DEVELOPING SOFT SKILLS THROUGH MULTIDISCIPLINARY COOPERATIVE AND SITUATED LEARNING

Siwon Cho, Southern Illinois University
Laura K. Kidd, Southern Illinois University
Laura M. Morthland, Southern Illinois University
Shelby Adkinson, Southern Illinois University

ABSTRACT

Many studies indicate that hard skills are not enough to keep individuals employed, and that an increased emphasis on soft skills is required as a complement to hard skills. The current study examines a multidisciplinary cooperative and situated learning (MCSL) construct that may enhance student acquisition of soft skills through a more social application of their specific discipline knowledge. A semi-structured survey was conducted using 33 U.S. college students who participated in the learning process. Data were analyzed by descriptive statistics and ANOVA. Results showed that students were able (1) to apply discipline knowledge in the assigned activities, (2) to gain advanced knowledge from practical performance, and (3) to develop soft skills through the MCSL. The top five most developed soft skills from the learning experience were creative and critical thinking, verbal communication, time management, interpersonal communication skills, and learning to give and receive constructive criticism. This study may provide useful insights for educators in developing curriculums that meet the needs of the various industries relying on college graduates with specialized knowledge and soft skills to fill positions in their workplaces.

Keywords: soft skills, situated learning, multidisciplinary learning, cooperative learning, pedagogy

INTRODUCTION

Hard skills, technical skills, and STEM skills (Science, Technology, Engineering, and Math) are often used interchangeably as occupational knowledge, tools, or techniques that are necessary for various professions. For example, the ability to use software programs, foreign languages, analyzing data, operating specific tools and certified in professional field are considered as hard skills. The most desired hard skills in 2014 reported by LinkedIn include statistical analysis and data mining, algorithm design, computer graphics and animation, and economics (Murthy, 2014). Tech-related skills made the majority of their list of 'Who's getting hired and what are they doing?' However, many workplaces show that hard skills are not enough to keep individuals employed (James & James, 2004; Kimmons & Spruiell, 2005), but soft skills receive increasing attention because it is acknowledged that soft skills complement hard skills. Indeed, Arnold-Smeets (2015) stated that "While hard skills may get your foot in the door, soft skills will keep you there."

Soft skills refer to "the cluster of personality traits, social graces, facility with language, personal habits, friendliness, and optimism that mark each individual to varying degrees" (Soft skills', 2002). Goleman (1995, 1998) emphasized the importance of emotional intelligence and

corroborated that soft skills were the key to success for both companies and employees. Robles (2012) identified the top 10 soft skills perceived the most important by business executives as integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic. The importance of soft skills was also reported by the National Careers Service with a similar list of soft skills that employers wanted (What are the 'soft skills', 2012). No matter what the degree says or the major studied in school, candidates must have five soft skills: ability to work in a team structure; ability to make decisions and solve problems; ability to communicate verbally with people inside and outside an organization; ability to plan, organize, and prioritize work; and ability to obtain and process information (Adams, 2014).

According to a recent article in *Time* online, reasons for low employment rates among college graduates include a lack of soft skills (White, 2013). Several employer surveys (e.g., Workforce Solutions Group, Adecco) reported that areas of greatest gap were motivation, interpersonal communication skills, critical thinking, creative problem solving, appearance, punctuality and flexibility, and collaboration (Talent shortage survey, 2013). Internships may decrease these problems, and many universities and colleges encourage internships to help develop soft skills. Through various internship programs, students are prepared with generic skills such as communication, quantitative analysis, information technology skills, problem-solving skills, and ability to work with other people (Dickerson & Green, 2004). However, only 8% of student respondents considered internships a worthwhile pursuit (Bridge that gap, 2013). Therefore, it has become critical that the curricular body of knowledge expands at the college level in order to develop student ability in communicating and working with teams, authority figures and diverse groups, as well as prioritizing and organizing work, developing critical thinking skills and practicing creative problem solving through collaboration.

