

A COMPARISON OF THE PERCEIVED LEVEL OF COLLABORATION AMONG
UNIVERSITY OF WISCONSIN-STOUT GRAPHIC STUDENTS BEFORE AND AFTER
UTILIZING THE STOUT ADVENTURES CHALLENGE COURSE

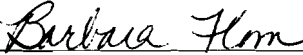
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ABSTRACT

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<p style="text-align: center;">A Comparison of the Perceived Level of Collaboration among University of Wisconsin-Stout Graphic Design Students before and After Utilizing the Stout Adventures Challenge Course.</p>			
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This paper compares the perceived level of collaboration among University of Wisconsin-Stout graphic design students before and after utilizing the Stout Adventures Challenge Course. The researcher recruited 16 participants from the Art and Design departments senior level graphic design class. Evaluation and comparison of data was done using a pre- and post-activity survey, developed by the researcher for this study, which was tallied using a Likert Scale. Positive results related to the use of collaborative strategies were found from pre- to post-activity surveys. Three areas indicated the highest positive results in relation to collaboration: working with others to complete

activities/goals, enjoying the companionship of the group, and planning how to proceed before completing an activity/goal.

Qualitative comments also showed various themes related to collaboration. Main themes included incorporating more group projects and brainstorming sessions, and utilizing collaborative skills such as communication, listening, being open-minded, and laughter. One participant commented that other classes and professionals should do collaborative activities like the ones in this study. More research needs to be conducted and continued to further develop the area of collaboration among graphic design students. However, the research conducted through this study acts as foundation for future research in this area of adventure education.

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Chapter I: Introduction

Education is a life long process for everyone. Some people choose to extend their schooling and training of skills beyond post-secondary education to universities and or vocational institutions to acquire the capabilities needed to have a positive role in the world of work. Many skills are learned in the classroom setting, during simulations related to the world of work as well as on the job experiences. All in all, learning is the result of experience and how an individual gives meaning to his/ her reflection of how interaction occurred with the environment (Kolb, 1984).

Every learner has a different way of learning just as teachers have a variety of methods to facilitate knowledge. Teachers can use methods ranging from lecture, discussion, multi-media, cooperative groups, to even project-based training methods. One of the biggest challenges for teachers is finding a method of instruction that will reach most students during a session. Most teachers will develop methods that work best for their content of instruction over time as they experience and reflect on the situations that produced the best results (Beard & Wilson, 2002).

In the process of learning, individuals identify with the notion that, in order to learn, the participants must contribute to that learning process. Often times, learners develop the ability to adapt the new information being learned by prescribing meaning to the new information based on old information being reflected upon. Humans are a species of learners, and Kolb (1984) writes that, “Our survival depends on our ability to adapt not only in the reactive sense of fitting into the physical and social worlds, but in the proactive sense of creating and shaping those worlds” (p. 1).

Educational institutions strive to provide meaningful environments for their students and teachers to interact as information is exchanged. Although basic forms of discussion may be

good in providing a learner with the basis for how a product, concept or framework operates, there are other methods that allow the learner not only to understand how something works, but actually to engage in situations where skills can be applied and meanings or adaptations can take place. The more life-like the educational setting, the more experience can be gained from the teaching method. Despite the many opportunities and ways of learning, one of the most valuable training methods relates to the notion of learning from experience and is called experiential learning (Beard & Wilson, 2002).

Unlike academic knowledge or learning of vocabulary words, charts and theories, experiential learning is deemed more significant to the development of the learner (Rogers, 1969). Rogers also states that experiential learning is based on the needs and wants of the learner. A person who seeks knowledge on how to be more computer literate with working programs will seek out books and information on the subject in order to become more efficient on the job. Experiential learning is a process that links the world of work, an educational institution or setting and the personal development of a learner to the overall experience that takes place among the interaction of all three.

In the book *Learning by Experience*, Keeton and Tate (1978) describe learning as experiential by explaining that, "The learner is directly in touch with the realities being studied. . . It involves direct encounter with the phenomenon being studied rather than merely thinking about the encounter or only considering the possibility of doing something with it" (p. 5). Kolb (1984) and Rogers (1969) both link personal involvement and self-initiated learning as qualities of experiential learning while Rogers feels that human beings have a natural drive to learn, the instructor's job is to facilitate learning in relation to the needs and wants of the learner.

Experiential learning provides learners from any discipline relevance and application of ideas to their own realm of knowledge and experience in a way that more traditional methods of instruction may not afford. Traditional methods often seek to find what people learn – the identifiable skills and knowledge as an outcome – rather than seeking to relish the idea of how learning takes place. A more in-depth analysis of experiential learning shows the process of how learning takes place and the skill sets that are developed relating to communication, relationships, responsibilities, and social awareness within the world of work (Kolb, 1984). Beard and Wilson (2002) write that experiential learning can be an approach to learning for individuals and or groups in which the young or adult learner can be engaged in the process of learning by using the components of action, reflection and the transfer of new knowledge. The process of experiential learning thus has a greater impact as a method for learning (Kolb, 1984).

Experiential learning has been around for years in the form of internships, work/study programs, classroom laboratories and studio-based labs to name a few. Learning from experience not only happens in the educational setting but, also more recently in business and industry as companies are seeing the need to train or re-train individuals in efforts to adapt the ever changing work environments that arise due to the evolving technology trends (Kolb, 1984).

One method businesses are using takes workers from the job setting and places them outdoors in an adventure based training “lab” called an adventure challenge course. The adventure challenge activities enable groups to develop individual skills as well as to collaborate in developing organizational capabilities (Experience Based Learning, 2004). Experience based learning courses are environments in which groups are put into physically and mentally challenging situations. People reflect on what occurred and, as a result, realize the structure of their group and how they play a role in the effectiveness and adaptation of accountable outcomes

(Performance Insights, 2004). As discussed earlier, experiential learning is the process of learners developing the ability to reflect on their experience and, in turn, constructing meaning from what has just been learned. Challenge courses are a focused vehicle for experience and learning to take place in a condensed and timely manner with goals to facilitate the development and the collaboration of ideas (B. Saxman, personal communication, February 18, 2004).

Adventure challenge courses provide participants an active and co-curricular experience that connects in-class and out-of-class experience that, as a result, the knowledge gained can be applied to future development and learning initiatives in the academic setting. These courses provide a framework that is similar to the world of work, with rules and standards for safety measures and guidelines for participants as well as opportunities for individual development in conjunction with the development of intrapersonal skills and capabilities (Bobilya & Akey, 2002).

In many business fields, adventure challenge courses are helping to build stronger capabilities to carry out organizational goals while developing workers of the future (Faimon, 2003). Faimon also indicated that as a result, these individuals are more capable of adapting to changing environments, implementing problem solving strategies and collaborating on projects in efforts to increase efficiency within an organization. In the goods and services realm of business, products are being manufactured and services must be creatively designed to meet the needs of the end user. In many ways the people involved in creating systems and design have a huge job that calls upon them to be capable of understanding many frameworks of inter-relating disciplines and modes of communications.

In the design field, not only are designers required to use their knowledge to create an attractive product, they must also understand the function of the product for the end user. The

ability to predict the types of responses the product might invoke upon the end user based on the design is also a competitive edge to have (Meggs, 1992).

Humans live in a world of communication. The connection between information and communication is bound in the notion that information is knowledge about facts as well as an array of cultural events, while communication is the means to transfer this information from person to person (Meggs, 1992). The language created by designers has shaped our visual culture and solved problems related to how we communicate and the effectiveness of our communication efforts to share knowledge.

In the past, a designer became involved in the problem solving process for a product during the end phase of concept development or through marketing (Mirel, Feinberg, & Allumendinger, 1995). Recently, the multitude of capabilities a designer must possess to have a full understanding of a problem/solution project scope has given the role of the designer more responsibility in the design process. Now, designers are an integral part of the planning and implementation of a new product from start to finish. Designers work with other professionals in the areas of psychology, sciences and engineering in efforts to develop a product with both form and function capabilities (Faimon, 2003). Advancements in technology have really paved the way for the designer in utilizing their creative capabilities as efforts are made to brand identities (products and services) across all possible channels of media. In doing so, design not only involves creative form, but also, aids in the union of function; integrating both the personal and global levels of the brand's message. In today's society, a design team is made up of more than just designers, but rather, there is an integration of various disciplines working in collaboration to achieve a goal or to solve a problem (Faimon, 2003).

The University of Wisconsin-Stout offers art and design students a Bachelor's of Fine Arts degree with a concentration component that allows for work-specific skills to be learned and later applied on the job. Students can acquire a concentration in the following areas: studio art, graphic design, interior design, industrial design and multi-media design. All students in the design concentrations take the same core classes related to the principles, elements and history of art and design, while studio-oriented courses teach the job specific skills needed for the world of work in the various design fields.

Students have attended the University of Wisconsin-Stout because of its reputation for being a good design school. The Stout Adventures – Adventure Challenge Course provides opportunities to help strengthen and bring together any group. University of Wisconsin-Stout clubs, organizations and classes have participated in the challenge activities, as well as, community groups and corporate teams. The success of the activities is rooted in the specific goals of the visiting groups; programs can be specifically tailored on time and content to work on many team building themes ranging from communication to trust or cooperation and creativity (Stout Adventures Adventure Challenge Course [Brochure], 2004).

