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Entry Level Graphic Design Students: Influences Of Sketching On The Development Of Creativity

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ENTRY LEVEL GRAPHIC DESIGN STUDENTS: INFLUENCES OF SKETCHING
ON THE DEVELOPMENT OF CREATIVITY

by

Elizabeth A. Becker
Bachelor of Arts, University of North Dakota, 2003

A Thesis

Submitted to the Graduate Faculty

of the

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In partial fulfillment of the requirements

For the degree of
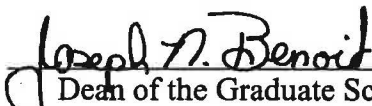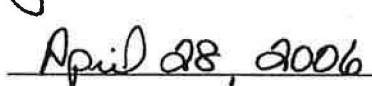
Master of Science

Grand Forks, North Dakota
May
2006

This thesis, submitted by Elizabeth A. Becker in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Chairperson

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This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

_____
Dean of the Graduate School

April 28, 2006
Date

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PERMISSION

Title   Entry Level Graphic Design Students: Influences of Sketching on the Development of Creativity

Department   Industrial Technology

Degree   Master of Science

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ABSTRACT

Artists and designers typically utilized sketching for brainstorming because it provides them with a means to transfer their initial ideas from their head onto paper or a computer. Sketching is regarding by researches in the field of design to be an essential part of the design process and is believed to be related to creativity and innovation in design. This study explored the role sketching played in the development of graphic design student's creativity. Participants in this study were recruited from six different sections of entry-level, graphic design courses. Their experiences, perceptions of creativity, and attitudes about sketching in graphic design were examined during the fall semesters of 2004 and 2005 at one Upper Midwest university.

Qualitative and action research methods were used to study the students. Data was gathered from interviews, a survey completed by the participants, classroom observations, and student reflections about creativity. The general categories for the participants' perspectives included background information, perceptions about creativity, and attitudes regarding sketching in graphic design. Three themes emerged from an analysis of the data.

The first theme discussed the impact of physical environments and human environments, specifically the role of teachers and peer collaboration, on student creativity. The second theme explained how students defined their creativity and whether or not they considered themselves to be creative in graphic design. Finally, theme three discussed the affects sketching has on the creative process.

CHAPTER I

INTRODUCTION

Dating back to the Renaissance, artists and designers utilized sketching for brainstorming and idea generation. It provided them with a means to transfer their ideas from their head onto paper. Today, sketches can be made anywhere and on anything including the back of an envelope, the margins of a telephone book, the inside of a candy bar wrapper, or on a napkin. Researches in the field of design have long considered sketching to be an essential part of the design process and believe that it is related to creativity and innovation in design.

The purpose of this study was to discover and understand the role sketching played in the development of graphic design student's creativity. In this research, student participants were studied for nine weeks during the fall semesters of 2004 and 2005 at an Upper Midwest university. The investigation focused initially on students' perceptions of creativity and how sketching was employed to develop their creativity. However, questions related to how physical and human environments impact creativity also emerged.

In Chapter I, the reader is provided with background information on creativity and sketching in design. Also described in this chapter are the problem statement, need for the study, research questions, definitions, and organization of the study.

Creativity and Sketching in Design

Creativity is defined as the ability to make or bring something new into existence (Webster's Online Dictionary, 2004). It is not something an individual is born with;

creativity can be developed. In fact, researchers have discovered that creativity can be developed at any stage of the life cycle (Davidson, 2003). While anyone can develop creativity, it appears we are the most creative when we are children. "As children we are encouraged to let our imaginations run wild" (Evers and Kendra, 2002, p.8). It is acceptable for children to dress up as fairy princesses and superheroes, to make up stories about dolls, action figures and stuffed animals, to paint cats purple, and to draw wings on pigs. However, there comes a time when children are expected to grow up. Toys are put away and it is no longer acceptable to color outside of the lines. "Unfortunately, during middle and late childhood there may be a decrease in creativity as children become more conforming and inhibited" (Davidson, 2003, p. 3). Pica (1998) explains:

> Creativity begins to "dry out" at just around five years of age. It suffers a drastic reduction at about nine and again at age 12. In fact national studies show that creativity peaks at about age four and a half. That leaves most individuals in an awfully long creative slump. (p. 27)

However, with care, creativity can be sustained throughout adulthood (Davidson, 2003). Studies have shown that creative individuals are able to express themselves and imagine new ideas. "Thus, they can imagine solutions to real-life problems and challenges" (Pica, 1998, p. 27). When considering creativity in graphic design this is crucial because "design is about solutions to real problems" (Sommese and Sommese, 1997, p. 33).

Sommese and Sommese (1997) recommend that designers follow three basic steps for improving their creativity and to help them solve real problems in graphic design. Those steps include defining the project, conducting research, and spending time thinking about the problem. These two authors explain that every design problem is different and has unique aspects that need to be considered. Sommese and Sommese (1997) state that

research and information gathering is essential. Designers need to ask questions like "What is the nature of the project? What has been done in the past? What are the client's goals? What is the budget and deadline? What is the competition doing?" (p. 33). Finally, Sommese and Sommese (1997) instruct designers to take the information that has been gathered and sit back and think about it for a while. They explain that thinking about the information will lead to a relevant idea to the design problem. Another way to develop ideas to problems in design is through sketching. Dong (2006) explains that drawing sketches is critical to the design process because it acts as a graphical representation for thinking, communication, and evaluation of design ideas.

McGown, Green, and Rodgers (1998) identify three different kinds of sketching in their research. The thinking sketch helps designers to focus and guide their non-verbal thinking. The prescriptive sketch is made to direct designers in making the finished drawing. The talking sketch is produced through an exchange between designers. In many cases, designers may actually pass the pencil back and forth as they talk and draw together on the same sketch. It is a way of clarifying complex and confusing parts of the sketches.

In research conducted by Schutze, Sachse, and Romer (2003), the value of sketching activities in the early stages of the design process is explored. Their results showed that sketching has a positive impact on the quality of the designed solution. During the study, the subjects (45 mechanical engineering students) were divided into three groups and asked to design a garden grill. The first group used paper and pencil and sketched without any constraints. The second group also used paper and pencil, but their sketches were withdrawn after they had completed 50 percent of the solution. The third

group was asked to solve the problem mentally and they were not allowed to make sketches. The results showed that the students who were allowed unlimited access to their sketches produced a higher quality solution than those who were limited or had no access to sketching.

While sketching is often done with pencil and paper, it can also be accomplished on the computer. Bilda and Demirkan's (1999) study gained insight about designers' cognitive processes while sketching with traditional media versus on the computer. The participants drew their sketches using pencils and paper and a computer program called Design Apprentice. Data on the design processes was obtained by analyzing six interior designers as they solved an interior space-planning problem. Results demonstrated that traditional media had advantages over the digital media, such as supporting the perception of visual-spatial features, organizational relations of the design, production of alternative solutions, and a better conception of the design problem.

The fact that traditional methods of sketching are recognized as superior to digital methods has led researchers to explore ways of improving digital sketching tools. In a study conducted by Verstijnen, Leeuwen, Goldschmidt, Hamel, and Hennessey (1998), sketching behavior was investigated. Their experiments revealed two mental processes as essential to the creative process, restructuring and combining, which are in turn influenced by sketching and individual creativity. This research explores each of the factors separately with respect to their impact on sketching behavior. Based on the study results, the authors recommended that: 1) digital sketching tools be accessible to both experts and novices; 2) the use of digital tools should not require any specialized training; 3) the digital

tools need to be more helpful than paper and pencils; and, 4) the tools have to allow the user to raise their performance to new levels.

In Yeoh's (2002) research, the role computers play in how graphic design students develop ideas is explored. His study examined whether computer technology enhances or hinders creativity in terms of idea formation. Looking at research that had already been accomplished in this area, Yeoh surveyed 173 undergraduate students from 14 graphic design classes at a southern university. Results demonstrated that technology inspires and develops new opportunities in its users. It allows users to multi-task, explore, conceptualize, customize, manipulate, personalize, and produce in an interactive environment. It forces graphic designers to think, draw, manage, and produce.

Problem Statement

The purpose of this study was to explore how entry-level, undergraduate graphic design students' creativity is developed. The specific goal of this study was to conduct qualitative, action research to discover and understand the role sketching plays in the development of graphic design students' creativity.

Need for Study

This study seeks to increase an understanding of how entry-level, undergraduate graphic design students' creativity is developed and the role sketching plays in the creative process. Current studies on sketching and its role in design focused on engineering design, mechanical design, interior design and architecture. There has been very little research on the role sketching plays in the development of creativity in graphic design students. The study findings may help teachers, researchers, and anyone affiliated with graphic design programs develop frameworks that can be used to assist students develop their creativity.

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Research Questions

The research was guided by two key questions. Those questions are:

1. How is creativity developed in entry-level, undergraduate graphic design students?

2. How is sketching employed in the development of student creativity?

Definitions

Creativity, graphic design, and sketches are relative terms and mean different things to different people. The definitions used in this study to define these three terms are provided in this section.

a. Creativity is the ability to make or bring something new into existence (Webster's Online Dictionary, 2004).

b. Graphic Design is the process of working with words and pictures to create solutions to problems of visual communication (*History of Graphic Design,* 2002).

c. Sketches, often referred to as thumbnails, are small drawings that do not contain a lot of detail. They are made at the early stage of the design process, are for private use, and are typically made on anything such as the back of an envelope or the edges of a newspaper (Verstijnen, Leeuwen, Goldschmidt, Hamel, and Hennessey, 1998).

Organization of the Study

Chapter I conveys an overview of creativity and sketching in graphic design. It also includes a discussion of the problem statement, need for study, research questions, definitions, and organization of the study.

The methodology used for this study is described in Chapter II. It begins with a comparison between qualitative research and the more traditional quantitative approach.

Next, a rationale is offered for choosing the qualitative research method. Finally, the procedures and data gathering techniques (i.e., interviews, surveys, observations, coding procedures, and participant feedback) that were used in the study are explained.

In Chapter III, the study participants' perspectives are shared. Consistent categories are used to express the participants' perspectives and provide the reader with background information, perceptions about creativity, and beliefs about the importance of sketching in graphic design.

In Chapter IV, results of the data from interviews, surveys, and observations that were sorted and coded for similarities are conveyed. The resulting categories and patterns are included. The three themes that emerged are discussed with reference to the professional literature.

A summary of the study is provided in Chapter V. Limitations and recommendations are also provided in this chapter.

CHAPTER II

METHODOLOGY

The purpose of this study was to explore how entry-level, undergraduate graphic design students develop their creativity. The specific goal of the study was to conduct qualitative and action research to discover and understand the role sketching plays in the development of graphic design students' creativity. This chapter discusses the methods and procedures performed to gather the essential information necessary to complete the study.

In order to convey my decision for choosing the qualitative research method, I will begin with a comparison between qualitative research and the more traditional quantitative approach. Next, a rationale is offered for choosing the qualitative research method; and finally, the procedures and data gathering techniques that were used in the study are explained.

Comparison of Quantitative and Qualitative Research

Quantitative and qualitative research approaches have arisen from different research needs. The quantitative research approach pursues facts and is used when the researcher wishes to obtain statistical truths. "Quantitative methods allow us to summarize vast sources of information and facilitate comparisons across categories and over time" (Kruger, 2003). In contrast, the qualitative method recognizes the viewpoint of the researcher. "Qualitative inquiry employs different knowledge claims, strategies of inquiry, and methods of data collection and analysis. Although the processes [research methods]

are similar, qualitative procedures rely on text and image data, have unique steps in data analysis, and draw on diverse strategies of inquiry" (Creswell, 2003, p. 179).

Evaluation of Qualitative Studies

"Whatever procedure for collecting data is selected, it should always be examined critically to assess to what extent it is likely to be reliable and valid" (Bell, 2005, p. 117). Historically, validity was linked to numerical or quantitative research (Mills, 2003) and therefore, it is not surprising that the reactions by qualitative researchers have been mixed regarding whether or not this concept should be applied to qualitative research (Johnson, 1997). In fact, some qualitative researchers have suggested that the traditional quantitative criteria of reliability and validity are not relevant to qualitative research and, therefore, should be abandoned (Smith, 1984). However, other qualitative researchers have seen validity as a strength of qualitative research and use it to determine whether the findings are accurate from the standpoint of the study's researcher, participants, and readers (Creswell, 2003).

When qualitative researchers speak of research validity, they are usually referring to qualitative research that is plausible, credible, trustworthy, and therefore defensible (Johnson, 1997). The following four types of validity that are especially relevant to qualitative research are: descriptive validity, interpretive validity, theoretical validity, and internal validity.

Descriptive Validity

Johnson (1997), defines descriptive validity as the factual accuracy in reporting descriptive information (i.e., description of events, objects, behaviors, people, settings, times, and places). Descriptive validity is important because description is a major

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objective in nearly all qualitative research. "The first concern of most qualitative researchers is with the factual accuracy of their account—that is, that they are not making up or distorting things they saw and heard" (Maxwell, 1992, p. 285).

Interpretive Validity

Interpretive validity deals with the concern researchers have with the meaning attributed to the behaviors of the people being studied and is often called "participants' perspective" (Mills, 2003). Specifically, it refers to the degree to which the research participants' viewpoints, thoughts, feelings, intentions, and experiences are accurately understood by the qualitative researcher and portrayed in the research report. Johnson (1997) writes, "Accurate interpretive validity requires that the researcher get inside the heads of the participants, look through the participants' eyes, and see and feel what they see and feel. In this way, the qualitative researcher can understand things from the participants' perspectives and provide a valid account of these perspectives" (p. 285).

Theoretical Validity

The third type of validity in qualitative research is called theoretical validity, which offers a theoretical explanation developed from a research study that fits the data and, therefore, is credible and defensible. According to Johnson (1997), theory usually refers to discussions of how a phenomenon operates and why it operates as it does. "Any theory has two components: the concepts or categories that the theory employs, and the relationships that are thought to exist among the concepts" (Maxwell, 1992, p. 291). Theory is usually more abstract and less concrete than description and interpretation; it's development moves beyond just the facts and provides an explanation of the phenomenon being studied.

Internal Validity

Frequently, qualitative researchers are not interested in cause and effect relationships but sometimes they are interested in identifying potential causes and effects (Johnson, 1997). Internal validity refers to the degree to which a researcher is justified in concluding that an observed relationship is causal.

It is important to think about issues of validity in qualitative research and to examine some strategies that have been developed to maximize validity. Creswell (2003) provides the following list of strategies for ensuring internal validity:

> 1. Triangulation of data—Data will be collected through multiple sources to include interviews, observations and document analysis;
> 2. Member checking—The informant will serve as a check throughout the analysis process. An ongoing dialogue regarding my interpretations of the informant's reality and meanings to ensure the truth value of the data;
> 3. Long terms and repeated observations at the research site—Regular and repeated observations of similar phenomena and settings will occur on-site over a four month period of time;
> 4. Peer examination—A doctoral student and graduate assistant in the Educational Psychology Department will serve as a peer examiner;
> 5. Participatory modes of research—The informant will be involved in most phases of the study, from the design of the project to checking interpretations and conclusions; and,
> 6. Clarification of researcher bias—At the outset of this study researcher bias will be articulated in writing in the thesis proposal under the heading, 'Researcher's Role' (p. 204).

To ensure the reliability of my research data, I used descriptive, interpretive, theoretical, and internal validity. For example, I incorporated descriptive validity by writing detailed descriptions during my observations. I observed the participants as they worked on a sketching activity and recorded their actions, the events that were taking place, the setting, the time and place, and any behaviors that I noticed. While I was observing I used words like "appeared to" or "seems" to avoid any misinterpretations of the events taking place. I utilized interpretive validity by following up with participants

after the observed sketching activity so that I could better understand their thoughts and feelings about the project. Theoretical validity was obtained after I had finished coding my data for patterns and themes. Once I had established my list of themes I showed them to the participants for verification. I incorporated several of the internal validity strategies. I utilized triangulation; observed students in their natural setting, interviewed the subjects, and administered surveys. I also cross-checked all of my data by looking at studies that were done in the past. Finally, I practiced self-reflection for potential biases and I sought feedback from the study participants for verification. The study was also reviewed on a regular basis by my thesis committee chair to challenge my interpretations and conclusions.

Action Research

In addition to my research being qualitative, it is also action research. Kemmis and McTaggart (1982) define action research as a solution-oriented investigation that is group or personally owned and conducted. Action research encourages change in schools, fosters a democratic approach to education, empowers individuals through collaboration, encourages educators to reflect, and promotes a process of testing new ideas (Creswell, 2002).

