participants reported that they needed time to reflect on their work. If they reflected on their work they usually thought of better ways of doing the same task.

The participants wanted teachers who were openminded, knowledgeable, and encouraged them in their work. It was important for the participants that their teachers gave them a direction or focus. The participants wanted to build a bond of trust and make connections with their teachers. They wanted teachers to be passionate about the students and their work. The participants wanted to share ideas with others, search for outside
sources of inspiration, and get feedback from other people. They wanted to have fun with the assignments and get approval for their work. It was important for the participants to have time to complete their assignments as well as be creative and relaxed.

The participants wanted assignments that allowed them time to explore and experiment. They felt that assignments were more interesting to them if they could change directions when they were working. The participants wanted projects and assignments to be spontaneous and fun. They wanted to enjoy what they were studying, and they didn't want to think of the assignments as work.

The participants identified six themes that were potential barriers to their creativity. They included rules and guidelines, teachers, the classroom, deadlines and time, feedback, and other important issues. All of the participants informed me about particular issues or situations that hindered their creativity. Rules, guidelines, and limitations made the participants feel restricted. They felt sometimes they conformed to whatever the teacher liked and the work wasn't a representation of them or their ideas.

The participants said that teachers' teaching styles and evaluations affected their creativity because some teachers focused on the weaknesses of students. The formality of the classroom and interaction between the teacher and the students were barriers to the students' creativity. The participants needed to be in an environment where they felt inspired visually. Deadlines and time hindered their creativity because they needed time to reflect and they felt that ideas require time to develop and mature. The participants felt that feedback was another barrier that hindered their creativity. Negative feedback or lack of feedback seemed to affect the participants. It was important that the student receive some feedback from teachers regardless of their grades. Other important issues included financial problems, competitiveness among students, and their parents' expectations of them. In some cases, financial difficulties caused students to compromise and settle for a design that they really did not want. The participants felt that some students loved to be
competitive with grades and they asked other students what their grades were on the assignments. There were some participants who had experienced pressure from their parents about getting higher grades.

**Discussion**

There is a societal and educational need for people to be creative; therefore, we need to promote creative development and provide the proper environment that fosters creative growth. We need people to think creatively because the world has complicated problems that we need solved. Educational institutions need to help students develop creative skills. If students can identify their moments of creativity and understand how to enhance their creativity, then they will be better equipped to handle problems and challenges that exist in the world.

I examined whether students could recognize their moments of creativity, a creative process, and a creative environment and compared themes that emerged from all sources of data. The following research questions were important to this research study:

1. Can students identify moments of creativity that they experience as they proceed through design stages?

2. Are students able to articulate the presence and nature of a creative process?

3. Can students identify an environment that encourages or creates barriers to creative development?

The discussion of significant findings draws upon the rich data that were reported in Chapter Four. There were emergent themes that may help educators to understand how and why creative people interact in certain ways in the classroom. This research study may also help educators to understand the environment that they have to establish in order to promote the proper learning environment for creativity and creative individuals. The
data that emerged in this study verified previous research that has been conducted on creativity.

**Creative Moments**

The participants were able to describe moments of creativity after they completed all stages of the design process. However, some of the participants did not feel creative when they were working with the fashion trends and forecasting information, choosing the final five ideation sketches, creating the cost sheets, or producing the final patterns. This is an indication that those participants did not realize they were being creative and they did not understand all aspects of creativity. Some of the participants found those four stages of the fashion design process creative because they selected from hundreds of images and pictures, narrowing down to the final five sketches, using numbers to create a formula, and changing an idea from a sketch to a pattern for the outfit.

Some of the themes that emerged from the data are characteristics or personality traits of an individual that are also creative moments. Personality traits are associated with creativity (Akande, 1997; Csikszentmihalyi, 1996; Starko, 2001). Personality traits include a willingness to take risks; perseverance, drive, and commitment to task; curiosity; openness to experience; tolerance for ambiguity; broad interests; valuing originality; intuition and deep emotions; being internally occupied or withdrawing; and creativity and complexity. Many of these personality traits emerged from the data that were collected from the participants of this study.