Statement of the Problem

There is an apparent need for collaboration in business and industry in order to better understand and meet the needs of the consumer, as well as, a need to work efficiently as a team. Many educational environments focus on the growth of the individual and, often times, leave out the effectiveness of teamwork or collaborative measures among disciplines (Faimon, 2003). No research indicates the success of collaborative strategies for designers in experiential learning environments such as an adventure challenge courses. The link between collaboration use and graphic designers needs to be researched further to make conclusions and recommendations.

Purpose of the Study

The purpose of this study was to identify participants' perception and observation of collaboration before and after participation at the Stout Adventures Adventure Challenge Course. This type of learning environment may simulate "real-life" situations in which knowledge gained can assist participants to their advantage in future collaborative problem/solution settings.

Research Questions

There are five research questions this study will attempt to answer. They are:

1. What are some ways the participants feel collaboration was developed?
2. What are some observations from the participants about the collaboration within the groups?
3. What is the difference between participants' perceptions of personal involvement in collaboration before and after utilizing the Adventure Challenge Course?
4. What is the difference between participants' perceptions of involvement of peers in collaboration before and after utilizing the Adventure Challenge Course?
5. Was there a difference in perceived collaboration based on selected demographics (Age, year in school or program, work experience, and sex)?

Significance of the Study

Three applications of the results for this study reveal its significance. First, the success of the experience for the participants is dependent on the activities and experiences provided by the challenge course. If the activities do not relate to the goals of the study or to the individual goals of the participants, it is less likely that learning will occur through the use of action, reflection and the transfer of new knowledge because connections and meaning will not be made by the learners.

Second, if collaboration does occur among the participants utilizing the experiential learning environment, the University of Wisconsin-Stout can use the research information and the results for possible consideration of value for future curriculum implementation. It is the hope of the researcher that the findings of the study will coincide with the goals of excellence for the Art and Design Program and the students as a valuable program opportunity.

Third, the Stout Adventures Adventure Challenge Course can also utilize the results of this study to assess the effectiveness of their facilitation methods and for possible use in creating standards for the future relating to effective facilitation methods.

Assumptions of the Study

The following assumptions have been made for this study related to adventure education programs as well as collaborative measures in the educational setting.

It was assumed that facilitators were accurately instructing and overseeing the group while not giving away the solution to the problems. Also, it was assumed that participants answered the survey questions honestly. Finally, although no formal validity or reliability pilots were conducted, it was assumed that the pre- and post-activity instruments actually measured perception accurately.

Limitations of the Study

Prior to conducting the study, the researcher felt the following limitations would relate to the research variables associated with participants. Also included are actual limitations that occurred as a result of the study.

The group consisted of students participating for educational value only, versus persons who are of the mindset of those in the workforce collaborating to meet deadlines and as their job depended on their success. The students participating had a greater opportunity to take their time

in processing their learning. Individuals in the field have to act upon the new skills learned more quickly as their jobs are dependent on the utilization of time and efficiency.

Three different dates were scheduled for the study. Only one reservation with 16 participants occurred. Recruiting busy college students in the art and design program was difficult. A low number of participants was the result.

The motivation level of the participants within the group is another limitation. The time of day may have induced a more alert or less alert group of participants. The reservation activities occurred at the end of the day. The weather at the time of the scheduled collaboration activities could have affected motivation levels of participants. The reservation occurred on a cold and damp day during late October.

Definition of Terms

The following nine terms are related to collaborative groups and experiential learning measures and they are as follows:

Adventure Programming: Purposeful activities which are integrated to create a meaningful experience and meet the needs of a group. The environment is often unfamiliar to the participant, which in turn, enables groups to use the support of one another as the setting often creates a heightened state of arousal and mental focus among individuals (Neil, 1997).

Collaborative Learning: This method of learning provides each member of a small group a role or responsibility to share or to contribute to the success of the group as a whole. By coordinating efforts, participants can learn from one another exchanging ideas and dialog in efforts to attain a goal or objective (Missouri Department of Elementary & Secondary Education, 2002).

Debriefing: The reflection stage of an adventure challenge experience, in which debriefing acts as the complement to the activities being experienced allowing participants to explore, on a deeper level, their thoughts and feelings in response to what they have just been actively engaged. Rogers (2000) stated, “Reflecting on what they have experienced and learned drives the participant toward new understandings of themselves and others and toward new behaviors in these and other life activities” (p. 20).

Experiential Learning: This learning process begins with a person involved in an activity that causes them to take action. Following this action, the person reflects on the outcomes and effects of the action from the situation. After this observation, the person observing their own thoughts and feelings in relation to what they have experienced can then understand or see the meaning behind their experience. Experiential learning occurs as the result of doing something, usually in the pragmatic context of experiences (Kolb, 1984).

Facilitator: An individual who takes on the role of leading adventure based activities, stepping in using intervention methods when needed by a participating group. This person is a critical component to shaping the learning experience, having an overall general sense of education as well as other background knowledge relating to psychology, recreation, and interpersonal effectiveness (Neil, 1997).

High Initiatives: A site that includes activities above the ground featuring: ropes, nets, logs, and platforms that can be either free standing or among live trees. Added challenge and risk make high ropes courses ideal for developmental and experiential learning (Rogers, 2000).

Low Initiatives: Ground level problem solving activities that enable participants to work as a group in order to complete activities (Rogers, 2000).

Team Building: The union of participants who work or learn together while sharing knowledge, ideas and support in efforts to attain both long and short term goals and objectives. Connections can be made with the term teamwork in both the professional and academic settings (Rogers, 2000).

Transference: The process of helping students to generate their newfound competence and confidence gained from an experiential/adventure education environment back to the life to which participants return. Transference provides a connection between the intensities of an outdoor learning experience to the intensities/stress found in everyday life (James, 1980).

Methodology

In Chapter 3, the method of the study will be addressed discussing the use of quantitative and qualitative research data. Data was collected by way of a pre- and post-surveys using a five-item Likert Scale. Qualitative data was collected from a comment section on the back of the pre- and post-surveys.

Participants were recruited by the researcher and pre-activity surveys were completed. After recruiting, the researcher set up a reservation at the Stout Adventures Adventure Challenge Course with activities relating to collaborative strategies. Next, the 16 participants took part in a two hour reservation at the course utilizing teambuilding and collaborative activities. Following the course activities, participants completed a post-activity survey. Data analysis utilized descriptive statistics as well as a *t* test comparison between pre- and post-activity means scores. Finally, pre- and post-activity comments were reviewed and examined for themes.

Chapter II: Literature Review

This chapter looks at the background of adventure education, methodologies used in adventure education, and the value added from utilizing adventure education and adventure challenge activities. Then, examples of the world of work and higher education groups utilizing adventure education will be described, followed by input from design professionals about the capabilities of students in relation to team or collaborative problem solving strategies. In conclusion, a link will be made between the implementation of adventure education and collaboration and the role of above factors in preparing the student, individual and potential entrants of the world of work for a more integrated approach to working on the job.

Adventure Education Background

For years, adventure education activities have been used along with traditional methods for teaching individuals' skills and knowledge in preparation for future employment and roles in society. As our economy and the pace of work change, many businesses and employees must find ways to change and grow. Through collaboration and team strengthening activities, individuals who utilize adventure education become able to communicate, problem solve, and build trusting relationships while learning transferable skills and knowledge related to working with others.

Adventure education, also called outdoor education, adventure based learning, and experiential learning, is the use of activities and initiatives as a means for individuals to learn by doing and to bring about team development. Generally, the activities are done outside of the classroom or workplace in an outdoor learning environment. According to Ibbetson and Newell (1996), "adventure based development"... for teaching collaborative skills and work related training programs... "use[s] simulated initiative and problem-solving activities deliberately

chosen and used as direct metaphors for the specific challenges and problems faced by the participants” utilizing the adventure education site (p. 165). In order to complete activities and initiatives, participants must solve various scenarios and in doing so discover that they must work collaboratively as a group to find creative solutions to the problem scenario (Cacioppe & Adamson, 1988).

Adventure education utilizes numerous methodologies to provide effective environments in which participants can learn by doing, engaging actively thus having a better understanding, better retention, and better application in the future. Participants are put into unfamiliar environments during adventure programming, which yields support from each of the members in the group in order to complete the activities (Neil, 1997). Many adventure challenge environments have low initiatives to work on trust and problems solving skills as well as high initiatives to further develop trust in others and to challenge and initiate growth for the individual. Teambuilding is at the core of adventure challenge with many benefits that include but, are not limited to: better communication, more creative problem-solving, more collaboration in groups, taking risks, assessing and using available resources, giving and receiving feedback, managing conflict and improving leadership and trust among members of a group (Ibbetson & Newell, 1996; Cacioppe & Adamson, 1988; Cain & Jolliff, 1998).