Action research also involves a model called the "dialectic action research spiral." (See Appendix A) "This model provides teachers with a four-step guide for their action research project" (Creswell, 2002, p. 18). The cycle is spiral because it includes four stages that cycle back and forth between data collection and focus, and data collection and analysis and interpretation. The first step of this process is to define an area of focus. The next step is to collect data utilizing a variety of different methods such as interviews,

surveys, and observations. After collecting data the action researcher must analyze and interpret the data. According to Creswell (2002) this process includes identifying themes; coding surveys and interviews; asking key questions; engaging in concept mapping; and, displaying findings. Interpreting the data also involves "extending the analysis by raising questions, connecting findings to personal experiences, seeking the advice of critical friends, and contextualizing the findings in literature and theory" (Creswell, 2002, p. 18). The final stage of the cycle is to complete an action plan.

In action research, teachers research problems in their own classrooms so they can improve students' learning (Creswell, 2002). As a second-year teacher and a former graduate teaching assistant, I have become increasingly interested in how entry-level graphic design students develop their creativity. My personal experience as a graphic design student, and later as a teacher, made me aware that it is often difficult for entry-level designers to develop creative ideas for projects. In the beginning, students often play it safe and do not really challenge themselves. By employing qualitative, action research to investigate why students find it difficult to come up with ideas for projects I hope to help them develop their creativity.

Rationale for Choice of Methodology

Creswell (2003) suggests that the decision as to which research method should be used depends on the research problem, the personal experiences of the researcher, and the audience for whom the report will be written. Certain types of research problems call for specific approaches. "If a concept or phenomenon needs to be understood because little research has been done on it, then it merits a qualitative approach" (Creswell, 2003, p. 22).

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"The researcher's viewpoint is clearly placed on the research and he or she is able to provide richer and a wider-ranging description than in the quantitative research approach. Employing the qualitative methodology enables the researcher to investigate and express the research comprehensively" (Kenney, 2002, p. 16). Conducting qualitative research will allow me to explore, discover, interpret, and understand sketching and its role in the development of creativity in graphic design students.

Procedures

Negotiating Entry

My inquiry began by meeting with the instructor of two sections of an entry-level design course taught during the 2004 fall semester; I taught the third section of the course. I received permission from the instructor to distribute information about my study and to ask for student volunteers in all three sections of the design course. Consent forms were given to a total of 53 students enrolled in the entry-level graphic design course. The consent forms briefly described the purpose of my research, the expected time commitment, the need for volunteers, and contact information. I explained to the students that I would be conducting one-on-one interviews, administering surveys, and observing them in their classroom setting. After answering their questions, 27 students agreed to the conditions and signed the consent forms (See Appendix B).

This procedure was repeated in the 2005 fall semester in three additional entry-level graphic design courses. Once again, I taught one section of the course while another instructor taught the other two sections. The purpose of including these three graphic design sections was to add data to strengthen my research. The consent forms were

administered to 54 students; 28 of them agreed to the conditions and signed the consent forms (See Appendix B).

<u>Confidentiality</u>

In compliance with the university's Institutional Review Board, I made the following efforts to ensure the confidentiality of the participants.

1. The names of the participants are known only to me. Upon signing the consent form each participant was issued an identification number to help ensure confidentiality.

2. All of the data is stored separately in a safe and secure place that only I have access to.

Description of Setting & Participants

This study was conducted at a university located in the Upper Midwest in a city with approximately 50,000 people. The university has a population of about 13,000 students that come from all over the world. In addition, this university is the leading research university for the state granting bachelor, master, and doctoral degrees. The entry-level graphic design course that I conducted my research in is a required course in this university's Department of Technology.

The Department of Technology was established in the late 1800s under the name the Department of Industrial Arts. The department offers a bachelor and master degree in Industrial Technology with three main areas of focus; manufacturing, electronics and control, and graphic communication. There are approximately 115 students currently pursuing bachelor and master degrees from the Department of Technology.

The graphic design courses taught in the Department of Technology are open to all university students, regardless of their major. The participants in this study were recruited from a total of six different sections of the department's entry-level graphic design course. The six sections were similar in size ranging from 13 to 20 students.

Participants

The participants in this study are entry-level undergraduate students with varying interests in graphic design. There are no prerequisites for this course and it is frequently taken by students from disciplines other than the Department of Technology. While some students take the class because they want to learn about design there are others who take it because it is a degree requirement.

Data Gathering Techniques

Time at Site

The study began the first week in November during the 2004 fall semester in an entry-level graphic design course at an Upper Midwestern university. After the consent forms had been handed out, discussed, signed, and collected I began the triangulation process for my qualitative, action-based research. That same day I conducted one-on-one interviews with each participant to gather necessary background information. Two weeks later I observed the participants in their classroom environment during a "Packaging Design" sketching activity. The following week I returned to the class to administer a survey and to ask some follow up questions based on my observations from the previous week. During the 2005 fall semester, I followed an identical procedure in three sections of the entry-level design course.

Interviews

I began the study by conducting one-on-one interviews with each participant. To keep the responses confidential and avoid disturbing other students the interviews were conducted in a private office near the classroom. The interview was kept relaxed and the environment was non-threatening.

The students who enrolled in the entry-level design course came from several different disciplines and had varying interests in design; therefore, I began by asking the same introductory questions of each participant: "What year are you classified?" "What is your major?" "Why are you taking this entry-level graphic design course?" and "What is your interest in graphic design?" (See Appendix C.) These initial questions were designed to maintain a non-threatening, relaxed environment and provide me with background information about each participant.

Observations

Two weeks later I observed the students as they worked on a "Packaging Design" project. The students were asked to design a shopping bag for a fictitious gourmet cookie company named Guilty Pleasures. The students were given the design specifications and project objectives. They were then asked to create as many thumbnails or concept sketches relative to the project as they could in 20 minutes. The students were required to complete their sketches using low-end technology. While they were sketching I assumed the role of an observer and sat quietly observing the setting, participants, event, and interactions that occurred. I recorded my observations in a notebook, included personal notes, and observer comments and questions.

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Immediately following each class session I reviewed and keyed in my observations. As I re-read my observations I would reflect back on the day's events and write down any questions, thoughts, or perceptions that had emerged during the day. This self-reflection was critical because it helped me to look for potential biases in my research and it was used to formulate follow-up questions to ask the participants.

I experienced a few problems while observing. The first time I observed I was seated at the front of the classroom looking at the students who were sitting at desks in rows. This linear arrangement made it difficult to see all of the students, so I moved to a different location where the visibility was improved. Another problem I experienced while observing was that it was difficult to observe students and write at the same time. When I was writing down notes in my notebook I had to take my eyes off of the students, so there is a chance that I may have missed something. The most difficult observation, though, occurred in the section of the course that I taught in the fall of 2004 because students had questions about the project and wanted my feedback on their sketches. It was difficult to balance my role as the instructor with my role as a classroom observer; therefore, when I repeated the procedure in the fall of 2005 the instructor for the other two sections of the course taught my class so that I could observe.

Surveys

After gathering background information and observing students during the sketching phase of the design process, I developed a survey that asked open-ended questions about sketching and creativity. The questions on the survey included: "What is your definition of creativity?" "Do you consider yourself to be creative in graphic design?

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Please explain." and "Do you prefer sketching with a pencil and paper or on a computer? Please explain." (See Appendix D)

In order for the surveys not to interfere with students' class work they were given the option of completing them in class or taking them home to turn in at a later date. Of the 55 students who agreed to participate in my study, I received a total of 42 surveys.

Follow Up Interviews

After completing my initial interviews, observations, and surveys I began to analyze the data and developed a set of follow up questions. Because of time constraints, it was not possible to conduct in-depth interviews with all 55 participants. Therefore, I selected 12 students to serve as representations of the study population. These students were asked questions based on the information I had gathered from the previous interviews, the classroom observations, and the survey. Once again the interviews were conducted in a private office near the classroom to maintain confidentiality and not disrupt the other students. The questions were open-ended and included questions about sketching; "How does having a structured sketching time compare to other sketching you have done for this class?" And questions about creativity; "How does peer collaboration help your creativity?" "Are you more creative at certain times of the day? Please explain." and "How does environment impact your creativity?" (See Appendix E)

Coding Procedures

According to Mills (2005) one of the most frequent data analysis activities is the coding process. Coding is the process of "trying to find patterns and meanings in data collected through the use of surveys, interviews, and questionnaires" (p. 105).

Immediately following each classroom observation and student interview I transcribed my hand written notes onto the computer. I left a three inch margin on the left side of the page so that when I read over my field notes I had room to record comments, thoughts, and any questions that I had. While I was transcribing and later reading over my field notes I was constantly asking myself the questions: What is happening here and how does it impact entry-level graphic design students' creativity?

In addition, Tesch (1990) provided a useful eight-step guide to the coding process:

1. Get a sense of the whole. Read all the transcriptions carefully. Perhaps jot down some ideas as they come to mind.
2. Pick one document (i.e., one interview) – the most interesting one, the shortest, the one on the top of the pile. Go through it, asking yourself "what is this about?" Do not think about the substance of the information but its underlying meaning. Write thoughts in the margins.
3. When you have completed this task for several informants, make a list of all topics. Cluster together similar topics. Form these topics into columns that might be arrayed as major topics, unique topics, and leftovers.
4. Now take this list and go back to your data. Abbreviate the topics as codes and write the codes next to the appropriate segments of the text. Try this preliminary organizing scheme to see if new categories and codes emerge.
5. Find the most descriptive wording for your topics and turn them into categories. Look for ways of reducing your total list of categories by grouping topics that relate to each other. Perhaps draw lines between categories to show interrelationships.
6. Make a final decision on the abbreviation for each category and alphabetize these codes.
7. Assemble the data material belonging to each category in one place and perform a preliminary analysis.
8. If necessary, record your existing data. (p. 142-145)

I spent several hours reading over my notes making comments in the margins. Codes started to form during this process. The first time I read over each set of field notes I wrote my codes in pencil. After that I went back and read and re-read the data, looking for similarities. I used different colored pens to help group similar codes together to form categories.

I then wrote out each of my categories on 3 x 5 index cards and began to sort them into different themes. Mills (2003) uses the following analogy to explain this process:

> Imagine playing a game of cards and not knowing what the symbols mean. You have a deck of cards each of which contain data. The order of the cards is random. As you initially scan the cards, you have an intuitive sense that the data on some of the cards looks similar to the other cards. You finish carefully looking all of the cards and reshuffle the deck. Again you look through the deck, but this time you group together the cards (data) that look alike. You end up with 13 collections of 4 cards that have some trait in common (the number or face value of the card). Again, you reshuffle the cards. This time as you start to sort through the cards, you notice a different theme (the suite of the card) and end up with 4 files of 13 cards. This is puzzling. Not to be thwarted in your efforts, you again reshuffle the deck and attempt to settle on an organizing theme. You group together cards (data) that have sufficient common characteristics that you feel confident that your analysis of the data is undeniably accurate. But there is just one problem: What do you do with the Joker that found its way into the pack? And what about the wildcard? Where did they come from and where do they fit? Just when you thought you had it all worked out, in crept something that challenges the themes you have used to organize and represent the data you have collected. The shuffling and sorting continue. (p. 106)

This analogy clearly explains the process that I went through to identify my themes. The data was initially put into two groups: 1) what students reported and 2) what the literature said about creativity and sketching. I then went back and looked at all of the cards again, this time pulling out cards that dealt with specific topics such as definitions of creativity, factors that inspire creativity, thoughts about sketching, and comments about the classroom environment. At times I would pull out a card or two that just did not seem to fit into any of the groupings that I had made so I would go back, reshuffle the cards and start sorting again.

Once the initial themes were identified, I returned to the classroom to verify my themes. I showed the themes to each of the participants and asked, "Do you agree with these themes?" All of the participants agreed with the three themes. This participant

feedback was important to the validity and reliability of my study. The final three themes

of this study are discussed in detail in Chapter IV.

CHAPTER III

DATA

The purpose of this study was to explore how entry-level, undergraduate graphic

design students at an Upper Midwest university utilize sketching to develop their

creativity. In this chapter, I describe the setting and the participants of the study.

Following the descriptions, the participants' perspectives are told with a format that

provides the reader with the following information: a) background, b) perceptions about

creativity, and c) beliefs about the importance of sketching in graphic design.

Description of the Setting

The study was conducted at an Upper Midwest university located in a city with a

population of approximately 50,000 people. The university has been an important part of

the city and state for more than 100 years. It is the state's leading research university and

home of one of the world's best aerospace programs. The university grants bachelor

degrees in 89 different disciplines, master degrees in 63 areas of study, and doctoral

degrees in 22 disciplines. In addition, the university has a medical school and law school.

Graduates from this university go on to pursue careers in the state, nation, and world.

The Department of Technology was established in the late 1800s under the name

the Department of Industrial Arts. The department offers both bachelor and master

degrees in Industrial Technology with three main areas of focus: manufacturing,

electronics and control, and graphic communication. There are approximately 115

students currently pursuing bachelor and master degrees in this department, and five faculty members who come from areas all over the world.

The department is located in a large building, on the east end of campus, which was built in 1979-1980. The department's administrative offices, faculty offices, computer labs, conference room, resource room, lecture hall, classrooms, and machine shop are located on the main floor on the south side of this building. The graphic communication area is located on the second floor and includes a Macintosh computer lab, classroom, darkroom, and faculty offices.

The classroom where I observed in the fall of 2004 and 2005 is located on the second floor. In addition to being used for lectures, the area also serves as workspace for students to complete projects that do not involve the use of computers. This classroom is approximately 30 feet by 40 feet with white walls and a six-foot ply-board partition down the middle that divides the classroom from the Macintosh computer lab. The classroom has two small windows, spaced six feet apart, facing west. A projector screen can be pulled down from the ceiling so that it hangs in between the two windows. Below the windows are two tables. The first is a black and silver metal table that holds two paper cutters and a large roll of brown paper. An overhead projector and box of blue paper sit on top of the second table that is long and gray. Along the same wall, but in the corner opposite the windows, is a white marker board. The classroom is almost entirely rectangular with the exception of a storage room and maintenance room located in the northwest corner. The storage and maintenance rooms protrude into the classroom, making the west wall eight inches shorter than the east wall and the north wall 13 inches shorter than the south wall. Along the north wall is a door connecting to the biology side of the second floor, several

pieces of older technology including an offset printing press covered with pink fabric, a large, blue, paper cutter, and two easels displaying black and white photographs. When I repeated my observations in this classroom in the fall of 2005, the printing press and paper cutter had been removed and three more easels had been added. At the end of this wall there are also two photography lights attached to tripods and a multi-colored backdrop for performing studio photography. Along the east wall is a light table for examining negatives, plus a long green table that holds copies of a university newsletter and the most recent course schedule for the university. Above the table are two large windows that look into a faculty office. On the north side of the partition there is a row of labeled cabinets that contain paper, former student projects, rulers, and other supplies. On the countertop above the cabinets are two dry mount presses, a cutting matte, a small box of Exacto knives, books with samples of paper, and a blue crate filled with old magazines, newsletters, and brochures for students to browse through and cut up for projects, and a radio/CD player. Attached to the ply-board partition are sample color swatches.

On the west end of the room is a large square table that is bolted to the floor. The base of the table is constructed of metal painted white, and the top of the table is made up of strips of wood. There are several gray stools positioned around the table. In the center of the room is a square concrete pillar. When I observed students in this classroom in the fall of 2004 the room contained 27 desks that were divided into five rows that faced west. When I repeated my observations in the fall of 2005, the desks had been replaced with seven tables of varying sizes and shapes.

Description of a Sketching Activity

Over the course of six sections of an entry-level graphic design course, I observed students as they worked on a "Packaging Design" project. Each section will be described in detail.

Project Overview

Before each class started, the professor placed colored pencils, crayons, glue sticks, color wheels, and other art supplies on the square wood table located on the west end of the classroom. Once students arrived and were seated in their desks the professor asked students to design a shopping bag for a fictitious gourmet cookie company named Guilty Pleasures. The professor told the class that Guilty Pleasures is a gourmet cookie company and she stressed the fact that they should think upscale, but not limit the clientele to only wealthy customers. The professor also pointed out that a shopping bag is an advertisement for the company, indicating the customer will carry the bag out of the store. The professor stated others viewing the bag should see it and think, "I should go buy some cookies." After she finished explaining the assignment the professor answered a few questions concerning budget, location of the store, whether the store had a slogan, and the deadline for the project. Once the questions were answered the professor asked the students to create thumbnail or concept sketches in 20 minutes relative to the project. For this project, the students were required to complete their sketches using low-end technology. Each student was given a large sheet of paper and they could sketch using their own lead pencils and ink pens or the colored pencils and crayons provided by the instructor. Cookies were the theme of the project; therefore the professor brought cookies for everyone to use as inspiration and to eat while sketching. She placed the cookies on the large front table so

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that students could take cookies when they retrieved the crayons or colored pencils. She also turned on the radio so that the students could listen to music while they sketched.