Research has indicated that creative individuals tend to have a combination of characteristics that allow them to be creative (Starko, 2001). Independence, courage, and persistence were three characteristics that allowed individuals to be creative. The participants of this study revealed similar and some different personality traits from the transcribed data.
Creative individuals used problem-solving techniques in order to help them discover answers to problems (Sternberg, 1999). Problem-solving techniques let creative individuals see problems from various perspectives and consider a variety of solutions. Therefore, the participants used techniques such as combining ideas, visualizing, using outside sources of information, planning activities, creating as they work, sharing ideas, and using nontraditional materials to stimulate their creativity.

Research has indicated that individuals need the characteristic dispositions of perseverance, drive, and commitment to task (Starko, 2001) if they are to be successful at being creative. The participants in this study spent many hours researching, creating ideas, testing ideas, modifying ideas, and producing final products. When they were faced with problems or obstacles, they continued to ask other people for advice or they tried different solutions to the problems. In any case, the participants remained focused on the main goal of the course, which was to complete an apparel collection by the end of the academic year.

Some of the themes of creative moments from the pilot study emerged in the data of this research study. It is possible that the reason for this duplication in themes is because the participants from both sources of data were fashion design students who had completed all stages of the design process. The participants were people in a creative field who wanted to express themselves in a creative way in the design course.

**The Creative Process**

All of the participants were able to articulate the presence and nature of a creative process. The steps of each process were different, as well as the number of steps. The data that emerged from this study confirmed the literature review regarding the creative process. Some researchers have developed a theory or process to creativity. All of the theories have shown different stages or steps that individuals experience when they are
creative from Dewey, Wallas, Guilford, Rogers, Torrance, Parnes, and Osborn (cited in Starko, 2001, pp. 25-27, 48-49). I included Csikszentmihalyi's process (1996). The participants used various methods and techniques to help them achieve their goals. They all experienced various stages as they proceeded through the fashion design course. The participants identified combinations of these steps as stages in the creative process:

- Developing ideas or goals
- Seeking outside sources of information and looking for inspiration
- Brainstorming ideas
- Finalizing the ideas
- Narrowing down ideas
- Refining the ideas
- Problem solving
- Implementing the products
- Reflecting on the ideas
- Seeing the message of the final products
- Showing the final products

There was no participant who identified all of these steps in their creative process. The participants identified a combination of the steps above. It is possible that the participants of this study identified different stages in their creative processes because they possess some similar and different personality traits from each other. See Table 5 for a list of the participants from this study and the steps that they identified in their creative process.

**The Environment**

The participants were able to identify an environment that encourages or creates barriers to creative development. The participants from this study identified rules and
guidelines, teachers, the classroom, deadlines and time, feedback, and other important life issues as important issues that need to be addressed by educators. Research indicates that an environment that encourages and supports innovative and creative development increases the chances that creativity will occur. However, there are many aspects of the environment that have to be taken into consideration (Cole et al., 1999; Edelson, 1999). The data that emerged from this study confirmed and were supported by the literature review regarding environmental factors that hinder creative work.

Learning and habit, rules and traditions, perceptual barriers, cultural barriers, and emotional barriers block creative thoughts and abilities in individuals (Davis, 1999). The participants agreed that they didn't want to conform to ideas that other people suggested. They were frustrated by rules, guidelines, and criteria. Many of the participants felt that different barriers held them back from being really creative. Time was a barrier that caused them to feel stressed and less creative when they wanted to be creative. Due to the time restraints in the program, the participants did not have a lot of time for reflection. Time was needed so that individuals could experience incubation and create original thoughts (Runco, 1999).

If individuals are intrinsically motivated, then this increases the chances for creativity to occur (Amabile, 1983, 1987; Isaksen, 1987; Runco & Sakamoto, 1999; Starko, 2001; Sternberg, 1999). The participants were committed and motivated to complete their apparel collections for their final project.

Implications for Practice

The following implications for practice were suggested to improve teaching practices and the creative environment. For the participants in this research study, creativity and the fashion design process served a personal need and helped them achieve their desired goals. The participants were able to describe creative moments after they
completed all stages of the fashion design process. The participants reported both benefits and barriers that hinder their creativity in the classroom environment. However, the following implications for practice address some of the concerns that the participants in this study brought to my attention.