B. Saxman (personal communication, February 18, 2004) stated, “Many of the activities [that are a part of adventure based learning] will have an underlying theme or goal that the group wants to achieve. Activities will be structured so as to take what was learned from one activity and apply that knowledge to the next level of activity to create both meaningful and valuable experiences for participants.” By integrating themes, a comfortable level of flow from one activity to the next can be achieved so that participants are able to utilize various styles of

learning. As a result, participants are able to retain and gain more knowledge because they are building from one level to the next.

Value Added From Adventure Education Activities

The use of challenge-related education and training has been beneficial to organizations, educational institutions and corporations around the world. Many corporations utilize challenge education as a means of finding what problem solving measures are possible in the outdoor classroom and applying that knowledge to the work environment. Authors Cain and Jolliff (1998), who collaborated on the book *Teamwork and Teamplay*, explained:

The ability to work as a group, to effectively communicate, to collectively solve problems, to foster a sense of empathy and respect for other team members, to provide honest and useful feedback, to resolve conflicts, to effectively manage resources and to share in group experience builds a sense of community that, when properly accomplished, translates effectively back to the work (or the classroom) environment. (p. 1)

Providing a catalyst for individuals to experience a positive growth factor in a peer-supported learning environment seems to be one of the greatest outcomes produced by adventure education activities. With the use of an experienced facilitator and structured activities, the process of experience and reflection yields a learning retention of new skills at a level higher than that of more traditional teaching methods incorporating lecture, writing assignments or readings because a higher level of experience has taken place for the participant engaging in the adventure activities (Cain & Jolliff, 1998).

The relationship between the learning modality to the outcome of skills retention shows that the more involved in the learning process the individual becomes, the greater the retention of

those skills. Generally, participants will only “retain about 10% of what they read,” while retention levels soar up to “50% if participants are actively engaged in the learning process,” Cain and Jolliff (1998, p. 2), stated. The increase of skills retention jumps even higher to “90% if participants are given the opportunity to experience, reflect, internalize and then share what they have learned” with others (Cain & Jolliff, 1998, p. 2).

The experiences gained from experiential learning provide added meaning to participants as connections are made on site to occurrences that take place everyday (B. Saxman, personal communication, February 18, 2004). By providing a structured, yet creative atmosphere for problem solving, individuals are able to grow as part of a team as well as to see how the influence of their team brings about personal growth. The key to this form of active learning is in the process of awareness of a problem to be solved, the planning of a solution, doing or taking action for the solution, reflection on the process and lastly, application of new learning knowledge/skills to real-world situations (Beard & Wilson, 2002). For many participants, the application takes place after the visit to the adventure based learning site.

Probably the greatest feature of challenge and adventure activities is in the combination of learning taking place at the highest level. Participants are able to learn using an array of different learning styles – a common concern in most traditional learning environments (Cain & Jolliff, 1998). Challenge and adventure activities provide an opportunity for multiple resources and learning styles to be integrated into the building block structure of challenge and adventure learning.

The common phrase: “Two heads are better than one,” reveals the underpinnings of collaboration as a vehicle for learning. Suggestions and motivation from other group members will bring about a stronger, more diverse problem solving outcome than if only one individual

were to solve the problem. When participating in an adventure based program, one participant may decide to climb a high ropes initiative solo, even though they are getting support from their teammates below and trusting the facilitator who has their life in the grip of their hands and devices. This solo act is supported by a collaborative group effort in order to accomplish the challenge activity, (B. Saxman, personal communication, February 18, 2004). Collaboration goes on in every day life and is the reason why we have so many creative systems, services and literature providing information and resources to continually educate and to improve the quality of life.

Adventure Education in the World of Work and Higher Education

How can individuals work towards diversifying their resources and influences as they work collectively in groups? One method of training that is being used by corporations and higher education institutions is learning from collaboration in adventure based environments (Experienced Based Learning, 2004). Experienced Based Learning (EBL) is an activity based consulting organization creating active learning environments. The learning environment provided by EBL brings in corporate teams in efforts to strengthen the group dynamics among members, while helping individuals to develop a stronger appreciation for working in collaborative groups and the many benefits from the engaging workshops and training (Experienced Based Learning, 2004).

Another adventure education group, Odyssey Performance Enhancement Network (PEN), combines a unique blend of team building, traditional training and experiential learning. Christine Stout of Premier Retail Networks (PRN) stated, “89% of our employees indicate that communication at PRN improved in the past year. I believe that Odyssey PEN was a big part in helping us achieve this success” (cited in Odyssey Performance Enhancement Network, 2005,

Testimonials para. 13). Sandy Ryan, General Manager, IST-Quadtek stated that the outcome of Grip-It Adventures, another adventure education service out of Baltimore, MD offered a variety of teambuilding workshops and leadership development programs. “I was extremely pleased with the outcome. I wanted a class where my managers would actually experience teamwork, not just talk about it. There was a definite change in their behavior that reflected a greater sense of trust and desire to help each other out, as well as the confidence we could work together as a team.” Ryan stated (Grip-It Adventures, 2005, Testimonials, para. 7).

The adventure programming provided by experiential learning environments brings individuals together into problem solving environments that promote the cooperation of all individuals. They are able to share their ideas regarding possible solutions and planning of solution execution that can only be done by participant collaboration (Cain & Jolliff, 1998).

Adventure education environments have been effective learning sites because, as Cacioppe and Adamson (1988) stated, they are based on the assumption that “individuals will learn more by being confronted by a challenge and by having to develop meaning and knowledge from their own experience” (p. 87). When individuals reflect back on the experience and realize the basic knowledge and skills that they used as the result of their experience, they have a new set of skills/tools to use when they are approaching other work related situations in the future (Cacioppe & Adamson, 1988).

In higher education, adventure education is not commonly used. However, some schools have adapted specific courses and or created entirely new courses in adventure education that are both useful and a unique addition to the academic programs. Mainly used in the business and management programs, The University of Denver has incorporated outdoor programs into courses related to management development (Cacioppe & Adamson, 1988). The University of

Wisconsin-River Falls has a Minor in Outdoor Education, preparing students for instructional and management positions (University of Wisconsin-River Falls, 2005). University of Wisconsin-Stout has opportunities for students to take Adventure Learning course related to the School Counseling Major, but these courses are not required. The best opportunity for students at UW-Stout to learn skills in leadership, teamwork, diversity, and organizational training and development is through the courses offered through a minor in Human Resource Management (University of Wisconsin-Stout, 2005). When adventure education is used in addition to traditional education, individuals have the opportunity to implement the practical concepts and ideas related to the management of people (Cacioppe & Adamson, 1988).

The Need for Collaboration in Preparing Design Students

In many educational settings, focus is usually placed on the individual and his or her development creatively, cognitively and sometimes competitively. Most professionals in the workplace understand the importance of making connections, of integrating skills and abilities, and understanding the flow of the design process which can operate with collaboration among many individuals from different disciplines. Many schools simply don't have this form of collaboration among disciplines in the curriculum. As students graduate from their schools of design, they may excel in their own creative working knowledge, but often lack the ability to work on problem solving issues collaboratively (Faimon, 2003).

As technology and businesses are changing and merging into new forms of hybrid disciplines, many schools are not ready for change, especially within their curriculum. In order to adapt to the changing needs of business, institutions must also adapt by implementing courses or programs that relate more to what is going on in society now (McCarron, 2003). One reason why institutions may be become stale is that they are focusing their programs on specific areas of

expertise in a related field of study, with little emphasis on diversity among disciplines (Faimon, 2003).

Within business today, disciplines of the design realm are not neatly sectioned off into inclusive divisions. Many professionals are taking on jobs that require them to perform additional duties that they may not have been trained for. As individual cultures collapse or emerge within the “melting-pot” of the world markets, many professionals are seeking collaborative measures to share information and to work towards creating more innovative solutions. Many individuals must also know skills in managing people and resources. Professionals in various fields are gaining an understanding of business to an extent which is more in depth than just creating good designs. These professionals are acquiring “unique skills” related to trends in the world market in relation to how people interact with one another, cultural references, and communication among different languages (McCarron, 2003).

Due to the weaving of world cultures, ever changing technology and new lingo to go along with world market trends, communication is the foundation for making sense of how an individual fits within their society and the world. Author and professor of graphic design, Peg Faimon (2003) stated:

Communication is becoming more complex. It is harder, if not impossible, for an individual to solve such [communication related] problems. It requires a team-based approach. Within the team, specialized knowledge is still important, perhaps even more so than in the past. As before, students need to learn enough about their own discipline to perform tasks and solve their assigned problems with innovation and efficiency. The new twist is that they no longer work in isolation. Additional skills are required, including the ability to clearly and effectively communicate with others on the team. Also, every

discipline has its own language, and students need, at the very least; to have a basic understanding of the vocabulary of the other disciplines they will most likely be working with. (p. 60B)

In order for many of today's design professionals to be successful, they must have more than just good technical design skills. It is crucial for them to have a clear understanding of many different dimensions of knowledge and awareness regarding issues and disciplines that span beyond design (McCarron, 2003). President Schutte (as cited in McCarron, 2003) of Pratt Institute of Design reminded those of us in the design sector:

Disciplines are merging and changing...Every year I tell students that education does not end at graduation. We have to continuously keep up, keep abreast of changes and innovation. Simply practicing your discipline is not enough to keep you apprised; it's often where we fall into a comfortable routine – and ultimately behind. (p. 8)

Business and industry are already seeing the value added from learning more effective ways to communicate. In the future, higher education institutions will have to see the value as well if they want to prepare individuals for the world of work. McCarron (2003) suggested that students should “Learn more about the forces that shape our world and ultimately our [design] profession: business, sociology, religion, culture, politics, history, technology, the environment. Travel more; experience the world cultures first-hand” (p. 8). The importance of diversifying your breadth of knowledge can not be emphasized enough in today's society.