Description of Participants

The participants in this study are entry-level undergraduate students with varying interests in graphic design. They were recruited from a total of six different sections of this department's entry-level graphic design course. Of the 107 students enrolled in the six sections of the course, 55 agreed to participate in this study. Twenty-seven percent of the participants are juniors, 47% are seniors, and the remaining 20% are made up of freshman, sophomores, graduate students, and faculty members. Twenty-two students are majoring in Industrial Technology, 10 in Interdisciplinary Studies, five in Communication, and 18 students are majoring in other areas including Education, Aviation, Marketing, and Music. Thirty of the students said they enrolled in the course because it was a requirement for their degree. Of those 30 students, 20% also listed interest in the subject or a desire to learn more about Graphic Design as their reason for taking the class.

Because of time constraints, it was not possible to conduct an in-depth interview with all 55 participants. Therefore, I selected 12 students, six from each semester, to serve as a representation of the study population. During the fall 2004 semester I selected two students from each section of the entry-level design course. In each section I selected one male student and one female student. When I repeated the study in the fall of 2005 the six participants were selected based on convenience and availability. In this section I share the participants' perspectives by providing the reader with the following information: a) background, b) perceptions about creativity, and c) attitude about sketching in graphic design. The information was gathered from two separate interviews, a survey completed

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by the participants, my observations during the "Packaging Design" sketching activity, and student reflections on an article (see Appendix F) they read about creativity.

Student Meghan

Background

Meghan is a senior majoring in Interdisciplinary Studies with an emphasis in Graphic Design. She is a self-described "deep thinker" and said she is taking this class to gain a better understanding of how designs work and to layout her designs better. She added that in graphic design "you can create whatever you want. I am attracted to colorful things and I am interested in learning how I can put them together."

Meghan has had some graphic design experience outside of this class. "I have had two jobs on campus where I obtained a graphic design position," she said. She has also done some "independent work" as a graphic designer and taken other graphic design classes at this university.

Perceptions of Creativity

In the survey handed out to all of the participants, I asked the students to define the term creativity. According to Meghan, being creative involves the ability to open up your mind to new things and to not be afraid to speak your mind through the work that you create. Meghan considers herself to be creative in graphic design and tries to always think of unusual things when she is designing. "If the designer sticks to one thing, the finished product would be pretty boring," she explained.

Even though she considers herself to be creative in graphic design, Meghan admits that there are times when her creative juices stop flowing. "When I get frustrated, I get so mad that I can't even think," she said. "I want to throw something at the computer. I

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know that it will not help, but it would make me feel better." Meghan also said that at times it is possible to look at something for so long that it no longer makes sense. The following quote was taken from Meghan's reflection on the creativity article:

> If I am working in Photoshop and type in the word 'party,' for example, I will flip through the different fonts so fast and just stare at the word. After a bit, I will stop because I think the word is spelled wrong or I look at it and say to myself, 'How is this even a word? How could someone make those letters spell out the word party?'

Meghan believes that inspiration and motivation are important to the design process. She explained that "whether it be making a design or going to the gym each day, inspiration and motivation helps whomever create what they want and can help them reach their goals." Meghan draws inspiration from her environment and from other people. She claims that she does not like to work when it is quiet, that she needs music or talking. "If you are in a busy environment with lots of stuff going on, you can pick out things. You have more to choose from." In fact, Meghan likes to work on projects while watching a movie or television because the colors that she sees or the personality of a character gives her ideas. "Inspiration is everywhere," she said. "Everyone is inspired by one person, thing, or another."

Attitude about Sketching in Graphic Design

While it appeared like Meghan handled the structured sketching activity well, she admitted that she prefers to go straight to the computer when she is working on a graphic design project. "I am not a great artist so I like to sketch on the computer because I am able to tell what the outcome will look like," she said. While she admits to occasionally "doodling" while in other classes, she said that she does not make pencil sketches for anything besides class projects. Meghan said, "I usually spend 10 minutes or more

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working on my thumbnail sketches for class. It depends on how many ideas come to my head."

Student Jason

Background

Jason is 22 years old and majoring in Marketing. This course was not required for his degree, but he is interested in the field of graphic design and advertising so he thought he would try the class. "Graphic design is a form of expression," he said. "I like the artistic side, designing something with a deeper meaning. I like being able to persuade people with different layouts."

In addition to taking a graphic design class, Jason has had some real world experience in graphic design. "I have made posters and brochures for the finance department and I created logos for an internet-based news network." Jason is also a member of this university's American Marketing Association student organization and has created promotional materials for the group.

Perceptions of Creativity

Jason defines creativity as the "ability to formulate ideas that spark imagination and have a great first impression." In terms of his own creativity, Jason claims that, while he considers himself to be somewhat creative, he is not the most creative person. He goes on to say that he disagrees with the notion that creativity is not a talent. "Some people have a gift and some do not. Some people are able to find that area of the brain that stimulates creative ideas much easier than others."

Jason likes to listen to music while he designs and prefers to have the lights off when working in the lab because it makes the room feel more relaxed. He also said that he

feels more creative late at night because, by then, everything has settled down and he is able to sit back and clear his mind. "I become pretty creative when I am sitting around with my best friends at three o'clock in the morning, talking about a bunch of random ideas that make no sense whatsoever, but are definitely original ideas."

Attitude about Sketching in Graphic Design

Jason said that the structured sketching time was not better or worse than other sketching he had done for class, but that it did make him think before he started designing. Jason added that he enjoys sketching with both low-end and high-end technology. "I have an artistic side to me so I like drawing my ideas."

Jason prefers to do his sketches for class at home. "You don't have to be in the lab or classroom when you do your sketches. When I can work at home I do," he explained. When working on a project, Jason said that he usually spends 10 minutes working on sketches, but some of his hand drawn ones took a little longer to complete because it was harder to achieve the same level of detail that you can get on the computer.

Student Kayla

Background

Kayla is a junior majoring in Industrial Technology with an emphasis in manufacturing. She took the entry-level graphic design class because it was required for her major and because her advisor recommended the course. She did not have any experience in graphic design prior to taking this course, but said that she has an appreciation for art and finds graphic design interesting.

Perceptions of Creativity

For Kayla, being creative involves the ability to make something more interesting than it was before and the ability to create something new in an interesting way. "It should be unique and eye catching. It should be proactive," she added. Kayla does not consider herself to be creative in graphic design because she believes that "before a good level of creativity could be accomplished" she needs to have more knowledge and a better understanding of the mechanics of design. However, in her reflection paper on the creativity article, Kayla mentioned that she does consider herself to be a creative person.

> Throughout the ups and downs of marriage, parenting and just life in general, I have had to adopt a more creative point of view. Many situations that could have ended up disastrously have been saved by a bit of creativity. The author stated that being naturally creative is a rare condition and most people have to work at it. This is a fact I am in full agreement with. Unless you put yourself in a position to learn and express yourself you surely never will.

When I reflected back on my observations of Kayla during the sketching activity, I remember how she spent time looking through her textbook before she started sketching. Out of all of the participants, she made a lasting impression by being the only one to examine the textbook for ideas. Kayla explained, "Reading, looking at magazines, and looking at other designer's work inspires me."

Attitude about Sketching in Graphic Design

Kayla prefers sketching with pencil and paper. "I like paper best," she said, "I am more comfortable with that medium." She added that she would like to learn how to use the computer more for sketching because that medium offers so many more options with colors and other design elements. In fact, she said that even though she prefers the pencil sketches she will usually spend very little time working on them because she is "not very proficient at the computer and needs to spend more time on it."

For Kayla, sketching is not something she does for only this class. She likes to sketch or doodle in her notebook or on handouts while she is in other classes. She enjoys sewing and typically sketches out the patterns for her quilts. She also spends time drawing with her children.

Student Robert

Background

Student Robert is a 28-year old junior majoring in Industrial Technology with an emphasis in graphic communication. He enrolled in this entry-level design course because it was required for his degree and because he is working toward becoming a graphic designer. He is specifically interested in animation and sees this class as a base for learning about layout and color. Robert has had experience working as a graphic designer at this university's housing office.

Perceptions of Creativity

Robert considers himself to be creative but says he needs to be in the mood to come up with creative ideas. He finds that he is more creative at night because "there are less people around and fewer distractions."

For Robert, the basic element of creativity is the environment. "When I am designing, I look at nature or my environment to get ideas," Robert explained. Robert also finds his peers to be helpful when he is creating projects, especially projects for class. "Peer collaboration is helpful before handing things in because your peers see things that you do not see and they are able to offer valuable feedback."

Attitude about Sketching in Graphic Design

Robert enjoys sketching with low-end technology and will sometimes spend hours on his sketches. "It really depends on the project," he said. "Sometimes I can finish a sketch in a couple of minutes, and other times it might take a couple of hours. It depends on how complex I want to make the sketches."

Robert finds sketching fun and said, "I make sketches all of the time when I am sitting around bored." He tends to do most of his sketches in the lab or at home because that is where he keeps paper and pencils. In addition to the sketches that Robert has made for class, he has also done sketches for work, PowerPoint presentations, and projects around the house. He said that he once drew sketches for an ottoman that he later built for his home.

Student Josh

Background

Josh is a senior majoring in Industrial Technology with an emphasis in electronics. Josh enrolled in this entry-level graphic design course because it is a degree requirement and because it is a pre-requisite for other classes in the department. Even though graphic design is not Josh's main area of interest, he said that he enjoys designing layouts and showing his creativity.

Josh does not have any experience in graphic design outside of this class. Despite his lack of formal training, Josh feels confident in his design abilities because he has taken several photography classes and he believes that "many of the same concepts apply."

Perceptions of Creativity

Josh's personal definition of creativity is "applying ideas in an interesting and thought-provoking manner." When it comes to his own creativity, Josh does not consider himself to be especially creative and appears to be going through a slump.

> I know what I like and dislike when looking at others' work and I can often recommend different ideas. However, I never seem to really like any designs I personally create. I am usually inspired by something that I am really passionate about. As of right now I am having difficulty applying a passion to my work.

Josh has, however, been able to find inspiration in his environment. He said that he finds a lot of value in working with other people and by looking around the room. He explained that you could take an element that you see someone else using and use part of that element, or sometimes even the entire element, in your own designs.

Attitude about Sketching in Graphic Design

Josh said that he would usually spend less than five minutes sketching out his thumbnails for class. "I usually throw an idea down on paper and then start working on the computer so I can see if will work," Josh said. After he has worked on the computer for a while, he will sometimes go back and make a few more sketches on paper and then return to the computer. Josh said that he likes to create multiple sketches of one idea.

Creating thumbnails for class is not the only experience that Josh has with sketching. He said that when he gets an idea for something he will often write or draw those ideas out on paper. For example, once he was thinking about an engine he was working on and he got an idea so he drew it on a piece of paper. Unfortunately, he said that he later figured out that his idea would not work.

While Josh has used low-end technology to sketch out ideas for this class and for his personal interests, he said that he prefers using high-end technology. "Working and

playing with the computer reveals ideas and images that I could not easily develop by hand." In fact, not being able to use the computer was one of the problems Josh had with the "Packaging Design" sketching activity. During the follow-up interview, he said that he felt crowded sitting at a desk and would rather have been at the computer where he could use the Internet to search for ideas.

Student Allison

Background

Allison is a junior Industrial Technology major focusing on management. She is interested in graphic design and took this course because of her interest in the field and because it is required for her degree. In addition to this course, Allison has worked on some in-house graphic design projects for her employer. She has designed posters, business cards, farming forms, Christmas cards, and "basically anything they wanted," she said.

Perceptions of Creativity

Allison considers herself to be creative in graphic design, but believes that to be truly creative she needs to be around other creative people. She said that when she is around other creative people she feels competitive and wants to be as creative as they are. She also said that she finds inspiration in looking at the other designers' work.

During an interview, I asked Allison if environment plays a role in her creativity. She said that it does a little bit. "It is hard working on design projects when I am at home because my kids bug me and it is hard to be creative." Allison also said that the time of day is a factor when it comes to creativity. "I am not creative at lunch time. I need to be

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awake and refueled." She added that her level of creativity is also dependant upon her mood.

Attitude about Sketching in Graphic Design

Pencil and paper sketches are very important to Allison. When I asked her to reflect on past experiences where she sketched or doodled she said that she does it all the time. At work, she said they get a lot of older aged clients that want to see sketches done in pencil before they are done on the computer.

I asked Allison when she typically worked on her sketches for class and she replied, "I work on them when I should be doing something else. I will sketch out an idea as soon as it comes to me, at anytime and any place. I will pull out a notebook or sketch on whatever is in front of me." Allison admits to not usually spending a lot of time working on her thumbnail sketches for class because she does not think that sketching is fun. However she said that she had a lot of fun making sketches for the bag in the "Packaging Design" project. Even after the 20 minute structured sketching activity was over she continued to make sketches for the assignment. Allison said that she found herself thinking about the assignment while doing other things. "I dreamt about that bag," she said. "I would get random thoughts while I was sleeping or in a different class." During the follow-up interview, she told me that she spent a week making sketches for that assignment.

<div align="center">Student Sally</div>

Background

Sally is 22 years old, a Communication major in her senior year, and pursuing a minor in Industrial Technology. She is taking this course because it is required for her

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minor and because of an interest in the field. She said that some day she would like to have a job in the field of graphic design and advertising. Sally does not have any graphic design experience outside of the classroom.

Perceptions of Creativity

For Sally, creativity, specifically in graphic design, deals with the ability to use design elements to "create new pieces of work that touch people." Sally said that she enjoys experimenting with color and likes to try new and creative things when she is designing.

According to Sally, other designers have a major impact on her creativity because "when I see designs that I love, it makes me want to design creatively even more." Sally also finds it helpful to exercise before she begins to work on a project. "I believe that exercise clears my mind and allows me to concentrate all my energy on creating a good design," Sally said.

Environment or "the surroundings," as Sally refers to them, are very important to her creative process. She says that her surroundings need to change and that she cannot be creative if she is sitting in the same place everyday. "It is difficult to have design inspiration in a cubicle, or a classroom for that matter. I find myself wondering what various designs I have created would look like if I had done my sketches outside by the river, or in the mall for that matter," Sally added.

Attitude about Sketching in Graphic Design

Sally claims that she is "not good at sketching with a pencil" and therefore prefers to do her sketching on the computer. "Sketching on the computer is more controlled," she said. Other than the required thumbnails and roughs for class, Sally does not make pencil

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sketches for any of the other projects she works on. For this class, she spends less than ten minutes on the required sketches because she usually "comes up with all of her initial ideas in that amount of time."

Student Mike

Background

Mike is a senior, Communication major who would like to someday get a job related to or in the field of graphic design. His personal areas of interest within the field are web site design, company branding, and packaging design. In addition to taking an entry-level graphic design course, he is also taking a web design class and works on campus as a graphic designer.

Perceptions of Creativity

Mike defines creativity as being able to generate new ideas, which is an ability that he believes he has. "I like to create new ideas visually. I try to think 'outside the box' and come up with new ideas." He added that thinking outside of the box is beneficial because, in our culture, it is easy to get "sucked into the routine of everyday life" and to do the same things that everyone else is doing. "It is definitely easier and more comfortable to follow the crowd, but being different is much more rewarding in the end," Mike said.

In response to an article the students were asked to read about creativity, Mike said inspiration, motivation, frustration, intuition, and curiosity all drive him to be creative.

> I am inspired by everything around me. For example, at the airport yesterday, I was inspired by the ceiling, the architecture of the food court, the ties on a rack, a store front, the paint scheme of an airplane, and chairs. I am motivated to design because I enjoy the excitement, the process, and the final product that reflects my initial ideas. Frustration drives me because I want to create something better than what I already have. I use intuition whenever I immediately know what I should do because the idea is already in my brain. Finally, curiosity drives me to creativity because there's always something new that I have not experienced before.

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Mike also finds inspiration by looking at other designers' work, going to different stores to look at packaging or advertisements, and traveling to other cities and new places. During an interview, I asked him if the environment played a role on his ability to be creative and he said, "Yes, very much. The classroom is boring. The walls are white and sterile. When I am creating, I don't want to be in this room. I want color."