Instructors need to understand how to create an environment that promotes creative development. They need to be aware of those aspects in the environment that affect the students' creativity. First, instructors need to let students create the atmosphere where they want to be innovative and create new ideas. Second, instructors should encourage interaction among students and other creative people in order to give students new perspectives and promote growth in individuals. Third, instructors should provide students with feedback that is constructive in nature so that students feel the critique or assessment is a worthwhile experience.

Fourth, instructors should create assignments and projects that provide students time to reflect on their work. Fifth, instructors should give students the support and guidance that they need to become successful learners and creative individuals. Sixth, instructors should create assignments and projects that promote creativity by allowing room for students' ideas and letting them explore and experiment. Seventh, instructors should set deadlines that are reasonable and help students attain their goals.

There could be changes implemented in courses to promote creativity. Course learning objectives could include creativity. Instructors could emphasize creative development as the courses are introduced to students. Assignments and projects need to be created or altered while keeping creativity in mind. Assignments could be defined in general terms allowing students the opportunity to create their version of the assignment. Instructors need to adopt teaching strategies in the classroom that foster creativity. Learning techniques that enhance creative development need to be introduced and accommodated in a creative learning environment. Teaching assessment techniques need
to promote and foster students' creative work. Rubrics could include creativity and originality to show students that these characteristics are valued components in their assessment.

Instructors can promote creativity in the environment by encouraging students to question and be curious. Asking students' opinions and encouraging allowing questions creates a classroom of inquiry. Students should not only solve problems, they should be encouraged to define problems. Creating this type of environment puts students in an active role in determining what they will learn in the classroom.

At the department level, there could be workshops that not only teach students ways of being creative using various techniques but also inform them of ways that they can create their own environment that stimulates creativity. Other workshops could inform students and instructors about barriers that hinder creativity and the creative process that individuals sometimes experience. A creativity club or society could be organized within the department that would cover issues about creativity.

At the institutional level, the library should be provided funding to carry current materials pertaining to creativity. This material could cover all aspects of creativity and include teaching, learning, and student assessment. The institution could partner with businesses to establish a conference or a creativity association. This could lead to awards for students' creative work or scholarships for postgraduate studies.

**Implications for Theory**

The following implications for theory contribute to the literature regarding creative moments, the creative process, and a creative environment. This is one of the few studies that has documented the creative journey from the concept stage to the final product. Participants of this study were asked to reflect and document their creative moments as they proceeded through all stages of the fashion design process. Reflection
was not retroactive but an ongoing process. The participants of this study were asked to reflect and document their creative moments after they completed each stage in the fashion design process.

It is the only study to my knowledge that reflects self-documentation by individuals after they created products. The participants documented their creative moments as they created garments for their apparel collections. This thesis documents the uniqueness and variety of the processes that individuals follow. All participants of this study experienced a creative process when they were being creative. This thesis documents both the benefits and barriers that influence individuals in their creative environments. Participants of this study were asked a series of questions about an environment that promotes and hinders creative development. The participants drew from their experiences in the classroom as they created garments for their apparel collections.

Many researchers have advocated that practical examples of the creative process should be examined. This is one such study. This study documented stages of apparel design while participants experienced a creative process. Some researchers have supported the link between motivation and creativity. It was clear that the participants were dedicated to the task of completing their apparel collections by working for long hours, solving challenging problems, and seeing the completion of their garments.

Implications for Further Research

A number of issues have arisen from this research study that could lead to possible research projects. Future research could focus on determining whether exceptionally creative students benefit more than other students in their future careers. Researchers could track the participants and contact them in 20 years to compare the results from this study with the best careers that those individuals have at that point in time. It would be interesting to see if participants who identified creative moments, a
creative process, and a creative environment prosper in their careers better than individuals who cannot identify some creative moments.

Future research could focus on issues relating to learning, teaching, and assessment that could enhance the learning environment for creativity. On the issue of learning, researchers could focus on discovering why students have different creative moments or characteristics when they are creative. Future research could focus on discovering why students experience different processes to creativity. In addition, I expect to extend the research findings by developing a model of the creative process thereby, adding a theoretical perspective. Research could focus on the environment and how it affects creativity and learners.