Summary

Many professional organizations have utilized adventure education to diversify and grow as a group. However, little information links adventure education and the design field. Professionals in the field of design did, however, suggest that students diversify their skills and

knowledge in order to be better prepared for the world of work and the fast paced society. There is a lack of design programs utilizing adventure education options in curriculum. There is a real need for higher education institutions to look deeper into and make changes on how skills and knowledge can be delivered. Although more research is needed, there is evidence that adventure education promotes a positive and worthwhile experience which contributes to an improvement in collaboration among groups and strengthened skills in teamwork (Cacioppe & Adamson, 1988).

Chapter III: Methodology

The methodology used in this study of collaboration among graphic design students is explained in this chapter. The following topics are discussed: method of study, participants, instrumentation, procedures followed, method of analysis, and limitations.

Method of Study

This study used quantitative and qualitative research design. The data collection method used was a survey using a five-item Likert scale and additional comment section for qualitative analysis.

Review of Stout Adventures Trips Questionnaire aided as a valuable resource in designing a pre-activity and post-activity survey for this study. The purpose of the pre-activity and post-activity survey was to determine the perceived level of collaboration among graphic design students who utilized Stout Adventures Challenge Course. The rationale behind the surveys was to gain insight of the participants' perceptions of collaboration outside of the classroom environment.

Participants

The study involved participants and facilities that were a part of the University of Wisconsin-Stout. Stout is a university located in the western part of Wisconsin with a student population of approximately 8,000 students. The participants were a voluntary group of graphic design students from UW-Stout's Art & Design Department. The sixteen individuals who participated were part of a senior project class; the last class required before graduation. Although not all members of the class were present to participate, the sixteen participants who were present all participated in the study. Although all subjects were attending UW-Stout for the same goal of gaining education to be applied to the world of work, ages ranged from 22 – 25,

year in school ranged from 4.5 – 6th year, and the level of perceived design skill was intermediate and/or advanced.

Instrumentation

The pre-activity assessment was designed to survey the student's awareness of his or her own involvement in collaborative practices within school as well as outside of school. For this study, a pre-activity survey and post-activity survey (see Appendix C) were developed utilizing references from the *Stout Adventures – University Recreation Trip Evaluation Survey*, developed by Bruce Saxman.

The survey included a background information section with topics for the questions being: design concentration, year in school, gender, age, and level of design skill. This inventory was chosen to establish the demographics of students in the design program.

The second portion of the survey consisted of ten questions; five related to personal perception and five related to perception of peer ability in collaboration. Topics for the questions were: collaborating in work/ideas with other students, working with other students to complete activities/goals, learning/developing new skills from others, enjoying the companionship of a group, and planning how to proceed before completing an activity/goal. Each question was answered using a five-item Likert scale.

The third portion of the survey consisted of qualitative questions prompting the participant to answer open-ended questions based on personal belief/perception. The topics for the questions were: incorporating collaborative strategies into everyday life, implementing collaboration into major [program of study], and examples of collaborative strategies used with classmates, and perceptions of the professional world of work incorporating collaboration.

The surveys were designed to be used for two purposes. The first purpose was to help the Stout Adventures challenge course determine the effectiveness of services. The second purpose was for the researcher to determine the perceived level of collaboration among graphic design students before and after participating at the Stout Adventures challenge course. The results may benefit all students in the Art & Design Program by providing an alternative to classroom instruction for developing skills in collaboration. Because the instrumentation was constructed specifically for this study, there were no measures of validity or reliability; however, face validity showed that the pre-activity and post-activity surveys met the needs for this particular study.

Procedures

In order to complete this study of the perceived level of collaboration among graphic design students utilizing the Stout Adventures challenge course, the following plan was implemented:

1. A two-hour challenge course reservation was scheduled for participants who volunteered to be in the study. The researcher, who facilitates on the challenge course, approached members of the GDA (Graphic Design Association) chapter at UW-Stout along with the advising instructor to see if any students would be interested in participating in this study. The advising instructor, with help from a design student, consulted with design students from a Senior Project class, and sixteen of the students volunteered to participate.
2. A Participant Information handout (Appendix A) and a Consent Form (Appendix B) describing the study and participation in the study was sent to all participants one week prior to the challenge course activity date. A Pre-Activity Survey (Appendix D) was also sent with the above forms.

3. The participants participated in a two-hour challenge course reservation. See Appendix E for the reservation activity sheet used.

4. All participants completed the Post-Activity Survey (Appendix F) following the challenge course activities.

Data Analysis

Data were analyzed using the computerized statistics package SPSS-X and calculated by an on-campus statistician. Frequency counts for year in school, gender, age and level of skill/experience in design were tabulated; therefore a thorough analysis of appropriate descriptive statistics was utilized. In addition, a *t* test was used to compare the pre-activity and post-activity mean for the whole group on each item. Finally, pre-activity and post-activity comments were reviewed and examined for themes.

Limitations

Several limitations related to the instrumentation developed for the study. The instrument contained no demonstrated measures of validity or reliability because the survey instrument was created by the researcher only for use in this study. Other limitations related to the survey instrument included the fact that the wording of questions may have been confusing, with a number of related words.

Only one university participated in this study, therefore, any results should not be generalized to all university students. The sample selection may have limitations due to the number of actual participants who decided to actively take part in answering all questions on the pre-activity survey, scheduled activities and post-activity survey. Because of this small sized sampling and the fact that the participants were only upperclassmen, only those with design

interest and backgrounds were included in the study. They showed little variation for year in school and level of skill/experience in the design related area.

The activity part of the study took part outdoors in late October at the Stout Adventures challenge course. The facilitators had different levels of experience in facilitation techniques. The weather was colder for this time of year and that the reservation was scheduled at the end of the day. These scheduling factors may have influenced the results.

Summary

The purpose of this study was to obtain further information about collaboration in groups by surveying the pre and post-activity responses of a sample of graphic design students who participated at the Stout Adventures challenge course. The pre- and post-activity surveys were developed to determine participants' perceived level of collaboration used by themselves, and by their peers before and after utilizing the challenge course and the scheduled activities.

The methodology included: the description and selection of the subjects, the instrumentation, procedures for the study as data were collected, the data analysis, and limitations of study.

Chapter IV: Results

The main objective of this study was to determine the perceived level of collaboration among graphic design students before and after utilizing the Stout Adventures Adventure Challenge Course. This chapter will include the results of this study. Demographic information and data analysis will be discussed. The chapter will conclude with the research questions under investigation.

Demographic Information

One hundred fifty graphic design students were initially informed by the researcher about the opportunity to participate in the study. The researcher presented to the students who were attending a monthly Graphic Design Association (GDA) meeting at the University of Wisconsin-Stout where they are enrolled. Thirty additional informational posters were hung in the Applied Arts building on campus. Of those who were aware of the study and how to participate, 16 agreed to participate in the study by taking a pre-activity survey, participating during the activities held at the Stout Adventures challenge course and by completing a post-activity survey.

Of the 16 participants, 4 (25%) were male graphic design students and 12 (75%) were female. The mean age of the participants was 22.69. There were 2 (12.5%) who were in their 4th year in school, 13 (81.3%) in their 5th year, and 1 (6.3%) student in their 6th year. There were 7 (43.8%) who felt they were intermediate, 7 (43.8%) who felt they were advanced, and 2 (12.5%) who felt they were intermediate/advanced in relation to level of skill and experience in the design related.

Item Analysis

Ten items on both the pre and post activity surveys were rated using a five-item Likert scale. A rating of 1 corresponded with “not at all,” 2 corresponded with “a little,” 3 corresponded with “somewhat,” 4 corresponded with “a lot,” 5 corresponded with “a great deal.”

The first five questions rated the level of collaboration used by the individual.

Item 1 asked students to rate their level of collaboration in terms of discussing work/ideas with other students. For Item 1, the pre-activity mean for the group was 3.94. The post-activity mean was 4.00.

Item 2 asked students to rate their level of collaboration in terms of working with others to complete activities/goals as described above for rating scale. For Item 2, the pre-activity mean for the group was 3.44. The post-activity mean was 4.19

Item 3 asked students to rate their level of collaboration in terms of learning/developing new skills from others. For Item 3, the pre-activity mean for the group was 3.75. The post-activity mean was 3.88.

Item 4 asked students to rate their level of collaboration in terms of enjoying the companionship of a group. For Item 4, the pre-activity mean for the group was 3.74. The post-activity mean was 4.38.

Item 5 asked students to rate their level of collaboration in terms of planning how I am going to proceed before completing an activity/goal. For Item 5, the pre-activity mean for the group was 3.31. The post-activity mean was 3.38.