The key difference between hard and soft skills is that hard skills are specific and teachable, while soft skills are ambiguous and hard to measure (Mullen, 1997). However, educators have attempted to improve college students' soft skills through courses, projects and assignments (e.g., Bajada & Trayler, 2013; Lam & Adams, 2014). Alam, Gale, Brown, and Khan (2010) indicated the importance of human skills and reported a case study within the context of university curriculum. Alam et al. found that by increasing students' knowledge and understanding, students are better able to employ their soft skills and complete tasks more effectively. The authors concluded that training for soft skill development and education are considered valuable by the organizations.

The current study proposes a learning environment that may enhance student acquisition of soft skills through a more social application of their specific discipline knowledge. *Objectives of the study* were to increase (1) student application of current discipline knowledge in the assigned activities, (2) student gains in advanced knowledge through practical performance, and (3) student development of soft skills through a multidisciplinary cooperative and situated learning (MCSL) environment. This study employed the proposed learning environment at a Midwestern university in the U.S., where a fashion design and merchandising program (three specializations: fashion design, fashion merchandising, fashion styling) and an interior design program are offered to undergraduate students seeking bachelor's degrees in the respective programs. One of the most important aspects of the industries of fashion and interior design is the ability to work effectively and collaboratively in groups or on teams with other professionals. The proposed learning environment was designed to deliver simulated 'real world' work situations for students in these fields. This study may provide useful insights for educators in developing curriculums that meet

the needs of the various industries relying on college graduates with specialized knowledge and soft skills to fill positions in their workplaces.

LITERATURE REVIEW

Cooperative Learning

Collaborative learning is a widely used concept in college classrooms today, and brings students together as a group to maximize their own and each other's learning experience (Hamilton, 1997). Collaborative learning and cooperative learning are very similar teaching methods, and cooperative learning is often described as a type of collaborative learning (Millis & Cottell, 1998). Cooperative learning refers to "an approach to group work that minimizes the occurrence of those unpleasant situations and maximizes the learning and satisfaction that result from working on a high-performance team" (Felder & Brent, 2007). In cooperative learning, students work together in small groups on a structured activity, and each student contributes to reach a common goal as individually accountable for the assigned work (Ormrod, 2008). Students may understand their strength and weakness, develop interpersonal skills, and learn to deal with conflicts and problems. With clear objectives, students engage in numerous activities in cooperative groups that improve their understanding of subjects explored. Johnson, Johnson, and Smith (1991) indicated the success of cooperative learning requires (a) interdependence to achieve a common goal, (b) interaction to help others learn, (c) individual and group accountability for assigned specific responsibilities, (d) interpersonal skills to make decisions, resolve conflicts and effectively communicate, and (e) group processing to reflect on their experience.

Kim, LaFleur and Schaeffer (2008) used a cooperative project among fashion merchandising students and found that students had an appreciation of the importance of across course connections and did understand the importance of being able to apply what was learned in the project to a professional work experience. Similar findings were reported by Karpova, Jacobs, Lee and Andrew (2011) in a study using virtual reality technology and apparel students. Results showed that students believed they improved their personal development skills as a result of cooperative learning experience. Based on the previous research, cooperative learning helps students acquire knowledge and soft skills.

Multidisciplinary Learning

Cooperative learning is often applied in a multidisciplinary (or interdisciplinary) learning environment because it helps achieve the goals comprised from diverse disciplines. Multidisciplinary learning refers to a learning environment that combines various disciplines (Garner, 1995). Educators have developed courses including more than one discipline so that students are able to work within discipline specific parameters and benefit from others' expertise in meeting a common goal. Students across different subject areas are placed in groups and are encouraged to make connections in their learning. The importance of multidisciplinary learning has been addressed and facilitated in curriculum development. Students learn how to work together in groups to share their knowledge, expertise, and experiences from different disciplinary perspectives; this has been identified as a priority in higher education (Noroozi, et al., 2013).

Kimmons and Spruiell (2005) investigated the use of problem-based learning in developing a retail business as a multidisciplinary project. Results showed that students from three disciplines (interior design, retail merchandising, and graphic arts) perceived their team building skills and

problem-solving skills improved. In addition, students realized the importance of written communication skills and professional work behavior skills. Another study of a multidisciplinary project comprised of business, merchandising, and interior design by Chung and Meneely (2012) indicated the significant impacts of social skills (e.g., maturity, attitude, responsibility, commitment) and the ability to resolve interpersonal conflict on team creativity and success. Based on the previous research, multidisciplinary learning is also found to provide an effective learning environment to increase student knowledge and soft skills.