On the issue of teaching, researchers could focus on various teaching styles that promote and foster creativity. Future research could address how teachers support creativity in the classroom. There could be research conducted on the effects of creativity in a project-based curriculum. Future research could focus on classroom strategies that motivate students. On the issue of assessment in education, research could focus on different ways to assess creative work that promote originality and creativity. Future research could address how assessment affects students' creativity. There could be research conducted on the effects that students' self-assessment have on their creativity.

Recommendations

The results of this study suggest that there needs to be a better understanding of creativity and that creativity be supported and encouraged. Creativity will occur in a supportive environment (Couger, 1995; Cropley, 1999; Ripple, 1999; Starko, 2001; Sternberg, 1999). Instructors need to support the environment that has been conducive to creative development and leads to effective learning for students. The following recommendations appear from the results that emerged from this research study. These
recommendations could be beneficial for those individuals who develop curriculum and for learners who like to express their creativity in the classroom. Students need to learn how to manage what blocks their creativity as well as how to contribute to their environment so that they can be creative (Parnes, 1999).

**Instructors**

Instructors need to...

- Be aware of issues related to creativity in the classroom
- Create a climate that is conducive to creative development
- Be open-minded and flexible in a creative environment
- Develop relationships with students by listening to students when there are concerns about assignments, peers, or the classroom
- Provide constructive feedback that helps students understand how they can improve their work and their grades
- Develop project-based curricula
- Try to eliminate some of the barriers that hinder creativity
- Create assignments and projects that have room for students to develop their own ideas and define the problems

Instructors can create an environment that is inviting for students to learn in and explore their creative sides by...

- Encouraging students to be curious
- Letting student ask probing questions
- Encouraging students to develop their own ideas
- Allowing students to define the problem
- Letting students explore their creative sides

Instructors could develop project-based learning curricula that would incorporate
some of the criteria that schools want students to learn and provide students with opportunities to reflect and enjoy their experiences. This structure would give students the time that they need to see their creativity evolve and mature over a period of time. This learning method could be the motivational tool that students need to provide themselves with meaningful experiences in the classroom. Project-based learning would accommodate learning styles and students' abilities better than a rigid curriculum.

**Students**

Students need to...

- Understand all components of creativity better
- Learn what triggers their creativity
- Understand the barriers that prohibit creativity
- Learn a variety of techniques that help to enhance their creativity
- Create an environment that promotes their creativity
- Search for problems as well as solve problems

Creating or defining problems can be as creative as solving problems. Collecting and searching for inspiration or data from outside sources means that students can accept new experiences. Fashion trends and forecast information and other sources help students to be more creative by letting them make their own choices and collect data for their solutions to problems. Finding alternative solutions to work around the barriers could offer alternative solutions that might not have been considered before. An awareness of all aspects of creativity can make students more creative. Learning a variety of techniques that enhance creativity can help students arrive at a variety of different solutions instead of one solution. They need to learn what triggers their creativity so that they are able to be inspired.
Conclusion

The participants of this research study were students who experienced the creative process and creative moments in a fashion design course. The participants reflected after the design stages were completed. Creative moments were recognized by all participants of this research study. All of the participants were able to identify a creative process. They were able to describe an environment where they felt creative and interacted with other students. The participants were also able to identify barriers that stifle their creativity. The participants were creating their apparel collections in their final year at university. They shared their experiences and perceptions of creative moments, creative process, and a creative environment from the design class.

All individuals who took part in this research study intended to find careers in the fashion industry after graduation. The participants described their moments of creativity and a creative environment. All of the participants described a creative process when they were creative. However, some of the participants did not find moments of creativity when they were working with the fashion trends and forecasting, choosing the final five ideation sketches, creating the cost sheets, or producing the final patterns.

The participants who took part in this study saw themselves as creative individuals who were in pursuit of their dreams to become leaders and decision makers in the fashion industry. In the fashion design course, their learning was aimed at improving their skills and techniques in fashion design so that they would be successful in their future careers. The participants enjoyed being creative around other individuals they considered creative. They felt a need to be creative, which helped them define who they were as individuals.