From pre-activity to post-activity, all the item means for the individual perception of collaboration in groups went up in number. In other words, the trend was up for all five items relating to the level of collaboration from pre-activity data to post-activity data.

The latter five questions prompted the participant to rate the level of collaboration based on what they believed their peers used in the same situations as in the first five questions. The question section for peers' level of collaboration suggested that the participant base their answer on the majority.

Item 6 asked students to rate their level of collaboration in terms of how they felt their peers discuss work/ideas with other students. Again, the rating scale discussed above was used. For Item 6, the pre-activity mean for the group was 3.88. The post-activity mean was 3.88.

Item 7 asked students to rate their level of collaboration in terms of how they felt their peers work with others to complete activities/goals. For Item 7, the pre-activity mean for the group was 3.44. The post-activity mean was 3.75

Item 8 asked students to rate their level of collaboration in terms of how they felt their peers learn/develop new skills from others. For Item 8, the pre-activity mean for the group was 3.63. The post-activity mean was 3.81.

Item 9 asked students to rate their level of collaboration in terms of how they felt their peers enjoy the companionship of a group. For Item 9, the pre-activity mean for the group was 3.75. The post-activity mean was 4.50.

Item 10 asked students to rate their level of collaboration in terms of how they felt their peers plan how they are going to proceed before completing an activity/goal. For Item 10, the pre-activity mean was 3.31. The post-activity mean was 3.25.

From pre-activity to post-activity surveys, four of the five item means for the questions related to perception of peers' collaboration in groups went up in number. The mean for Item 10 went down 0.06 of a point. In other words, the trend overall showed participants felt their peers'

had planned less how they were going to proceed before completing a challenge course activity/goal at the Stout Adventures challenge course.

The *t* test was used to find the significant differences between pre- and post-activity means. The pre-activity self questions rated the individual's level of collaboration to those ratings from the post-activity questions revealing the following *p* values: Item 1: discuss work/ideas with other students ($p = .669$); Item 2: work with others to complete activities/goals ($p = .023$), Item 3: learn/develop new skills from others ($p = .684$), Item 4: enjoy the companionship of a group ($p = .046$), Item 5: plan before completing activity/goal ($p = .835$). For Items 2 and 4 a $p < .05\%$ difference was calculated.

Items 6 -10 rated the individual's perceived level of collaboration utilized by peers. Comparison of pre- and post-activity ratings revealed the following *p* values: Item 6: discuss work/ideas with other students ($p = 1.0$); Item 7: work with others to complete activities/goals ($p = .289$), Item 8: learn/develop new skills from others ($p = .509$), Item 9: enjoy the companionship of a group ($p = .018$), Item 10: plan before completing activity/goal ($p = .827$). For Item 8 a $p < .05\%$ difference was calculated. Therefore, one of the five items was significantly higher.

The pre and post-activity surveys both had a comments section on the back page with questions relating to collaborative strategies. The questions asked for comments in relation to collaboration strategies used in everyday life, incorporating more or less collaboration into your major, how collaboration strategies had been incorporated with classmates, how participants felt the professional design field will incorporate collaboration, and what skills participants felt were important while being a part of a collaborative group. Evaluation of the qualitative questions

showed that for each question there were one to four themes about collaboration. Themes were determined based on key words or repetition of keywords/concepts (See Appendix G).

Question 1 asked the participants to comment on how they would like to incorporate more or less collaboration into their everyday life. Participants answered the questions with these three themes: more brainstorming/discussions, encouraging communication and listening, and working with others – learning from others.

Question 2 asked the participants to comment on how they would like to incorporate more or less collaboration into their major. Participants answered the questions with these three themes: more group projects more often, group projects done throughout all years, and more group brainstorming sessions.

Question 3 asked the participants to comment on how collaborative strategies had been incorporated with classmates. Participants answered the question with these four themes: exchanging ideas, everyone voicing opinions, group brainstorming, and critiques to expand the mind and creative ideas further.

Question 4 asked for comments related to how participants felt the professional design field will incorporate collaboration. Participants answered the question with one theme: other classes and professionals should do collaborative activities like the ones in this study.

Question 5 asked the participants to comment on what skills were important while being a part of a collaborative group. Participants answered the question with these four themes: communication, listening, being open-minded and laughter (have fun while working together)

Research Questions

Five research questions this study applied to find the perceived level of collaboration among graphic design students. The perceived level of collaboration was related to perception of self and perception of peers' utilizing a pre- and post-activity survey.

Research Question 1. What are some ways the participants feel collaboration was developed? The third open ended question from the survey addressed research question 1 best by asking participants how collaborative strategies had been incorporated with classmates. Participants commented that collaboration was incorporated mainly through the strategies of: voicing opinions, group brainstorming, and critiques. The collaborative activities at the challenge course not only provided participants with an opportunity to reflect on how collaboration was developed, but also to reflect on what they learned from the experience. One participant felt that even though the group tried to solve an activity/problem and failed - the group learned that it's okay to talk with others and share ideas.

Research Question 2. What are some observations from the participants' about the collaboration within the groups? The post-activity survey had an additional open ended question asking what skills were important while being a part of a collaborative group. Themes were determined based on key words or repetition of keywords/concepts. Participants commented that collaboration was developed with the common themes of: communication, listening, being open-minded and laughter (have fun while working together).

Research Question 3. What is the difference between participants' perceptions of personal involvement in collaboration before and after utilizing the Adventure Challenge Course? Items 1 -5 on the pre and post-activity surveys addressed this question. Item analysis compared the means of the observations. Students felt significantly more collaborative in terms

of working with others to achieve goals as a group (Item 2) and enjoying the companionship of a group (Item 4) after they had participated.

Research Question 4. What is the difference between participants' perceptions of involvement of peers in collaboration before and after utilizing the Adventure Challenge Course? Items 6 -10 on the pre and post-activity surveys addressed this question. Students felt their peers were significantly more collaborative in terms of working with others to achieve goals as a group (Item 9) after they had participated in the challenge course activities

Research Question 5. Was there a difference in perceived collaboration based on selected demographics (age, gender, year in school, and level of skill/experience in the design related area)? The data were not sufficient to perform this comparison. The number of participants in the sample was too small to make any valid trend reports or recommendations.

Summary

Results from the pre and post-activity survey questions indicated that overall collaboration in groups among the graphic design students after utilizing the Stout Adventures Challenge Course showed significant increase in three areas. Students felt more collaborative in terms of working with others to complete activities/goals and enjoying the companionship of a group. Students also felt that after completing the collaborative activities their peers enjoyed the companionship of the group.

Comments related to collaboration were reviewed and examined for themes among participants responses. Main themes included incorporating more group projects and brainstorming sessions, and utilizing collaborative skills such as communication, listening, being open-minded, and laughter. One participant commented that other classes and professionals should do collaborative activities like the ones in this study. Another participant felt having a

class on “working in a collaborative environment” or teamwork would be helpful to develop more collaboration within the Art and Design major. Conclusions are drawn and recommendations are made in the following chapter.

Chapter V: Discussion

This chapter contains four sections. First, a summary of the study is presented. This is followed by limitations, conclusions based on the results of the study, and recommendations related to the study.

Research Summary

This study included background information on adventure education and skills needed by students in the design field to perform best in the world of work. The objective of this study was to determine the perceived level of collaboration among graphic design students before and after utilizing the Stout Adventures Adventure Challenge Course and to determine what collaborative skills were the result of the adventure education experience.

The researcher approached students in the graphic design program and campus organization to participate in this study. There were 16 participants who chose to participate in the study and took part in a pre and post-activity survey and participated in collaborative activities at the Stout Adventures Adventure Challenge Course. The group was comprised of students all of senior status.

The results of this study showed that the collaborative adventure education activities helped bring the group together and improved their collaborative skills. The *t* test was used to find the significant differences between pre and post-activity means. The participants ranked higher in 9 out of 10 areas. Three of the 10 items were significantly higher ($p < .05$). The three areas where their scores indicated the highest positive results in relation to collaboration were: worked with others to complete activities/goals, enjoyed the companionship of the group, and planned how to proceed before completing an activity/goal.

The analysis of the qualitative questions showed themes that related to collaboration. The questions asked for comments in relation to collaboration strategies. Themes were determined based on key words or repetition of keywords/concepts. Main themes included incorporating more group projects and brainstorming sessions, and utilizing collaborative skills such as communication, listening, being open-minded, and laughter. One participant commented that other classes and professionals should do collaborative activities like the ones in this study. Another participant felt the having a class on “working in a collaborative environment” or team a structured class would be helpful to develop more collaboration within the art and design major.

Limitations

The researcher noted several limitations to the study. These limitations should be acknowledged and considered for future research. One limitation of the study was that the instrument had contained no demonstrated measures of validity or reliability because the survey instrument was created by the researcher only for use in this study. Only one university participated in this study, therefore, any results should not be generalized to all university students. The sample selection may have limitations due to the number of actual participants who decided to actively take part in answering all questions on the pre-activity survey, scheduled activities and post-activity survey.

Conclusions

The conclusions for this study are based on the findings and limited to the group studied.

1. Adventure education activities improve collaborative strategies in relation to working with others to complete activities/goals, enjoying the companionship of the group, and planning how to proceed before completing an activity/goal.