Attitude about Sketching in Graphic Design

During an interview, I asked Mike how much time he typically spent sketching for class. He appeared hesitant at first, seeming afraid that I would be upset by his answer. I assured him that I was there to listen to what he had to say and that he should feel free to answer honestly. He then told me that he usually spends only five to 10 minutes on his sketches because he does not really like sketching. "My finished projects do not usually end up looking like any of my sketches," he explained.

However, despite his dislike for sketching, when I asked him if he ever sketched outside of class he said that when he gets an idea that he thinks he can use he will sketch it out on paper. He also admitted to making sketches for work. When he is sketching, Mike prefers to use pencil and paper because it is faster and easier to get his ideas down on paper than it is to use the computer.

<div align="center">Student Anna</div>

Background

Anna is 22-years old and in her senior year. She is majoring in Marketing with a minor in graphic communication. She enjoys graphic design and likes "creating logos, doing layout, and pretty much anything – even if it is just playing around in the various programs."

In addition to this entry-level graphic design course, Anna is also taking a web design course and said that through both classes she is learning more about the different graphic design programs. However, these classes are not Anna's first experience with graphic design. "I've been working with various layouts and design programs since high school when I had desktop publishing, and we designed the yearbook," Anna said.

Perceptions of Creativity

Anna believes that creativity involves the ability to go beyond what people expect. Anna said that she likes to think of herself as a "creative person," but knows that there are days when it is hard to come up with any ideas. She added that it is hard to come up with ideas when you are in the same atmosphere all the time. "I have worked on almost every assignment in the same chair, at the same computer, and in the same room all semester," she said.

In Anna's opinion, the client also plays a role in how creative a graphic designer can be with the project. She explained that sometimes the people she is designing for want their projects to be simple. She added that she feels inspired to be creative when she has the opportunity to design something however she wants.

Attitude about Sketching in Graphic Design

Anna is a self-described "perfectionist," and therefore prefers working on computers to creating sketches with pencil and paper. She explained that in the design programs there are tools that allow her to get her designs closer to the way she wants them to look.

She said that she does her sketches for class either in the classroom or at home. "I like to sketch while sitting at home, on bed watching television. I usually have markers

and pencils everywhere." She admitted that she does not spend a lot of time working on sketches for class. "I consider the sketches to be a very rough draft so I usually throw them together in five minutes," she said.

Student Kim

Background

Kim is 20 years old and double majoring in Graphic Design and Communication. She is a sophomore by credits and is taking this entry-level design course because it is a degree requirement and because she is interested in the subject. "My interest in graphic design is the flexibility, creativity, and art of the subject. I like that you can do so many different things when you play with graphic design," she said.

This course is not the only experience in graphic design that Kim has had at this university. She has taken some other design courses and has a job on campus working as a designer. "I have learned a lot about graphic design with actual hands-on projects," Kim said. Some of these projects include designing posters, t-shirts, and brochures.

Perceptions of Creativity

Kim defines creativity as "the process of combining visual elements together to make an aesthetic design. It is based on principles and guidelines." Kim goes on to say that she believes everyone can be creative. They just have to be willing to experiment.

> The more I play the more creative I become. I never start with a great idea on thumbnails, and my roughs usually lack a certain spark. It is after changing spacing, coloring, positioning, and fonts that I develop a finished product. Since I have started working with graphic design and art, I have become a lot more observant than I was in the past. I explore things more like a child now and connect my findings to the principles and guidelines of graphic design.

Environment plays a major roll in Kim's ability to be creative. Kim said that when she is at home, she would often sit on an exercise ball while she works because it is

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different than sitting on a chair or the floor. She added that it is nice to work around people that she is comfortable with and that are creative. Diversity is also helpful in coming up with creative ideas. Kim explained that she grew up in a town of approximately 120 people that were all conservative. She said that in that environment it was hard to "think out of the box" because the area and people do not spark any new ideas.

<u>Attitude about Sketching in Graphic Design</u>

Kim finds value in sketching using paper and pencils, as well as sketching on the computer. In this class, students are typically asked to submit three thumbnail or concept sketches, and one rough for each project. Thumbnail sketches are usually small and do not contain a lot of detail while roughs are drawn to scale and should be an accurate representation of the final project. Kim said that she likes to draw her thumbnail sketches with pencils and paper, but because the roughs are more detailed she prefers to do them on the computer.

Besides this class, Kim has also done sketches for work, specifically when trying to come up with ideas for logo designs. She also likes to save her sketches because often times she will take "bits and pieces" from the sketches that she has done in the past and combine them into new ideas for design projects.

<div align="center">Student Andrew</div>

<u>Background</u>

Andrew is 22 years old and majoring in Industrial Technology with an emphasis in graphic communication. He is a junior and enrolled in this course because he wanted to get a feel for graphic design. Andrew said, "I enjoy working on computers and manipulating photographs. I believe I am good at it without having a lot of experience."

<div align="center">43</div>

In addition to this course, Andrew's experience in design include some freelance web design, logo design, and product design.

<u>Perceptions of Creativity</u>

Andrew considers himself to be creative in graphic design because he believes that he is able to come up with unique ideas and concepts. This belief ties in with his definition of creativity. "For me, creativity means being able to use different mediums in a non-traditional way. Creativity is doing things that others have not thought of."

"Overall, I think the most important way to fuel creativity is to be aware of what is around us and be willing to try new ideas," Andrew said. He added that he loves to go work in environments that have a visual "impact". Andrew likes to look at unique and creative advertisements while he is designing and also finds inspiration in artwork and photography. While we were talking, Andrew mentioned a few of his favorite local restaurants and photography studios and said that spending time there is a great way to get ideas for graphic design projects.

<u>Attitude about Sketching in Graphic Design</u>

When given a choice between sketching with low-end technology and high-end technology, Andrew prefers to use high-end technology. He believes the computer is better because "it is easier to change your idea or concept. Also, you can get a much more accurate representation of the final project."

Andrew is, however, not against the idea of pencil and paper sketches. He frequently uses them for some of his own personal projects, including sketching out ideas for a building prototype and different carpentry projects. When working on these projects, Andrew will often spend up to 30 minutes sketching because he said that it has to "be right

on the paper." Andrew adds that sketching with paper and pencil can often times be beneficial in conveying an idea to someone else. "Sometimes you need to explain an idea to someone, and you can not explain it with words so it helps to be able to sketch it out on a piece of paper."

Student Kara

Background

Nineteen-year-old Kara is double majoring in Communication and Marketing. She hopes to some day have a career in the field of advertising or marketing. She took this course for the experience and because it is a subject she is interested in.

Kara admits to not having a lot of design experience outside of class. However, she is currently working as an intern at this university's alumni association and has had the opportunity to create some postcards and brochures for them.

Perceptions of Creativity

"Making something original" are the three words that Kara uses to define creativity. Kara believes that she is creative and that she has the ability to look at what other designers have done and improve them. Kara added that creativity "requires a certain amount of patience. Sometimes it does help to walk away from a project and return at a later time" and that being opened mined is one the most important things to being creative. "If you are not open-minded, then your only drawing ideas from certain places and your designs will be limited."

When designing, Kara acquires a lot of her ideas from her surroundings, "I am inspired by things that I enjoy or things I find that are beautiful." Kara added that when in the classroom she finds inspiration in colors and in the design samples that are hanging on

the walls. Kara also enjoys listening to music, talking to friends or classmates, and being around family when she is working on projects.

<u>Attitude about Sketching in Graphic Design</u>

Kara prefers to do her designing on the computer because she does not consider herself to be very good at drawing. However she has spent time outside of this class sketching with low-end technology. According to Kara, when designing for the alumni association she will usually sketch her ideas on paper first before going to the computer. For class, Kara spends approximately 10 minutes working on her thumbnail sketches. "It really depends on the project," she said, "but 10 minutes is usually enough time."

Summary

In Chapter III, I reported the participants' perspectives of 12 students in this study as experienced in six sections of an entry-level design course at this university. Their perspectives were told through a narrative that included descriptions, direct quotes obtained from surveys, interviews and reflection statements, personal interactions observed in the classroom setting, and by notations from my field notes. Each of their perspectives provided information about the students' background, perceptions of creativity, and attitudes about sketching in graphic design. In this chapter, I also provided a detailed description of the setting, the "Packaging Design" sketching activity, and the participants.

The 12 college students whose perspectives I documented in this chapter were Meghan, Jason, Kayla, Robert, Josh, Allison, Sally, Mike, Anna, Kim, Andrew, and Kara. I will summarize each participant's perspective before introducing the major themes and discussion of literature in Chapter IV.

Meghan is a self-described "deep thinker" that is attracted to colorful things and wants to learn how to put them together. She has had two jobs on campus working as a graphic designer and has also done some independent work. Meghan considers herself to be creative in graphic design and tries to think of unusual things when she is designing because she believes that "if a designer sticks to one thing, the finished product would be pretty boring." She admits that she sometimes has trouble being creative, but that she is able to draw inspiration from her environment. She prefers working on the computer over doing hand-drawn sketches because she does not consider herself to be a great artist and the computer provides her with a better idea of what the final design will look like.

Jason is a marketing major that views graphic design as a form of expression. He likes the artistic side to design and likes to design things with a deeper meaning. He has worked on design projects outside of class, including projects for this university's finance department and the American Marketing Association student organization. Jason does not consider himself to be the most creative person and believes that when it comes to creativity "some people have a gift and some don't." Jason likes to listen to music while he is designing and claims to be the most creative at three o'clock in the morning when talking about "a bunch of random ideas" with friends. Jason enjoys sketching with both low-end and high-end technology. He has an artistic side so he enjoys drawing his ideas.

Kayla is a junior with no experience in graphic design prior to taking this course. However, she has an appreciation for art and finds graphic design interesting. Kayla said that creativity should be "proactive." She does not consider herself to be creative in graphic design because she believes she needs to have more knowledge about the mechanics of design. Kayla does, however, consider herself to be creative in life and uses

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that ability to solve difficult situations. Kayla prefers to sketch with paper and pencil but because of her lack of proficiency at the computer she spends very little time working on her pencil sketches so that she can spend more of her time at the computer. Kayla enjoys sketching outside of class and will sketch patterns for quilts or spend time drawing with her children.

Robert has an emphasis in graphic communication and wants to learn more about animation. He sees the entry-level design course as a place to learn about layout and color. Robert considers himself to be creative, but needs to be in the mood to come up with creative ideas. He is more creative at night when there are fewer distractions and less people around. Robert looks at nature or his environment to get ideas and finds peer collaboration helpful to the design process. He enjoys sketching with low-end technology and, depending on the project, will spend hours on his sketches. He once drew sketches for an ottoman that he later built for his home.

Josh is an Industrial Technology major, with no formal training in graphic design, who enjoys designing layouts and showing his creativity. Josh does not consider himself to be especially creative, but he knows what he likes and what he does not like about other designers' work and feels confident in his ability to recommend different ideas to them. Josh finds inspiration in his environment and in working with other people. When working on a project he likes to create multiple sketches of one idea. He prefers using computers for creating his sketches because they "reveal ideas and images that could not be easily develop by hand."

Allison is interested in graphic design and has worked on some in-house graphic design projects for her job. She feels competitive when she is around creative people and

wants to be as creative as they are. She has children that bother her when she is working at home which makes it difficult for her to be creative. She sketches all the time; specifically for her older clients at work that like to see pencil sketches. Allison likes to sketch out an idea as soon as it comes to her, no matter the time or place. However, she does not enjoy sketching and usually spends very little time sketching for this class.

Sally is a communication major who does not have any graphic design experience outside of the classroom. For Sally, creativity, specifically in graphic design, deals with the ability to use design elements to "create new pieces of work that touch people." Sally believes that exercise clears her mind and helps her concentrate her energy on being creative. She says that her surroundings are important to her creative process and need to change. She adds that it is difficult to be creative in a "cubicle or a classroom." Sally claims that she is "not good at sketching with a pencil" and prefers to do her sketching on the computer where it is more controlled.

Mike would like to someday get a job related to or in the field of graphic design, specifically in the areas of web site design, company branding, or packaging design. He works on campus as a graphic designer. He likes to create new ideas visually and tries to "think outside the box." He is inspired by everything around him. He finds working in the classroom boring because of the white walls. Mike does not really like sketching because his finished projects do not look like any of his sketches.

Anna enjoys graphic design and likes "creating logos, doing layout, and pretty much anything -- even if it is just playing around in the various programs." Anna is learning more about the different graphic design programs through multiple courses that build on the knowledge she obtained in high school when she took a desktop publishing

class and worked on the school's yearbook. Anna likes to think of herself as a "creative person" but has days when it is hard to come up with any ideas. Anna is a self-described "perfectionist" and prefers working on computers because she can get her designs closer to the way she wants them to look. She considers the sketches she does for class to be very rough drafts and does not spend a lot of time working on them.

Kim's interest in graphic design is the "flexibility, creativity, and art of the subject." Kim has learned a lot about graphic design by working on actual hands on projects including: posters, t-shirts, and brochures. Kim believes that everyone can be creative as long as they are willing to experiment. Kim grew up in a town of approximately 120 people that were all conservative, stating that in that environment it is hard to "think out of the box" because the area and people do not spark any new ideas. Kim likes to draw her thumbnail sketches with pencils and paper, but she prefers to draw her roughs on the computer. She also likes to save her sketches so that she can take "bits and pieces" and combine them into new ideas for design projects.

Andrew enjoys working on computers and manipulating photographs. He believes that he is good at it without having a lot of experience. Andrew has also done some freelance web design, logo design, and product design. Andrew considers himself to be creative in graphic design because he is able to come up with unique ideas and concepts. He loves to work in environments that have a visual "impact", specifically a few local restaurants and photography studios. Andrew prefers to use high-end technology because "it is easier to change your idea or concept." He does, however, make paper and pencil sketches for some of his own carpentry projects and will spend 30 minutes sketching because the design "has to be right on the paper."

Kara hopes to someday have a career in the field of advertising or marketing. She is interested in graphic design and has created some postcards and brochures while working as an intern at this university's alumni association. Kara believes that creativity "requires a certain amount of patience" and that sometimes it is helpful to walk away from a project for a while. Kara is inspired by her surroundings and enjoys listening to music, talking to friends or classmates, and being around family when she is working on projects. Kara prefers to do her designing on the computer because she does not consider herself to be very good at drawing.

CHAPTER IV

THEMES AND DISCUSSION WITH REFERENCE TO LITERATURE

The purpose of this study was to explore how entry-level, undergraduate graphic design students develop their creativity. In this chapter, I discussed the three major themes of the study, the data supporting each theme, and a discussion of the literature related to each theme. The themes were discovered through an analysis of the data presented in Chapter III.

Data was gathered from interviews, a survey completed by the participants, my observations during the "Packaging Design" sketching activity, and student reflections on an article they read about creativity (see Appendix F). The general categories for the participants' perspectives included background information, perceptions about creativity, and attitudes about sketching in graphic design. The data was sorted and coded, then studied for themes. The following three themes emerged:

1. Establishing a specific environment impacts student creativity.

2. Students' perceptions about creativity affects their creativity.

3. Students' attitudes about the value of sketching affects their creativity.

Participant feedback was important to the validity of my study. Therefore, once the themes were identified, the study participants were contacted to determine agreement or disagreement. The participants were presented with these three themes and then asked the question: "Do you agree with these themes?" All of the participants agreed with the three themes.

Theme One: Establishing a specific environment impacts student creativity

Physical Environment

Many creative thinkers have recognized the potential role the environment has to influence (McCoy and Evans, 2002) and inspire creativity in students (Peterson and Herrison, 2005). Landa, Gonnella, and Anderson (2000) encourage graphic designers to pay attention to their environment.

> You are where you live! The relics and industrially designed structures of urban cityscapes, the historic buildings and houses of small towns, the textures of the seashore all hold a plethora of visual wealth. Gleaning elements from the environment – differently shaped fire hydrants, subway maps, quirky integrations of type and visuals from local signs, graffiti, debris, layers of posted bills, the relationship of outdoor boards to their surroundings and yes, even the way the bugs land on flowers – adds to a designer's cache of visuals and can inspire ideas. (p. 11)

According to Robert, a student participating in this study, the basic element of creativity is the environment. "When I am designing, I look at nature or my environment to get ideas," Robert explained. Kara is inspired by her surroundings; specifically colors and things that she finds beautiful. Student Andrew prefers to work on his sketches and design projects while sitting at his favorite restaurant or while visiting a local photography studio because he is inspired by the visual "impact" that those environments possess.

While Sternberg and Williams (1996) agree that environment can inspire creativity, they suggest that not all environments impact students in the same way. They explain that an environment that is conducive to one student's creative success might be a hindrance to another. "We all have unique environmental needs," (p. 44).