A great challenge confronting research on creativity is for researchers to develop a better understanding of creativity and the learner. Trying to provide the environment that fosters creativity would be a step towards improving our practice for learners in
creative fields. From this research study comes a better understanding of individuals in their environments as they experienced creative moments and a creative process. An awareness of creativity will benefit individuals who have a desire to be creative.
References


Tullier, M. (2002). *The skills you have... ...and the skills they want*. Retrieved from: http://campus.monster.ca/articles/skills/

Appendix A

Brock University Ethics Approval

Senate Research Ethics Board

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Michelle McGinn, Education
Bernadine Murray

FILE: 01-219, Murray

DATE: March 26, 2002

The Brock University Research Ethics Board has reviewed the research proposal:

Can students' identify their creative moments within structured class assignments in a design course?

The Subcommittee finds that your proposal conforms to the Brock University guidelines set out for ethical research. Your research proposal has been approved through the expedited review process for the period of March 26, 2002 to April 30, 2002.

** Accepted as clarified.

Expedited Review of a research proposal (by 2 members of the Research Ethics Board and review by the Chair of the REB) is equivalent to approval provided by the full REB (i.e., it does not mean conditional approval). However, the Chair of the REB must report to the full REB on a monthly basis about any expedited reviews that they have conducted. At such meetings, the full REB could ask for additional changes to the research protocols being used in a particular study. If this were to occur, the decision of the full REB will always over-ride the earlier decision of the two REB members and the Chair.

Please note:
Changes or Modifications to this approved research must be reviewed and approved by the committee. Please complete form REB-03(2001) Request for Clearance of a Revision or Modification to an Ongoing Application to Conduct Research with Human Participants and submit it to the Chair of the Research Ethics Board.

The Tri-Council. Policy Statement requires that ongoing research be monitored. Researchers with projects lasting more than one year are required to submit REB-02(2001) Continuing Review/Final Report annually and at the completion of the project. The Office of Research Services will contact you when this is required. All projects, with the exception of undergraduate projects, will require this form to be submitted to the Research Ethics Board upon completion of the project.
These forms are available from the Office of Research Services web site:
www.BrockU.CA/researchservices/forms.html

DB/dvo

Deborah Van Oosten
Research Ethics Officer
Brock University http://www.brocku.ca/researchservices/
phone: (905)688-5550, ext. 3035 fax: (905)688-0748
The Brock University Research Ethics Board has reviewed the research proposal:

*Can Students' identify their creative moments in structured class assignments in a design course?*

The Research Ethics Board finds that your *modification request* to an ongoing project involving human participants conforms to the Brock University guidelines set out for ethical research.

Please add a statement to the consent form for the focus group which encourages focus group participants to respect the confidentiality of what other participants say in the focus group session.
Appendix C

Ryerson University Ethics Approval

Research Ethics Board

To: Bernadine Murray, School of Fashion

From: Kate Azure on behalf of Robert Rinkoff, Ph.D.

Chair, Research Ethics Board c/o Early Childhood Education

Re: REB 2002 - 031: Can Students identify their creative moments within structured class assignments in a design course?

Date: 1 August 2002

Dear Prof. Murray:

The Research Ethics Board has completed its review of your submission. The project has been approved for a one-year period, subject to full REB ratification at the REB's next scheduled meeting. Your study may proceed now.

The approval may be extended after one year upon request. You are responsible for notifying your funding agency and research administrators of this approval.

Please note that REB approval policies require that you adhere strictly to the protocol as last reviewed by the REB and that any modifications must be approved by the Board before they can be implemented. Adverse or unexpected events must be reported to the REB as soon as possible with an indication from the Principal Investigator how these events affect, in the view of the Principal Investigator, the continuation of the protocol.

Finally, if research subjects are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

Please quote your REB file number (REB-2002-031) on future correspondence. Congratulations and best of luck in conducting your research.
Appendix D

Personal Reflection Survey and Focus Group Participant Solicitation

September 2002

I am looking to solicit your participation in my study, which will provide data for my Master of Education thesis. Please read the following information below to see if you are interested in participating in this study.

Title of Study: Can students identify their creative moments within structured class assignments in a design course?