2. The adventure education activities enhanced the awareness of collaboration within the group.

3. Participants felt there were ways to improve and implement more collaborative strategies into their everyday life and into their design major.

4. Participants became aware of how the professional world of work will incorporate collaboration.

Overall, this study illustrated positive benefits of using adventure education with graphic design students. While utilizing an adventure challenge course, even for a small amount of time (2 hours), participants worked together as group to complete activities and enjoyed the companionship of the group. By taking part in adventure education or experiential learning activities, participants learned how to brainstorm ideas as a group, to listen to one another's ideas and to learn each other's strengths and resources as they discovered how to creatively solve problems as a group more effectively.

Recommendations

Recommendations for future research and actions are based on the results of this study and the findings. There was very little information in relation to adventure education activities and courses used for specific programs of study other than business management and outdoor education minors. There is a real need for research to look at the outcomes of adventure education activities and skills retention, especially in relation to collaboration and teamwork. Future research may also uncover other instrumentation methods to more effectively score skills and knowledge retention and transference from adventure education activities. More research in relation to the design field is also needed to find how adventure education might equip today's

students and professionals with the mental, emotional and creative skills needed to work at the highest level of design to best meet the needs of in business and industry.

For individuals who practice in the field of graphic design, this research study may shed some light on the importance of learning collaborative strategies from adventure education activities. A number of business organizations have utilized adventure education and experiential learning environments to strengthen working groups and to develop skills related to teamwork. In today's rapidly changing society programs like the adventure education learning environments discussed can develop values, knowledge, skills, and confidence that are essential for the modern business professional, creative designer and manager (Cacioppe & Adamson, 1988).

Instructors in higher education may gain insight from this research study about how to develop the confidence of the individual and also the cohesiveness of a group. Adventure education can be tailored to any educator's need for instruction and skills transference. These programs can be used as a segment of traditional coursework or used over the course of 2-5 years as a means of strengthening diversity, leadership, communication and collaboration. By making adventure education a part of a university degree course or at minimum, offering a specific education course as an elective; higher education is enhancing the capabilities of individuals. Ultimately, programs offered through higher education related to experiential learning will prepare adults with knowledge about how to succeed in the world of work and how adapt to the changes of society. Adventure education gives individuals a sense of value in life and purpose that can be carried out in the greater society.

References

- Beard, C. M., & Wilson J. P. (2002). *Power of experiential learning*. London: Kogan Page.
- Bobilya, A. J., & Akey, L. D. (2002). An evaluation of adventure education components in a residential learningc. *Journal of Experiential Education*, 25, 297.
- Cacioppe, R., & Adamson, P. (1988). Stepping over the edge: Outdoor development programs for management staff. *Human Resource Management Australia*, 26, 77 – 95.
- Cain, J., & Jolliff, B. (1998). *Teamwork and teamplay*. Dubuque: Kendall/Hunt.
- Experience Based Learning. (2004.). *Teambuilding. Teamwork. Corporate information*. Retrieved February 19, 2004, from <http://www.ebl.org>
- Faimon, P. (2003). *Design alliance: Uniting print + web design to create total brand presence*. Cincinnati: HOW Design Books, F & W Publications, 56B & 60B.
- Grip-It Adventures. (2005). *Testimonials*. Retrieved April 30, 2005, from <http://www.giadventures.com/1137.xml>
- Ibbetson, A., & Newell, S. (1996). Winner takes all: An evaluation of adventure-based experiential training. *Management Learning*, 27, 163-185.
- James, T. (1980). *Can mountains speak for themselves?* Retrieved April 30, 2005, from <http://www.wilderdom.com/facilitation/Mountains.html>
- Keaton, M., & Tate, P. (1978) *Learning by experience – What, why, how*. San Francisco: Jossey-Bass.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source for learning and development*. New Jersey: Prentice Hall.

- McCarron, C. (2003). *Expanding our field vision of globalization and the changing landscape of visual communications*. [Electronic version]. *Communication Arts*, March/April.
- Retrieved March 24, 2004, from [http:// www.commarts.com](http://www.commarts.com)
- Meggs, P. B. (1992). *Type & image: The language of graphic design*. New York: John Wiley & Sons.
- Mirel, B., Feinberg, S., & Allumendinger, L. (July 1995). Collaboration between writers and graphic designers in documentation projects. *Journal of Business and Technical Communication*, 9, 259 – 285.
- Missouri Department of Elementary & Secondary Education, (2002). *Missouri technology education guide*. Jefferson City: Author.
- Neil, J. (1997). *Outdoor education in schools: What can it achieve?* A paper presented to the 10th National Outdoor Education Conference, Sydney, Australia, January 20-24, 1997.
- Retrieved February 12, 2004, from <http://www.wilderdom.com>
- Odyssey Performance Enhancement Network. (2005). *Company testimonials*. Retrieved April 30, 2005, form <http://www.odysseypen.com/company/testimonials/>
- Performance Insights, LLC. (2004). *Experiential learning and challenge ropes courses*.
- Retrieved February 2, 2004, from <http://www.performanceinsights.com>
- Rogers, D. (2000). Universal facilitation: Inclusion, facilitation, & debriefing. *Training Manual*. Alpine Towers International, Inc.
- Stout Adventures Adventure Challenge Course. (2004). Adventure challenge course. [Brochure]. Menomonie, WI: University of Wisconsin-Stout, University Recreation.
- University of Wisconsin-River Falls. (2005). *Minor information: What is adventure education?*
- Retrieved April 8, 2005, from <http://www.uwrf.edu/outdoored/minorinfo>

University of Wisconsin-Stout. (2005). *Stout solutions: Continuing education service*. Retrieved April 8, 2005, from <http://www.uwstout.edu/solutions/ces/>

Appendix A

University of Wisconsin-Stout
Participant Information Handout

A COMPARISON OF THE PERCEIVED LEVEL OF COLLABORATION AMONG
 UNIVERSITY OF WISCONSIN-STOUT GRAPHIC DESIGN STUDENTS BEFORE AND
 AFTER UTILIZING THE STOUT ADVENTURES CHALLENGE COURSE

I am inviting you to participate in a research study to determine the methods being utilized by individuals attending University of Wisconsin-Stout in the area of collaboration. Measurements in the contexts of the individual and peers will be addressed. The long range goal is to develop awareness among individuals of the benefits of utilizing collaboration methods in school and in every day activities.

If you agree to participate, you will be asked to fill out two surveys and to participate in an activity at the Stout Adventures Challenge Course. One survey will be given to you before visiting the Challenge Course and another survey will be given as a follow up to the activities you have in which you have chosen to participate. Each survey will take approximately 5 minutes and the Challenge Course will be 2 hours in length during designated times and dates. Facilitation will be given during the activities at the Challenge Course and additional routine challenge course consent forms will need to be signed before participating on the site (*visit Stout Adventures website listed below*).

All information obtained from you will remain strictly confidential. You may ask questions at any time, as well as refuse to participate. Refusal to participate will not have any effect on your current or future grade for class or standing within the University.

Questions about this research study and your participation may be directed to:

Investigator:

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 715/505-0560
strosahlh@uwstout.edu

IRB Administrator:

Susan Foxwell, *Director, Research Services*
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Advisor:

Dr. Barbara Flom, *Assistant Professor*
 M.S. Guidance and Counseling
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Challenge Course Dates for Research Study:

1. Friday, **September 24** / 12noon - 2pm (canceled)
2. Thursday, **September 30** / 3pm - 5pm
3. Thursday, **September 30** / 5:30pm - 7:30 pm
4. Thursday, **October 7** / 5pm - 7pm (just added)

For more information about the Stout Adventures Challenge Course, Visit:
www.uwstout.edu/univrec/outrec.htm

Appendix B

University of Wisconsin-Stout Informed Consent Form

- Title of Project:** A Comparison of the Perceived Level of Collaboration among University of Wisconsin-Stout Graphic Design Students Before and After Utilizing the Stout Adventures Challenge Course
- Researcher:** Heidi Strosahl, graduate student, Career and Technical Education.
- Purpose:** The purpose of this research study is to determine the methods being utilized by individuals attending University of Wisconsin-Stout in the area of collaboration. Measurements in the contexts of the individual and peers will be addressed. The long range goal is to develop awareness among individuals of the benefits of utilizing collaboration methods in school and every day activities.
- Procedures:** If you agree to participate, you will be asked to fill out two surveys and to participate in an activity at the Stout Adventures Challenge Course. One survey will be given to you before visiting the Challenge Course and another survey will be given as a follow up to the activities you have chosen to participate in. Each survey will take approximately 5 minutes and the Challenge Course will be 2 hours in length during designated times and dates. Facilitation will be given during the activities at the Challenge Course and additional routine challenge course consent forms will need to be signed before participating on the site.
- Risk/Benefits:** The risks of participation in the study are minimal. Risk could be perceived for the Challenge Course activities; however, the “challenge by choice” philosophy of the program allows each participant to decline involvement in challenge activities at any time. The results of this study may benefit future individuals in the Art & Design Programs by providing a framework for integrating more collaboration methods into coursework to relate to the demands of the professional working environment. Benefits could also be for the future training and facilitation at the Stout Adventures Challenge Course.
- Confidentiality:** Only the researcher and research advisor will have access to the information collected. Any results of this study which are published will not identify individual participants.
- Right to Withdraw:** You may withdraw from the study at any time, and withdrawal will not affect grades or standing within the Art & Design Department.
- Cost/Compensation:** There is no cost for participating. You will not receive compensation for participating in this study.