For example, student Kayla can not be creative if the room is too quiet. "I like there to be a little noise," she said. Kayla added that she likes to work in an environment

that she is familiar with and does not like to be interrupted while she is working on her projects.

Jason likes to listen to music while he designs and prefers to have the lights off when working in the computer lab because it makes the room feel more relaxed. He said that he feels more creative late at night because, by then, everything has settled down and he is able to sit back and clear his mind. Jason stated "I become pretty creative when I am sitting around with my best friends at three o'clock in the morning, talking about a bunch of random ideas that make no sense whatsoever, but are definitely original ideas."

While students are likely to generate creative responses in a stimulus-rich environment (Peterson and Herrison, 2005), they will suffer intellectually when confined to a "featureless environment" (McCoy and Evans, 2002). This appeared to be the case for some of the participants during the sketching activity. The classroom where the "Packaging Design" sketching activity took place is located on the second floor of a large building on the east end of campus. The large classroom is rectangular in shape and has white walls. While observing, I noticed that several students stopped sketching while they looked around the room.

During the follow up interview, student Mike told me that he found the classroom a hindrance to his creativity during the sketching activity because the white walls made the room boring and sterile. He wanted to be in an environment with more color. Student Meghan added that it was hard to be creative during the sketching activity because she could only find inspiration from what was in the classroom.

A study by McCoy and Evans (2002) focused on creating a physical environment that would aid in the development of creativity. They showed photographs of classrooms,

repeated my observations in the fall of 2005, the desks had been replaced with seven tables of varying sizes and shapes. Therefore, when talking to the six participants from the fall 2005 sections I asked them how sitting at the new tables impacted their creativity. Kara said, "When the semester started the desks were still here and working at them made me feel confined. There is more freedom with the tables." Kim added that the tables helped her creativity. "The desks were small," she said. "The new tables create a more open environment where ideas flow better." Andrew stated that tables are better than desks because there is more freedom to move around and interact with classmates. "The tables created a more natural work environment," he said.

Degraff and Lawrence (2002) state that a great way to jump-start a new idea is to leave the office or classroom. They suggest that going to visit other places will challenge conventional thinking and allow designers to escape the bounds of the usual work setting. This is an idea that several of my study participants seemed to embrace.

Student Anna stated that it is easy to get into a slump when working on design projects in the classroom. "I have worked on almost every assignment in the same chair, at the same computer and in the same room all semester," she said. Anna added that she likes to go home to get new ideas. In order to gain a new perspective while working on graphic design projects, Mike said that he likes to go to stores and look at packaging or advertisements, as well as traveling to different cities and new places.

Students Kim and Meghan also enjoy working on their projects at home. Kim enjoys drawing her sketches while sitting on an exercise ball because it is different than sitting on a chair or on the floor. Meghan likes to watch television while she sketches because she is inspired by different colors and character personalities. She added that she

prefers to work in a busy environment with a lot of activity because you can pick out different things and there is more to choose from. A male student recalled a time when he was struggling to come up with an idea for a logo design project. "I do not know how long I stared at the computer trying to come up with one. When I got home and started watching television, it all of a sudden hit me. I got out a piece of paper and started sketching some ideas."

Environment or "the surroundings," as Sally refers to them, are very important to her creative process. She says that her surroundings need to change and that she cannot be creative if she is sitting in the same place everyday. "It is difficult to have design inspiration in a cubicle, or a classroom for that matter. I find myself wondering what various designs I have created would look like if I had done my sketches outside by the river, or in the mall."

While reflecting on the creativity article a female student added, "It is amazing what you can conjure up when you take a step out of your everyday life and wander somewhere where you never go. To me, it is not even taking a sketch pad; it is just taking in your surroundings and using them toward your advantage."

Human Environment

Environment is not exclusive to the setting where the students work on their projects. Environment also refers to the people whom the students are exposed to and influenced by, both positively and negatively. These people can include the teacher, classmates, friends, family, professional graphic designers, and others.

In many instances the job of establishing a creative human environment falls on the teacher. Teachers play a vital role in developing student creativity (Töremen, 2003).

During the 20-minute "Packaging Design" sketching activity I observed the professor playing a very active role. She provided the students with crayons, colored pencils, color wheels, and other art supplies. She shared examples of what students had done in the past and clearly defined the assignments guidelines and objectives.

For student Kayla, having clear guidelines was important for her to be creative. "I had a clear definition of what had to be done. The objective got me thinking about it," she said. Allison added that knowing that the company was a gourmet cookie company helped her come up with ideas for the project.

Desiring to inspire, the professor also turned on the radio and brought cookies for the students to eat while they sketched. The cookies appeared to positively affect the study participants' creativity. "Eating the cookies while working on the project put me in the proper mindset," Anna said. Jason added, "I was positively impacted by the fact that the professor brought cookies. Cookies were the theme of the company and the main idea we were suppose to communicate." The cookies also helped Meghan as she was sketching. "Having cookies helped determine appropriate colors. When you see cookies you do not think red, green, or blue," she said.

While the students were sketching, the professor walked around the room stopping to examine students' sketches, answer questions, and bounce around ideas. During the course of my observations I heard her having conversations with students regarding type and color. She appeared willing to help the students in any way she could.

One student made the statement that he was having a hard time getting ideas from his head onto the paper, so the professor spent several minutes conversing with the student to facilitate getting him started. She suggested he start by thinking about type or color.

Another student showed the professor his sketches. While she did not say whether they were good or bad, she did remind him of the assignment guidelines and suggested that he needed to make his sketches more upscale.

Sternberg and Williams (1996) recommend that teachers encourage students to take risks because taking risks increase the chances that a person is likely to do creative work. Throughout the course of the sketching activity the professor encouraged risk taking by suggesting that the students experiment with their bags. Each student was given a plain white bag and the professor told them that for this assignment their final design did not have to be completed on the computer. She told the students that they could cover the bag with colored paper or fabric if they wished. They could also color the bag using markers, paint, or not traditional coloring materials like an old coffee filter. When Kim asked what would happen if they experimented with their designs and did not like the outcome, the professor alleviated her fears by informing the students of additional available bags.

Jeffrey and Craft (2004) make a distinction between the idea of teaching creatively and teaching *for* creativity. They state that teaching creatively deals with using imaginative approaches to make lectures and assignments more interesting and effective. Teaching *for* creativity is defined as "forms of teaching that are intended to develop young peoples own creative thinking or behavior" (p. 77). While these two teaching methods are different, they are not mutually exclusive. Jeffrey and Craft (2004) suggest that teaching *for* creativity involves teaching creatively. "Young people's creative abilities are most likely to be developed in an atmosphere in which the teacher's creative abilities are properly engaged" (p. 78).

Sternberg and Williams (1996) recommend that teachers model creativity to students. They explain that the teachers who are most often remembered are those who balance their role of teaching material with teaching you how to think about the content.

> Williams' most memorable teacher was a college professor of modern American poetry. His message was that each of his students had the talent to write poetry and that each of them would be writing it by end of the term. His enthusiasm was contagious, and his teaching was spiced with advice on how to start a poem or an essay and how to write succinctly. He encouraged them to write poems in the forms of the great poets and then to develop their own style. He read their poems aloud to the class (without identifying the author) and critiqued and praised their work (p. 7).

While conducting my observations I noticed a similar style of teaching. When the professor began class, her enthusiasm about the "Packaging Design" project was evident. As she explained the guidelines she was very animated and made the students laugh on several occasions. Her enthusiasm was contagious and, even though I was a silent observer, she made me want to start designing a shopping bag for cookies. Her explanation of the assignment guidelines took on the form of "role play." She informed the class that she was their client and they had been hired to create a shopping bag for her new cookie company. She also encouraged students to visit local grocery and department stores to examine packaging created by industry professionals. According to student Kim, the professor helped improve her ability to be creative during the sketching activity by creating a relaxed and laid back environment.

The professor later told me that establishing a creative environment for her students is very important to her. "The very first time we meet I try to make the students feel comfortable," she said. "If I came into class and was icky or crabby it would not establish a very creative environment."

Sternberg and Williams (1996) also commented that teachers can help students develop creativity by giving them time for creative thinking. They suggest that after assigning a paper or project the teacher should give the students "a thinking session" of around 10 or more minutes. During that time the students can think about the assigned problem.

> Contemplation raises the quality of the final product and helps students plan for completing the product from the start. You can expect fewer nasty surprises and unexpected glitches because tasks are better planned. Ultimately, taking the time to teach students the value of contemplation raises the quality of work and makes assignments more productive and fulfilling learning experiences. The idea is to help your students develop the discipline necessary for creative thinking. Giving homework that allows and encourages them to take the time to think helps them get used to the time it takes to develop a creative idea. By building in time for pondering you show students that time spent thinking is valuable. Creative ideas depend on nurturing the inklings that lead to these ideas (p. 21).

During the follow-up interview I asked the 12 participants what they thought of the sketching activity. Jason said that he was appreciative of the 20 minutes because it made him think about the project before he actually started designing. Andrew also enjoyed the time set aside for sketching because he could sit down and focus on it without being distracted by other tasks.

However, some of the other participants viewed the structured sketching activity as "timed pressure" which McCoy and Evans (2002) state creates an obstacle to creativity. During the follow up interview Meghan said, "Having a structured sketching activity made me feel cramped for time. I felt like I had to think of one idea and that is it." Kayla added that the sketches she made during that time felt forced and she did not come up with anything she could use.

Classmates, in addition to the professor, seemed to impact the participants. "Creative performance is often viewed as a solitary occupation," (Sternberg and Williams,

1996, p. 40). However, group brainstorming (Krause, 2003) can be a good way to get ideas flowing. We all learn by example and therefore students will benefit from seeing techniques, strategies, and approaches that their peers use in the creative process (Sternberg and Williams, 1996). Throughout the course of my observations, I noticed students sitting together and talking while they sketched.

For example, in one section a few students turned their desks so they were facing one another in order to visit about the project. However, students Meghan and Jason found talking to be a distraction and agreed that peer collaboration can hinder creativity. Meghan said that she dislikes working with her peers because she is a perfectionist and wants things to be a certain way. She is also afraid that someone will take her ideas. Jason added that he believed designs should be created independently first, and then it was okay to ask others for feedback.

During my observation of another section, I heard a few conversations that lead me to believe that not all of the talking was related to the project. Since it was a Wednesday, several students were discussing their plans for the upcoming weekend. However, other students had turned their desks toward one another so they could share ideas. Even though Kayla did not work with her classmates during the sketching activity, she told me during the follow up interview that she finds peer collaboration to be helpful. "Peer collaboration makes you more comfortable in your environment," she said. "They help you to see things differently and it is fun to share ideas." Robert also finds his peers to be helpful when he is creating projects for class. "Peer collaboration is helpful before handing things in because your peers see things that you do not see and they are able to offer valuable feedback."

There was also a lot of collaboration taking place in the different sections of this entry-level design course. For example, in one of the sections, several students turned their desks to face one another, while others talked to each other from across the room. Student Josh found collaboration to be an important part of the design process, stating, "Peer collaboration is great. You get so many more ideas and see things you like and things you do not like. You learn how to make things better. There are so many ideas floating around – there is a big pool to choose from."

Allison explained that she liked working on the project with others because they helped sort out what she did and did not want in her designs. She later added that she believes that in order for her to be truly creative she needs to be around other creative people. Creative people make her feel competitive because she wants to be as creative as they are.

I noticed several groups of students talking while they worked. A group of male students seated toward the back of the room were talking about the cookies they were eating and about an upcoming trip they were planning to take. In this section of the course, the desks had been replaced with tables and several other groups of students were using the new seating arrangement to work together with their peers. "It was nice seeing what others were doing," Sally said. While Mike liked the new tables, he also found them to be a distraction because "when you are facing people it was tempting to want to see what they were working on, and I really wanted to be able to concentrate on my own thing."

One of the sections appeared very quiet compared to the other sections of the course. Despite the fact that the students were also seated at tables, I did not notice a lot of

talking occurring during the 20-minute sketching activity. However, that does not mean that the students' creativity was not affected by their peers. Kim explained that it is nice to work around people that she is comfortable with and that are creative. Kim said that she grew up in a small town where the lack of diversity made it hard to get new ideas. Therefore, Kim appreciates the diverse backgrounds and creativity of her classmates and co-workers at her on-campus graphic design job.

For student Anna the client plays an important role in how creative a graphic designer she can be because they dictate how much freedom she has with the project. She explained that sometimes the people she designs for want their projects to be simple. She added that she feels inspired to be creative when she has the freedom to design something however she wants.

While observing the sketching activity it appeared that Kara was stuck at the beginning. She had her hand on her forehead and was looking at the people sitting with her at the table. "I liked to see what the others were doing," she said. "I could see what ideas they had and what colors they were using."

Andrew believed that collaboration and feedback, whether from an instructor or his peers, is the most important part of the design process. "Feedback from others tells you what works and what does not so that you can refine your ideas."

Theme Two: Students' perceptions about creativity affects their creativity

Webster's Dictionary defines creativity as "the ability to make or bring something new into existence" (Webster's Online Dictionary, 2004). The World Artist Directory (2003) offers a more elaborate meaning:

> A simple definition of creativity is the action of combining previously uncombined
> elements. From art, music and invention to household chores, this is part of the

nature of being creative. Creativity involves the translation of our unique gifts, talents and vision into an external reality that is new and useful (Other Related Works section, para. 2).

Since creativity is a relative term and can mean different things to different people, I believed that it was important to find out what the study participants believed about creativity. In a survey that was administered to all 55 participants, I asked, "What is your definition of creativity?" and "Do you consider yourself to be creative in graphic design?"

Typical responses to the question "What is your definition of creativity?" included: "The ability to generate new ideas or concepts," "Thinking outside of the box," and "Seeing things in different ways." One student said, "Creativity is the way a person is able to take images from their imagination and put them into a format so other people can see what it is the artist is trying to project." Another student added, "Creativity is using thoughts, reasoning, logic, and experience to develop ideas, concepts, and principles that are of an original basis."

Meghan believes that being creative involves being able to speak your mind through the work that you create. Jason added that creative ideas spark imagination and have a great first impression. Anna believes that creativity involves the ability to go beyond what people expect.

Students Sally and Kim both define creativity in terms of how it applies to the field of graphic design. According to Sally, creativity deals with the ability to use design elements to "create new pieces of work that touch people." Kim explains that for her creativity is "the process of combining visual elements together to make an aesthetic design that is based on principles and guidelines."

Sternberg and Lubart's (1991) investment theory of creativity describes creative people as good investors because they buy low and sell high. "They generate ideas that – like stocks – are relatively unpopular or even openly disrespected. They attempt to convince other people of the worth of these ideas. Then they sell high, meaning that they let other people pursue their extant ideas while they move on to their next unpopular idea" (p. 254). Based on this theory Sternberg and Williams (1996) define the ability to generate a creative idea as requiring a balance of three separate abilities; synthetic, analytic, and practical. All three can be individually developed.

Synthetic Ability

When most people talk about creativity they are talking about synthetic ability or the ability to generate new and interesting ideas (Sternberg and Williams, 1996). Frequently, this ability is referred to using the cliché of being able to "think outside of the box." Ninety percent of the students who completed the survey believe they are at least somewhat creative when it comes to graphic design because they could think of new or unique ideas for projects and assignments. Several students believed that their creativity would continue to grow as they take more design courses, learn more about the principles and elements of design, and the computer software utilized in graphic design. Other students stated sometimes they felt creative but at other times would go through a slump.

Meghan considers herself to be creative in graphic design because she is able to think of unusual things when she is designing. However, she admits there are times when her creative juices stop flowing. Josh added, "I am usually inspired by something that I am really passionate about. As of right now I am having difficulty applying a passion to my work."

It appeared that some of the students were having trouble generating ideas during the sketching activity. I noticed students stop sketching while they looked around the room, rubbed their eyes, or put their hands on their foreheads. For example, at one point, student Robert stopped sketching for several minutes and simply stared straight ahead. Later, he said "structured sketching does not work for me. I need to be in the mood to be creative."

One way for designers to develop their synthetic ability is to dream or use imagination (Loui, 2006). In his article, "Teaching Students to Dream," author Michael C. Loui (2006) quotes L. Frank Baum, author of *The Wonderful Wizard of Oz.*

> Imagination has brought mankind through the Dark Ages to its present state of civilization...Imagination has given us the steam engine, the telephone, the talking machine and the automobile, for these things had to be dreamed of before they became realities. So I believe that dreams—day dreams, you know, with your eyes wide open and your brain-machinery whizzing—are likely to lead to the betterment of the world. The imaginative child will become the imaginative man or woman most apt to create, to invent, and therefore to foster civilization (2006, p. 208).