I am looking for volunteers who will take part in a qualitative study on creativity. This study is intended to assess students' identification of creative moments within structured class assignments in a design course. I am seeking participants who are interested in participating in a personal reflection survey and a focus group for my study. I will conduct this study as a requirement for my Master of Education thesis at Brock University. The purpose of this study is the researcher's interest in creativity. Participation in the study will require a personal reflections survey and your attendance at one focus group interview. The focus group interview will be audio-taped and take 30 minutes. The semi-structured focus group interview will include a series of questions. The information gathered from this interview will be used as data for my thesis as well as possible educational conferences and published papers. A final copy of the final thesis will be provided to you upon request.

The focus group questions include:

1. Describe an environment that promotes creativity?

2. Describe an environment that hinders creativity?

3. How are you creative?

4. Is there a process that you go through when you are creative? If yes, describe that process? If no, why?

5. Is there anything about the creative process that you wish to add, that I haven't asked you?
Appendix E

Personal Interview Participant Solicitation

September 2002

I am looking to solicit your participation in my study, which will provide data for my Master of Education thesis. Please read the following information below to see if you are interested in participating in this study.

Title of Study: Can students identify their creative moments within structured class assignments in a design course?

I am looking for participants who are interested in participating in a qualitative study on creativity. I will conduct this study as a requirement for my Master of Education thesis at Brock University. The purpose of this study is the researcher's interest in creativity. Participation in the study will require your attendance at one interview. The interview will be audio-taped and take 45 minutes. The semi-structured interview will include a series of questions. The information gathered from this interview will be used as data for my thesis as well as possible educational conferences and published papers. A final copy of the final thesis will be provided to you upon request.

The questions include:
1. Why did you take the Fashion Design course: Design Critique?
2. How do you think that fashion design students express their creativity?
3. Do you feel a need to be creative?
4. When do you feel that you are most creative?
5. Is there a process that you go through when you are creative?
6. Are there any techniques that you use when you are being creative?
7. When do you feel that you are least creative?
8. As you proceeded through each of the fashion design stages, identify any moments where you felt creative?
   A. Inspiration Board:
   B. Fashion Trends and Forecasting:
   C. 25 Ideation Sketches:
   D. Final Five Ideation Sketches:
   E. Design Book: Fashion Illustrations, Technical Sketches, and Summary Line Sheet:
   F. Test Muslins:
   G. Final Garments with cost sheets:
   H: Final Patterns:
9. Is there anything about the creative process that you wish to add, that I haven't asked you?
Appendix F

Informed Consent #1

Informed Consent Form for a Personal Interview #1

Title of Study: Can students identify their creative moments within structured class assignments in a design course?

Researcher: Bernadine Murray, B.Ed. bmur@sprint.ca

Name of Participant: ____________________________________________________________

(please print)

Telephone # __________________________ email address _____________________________

I understand that this study in which I have agreed to participate is intended to assess my identification of creative moments within structured class assignments in a design course. My involvement will include a personal interview with the researcher regarding my experiences and opinions about creativity. The personal interview will take 45 minutes in length. I understand that I will receive a copy of the transcribed interview for my approval. I understand that the purpose of this study is the researcher’s interest in creativity in a design course.

I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that there is no obligation to answer any question or to participate in any aspect of this study that I consider invasive.

I understand that all personal data will be kept strictly confidential and the content of any discussions with the researcher will be coded so that my name is not associated with my responses. I understand that the researcher and the academic advisor will be the only individuals who will have access to my responses. I understand that I will be offered an opportunity to read and approve this transcript before any parts of the interview have been used in the final thesis which will eventually be published by Brock University and made available in their academic libraries. I understand that the researcher could use the results of this study at educational conferences or to publish a paper about creativity.

Participant Signature __________________________ Date __________________________

This study has been reviewed and approved by the Brock Research Ethics Board. (File #01-219, Murray). This study has been reviewed and approved by the Ryerson Research Ethics Board (File #REB 2002 - 031).

If you have any questions or concerns regarding your participation in this study, please contact Bernadine Murray at (416) 979-5000 x 6530 or Dr. Alice Schutz, Brock University, Faculty of Education at (905) 688-5550 x 3941.