Appendix B (continued)

IRB Approval: This study has been reviewed and approved by the University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have any questions or concerns regarding this study please contact the Investigator or Advisor. If you have any questions, concerns or reports regarding your rights as a research subject, please contact the IRB Administrator.

Statement of Consent: My signature below indicates that I have been given the opportunity to ask questions concerning the study, have received clear answers to these questions, have the opportunity to receive a copy of this form, and agree to participate. By signing this consent form I agree to participate in the project entitled: "A Comparison of the Perceived Level of Collaboration among University of Wisconsin-Stout Graphic Design Students Before and After Utilizing the Stout Adventures Challenge Course".

(Subject's Signature)

(Date)

If under 18 years of age, you are ineligible for the study.

Appendix C

Stout Adventures – University Recreation Trip Evaluation

Name of Activity: _____ Date: _____

Leaders: _____

Are you: UW-Stout Student Faculty/Staff
 Stout Adventures Trip Leader Community Member

How many UWSA trips have you been on? _____

My level of experience in this activity is: Beginner Intermediate Advanced

RATE THE FOLLOWING:	NOT AT ALL	A LITTLE	SOME	A LOT	A GREAT DEAL
A. I learned/developed new skills	1	2	3	4	5
B. I enjoyed the experience	1	2	3	4	5
C. I gained new knowledge	1	2	3	4	5
D. I enjoyed the companionship of the group	1	2	3	4	5
E. My self-confidence improved	1	2	3	4	5
F. It was physically challenging	1	2	3	4	5

PLEASE RATE THE FOLLOWING	POOR	FAIR	OK	GOOD	EXCELLENT
G. Leader's skills were:	1	2	3	4	5
H. Leader's ability to work with people was:	1	2	3	4	5
I. Leader's ability to work with each other was:	1	2	3	4	5
I. Leader's knowledge of subject matter was:	1	2	3	4	5
J. Leader's concern for me was:	1	2	3	4	5
K. Adequate safety precautions were taken	1	2	3	4	5
L. Quality of the equipment was:	1	2	3	4	5
M. Planning for the experience was:	1	2	3	4	5
N. The experience overall was:	1	2	3	4	5

Appendix C (continued)

What do you think would have made the experience better?

What was the most enjoyable aspect of the experience?

Would you participate in the Stout Adventures activity again? YES NO

Name (optional):

Additional Comments

Appendix D

University of Wisconsin-Stout

Pre-Activity Survey

Design Concentration: _____

A COMPARISON OF THE PERCEIVED LEVEL OF COLLABORATION AMONG
UNIVERSITY OF WISCONSIN-STOUT GRAPHIC DESIGN STUDENTS BEFORE AND
AFTER UTILIZING THE STOUT ADVENTURES CHALLENGE COURSE

Collaboration: The process of cooperating or working with another person or group toward a common cause or goal.

Year in school: (starting) **Gender:** Male or Female **Age:** _____

1st year2nd year3rd year4th year5th year

other: _____

Level of skill/experience in the design related area:

Beginner

Intermediate

Advanced

Directions: For the following items, circle the number that most accurately reflects your perceived of collaboration at the University of Wisconsin-Stout in design coursework.

RATE THE FOLLOWING	NOT AT ALL	A LITTLE	SOME	A LOT	A GREAT DEAL
Please Rate yourself on the following:					
A. I discuss work/ideas with other students	1	2	3	4	5
B. I work with others to complete activities/goals	1	2	3	4	5
C. I learn/develop new skills from others	1	2	3	4	5
D. I enjoy the companionship of a group	1	2	3	4	5
E. I plan how I am going to proceed before completing an activity/goal	1	2	3	4	5

**Please Rate your peers on the following:
(Base your answers on the majority)**

A. My peers discuss work/ideas with other students	1	2	3	4	5
B. My peers work with others to complete activities/goals	1	2	3	4	5
C. My peers learn/develop new skills from others	1	2	3	4	5
D. My peers enjoy the companionship of a group	1	2	3	4	5
E. My peers plan how they are going to proceed before completing an activity/goal	1	2	3	4	5

Appendix D (continued)

How would you like to incorporate more or less collaborative strategies into your everyday life?

What would you like to see done to implement more or less collaboration into your major?

How have you or others incorporated collaborative strategies with your classmates? Explain an example:

How do you feel the professional world of work will incorporate collaboration?

Appendix E

Ropes Course Activity Sheet

Reservation Planning Sheet for Thursday, October 14th
Adventure Education and Collaboration

Participants: (30 Max.)

Pre Reservation Time: 3:00pm – 3:30pm

We will go over the activities and ask/answer questions if there are any.

Reservation: 3:30pm – 5:30pm

Activities:

1. Participants fill out Stout Adventures paperwork followed by welcome (frontload) from facilitators.	> 15 min.
2. Ring of Fate For the introduction part, say who you are and where you are from and say what your favorite childhood book/story and why.	> 5 min.
3. Machine Game Split into groups of about 5-8 (<i>in some sort of unique way other than numbering off</i>)	> 8 min.
4. Floating Stick Split into groups of 4 – 7 with different people than the last activity.	> 5 min.
5. Animal Jam We will use the base rail with all participants in a group	> 25 min.
This should conclude the first hour	> 58 min.
6. Raising the Sphinx	> 30 + min.
7. Group Marker Groups of 6 or less	>8 min.
8. Sculpturades Groups of 4-8 participants. Two people recreate 1 highlight of the reservation and 1 low point utilizing the other people of their group.	> 5 min.
9. Post Activity Survey	> 5 min.
Reservation End	> 48 min.

Appendix F

University of Wisconsin-Stout
Post-Activity Survey

Design Concentration: _____

A COMPARISON OF THE PERCEIVED LEVEL OF COLLABORATION AMONG
UNIVERSITY OF WISCONSIN-STOUT GRAPHIC DESIGN STUDENTS BEFORE AND
AFTER UTILIZING THE STOUT ADVENTURES CHALLENGE COURSE**Collaboration:** The process of cooperating or working with another person or group toward a common cause or goal.**Year in school:** (starting) **Gender:** Male or Female **Age:** _____1st year2nd year3rd year4th year5th year

other: _____

Level of skill/experience in the design related area:

Beginner

Intermediate

Advanced

Directions: For the following items, circle the number that most accurately reflects your experience at the Stout Adventures Challenge Course.

RATE THE FOLLOWING	NOT AT ALL	A LITTLE	SOME	A LOT	A GREAT DEAL
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Please rate yourself on the following:

A. I discuss work/ideas with other students	1	2	3	4	5
B. I work with others to complete activities/goals	1	2	3	4	5
C. I learn/develop new skills from others	1	2	3	4	5
D. I enjoy the companionship of a group	1	2	3	4	5
E. I plan how I am going to proceed before completing an activity/goal	1	2	3	4	5

Please rate your peers on the following:
(Base your answers on the majority)

A. My peers discuss work/ideas with other students	1	2	3	4	5
B. My peers work with others to complete activities/goals	1	2	3	4	5
C. My peers learn/develop new skills from others	1	2	3	4	5
D. My peers enjoy the companionship of a group	1	2	3	4	5
E. My peers plan how they are going to proceed before completing an activity/goal	1	2	3	4	5

Appendix F (continued)

After developing collaborative skills from the Adventure Challenge Course, how would you like to incorporate more or less collaborative strategies into your everyday life?

What would you like to see done to implement more or less collaboration into your major?

How did you or others participating incorporated collaborative strategies while at the Adventures Challenge Course? Explain an example:

What skills do you think were important while being a part of a collaborative group?

How do you feel the professional world of work will incorporate collaboration?

Appendix: G

Qualitative Questions

Pre-Activity/Post-Activity Survey Comparison

Pre-Activity – Implement more or less collaboration in everyday life	Post-Activity – Implement more or less collaboration in everyday life
I wish people would brainstorm more than just thinking out concrete ideas. Communicate more with others.	People should brainstorm and delegate Leaders.
Be able to work with others more break down barriers because of social issues/personalities	Work together more communication
I like to work independently. Collaborative activities are most successful when all individual have an interest in the activities. Group activities don't work when everyone wants to do something different. This is why I don't generally like group projects.	
I would like to be a little more, but it's really hard to find time because everyone schedule is different. I do think the amount of collaboration I'm at right now, is as much as I want right now, or that I can handle.	It helps when people work together. I would like to incorporate that more efficiently in every class.
See how working together with whoever I'm with/family, work, school help get things done better more efficiently, not always smoothly but can always be learning from one another.	Encourage communication
I would like to better at collaborating in my family life.	Collaborate more with people in senior projects class.
	I think I'll have a lot of collaboration everyday.
More group work and talking problems out in small groups.	Don't forget to have fun and learn from one another.
When meeting new groups of people, team building in the professional world.	Working together more, listening skills, and taking turns
I think I need to collaborate more, but at this point everyone's formed his or her own group!	Ask and advise with others.
Ask for help when I need it.	Less. I don't like working with others.
Work more with others to generate ideas and get feedback.	Working together more and being more open.
I work with people very well already, but I guess just eating together could help more because families eat together and families are awesome.	I like being in groups for projects.
I don't know that I would incorporate more. I would like to improve on my existent collaborative experiences. I am generally not a fan of groups!	Less

Appendix: G

Qualitative Questions (continued)

I think scheduling a break out, or collaborative studies are the fastest, most enjoyable way to learn new skills, and accomplish tasks, so I want to organize times or schedule more meetings with other students who are like-minded and willing to do this.	I would like to be better and happier with more skills, to co-lab-orate is to be RAD.
	Work as a group to get things done or Group discussing.
	Using my peers. Everyone's great ideas and combining them will make me stronger

Three themes related to incorporating more or less collaboration in everyday life.