According to Landa and Gonnalla (2001), designers, whether they are professionals or entry-level design students, all need to be nudged from time to time to refresh, brighten, and nurture their imaginations. In the field of graphic design there is no one way to find a solution; however, often times designers will become comfortable with a methodology or a way of thinking and will tend to stick with it which results in everything looking the same (Landa and Gonnella, 2001). "A safe sameness settles on the work. No design adventures. No design risks. No pushing the proverbial envelope. No warp speed. Same old same old" (p. 2).

This belief is supported by the study participants. Student Meghan explained that she considers this kind of design to be boring and in her survey response says that in order

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for a person to be creative they need to open up their mind. In his reflection on the creativity article student Mike added that it is easy to be sucked into a routine, but that in the end being different is much more rewarding.

Student Kim believes that everyone possesses the ability to be creative as long as they are willing to experiment. Experimenting develops the imagination much like lifting weights strengthens muscle (Landa and Gonnella, 2001). Kim finds that the more time she spends experimenting or playing around with her designs the more creative she becomes. "Since I have started working with graphic design and art, I have become a lot more observant than I was in the past. I explore things more like a child now," she said.

Analytic Ability

The second ability Sternberg and Williams (1996) discuss is the analytic or critical thinking ability. Without analytic ability, a person could come up with hundreds of ideas but not be able to distinguish between a good idea and a bad idea.

It appeared that several of the study participants believed that that they possessed the analytic ability. In his survey response one student said, "I know what looks good and what does not look good." Another student recognized the he really has to work at design because he frequently has to scrap "bad ideas." Student Josh added, "I know what I like and dislike when looking at other designers' work."

One way for graphic designers to develop analytic ability is by performing self-critiques. A critique maximizes their learning because it forces them to re-examine the problem and to evaluate their solution (Landa, 2001). During this phase of the design process students are forced to ask themselves questions such as, "Does my design fulfill the goal?" or "Is the solution appropriate?" Landa (2001) says that it is often difficult for

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beginning designers to determine when a design is inappropriate. At times, they may pursue designs they like rather than designs that fit the problem. Performing self-critiques allow designers to re-examine their solution to the design problem in order to determine if it effectively communicates the desired message.

Practical Ability

In addition to synthetic and analytic ability people also need to have practical ability. "The creative person uses practical ability to convince other people that their idea is worthy" (Sternberg and Williams 1996 p. 3). Practical ability is what allows people to turn their good ideas into actual products. Unfortunately, very few people possess a lot of practical ability. Often times, people spend their entire lives thinking about things and generating ideas, but they never manage to turn their ideas into useful, working products (Hinson, 1998). Plsek (1996) states, "The total creative process requires a drive to action and implementation of ideas. We must do more than simply imagine new things, we must work to make them concrete realities" (p. 6).

Making ideas a reality is something that this study's participants have accomplished. Six out of the 12, in-depth, participants work as graphic designers, while others have design experience working with student organizations and other activities. While working at these jobs the participants have turned their ideas into actual brochures, invitations, posters, and other promotional materials. In addition the participants have also developed ideas that turned into actual products for their home. Andrew once sketched out an ottoman that he later built and Kayla sketches out her own patterns for quilts. The sketching activity also appeared to aid in the development of practical ability because the students later turned their sketches into an actual shopping bag.

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In their article "A Hard Look at Creativity", Evers and Kendra (2002) suggest that there are five forces that enable creativity. Those forces are inspiration, motivation, frustration, curiosity, and intuition.

Inspiration

Creative ideas can come from a variety of different places. For example, the lyrics to a song that plays on the radio while we drive to work or the smells coming from the corner bakery may trigger an idea. "Everything counts. Whether you're reading, listening to a conversation, shopping, or walking down the street, notice things around you" (Landa and Gonnella, 2001, p. 10). "Everyone is inspired by one person, thing, or another," student Meghan said.

When I reflected back on my observations of Kayla during the sketching activity, I remember how she spent time looking through her textbook before she started sketching. Out of all of the participants, she made a lasting impression by being the only one to examine the textbook for ideas. Kayla explained, "Reading, looking at magazines, and looking at other designer's work inspires me." Mike added, "I am inspired by everything around me. For example, at the airport yesterday I was inspired by the ceiling, the architecture of the food court, the ties on a rack, a store front, the paint scheme of an airplane, and chairs."

Evers and Kendra (2002) recommend that graphic design students keep an inspiration file containing other peoples' work, pieces of fabric, interesting textures, scraps of paper, color swatches, and sketches. "While you are looking for things to collect, you are opening yourself up to a wider range of visual cues by paying attention to what you may have overlooked in the course of everyday life" (p. 9).

Motivation

Motivation plays an important role in a student's ability to be creative. It is defined as a person's drive to attain a goal, reach a solution, or find an answer (Evers and Kendra, 2002). Motivation can be both internal and external. "The internal motivation of self-esteem, a desire to please the professor, and wanting to be part of a group and fit in will motivate most students to participate. External motivation like grades, praise, and recognition will motivate others" (Roberts, 2003, p. 12). In the field of graphic design, meeting a deadline and pleasing the client are possible examples of motivation.

Student Kim stated, "To go through all of the steps involved in creating a good design, an individual has to be motivated to work out the quarks and to spend the time playing with different elements and layouts." In his survey response another student said that he was motivated to learn how to create designs that would earn him top dollar at a prestigious advertising agency or design firm.

Frustration

Most people would probably disagree with the idea that frustration enables creativity, because when people get frustrated they often give up or quit. For example, at the height of his popularity, Jean Sibelius stopped composing because he felt that he had run out of new musical ideas. Sibelius spent approximately 30 years sketching out his ideas and then throwing them away (Hess, 2003).

This frame of mind seems to coincide with several of the study participants, who believe that frustration hinders their creativity. Student Anna said that when frustrated she usually calls it a day and Meghan explained that when she is frustrated she can no longer think. Another student said, "I know that I am absolutely never creative when I am

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frustrated. For me, frustration has an opposite effect on my creativity." A male student added that frustration hurts his ability to create because when he is frustrated the ideas seem to stop. He also explained that when frustrated he is more likely to resort to a design choice that he is not satisfied with because it gets the project off of his shoulders.

However, frustration does not have to be a burden. Hess (2003) says that we should not avoid frustration but rather use it to our advantage. Frustration forces us to reorganize our thoughts and to divide problems into more manageable parts (Evers and Kendra, 2002). Student Sally commented that she works even better when she is frustrated because it unleashes her potential. A male student explained that his best ideas will often come when he is frustrated and just about to quit. Kim added that frustration is one of the more underestimated forces of creativity and stated:

> It can be difficult to bottle into productivity, but I think it is extremely effective. When an individual gets frustrated it makes him search for inspiration and direction. Frustration also makes the designer step away from a project and many times when they return it is with a cleared mind and new, fresh ideas.

Curiosity

"The type of curiosity that evokes the expression of creativity is seen in a persistent reluctance to take things for granted, a deep desire for explanations, and skepticism of 'obvious' explanations" (Nickerson, 1999, p. 410). According to the Evers and Kendra (2002) curiosity is seen as a major force behind creativity and is one of the reasons why young children are so creative. They do not just accept the fact that the grass is green and the sky is blue; they want to know why. Craft (2000) states that having the ability to wonder about the world around them makes it possible for people to find and solve problems.

Unfortunately, as we get older we often become complacent and prefer to remain in a state of ignorance (Evers and Kendra, 2002). Sternberg and Williams (1996) explain that the reason for this shift is that as children when we ask questions we are often subjected to responses that include "do not ask so many questions," "do not bother me," "do not ask stupid questions," and "be quiet" (p. 13).

This does not appear to be the case in the classroom where I conducted my observations. Prior to beginning the sketching activity the professor encouraged the students to ask questions about the assignment guidelines and objectives. She also stopped to answer questions while she walked around the room. I never once heard her criticize or refuse to answer students' questions.

In her reflection paper on the creativity article one student said, "People must think beyond the boundaries of everything and allow the smallest, minute detail to possibly be an inspiration to a new idea. This requires being curious and exploring places you would not normally think twice about." Student Kim does not consider herself to be a very curious person, but when looking at past projects she can tell the difference in the projects were she asked more questions.

Intuition

Runco and Sakamota (1999) report that many creators have used intuition when working on projects. When designers use intuition they are relying on their hunches or gut feelings. "People who get hunches are tapping into that huge library of stored data in their heads. Intuition is not a predictable source of creativity, but the results can be brilliant" (Evers and Kendra, 2002, p. 8).

In his reflection paper on creativity student Mike explains that he uses intuition whenever he immediately knows what he should create because the idea is already in his head. Student Kim suggests that over time designers can develop intuition. "Intuition may not be predictable, but it can be powerful. As designers gather more information for mental libraries and with practice their brains know how to use the information affectively. Intuition begins to happen more often and becomes more controlled," she explained.

Theme Three: Students' attitudes about the value of sketching affects their creativity

In the early stages of the design process it is typical to use pictorial representations such as sketches while developing an idea. This practice has long been considered an essential part of the design process and is related to creativity and innovation in design (Purcell and Gero, 1998). During the Renaissance sketching was referred to as *primi penseri*, which means first thought, because it provided artists and designers with a way to express their initial ideas. Since that time sketching "has been central to both art and design in capturing the complex creative interplay between the mind and the hand" (Jonson, 2002, p. 247).

Vermaas (1995), a graphic design professor from Mexico, has her students sketch out all of their ideas as a way to spark their creativity and to develop their own solutions to graphic design problems. She believes that sketching allows her students to explore their Mexican heritage and culture without being influenced by designers from the United States. Vermass (1995) added the following:

> While you are sketching, the visual realm reigns, theories are neglected, and all other tools and accessories are kept away until the appropriate time of execution. It is always a pleasure for me, as the instructor, to read the small sketches of students, to understand how their minds work, to start to know their skills, lackings, and desires, and to better help them after this visual insight. When they sketch, their

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final products maintain their personality and can still be successful in solving the design problem (p. 175).

Thumbnail sketches are usually small and do not contain a lot of detail and are seen as a way of brainstorming. Designers frequently refer to these sketches as "idea-sketches" because they are made at the early stage of the design process, are for private use, and are typically made on anything such as the back of an envelope or the edges of a newspaper (Verstijnen, Leeuwen, Goldschmidt, Hamel, and Hennessey, 1998). Showker (n.d.) explains that during this phase of the design process the students should focus on the placement of visual elements and should not worry about drawing borders and illustrations or writing out the text because it gets in the way of the ability to generate new ideas.

During the follow up interview to the sketching activity, student Kim told me that she finds value in sketching her thumbnails for class. She said that she will often save "bits and pieces" of those sketches and combine them for future projects. While designers typically make sketches with certain ideas in mind they may later find new configurations within their sketches that can lead to new design ideas (Tversky, 2002). Thumbnail sketches can become both a diary and layout encyclopedia that eventually becomes precious to the designer (Showker, n.d.). Lugt (2002) suggests sketching facilitates archiving and allows designers to create an easily accessible database of design information. In her reflection paper on the creativity article a student stated that she keeps of sketchbook containing all of her sketches to use as inspiration.

Jonson (2002) refers to these types of sketches as "I-Sketches" and describes them as being a form of shorthand for the designer. They are used for brainstorming and are not meant to be seen by anyone other than the designer. According to Jonson (2002) sketching plays another role in the design process. He refers to this second type of sketch as a "We-

Sketch" and explains that they are used as a means of communication between designer and client. Sketches can be useful tools for conveying ideas to others because unlike language sketches "convey figural and relational properties directly, facilitating memory, inference, and discovery" (Tversky, 2002, Nature of Sketches section, para. 1).

Student Andrew sees the value of sketching for others and states that sketching can be beneficial in conveying an idea to someone else. "Sometimes you need to explain an idea to someone, and you can not explain it with words so it helps to be able to sketch it out on a piece of paper." The author of the article "Designing a Conclusion" (2002) added the following:

> Dennis Key, partner/designer at Punch Visual Concepts, agrees that sketching can be a valuable tool when dealing with a client who has little idea of where they want to go with a project, and can help guide them through the creative process. 'The sketch is used to spark their interest and get their creative juices flowing. I find it pretty darn effective when you get a chance to throw together a sketch while you are with a client.' (para. 10)

Allison is familiar with the concept of drawing "We-Sketches". During our follow up interview she stated that when she is at work she typically draws sketches for clients. Most of her clients are older and like to see a sketch before the design is laid out on the computer. Kivett (1998) explains that clients often like to see sketches because they convey that the design is not "set in concrete" and can be changed if needed. He adds that creating sketches is essential to the success of designer/client meetings because "communications are almost instantaneous, a minimum amount of time is required to produce the image, and changes can be made on the spot" (p. 64).

The sketches that I observed the students drawing during the sketching activity appeared to be both "I-Sketches" and "We-Sketches". They were an example of an "I-Sketch" because the purpose of the assignment was to get the students to brainstorm and

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get their ideas down onto the paper. The sketches were also "We-Sketches" because prior to beginning the assignment the professor informed the students that she was their client and that they had been hired to design a shopping bag for her new cookie company. On several occasions I observed the professor having conversations with the students about their sketches. She bounced around ideas with the students and offered suggestions for improvements when needed. This interaction between the designer/client or teacher/student allowed students to change the direction their sketches were going immediately if needed. For example, during the sketching activity one student's initial sketches were not particularly upscale. By showing those sketches to the professor early on in the sketching activity he was able to learn that he needed to think more upscale and he could therefore spend the remaining time coming up with new ideas that better fit the professor's guidelines.

However, while many experts consider sketching to be beneficial to the design process it is often looked down upon by students. Jonson (2002) explained that often times drawing sketches can seem tenuous and when asked to sketch students will often respond "I can not draw" "I do not want to" or "I do not have to" (p. 247).

These comments appear similar to those made by some of the participants in my study. As both a graduate teaching assistant and classroom instructor I observed students on several occasions drawing their thumbnail sketches after completing their projects. Therefore, in a survey that was administered to all 55 participants in the study, I asked "Do you prefer sketching with pencil and paper or the computer? Please explain." Out of the 42 respondents the class appeared split in terms of their sketching preferences.

The students who preferred sketching on the computer stated their reasons as not being very good artists or not being very good at drawing. One student said, "I prefer to sketch on the computer because I am not artistic. On a computer I feel like Picasso, but with paper and pencil I feel like a preschooler." Student Sally said that she is "not good at sketching with a pencil" and therefore prefers to do her sketching on the computer, adding, "Sketching on the computer is more controlled."

During my observations, Meghan appeared to handle the sketching activity well; however, during the follow up interview she said that she prefers to go straight to the computer when she is working on a graphic design project. "I am not a great artist so I like to sketch on the computer because I am able to tell immediately what the outcome will look like."

Meghan was not the only student who believed that way. While observing I overheard a student comment that he disliked sketching using pencil and paper and wanted to go use the computer instead. In the follow up interview students Anna and Andrew both stated that they prefer to use the computer because the medium provides them with a more accurate representation of the final product or design. Josh added, "Working and playing with the computer reveals ideas and images that I could not easily develop by hand."

Landa (2001) acknowledges that sketches can be made on the computer. In fact, studies by Madrazo (1999) and Marx (2000) suggest that there are many benefits to sketching on the computer. Madrazo (1999) states that digital sketches support creativity and visual thinking because designers can gain a better understanding of form through the use of digital visual representation. This view is supported by Marx (2000) who points out

that computers provide designers with intense visuals and immediate feedback, which allows them to generate images more frequently than they can with the low-end methods.

While sketching on the computer is possible Landa (2001) is quick to point out that the purpose of the sketching stage in the design process is to generate as many ideas as possible. Therefore, if students are using computers for sketching it is important for them to actually sketch rather than just start creating.

While half of the students' survey responses indicated that they preferred sketching on the computer, I observed that those students had in fact skipped the idea generation phase of the design process. They did not use a drawing tablet or sketching software. Instead the students went straight to the computers and used page layout software to begin designing their projects.

In response to the survey one student said, "On the computer I can see the potential final product as I am working rather than guessing later on if it is something that I can duplicate." Another student stated, "I do not like sketching. I just design and make changes as I go." Josh added that he will often times design on the computer first and draw his required sketches for class later.

During an interview, I asked Mike how much time he typically spent sketching for class. He appeared hesitant at first, perhaps he believed I would be upset by his answer. I assured him that I was there to listen to what he had to say and that he should feel free to answer honestly. He then told me that he usually spends only 5 to 10 minutes on his sketches because he does not really like sketching. "My finished projects do not usually end up looking like any of my sketches," he explained.