Feedback about the results of the study and the use of the data collected will be available from the researcher after September 15, 2003. A written account will be provided for you upon request. Thank you for your participation in this study.
I have fully explained the procedures of this study to the above volunteer.

Researcher Signature ___________________________ Date ________________
Appendix G

Informed Consent #2

Informed Consent Form for a Reflection Survey and a Focus Group Interview #2

Title of Study: Can students identify their creative moments within structured class assignments in a design course?

Researcher: Bernadine Murray, B.Ed. bmur@sprint.ca

Name of Participant: (please print)

Telephone # __________________________ email address __________________________

I understand that this study in which I have agreed to participate is intended to assess my identification of creative moments within structured class assignments in a design course. My involvement will include a personal reflection survey and a focus group interview which will last 30 minutes in length with the researcher regarding my experiences and opinions throughout the design process. I understand that I will receive a copy of the transcribed interview for my approval. I understand that the purpose of this study is the researcher’s interest in creativity in a design course.

I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that there is no obligation to answer any question or to participate in any aspect of this study that I consider invasive.

I understand that all personal data will be kept strictly confidential and the content of any discussions with the researcher will be coded so that my name is not associated with my responses. I understand that all focus group participants are to respect the confidentiality of what other participants say in the focus group session.

I understand that the researcher and the academic advisor will be the only individuals who will have access to my responses. I understand that I will be offered an opportunity to read and approve this transcript before any parts of the interview have been used in the final thesis which will eventually be published by Brock University and made available in their academic libraries. I understand that the researcher could use the results of this study at educational conferences or to publish a paper about creativity.

Participant Signature __________________________ Date __________________________

This study has been reviewed and approved by the Brock Research Ethics Board. (File # 01-219, Murray). This study has been reviewed and approved by the Ryerson Research Ethics Board (File #REB 2002 - 031).

If you have any questions or concerns regarding your participation in this study, please contact Bernadine Murray at (416) 979-5000 x 6530 or Dr. Alice Schutz, Brock University, Faculty of Education at (905) 688-5550 x 3941.
Feedback about the results of the study and the use of the data collected will be available from the researcher after September 15, 2003. A written account will be provided for you upon request.

Thank you for your participation in this study.

I have fully explained the procedures of this study to the above volunteer.

Researcher Signature ___________________________ Date ________________
Appendix H

Informed Consent #3

Informed Consent Form for Reflection Survey #3

Title of Study: Can students identify their creative moments within structured class assignments in a design course?

Researcher: Bernadine Murray, B.Ed.  bmur@sprint.ca

Name of Participant: ________________________________

(please print)

Telephone # ________________________________ email address ________________________________

I understand that this study in which I have agreed to participate is intended to assess my identification of creative moments within structured class assignments in a design course. My involvement will include a personal reflection survey regarding my experiences and opinions throughout the design process. I understand that the purpose of this study is the researcher's interest in creativity in a design course. I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that there is no obligation to answer any question or to participate in any aspect of this project that I consider invasive.

I understand that the researcher is in a position of power however I would like to participate in the study. It is my understanding that I do not have to feel obliged to participate in this study.

I understand that all personal data will be kept strictly confidential and the content of any discussions with the researcher will be coded so that my name is not associated with my responses. I understand that the researcher and the academic advisor will be the only individuals who will have access to my responses. I understand that my responses have been used in the final thesis which will eventually be published by Brock University and made available in their academic libraries. I understand that the researcher could use the results of this study at educational conferences or to publish a paper about creativity.

This study has been reviewed and approved by the Brock Research Ethics Board (File #01-219, Murray).

This study has been reviewed and approved by the Ryerson Research Ethics Board (File #REB 2002 - 031).

If you have any questions regarding your participation in this study, please contact Bernadine Murray at (416) 979-5000 x 6530 or Dr. Alice Schutz, Brock University, Faculty of Education at (905) 688-5550 x 3941.

Feedback about the results of this study and the use of the data collected will be available from the researcher after September 15, 2003. A written account will be provided for you
upon request.

Thank you for your participation in this study.

I have fully explained the procedures of this study to the above volunteer.

Researcher Signature ___________________________ Date ________________