Participants answered the question with these themes: brainstorming/discussions, encouraging communication and listening, working with others - learning from others.

Appendix: G

Qualitative Questions

Pre-Activity/Post-Activity Survey Comparison

Pre-Activity – Implement more or less collaboration within major	Post-Activity – Implement more or less collaboration within major
Have a class on “working in a collaborative environment” or team a structured class. People need to know how to work together before they can/will. Classes on what to expect in a corporate business setting.	More brainstorm sessions
Smaller group critiques/discussions instead of whole class, people open up more.	Work together more outside of critiques.
I would like to see the college work with the art students to find internships and jobs. Making a bigger push to get out and see firms related in our field, making each other go. Sometimes people don’t feel motivated.	Have students realize the importance and do it more often, and its fun.
I think there is a lot of collaboration in critiques that we have and class time – I wouldn’t change anything!	More.
A few more group projects would be nice.	More group projects.
We are always collaborating in this major. I wouldn’t change anything.	More communication.
Group projects.	Group projects to learn more.
Smaller group critiques earlier on. More planned interaction in mentor/mentee program.	More group activities throughout all years.
More solidarity among faculty-especially in graphic design. They don’t seem to communicate with each other or have all the same info. or involvement with students. They need to show up and speak up at graphic design association meetings and events-you can’t convince students to get involved if the leaders are weak and disconnected. It shouldn’t be a one man show.	
More dialogue in the class.	More dialogue about projects. Better critiques.
Work more with groups like we are told things are in the ‘real world’. Make college experience a beginning to real world/business experiences. Relate more to job/tasks.	More group work.
Mandate that students join mini Graphic Design Associations (within the association already established).	More group projects.
Mandatory or optional alternative meeting times, study sessions, field trips enabling peers to pick each others brain more often.	Hold hands and talk more.
I would like to see more group brainstorming rather than a project or an assignment.	I am not good with people.

Appendix: G (continued)

I'm not sure, I don't enjoy group projects, but talking and knowing everyone else is in the same situation is reassuring.	
I would like some of the design classes to have group projects. I know we work together but, I would like to see it go to the end as a group.	More group activities without school work.
	More projects that come out as a group.

Three themes related to incorporating more or less collaboration into your major.

Participants answered the question with these themes: more group projects more often, group projects done throughout all years, and more group brainstorming sessions.

Appendix: G (continued)

Qualitative Questions

Pre-Activity/Post-Activity Survey Comparison

Pre-Activity – How have collaborative strategies been incorporated with classmates?	Post-Activity – How have collaborative strategies been incorporated with classmates at SA*.
Group discussions.	Planning
Work together in small groups to process ideas/brainstorm – get opinions on projects – critiques. Help with gaining skills.	Talk more, work together
I feel that the teachers work really hard with having us communicate and work together with our classmates not matter what class. They really stress how important it is to get other peoples view points or ideas to make things better. I really like working with others to get ideas, but not in group projects.	With the Sphinx rope (collaborative activity) everyone had input and everyone listened to each other and didn't put each other down.
Mostly getting ideas from them (peers) about my design. They see things that I don't after looking at the design for so long – you miss very obvious things.	A lot, for every activity – communication/planning.
We did a group signage project in signage and exhibit design.	All talked about ideas for the Sphinx**
Splitting research into categories, which creates less stress and work load.	Found it hard to communicate what we wanted to do.
Fundraising for Senior Project: brainstorming together, delegating tasks, reporting back research, following through, and execution.	Expressing ideas. Following through on ideas expressed.
Getting together after class to discuss things.	We tired to solve and also failed at the Sphinx activity but, learned its okay to talk to others.
I talk to people about projects quite often. Help brainstorm. Help talk things through. Ask right questions to promote a new way of thinking.	We didn't do it (the collaborative activities) too well. Too many people – poor leadership.
I have worked in a group for 1 graphic design class and we try to work together to get ideas and feedback outside of critiques.	Sharing ideas and solving problems.
Critiques. Lots of critiques.	We finally caught the Sphinx (collaborative activity) and made no plan after trying many times.
So far, the fundraising, and activity organization such as the ropes course (collaborative activities). But so far just being available in immediate work areas such as the computer labs allows this exchange of ideas to happen.	We met and melded minds. $1 + 1 = 2$ 2 is bigger than 1.
I tend to ask a lot of questions of my peers. I like input from others to get out of my box.	

Appendix: G (continued)

I encourage people to stand up for themselves-not to take one person's word (in the art department) but to check it out and form their own opinion. Too much is decided with out consent or consideration to the individuals who make up the department/major. If the group is working for you, you have to take charge of the situation.	
	Everyone gave ideas and we tried to use pieces from everyone's.

Four themes related to how collaborative strategies have been incorporated with classmates. Participants answered the question with these themes: exchanging ideas, everyone voicing opinions, group brainstorming, and critiques to expand the mind and creative ideas further.

SA* = Stout Adventures Sphinx ** = activity that lasted 30 minutes in length

Appendix: G (continued)

Qualitative Questions

Pre-Activity/Post-Activity Survey Comparison

Pre-Activity – How do you feel the professional design field will incorporate collaboration?	Post-Activity – How do you feel the professional design field will incorporate collaboration?
I think there will be a lot of teamwork involved, but not everyone knows how to do it.	Leadership and listening.
Brainstorming, working with other concentrations, working with vendors /suppliers, work with co-workers and working with customers.	Know how to work outside class more can improve in the work and class.
I have no idea. Frankly, I'm worried!	
In the professional world, many people work together and giving feedback. Constructive criticism is the most important. Working together is very important – the better people get along, the better ideas will be produced. Having people, who are “different” work together, will create different thinking patterns/ideas.	I think professionals should do something like this (collaborative activities).This environment shows you different learning styles and approaches to things and its fun.
Working teams as a department or even communication lines. In graphic design you're always communicating with printers, your client and other designers your working with. Collaboration happens in all of those communication lines.	Same as above.
	We all work well together. Teamwork is key in design
Teamwork atmosphere, divided workload, group work, and help with problems.	Help one another.
Design team meetings: customer feedback /communication, relaying messages, feedback for team/critiques. Execution of projects: delegating tasks, R & D, and agreement of final project.	Meetings and checkpoints.
I believe it I will be a source of communication, but everyone will be responsible for their own project.	I think this would be good for all classes, good grouping and togetherness.
“Team” is all over in the professional world. You have to work with others, clients, printers, and co-workers.	I hope the collaborative group has a leader,
A lot more than college experiences because we are expected to do a whole project from start to finish when in the professional world we would probably work more in one area, but still have a say in the other areas.	Sharing ideas and solving problems in order to produce a finished product.
Copy editors will tell me what to change.	I hope to bring co-workers to a project (collaborative activity) like this (study).
Teamwork, but not everyone knows how to.	

Appendix: G (continued)

We all can't always be a jack of all trades, so until we are there is always going to be someone with more knowledge in certain areas of study and work than yourself so, collaboration is vital.	It would be better with more friends.
A lot more than in school.	Work together and discuss ideas.
It depends where you go or who you work for-some employers look for individuals who can perform and succeed on their own, while others are thriving on group projects where everyone has to work together. There's no predicting which situation you'll end up in but it's important to be ready for both.	
	Learning to listen to everyone's ideas – come up with best answer.
	Teambuilding activities just like the ropes course. Set time aside to have employees work on teambuilding.

One main theme related to how participants felt the professional design field will incorporate collaboration. Participants answered the question with the theme of; other classes and professionals should do collaborative activities like the ones in this study.

Appendix: G (continued)

Qualitative Questions

Pre-Activity/Post-Activity Survey Comparison

Post-Activity – What skills were important while being a part of a collaborative group?
Listening
Talking / listening.
Learning to listen to everyone's ideas.
Learning different ideas and different learning styles.
Flexible and patient.
Communication.
Communication and planning.
Communication.
Listening, patience, and group effort.
Communication.
A strong leader.
Talking. Open-minded, having fun.
Laughter Leadership and willingness to try new things.
Cooperation and laughter
Communication and open-minded.
Communication and listening.

Four themes related to what skills participants felt were important while being a part of a collaborative group. Participants answered the question with these themes: communication, listening, being open-minded and laughter (have fun while working together).