While sketches can be drawn on the computer it is the hand-drawn or pencil and paper sketches that are historically regarded as the medium of choice for brainstorming and thought process (Bilda and Demirkan, 2002). In their study on the difference between sketching with low-end and high-end technology Bilda and Demirkan (2002) selected six designers and had them create sketches using pencils and paper and computer-aided design software. The results concluded that designers were more "effective in using time, conceiving the problem, producing alternative solutions and in perceiving visuals" when using the traditional, low-end methods. Showker (n.d.) added the following:

> Drawing thumbnails, no matter how simple or primitive, reinforces retention 100 percent better than computers. You draw a layout using the basic shapes tools on the computer, and you have an electronic thumbnail—it is perishable. It is forgotten in moments. You draw it out on paper and you remember it...you develop it by drawing over and over. This hand-to-eye activity makes the images on the paper more important than they would be on the computer screen (Thumbnails do not perish section, para. 1).

Student survey responses appeared to support this idea. Several students listed speed and ease of use as their reason for preferring to sketch using pencils and paper. One student said, "Sketching with a pencil gets the juices flowing." Another student stated, "I prefer sketching with paper and pencil because your mind is free to do whatever. With paper you do not have to worry about getting it right. You can just use your imagination."

Landa and Gonnella (2001) explain that placing the pencil directly onto the paper and not having to deal with the computer technology creates a sense of freedom for the designer. One student supported this idea in his survey response when he said, "I like pencil and paper because it allows for more freedom than the computer." A second student added that he preferred pencil and paper sketches because it was easier to add

elements to the sketches because you did not have to learn how to use a computer program first.

Student Jason likes pencil and paper sketches because he prefers to do his sketches for class at home. "You do not have to be in the lab or classroom when you do your sketches," he explained. Pencil and paper sketches can be made on the back of an envelope, a napkin, or the inside of a candy bar wrapper. Student Allison added, "I will sketch out an idea as soon as it comes to me, at anytime and any place. I will pull out a notebook or sketch on whatever is in front of me."

Robert enjoys sketching and will sometimes spend hours on his sketches. "It really depends on the project," he said. "Sometimes I can finish a sketch in a couple of minutes, and other times it might take a couple of hours. It depends on how complex I want to make the sketches." Robert finds sketching fun and said, "I make sketches all of the time when I am sitting around bored." He tends to do most of his sketches in the lab or at home because that is where he keeps pencils and paper. In addition to the sketches that Robert has made for class, he has also done sketches for work, PowerPoint presentations, and projects around the house. He said that he once drew sketches for an ottoman that he later built for his home. Kayla also makes pencil and paper sketches for projects outside of class. She enjoys drawing with her children and will sketch out patterns for quilts.

I observed different approaches to sketching. Several students drew three-dimensional shopping bags on their paper so that they could draw the front, sides, and handles of the bag. Other students appeared to concentrate on sketching the name of the company or objects like cookies. I observed one student sketch very quickly with crayons,

similar to making rubbings. I also observed a student writing comments under his sketches, while another made a list on the back of his assignment sheet.

While observing, I noticed several students use pencils or a mix of pencils and crayons to make their sketches. Jason said that he sketched with pencil first because the pencils allowed him to erase. I also observed both Kayla and Robert erase parts or all of their sketches during the activity. In the survey one student said, "I prefer sketching with pencil and paper because it allows me to change things quickly." Showker (n.d.) suggests using a pencil without an eraser when sketching. He states that if designers make a mistake when sketching they should throw those sketches away and start working on the next one. Because if you stop and make a correction it means that the design or concept has become precious and it is hard for designers to move on to other ideas.

Regardless of whether you are using low-end or high-end technology sketching can be seen as a form of visual improvisation that leaves designers free to explore (Jonson, 2002). For those hesitant to sketch because of lack of artistic ability Wentworth (1998) recommends that they not look at their sketches as ugly or crude because the goal of sketching is not to please but to figure something out. Potter (1969) adds that you do not have to be a wonderful artist in order to be a good designer. In fact he points out that designers who draw marvelously are often better suited for a career as a painter or illustrator. Sketching as part of the design process is at the very heart of bridging daydreaming and creation (Jonson, 2002).

Summary

During the fall semesters of 2004 and 2005, I observed six sections of an entry-level graphic design course as the students worked on a "Packaging Design" sketching

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activity. The students were asked to develop as many thumbnail sketches as they could in 20 minutes for a fictitious cookie company named Guilty Pleasures. For this activity, all of the students were required to make their sketches using low-end technology. The students were given a sheet of paper and they could use their own lead pencils and ink pens, or the crayons and colored pencils that were provided by the professor. After conducting observations and administering interviews and interviews the data was analyzed and coded. The three themes that emerged in this study were identified and described in Chapter IV. The data supporting each theme and discussion of the literature relevant to the themes were provided. The three themes are:

1. Establishing a specific environment impacts student creativity.

2. Students' perceptions about creativity affects their creativity.

3. Students' attitudes about the value of sketching affects their creativity.

Theme one was supported by literature on the impact establishing a specific environment has on student creativity. The importance of the impact of physical environments and human environments, specifically the role of teachers and peer collaboration, on student creativity were discussed.

The second theme explained how students defined their creativity and whether or not they considered themselves to be creative in graphic design. The data was supported by literature that discussed creativity and how it can be individually developed.

Finally, theme three discussed the affects sketching has on the creative process. Literature is presented along with participants' attitudes and opinions about sketching.

CHAPTER V

SUMMARY, LIMITATIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to explore how entry-level, undergraduate graphic design students at an Upper Midwest university utilize sketching to develop their creativity. The participants in this study were recruited from a total of six different sections of an entry-level, graphic design course. Of the 107 students enrolled in the six sections of the course, 55 agreed to participate in this study. Because of time constraints, it was not possible to conduct in-depth interviews with all 55 participants. Therefore, I selected 12 students at random to serve as representations of the study population. Those 12 participants had different backgrounds, experiences, and levels of interest in graphic design, but had similar perceptions about creativity and attitudes about sketching.

The classroom where the participants were observed in the fall semester of 2004 and 2005 is located on the second floor of a building located on the east end of this university's campus. In addition to being used for lectures, the area also serves as workspace for students to complete projects that do not involve the use of the computers. When I conducted my observations in the fall of 2004 the room contained 27 desks that were divided into five rows. In the fall of 2005, the desks were replaced with seven tables of varying sizes and shapes.

Qualitative and action research methods were used to study the students. I utilized triangulation which is data collected through multiple sources and used to crosscheck

information and validate the research findings. The triangulation methods utilized were observing students in their natural setting, administering surveys, and interviewing the subjects. The observations and interviews focused on the participants' perceptions of creativity and their attitudes concerning sketching in graphic design. After collecting the data it was analyzed for themes. Once the initial themes were identified, I returned to the classroom for verification, presented the themes to each of the participants and asked, "Do you agree with these themes?" All of the participants agreed with the three themes. This participant feedback was important to the validity and reliability of my research.

In Chapter III, the participants' perspectives were recounted with a format that provided the reader with background information, perceptions of creativity, and attitudes about sketching in graphic design. In Chapter IV, the experiences of the participants were combined, analyzed, and discussed with reference to the literature. Three themes emerged from this study. The themes are listed and summarized as follows.

Theme One: Establishing a specific environment impacts student creativity

One discovery of this study was the importance of establishing a specific environment and the impact it can have on entry-level, undergraduate graphic design student creativity. The environment was characterized by both physical aspects and human interactions. This research was an indication that physical environment (i.e., places where students work on projects) and human environment (i.e., teachers, classmates, co-workers, professional designers, and others) impacts student creativity.

The participants in the study were observed during a 20 minute sketching activity. During the follow up interviews, the 12 participants who provided in depth responses expressed their views on how the environment impacted their ability to be creative. The

participants talked about physical environments that appealed to them as well as environments they found to be a hindrance to their creativity. While the participants had their own physical environmental needs, it was physical environments that were rich in stimuli that appeared to positively affect creativity. For example, student Andrew preferred to work in environments with a visual "impact" such as area restaurants and photography studios. Kayla needed her environment to have a little noise and she preferred to work in familiar environments. This research also suggests that it was difficult for the students to be creative when exposed to the same physical environment (the classroom) day after day. Student Sally explained that it is easy to get into a slump when working on assignments in the same room all semester. Mike found the classroom environment to be a hindrance to his creativity because the walls in the classroom were white and sterile. Meghan added that it was hard to be creative during the sketching activity because she could only find inspiration in what was in the classroom.

The study also indicates that the human environment is vital to the creative process. The professor was seen as an important factor in creating an environment that would enhance student creativity. She provided guidelines, objectives, and feedback for the assignment that according to the participants helped their creativity during the sketching activity. She also provided them with time to create while encouraging them to take risks and experiment with their designs. According to Sternberg and Williams (1996) student creativity is strengthened in an environment where the teacher serves as a role model, encourages curiosity and experimentation, and provides valuable feedback. Student Kim added that the professor's attitude created a relaxed environment during the sketching activity.

The role peer collaboration plays on the development of creativity was also indicated in this study. Some participants found peer collaboration to be a hindrance, while others found it beneficial to share ideas. Meghan dislikes peer collaboration because she is a perfectionist and wants things to be a certain way. Allison finds value in working with others because when she is around creative people she feels competitive and wants to be as creative as they are. Robert added that working with peers is helpful because they often see things in his designs that he did not see and they are able to offer valuable feedback. This theme was reinforced by the literature about the impact establishing a specific environment has on student creativity. The feedback received from the participants regarding this theme corroborated my interpretation of the data.

Theme Two: Students' perceptions about creativity affects their creativity

This study demonstrated that students' perceptions about creativity affects their creativity. Creativity is a relative term and means different things to different people. Therefore, whether students view themselves as creative or not is determined in part by their personal definition of creativity. For example, students who defined creativity as the ability to generate new ideas based their own level of creativity on whether or not they could develop new ideas for graphic design projects.

Researchers in the field of developing creativity discuss the importance of three abilities: synthetic, analytic, and practical. Synthetic ability involves being able to generate ideas and is something that most of the study participants appear to have. In response to the survey question "Do you consider yourself to be creative in Graphic Design? Please Explain." the majority of the participants' listed being able to generate ideas as an ability they possess and the reason they are creative in graphic design.

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Analytic ability refers to critical thinking; it is the ability to look at one's design and decide if it is acceptable or unacceptable. Student Josh believed that this was an ability he possessed because when looking at other designers' work he knew what he liked and disliked about the design.

Practical ability involves taking an acceptable idea and turning it into an actual product. In this study the participants demonstrated practical ability by turning their "Packaging Design" sketches into actual shopping bags for class. In addition, several students demonstrated practical ability by creating items for their homes and design projects for work.

The five forces of creativity were also discussed in relation to the participants' experiences. Those forces include inspiration, motivation, frustration, curiosity, and intuition. Inspiration can be found anywhere, at any place, and at any time. Motivation is a drive to reach a goal. Student Kim explained that in order to create a good design the designer needs to be motivated to spend time working out all of the quarks, learn about the principles and elements of design, and learn the computer software utilized in graphic design. The participants were in disagreement about the affect frustration has on creativity. Some stated that frustration is negative because it makes it so you can not think about the project anymore and give up. However, others believed that their best ideas were discovered when frustrated. Curiosity involves asking questions and exploring or experimenting with areas that are new. One student stated, "People must think beyond the boundaries of everything and allow the smallest, minute detail to possibly be an inspiration to a new idea. This requires being curious and exploring places you would not normally think twice about." Intuition deals with relying on hunches and instincts. Student Mike

said that he uses intuition whenever he immediately knows what to create because the idea is already in his head.

This theme was corroborated by my observations, interviews, surveys, students' reflection papers, and feedback. The professional literature on creativity supported this theme.

Theme Three: Students' attitudes about the value of sketching affects their creativity

Another aspect this study expressed was the role of sketching to aid students in idea generation. According to Verstijnen, Leeuwen, Goldschmidt, Hamel, and Hennessey, (1998) sketching is an activity that designers use at the early stage of the design process to brainstorm and generate ideas. Thumbnails sketches are small, typically made quickly and do not contain a lot of detail. They can be made on a napkin, inside of candy bar wrapper, on a piece of paper, or on the computer.

The participants were observed during a sketching activity that required them to sketch using low-end technology such as paper and pencils or crayons. The students were observed using a variety of sketching approaches. For example, several students drew three dimensional bags on their paper so that they could sketch all of the sides. Others focused on sketching single aspects like the name of the company. I also observed a student write comments under his sketches.

Several students found value in sketching because, as one student said, "it gets the juices flowing." Student Kim liked sketching because unused sketches could often be combined to form new ideas for later projects. Andrew added that sketches were useful in explaining something that can not be explained with words. However, not all of the students enjoyed sketching. Several students explained that they disliked sketching

because they were not very good artists. Mike added that he does not like to sketch because his sketches never turn out like his final designs.

In the study survey, the participants were asked if they preferred sketching with pencils and paper or on the computer. Approximately one half of the participants stated they preferred to use the computer for sketching. However, the students were not actually sketching. The students were skipping the idea generation phase of the design process. They were not observed using drawing tablets or sketching software but instead using page layout programs to start designing. One student explained that he just starts designing and makes changes along the way. Another student stated that he sometimes would complete his design on the computer before drawing his required sketches for class.

Limitations

This study was affected by several limitations. Those limitations include:

1. Participants in the study were 55 students and two instructors in six classrooms which is a small number of participants.

2. The site was at one Upper Midwestern university where participants with a specific cultural background and experiences gather. The culture and experiences of students at other universities may produce different results.

3. The observations were conducted during a 20-minute sketching exercise which maybe considered a short period of time.

4. I was the only individual observing in the classroom and it is possible that I may have missed something.

5. While observing I was unable to view the participants at all times because of where I was seated or standing in the classroom.

6. I conducted observations during a structured sketching activity for a "Packaging Design" assignment. I did not observe students making sketches for other assignments.

7. This study may not be true of all instructors and students at all universities because this study is qualitative in nature and reports the perspectives of a specific group of instructors and students.

Recommendations

The following recommendations are provided to all entry-level, undergraduate graphic design students, as well as anyone teaching a graphic design course. The recommendations are also pertinent to university administrators and the graphic design industry.

1. Evaluation of the classroom environment (physical and human) is essential to the development of student creativity. Students all have their own environmental needs.

2. Students' environmental (physical and human) preferences should be evaluated and assessed. These evaluations should be encouraged and accepted as positive experiences.

3. Students should be encouraged to occasionally explore other physical environments. Group field trips to local art museums or restaurants could be planned or, if weather permits, class could be conducted outside.

4. Graphic design instructors should be taught to teach *for* creativity. This teaching is seen to create a positive human environment where students' creative thinking and behavior is developed.

5. Teachers should allow class time for idea generation and brainstorming activities. By providing class time for these activities the teacher is allowing the students to think about the assigned problem and helping to create a positive human environment.

6. Teachers should encourage students to take risks and experiment with their designs. Taking risks increases the change of creative work (Sternberg and Williams, 1996).

7. Students' attitudes about peer collaboration should be evaluated and assessed. These evaluations should be encouraged and accepted and seen as a positive learning experience.

8. Teacher and student perceptions of creativity should be assessed, respected, and valued. Everyone has their own definition of creativity and how it applies to them.

9. In addition to generating ideas (synthetic ability), students should be encouraged to evaluate their ideas (analytic ability) and to turn their ideas into actual products (practical ability). According to Sternberg and Williams (1996) creativity requires a balance of these three abilities.

10. Students' attitudes about sketching should be assessed, respected, and valued. These assessments should be encouraged and accepted as positive learning experiences.

11. Students should be reminded that they do not have to be great artists to draw sketches. Potter (1996) explains that some of the best designers are not great artists and some marvelous artists are not very good designers.

12. Administrators should support teachers and students by allowing changes to be made to the physical environment (i.e., changing the color of walls and replacing classroom furniture). Making changes to the physical environment will allow the environment to be shaped to fit the creative needs of students.

13. Administrators should support teachers interested in conducting research on developing student creativity. There are many forces that impact creativity and they could use further exploration.

14. Administrators should support teachers and students by providing access to high-end technology sketching options (i.e., drawing tablets and sketching software). Having access to high-end technology sketching options may encourage students to spend time sketching.

Now that my research has come to an end I find myself reflecting back on the experience. Having been raised in a family of teachers, the idea of exploring and learning new things was always valued and encouraged. However, despite this lifetime of learning I found myself amazed by the learning experience this research allowed me to obtain.

I graduated with a graphic design emphasis; therefore, I believe I can relate to the participants in this study. I recall the feeling that comes when a new design project is assigned. At times it seemed like my brain was overflowing with ideas, while other times thinking of one idea was a struggle. I can remember re-examining my sketches and feeling excited to discover that one of them (or in many cases, parts of them) was the perfect solution to the design problem. Like some of the students in this study, I am not a great artist so at times I also felt frustrated with sketching. However, looking back I realize that

my best ideas were developed when I took the sketching phase of the design process seriously.

I was fortunate to know most of the students in this study because I was the graduate teaching assistant and classroom teacher in the sections where my study took place. However, I remember feeling nervous, but enthusiastic, as I explained my study and asked for student participation. The process of observing, interviewing, and gaining valuable feedback from the participants was interesting and enlightening. While conducting the observations and interviews, I remember thinking that I could relate to the participants' perceptions about creativity and their attitudes about sketching. The relationship with the participating students and teacher was informative and resulted in a worthwhile experience.

APPENDICES

Dialectic Action Research Spiral
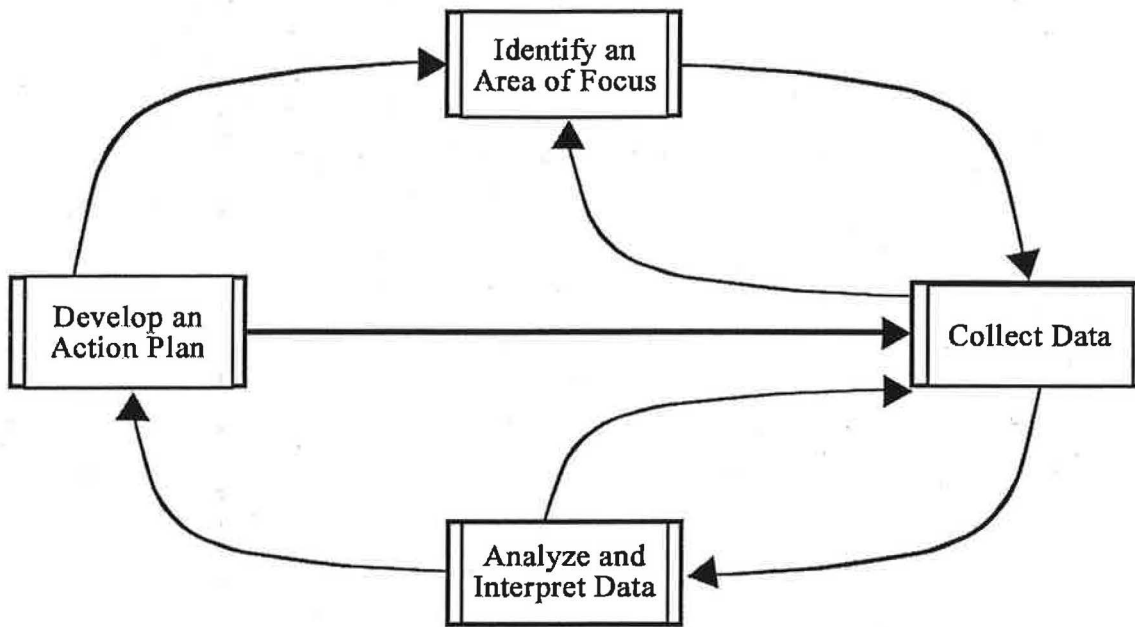
Dialectic Action Research Spiral

APPENDIX B
Information and Consent Form

My name is Elizabeth Becker and I am a second year graduate student in the Department of Technology at the _____. My areas of interest include studying graphic communication as well as teaching and learning. I am currently working on my Master's thesis. *The influences of sketching on the development of creativity in entry level graphic design students.*

The purpose of this study is to understand how entry level graphic design students develop their creativity. Creativity isn't something we are born with; it is developed. I want to find out what inspires or motivates creativity in entry level graphic design students. I am particularly interested in learning the effects sketching (with pencil and paper or on the computer) has on the creative process. This will be measured using surveys, interviews, and observations.

It is anticipated that the duration of your individual participation will be approximately two hours. On the first day of your participation you will be informed of the study and if you choose to participate you will be asked to sign this consent form. You will be given a copy of this form. You will then be interviewed to gather background information such as your major, year in college, interest in the subject of design, and your reasons for taking the Department of Technology 212 course. Following the interviews you will be asked to complete a survey in order to determine your definition of creativity, the factors that inspire your creativity, and any design experience you have had. Once the surveys have been completed I will attend several class periods to observe you as you go through the design process. Additional questions may be asked based on the data generated from the preliminary interview and survey.

The benefits that you experience from participating in this study may include advancing knowledge about the influences of sketching on the development of creativity in entry level graphic design students. There are no foreseeable risks or discomforts related to your participating in this study. Compensation will not be provided to students who choose to participate in this study. In addition, participation in this study will not cost you any money.

Confidentiality will be maintained at all times. If you choose to participate in this study you will be assigned a number that will be known only to the researcher. There will be no way to identify you as the subject; your name will not be attached to any of the reported data. The results of the research will be stored in a locked cabinet in my home where only I will have access to them. Only the researcher, her advisor, _____, and the people who audit IRB procedures will have access to the data. The research data will be kept for at least three years after the completion of the study. After three years, it will be destroyed.

Participation in this study is voluntary and you may discontinue your participation at any time. Whether or not you choose to participate in this study will in no way affect your relationship with the University of North Dakota or the Department of Technology. If you choose to discontinue participation in this study, contact me by email at elizabeth_becker@und.nodak.edu.

I will be available to answer any questions or concerns you may have about this study. You may contact me by calling _____ or _____. You may also email me at elizabeth_becker@und.nodak.edu. You may also contact my advisor by calling _____ at _____. If you have any other questions or concerns, please call the Office of Research and Program Development at _____.

Upon request, you will be informed of the findings of this study.

I have read and understand all of the above information and willingly agree to participate in this research explained by Elizabeth Becker. I understand that I may discontinue participation at any time without prejudice, that all of my questions have been answered and that I am encouraged to ask any questions that I may have concerning this study in the future.

Participant signature_____ Date _____

I have discussed the above information with the subject. I believe that the subject understands the benefits, risks, and obligations involved in participation in this study.

Principle investigator signature_____ Date _____

APPENDIX C

Interview Questions

Study Title: A study about the influences of sketching on the development of creativity in entry level graphic design students.

1. What year are you classified at the University of North Dakota?

2. What is your major?

3. Why are you taking Technology 212 Principles of Graphic Design and Print Production?

4. What is your interest in Graphic Design?

Because my research is qualitative in nature, additional questions will likely emerge based on the above, formulated questions.

Survey Questions

Study Title: A study about the influences of sketching on the development of creativity in entry level graphic design students.

Please complete each of the following questions regarding your knowledge about design, interest in the subject, and experiences you may have had with print or electronic design production.

5. What is your definition of creativity?

6. Do you consider yourself to be creative in graphic design? Please explain.

7. What inspires or would inspire you to be creative in graphic design? Please explain.

8. Do you prefer sketching with a pencil and paper or on a computer? Please explain.

9. Please describe your experiences as a graphic designer.

Follow-up Interview Questions

Study Title: A study about the influences of sketching on the development of creativity in entry level graphic design students.

1. Are you more creative at certain times of the day? Please Explain.

2. How does having a structured sketching time compare to other sketching you have done for this class?

3. When reflecting on past experiences could you explain other instances where you sketched or doodled?

    a. Do you have experiences doing this outside of class?

    b. Have those sketches been part of the process to create something?

4. How does environment impact your creativity?

5. How much time do you spend sketching for a project? Explain.

6. Where and when do you typically do your sketching?

7. How does using crayons compare to other mediums?

8. As you were sketching what positively impacted your ability to create?

9. As you were sketching what negatively impacted your ability to create?

10. How does peer collaboration help your creativity?

A Hard Look at Creativity

A long-delayed question is, how does it happen that very young children, all of whom quite naturally absorb great quantities of visual information, grow up to be visually illiterate? The answer, as far as I can make out, is that this early capability is simply beaten out of them by the educational process.

--George Nelson, How To See, Little, Brown: Boston, 1977

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Walter Gropius (leader of the Bauhaus) in a treatise on the role of an artist in the age of the Industrial Revolution, stated: "…for the artist possess the ability to breathe soul into the lifeless product of the machine, and his creative powers continue to live within it as a long ferment. His collaboration is not a luxury, not a pleasing adjunct; it must become an indispensable component of the total output of modern industry."

The Five Forces of Creativity

Five forces enable creativity:

Inspiration, motivation, frustration, intuition, and curiosity

How do you get a great idea: Does it come to you fully developed? Does it just sort of smack you between the eyes, in bright glowing colors? You're lucky if this happens to you more than a few times in your life. For most of us, the creative process starts not by a lucky quirk of inspiration, but with one of the four other major forces which help to stimulate ideas.

Motivation is a drive to attain a goal, reach a solution, or find an answer. Design, in general is goal-driven, since we are usually trying to meet a deadline. Motivation is a compelling force, and can be a powerful tool for a self-disciplined person. This person has a great stubbornness and a willingness to plough through the design process to reach a goal.

Frustration (however unlikely this may seem) can be a great help in creative problem-solving. Frustration creates great energy, which can be refocused into a driving force. Frustration can also help to force reorganization, dividing design problems into more workable chunks. Many creative people do their best work when frustrated.

Have you ever had a hunch? You "just knew" the answer. This is the subconscious at work. People who get hunches are tapping into that huge library of stored date in their heads. Intuition is not a predictable source of creativity, but the results can be brilliant.

The final force behind creativity is curiosity. People sometimes prefer to stay comfortably in a state of ignorance; resist this kind of complacency. Get in the habit of asking questions. Try to ask unusual questions, inappropriate questions, silly questions. Think outside of the box, and welcome answers from outside the box.

Becoming Creative

Webster defines creative as "resulting from originality of thought or expression." Following this definition, everyone is by nature a creative person. We all have the ability to come up with an original thought or expression. As children we are encouraged to let our imaginations run wild. Somewhere along the way, we are expected to Grow Up. The key to being truly creative is to get out of your own way. "Thinking outside of the box"—thinking about things differently than the average person would is a designer's mantra.

Following are some suggestions for keeping your inner child alive:

- Be curious
- Be open-minded
- Be strongly purposeful
- Be ready at all times to be inspired
- Think improbable thoughts
- Don't be serious all the time
- Make puns
- Juxtapose ideas and imagery
- Use metaphors
- Discard no idea, no mater how absurd
- Generate many answers – the more, the better!
- Know that inspiration is a controllable element

CREATIVITY IS NOT A TALENT

Look at the above list. Notice that the word "talent" is not mentioned once. Being creative does not require a particular talent. Talent is a gift, more closely aligned with potential; talent is a matter of nature.

Creativity, however, is a product of nurture. To be a creative person, treat yourself as a creative person. It is not enough to simply think of yourself as creative; rather, do the things that creative people do. Act as if you would allow a creative person; allow yourself to respond in the way you would allow a creative person to respond. Once you get into the habit of acting creatively, you'll notice that eventually this kind of response doesn't have to be forced.

One of the joys of being a creative person is that other people come to expect the unexpected. Be flamboyant, be outrageous, be unusual, be irreverent, be anything you want to be. There are very few rules to creativity. The only one is to never settle for something less than creativity.

Tips for Fueling Creativity

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STAND ON YOUR HEAD

Or hula-hoop, or play hopscotch, or ride a dirt bike. Most designers have some kind of instrument that sparks the creative fires. Whether it is yoga, baking, singing at the top of your lungs, dancing with your cat, or listening to a particular kind of music, experiment to find what helps you work. You might find that your best work comes from standing on y our head in the corner. Do it! No matter how strange it may seem to other people, harness whatever you like to be creative.

THE INSPIRATION FILE

Practically every designer (graphic designer, clothes designer, architect, chef, or hair stylist) shares a common denominator – they all have a folder, file drawer, cabinet, or scrapbook of inspiring things. Whether it's called a sourcebook, idea book, inspiration file, or something else, designers are avid collectors of things that inspire their creativity.

Simply having an inspiration file will help fuel your creativity since you are paying more attention to what you see. While you are looking for things to collect, you're opening yourself to a wider range of visual cues by paying attention to what you man have overlooked in the course of everyday life. You can also use your inspiration file to jump-start your imagination if you hit a creative block.

One designer shared her inspiration file with us – it's a suitcase-sized portfolio box with acetate pages like a scrapbook, and room for loose items. Her inspiration file

is filled with items that she picked up and thought were worth saving, feathers, seashells, bits of ribbon, pictures that "lured" her, comic books, postcards from Istanbul and Norway, a letter written in Japanese, ads she admired, matchbooks, and a cancelled postage stamp from the Artic Circle.

Your inspiration file can contain anything—bits of fabric, illustrations, postcards, work you admire in your field, unusual visual solutions, visual jokes, scraps of paper with written notes, fragments of ideas you've had, rough sketches of designs, doodles. Anything that you might look at for more than a minute is usually a good candidate for your collection. Something is worth saving if:

- It amuses you
- It amazes you
- You think it is pretty, beautiful, serene, soothing, etc.
- You find it disturbing, gross, haunting, scary, depressing, etc.
- The texture is intriguing
- You love the colors
- You wonder how it was made
- You know what is wrong with it, and how to make the design better

CHANGE YOUR PERSPECTIVE

Have you ever stared at your face in the mirror for so long that it no longer makes sense? When you are designing something, you probably sit in the same chair at the same desk in the same room every day. You will have the same sensory cues around you, the same pictures on the wall, the same air conditioner droning in the background…get the point?

Try moving to another place. Fresh design concepts may require fresh surroundings. Take your sketchbook outside, up to the roof, to a café, or to a subway or train station. Go somewhere you normally don't go to, and look at the world around you. Leave your preconceived ideas in your same old chair, and just watch. This will help you to develop a heightened awareness of the world around you, which will give your creativity a boost.

KNOW YOUR MARKET

One of the most important facets of design is to know who you are designing for. This does not mean the client, but the ultimate target for your design – or your target market. Demographics play a key role in determining what kind of design to use. A design that communicates well with a 16 to 25-year-old audience living in New York City will not be as effective if you are trying to communicate with 40 to

50-year-old housewives living in Alabama. Age, gender, nationality, economic status, and geographic region can all dictate some aspects of your design.

You are probably familiar with the concept of target audience, even if you don't realize it. Consider television. Certain shows appeal to different age groups; some shows are specifically designed to attract female viewers, while others are intended for men. Make a list of three or four shows that you watch, then list a few reasons why you like to watch them. This is a great way to determine what your own demographic group might find appealing. Of course this doesn't mean that every person who matches your demographic statistics will like the same things, but it is a good starting point.

To further illustrate the concept of target marketing, walk through any mall or shopping plaza. Which stores would you go in? Which stores do you never go to? Pick one of the stores you never go to, and sit outside of it for an hour, taking notes of the people who do shop there. Do you notice anything that those people have in common? Are they primarily women or men? Do they seem to be the same age group? Nationality or race? Once you've got an idea of the shoppers' characteristics, go into the store and look around. What colors are predominant in the store's design? What kind and color of lighting is used? What do the fixtures look like? Are there any predominant shapes?

Research groups spend countless hours and dollars studying what appeals to different kinds of people...what colors, attitudes, layouts, and approaches most effectively communicate to certain demographic groups. If you have the opportunity, read a book or take a class on basic marketing concepts. Even if this isn't an option, there are a few basic questions that you can ask to help you on the path to an effective design solution. Look at your problem and try to determine who the client is trying to communicate with. Then ask:

- What are these people's interests?
- What motivates them?
- What would appeal to them?
- Who are their role models?

When you approach a design problem, try to put yourself into your audience's shoes. Most people are able to briefly thing from another's perspective; the trick is to be that person a bit longer.

McCoy & Evans'
Checklist for Rating Theoretical Dimensions of Photographic Images

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NATURE
This place would give me a sense of personal peace.

I would feel refreshed here.

I could come here for inspiration.

CHALLENGE
This place could prompt my curiosity.

I would feel intellectually stimulated here.

I could tackle complex issues here.

FREEDOM
This place would give me a sense of independence.

I would feel open to new experiences here.

I could do anything I want here.

SUPPORT
This place would encourage me.

I would feel competent here.

I could do many things here.

COHERENCE
This place makes sense.

I would feel at home here.

I would feel "together" here.

THREATENING
This place could make me feel apprehensive.

I would feel uncomfortable here.

I would not want to spend time here.

STATUS QUO
This place limits me.

I would feel required to follow the rules here.

This place would require my work to conform to rigid standards.

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