Situated Learning

Situated learning is a teaching practice described by Brown, Collins and Duguid (1989), who were the first to create a model of instruction with implications for classroom practice (Herrington & Oliver, 1995). Lave and Wenger (1991) further expanded the definition of situated learning and indicated the theory as a pervasive embodied activity that involved the acquisition, maintenance, and transformation of knowledge through processes of social interaction. Situated learning theory argues that acquisition of objective knowledge is best achieved as the accomplishment of knowing in action through everyday practice in organizational and other social settings (Handley, Clark, Fincham & Sturdy, 2007). According to the theory, situated learning allows students (a) to apply cognitive and conceptual knowledge acquired from conventional class settings in organizational and social settings, and (b) to achieve integrated knowledge and more realistic experiences through activities and interaction that are organized within work places.

Stein (1998) explains the elements of situated learning as (a) the integration of content–the application of knowledge, (b) context–building the instructional environment or setting, (c) community–the setting for the social interaction between participants, and (d) participation– active engagement of learners to exchange ideas and solve problems. Successful situated learning occurs in an "authentic social context" that is beneficial to the student learner and increases their knowledge that may be applied by the student in new situations and formats (Lankard, 1995, p. 3). Situated learning emphasizes the importance of creating 'real world' experiences to enhance student learning including social interaction. Lave (1991) contends that "learning is recognized as a social phenomenon constituted in the experienced, lived-in world, through legitimate peripheral participation in ongoing social practice" and , through membership in a "community of practitioners", learning can be enhanced and even mastered (p. 64).

Situated learning is often accomplished with multidisciplinary learning (Young, 2010). In a study by Wojahn et al. (2001), a technical communication program built partnerships with programs in mechanical engineering and industrial engineering to provide experience similar to situations students might face outside of school through a client-based design course. The authors noted significant growth in students' abilities to discuss design, teamwork, and client projects. The concept of situated learning was also applied in apparel studies. Byun, Kim, and Duffy (2012) examined multidimensional learning outcomes for merchandising and interior design majors. Students were given a scenario in which groups of students role-played as a business consultant, a lighting specialist, or a visual merchandiser working for a global luxury brand. Results indicated that the learning outcomes significantly influenced students' social/cognitive and emotional learning and attitude. Social skills are needed to work effectively in a community of practitioners; therefore, situated learning experience is an important part of the development of social skills. Based on the previous research, projects structured as situated learning give students the opportunity to achieve advanced knowledge and improve soft skills.

Development of Multidisciplinary Cooperative and Situated Learning Environment

Multidisciplinary Cooperative Learning: Four Disciplines

In recognition of the need for enhancing application of knowledge and developing students' soft skills, a semester-long series of five sequential projects were developed. The projects required cooperative work and employed a learning environment for the students in four disciplines in order to reach specific professional goals within each project. Because the proposed learning environment was not set as a conventional course, instructors agreed on a general time line for all joint-class meetings and the completion of projects.

The fashion design specialization teaches how to observe and analyze clothing styles, develop new ideas, and interpret them through fashion illustration, clothing construction, pattern making, and draping. Fashion design students who participated in the projects were juniors and seniors who had satisfactorily completed core fashion design courses and basic art and design courses. Fashion design students were equipped to work successfully in apparel design, line development and sample construction using the draping technique and skills learned in previous courses.

The fashion merchandising specialization teaches students who are interested in the business-oriented fashion industry. Students study fashion merchandising, personnel issues, fashion mathematics, and other business related courses. Fashion merchandising students involved in the projects were seniors who had successfully completed various courses such as consumer behavior, marketing, management, and accounting. Fashion merchandising students had background knowledge in target market research, product development, retailing, and promotion in the fashion industry.

The fashion styling specialization focuses on professional practices necessary to be successful as a fashion stylist. Fashion stylist students learn basic elements of fashion, client-based styling, event planning, and other supporting courses such as photography and journalism. Fashion stylist students who worked together in the projects were juniors who had completed core courses and who were experienced with different types of styling for professional practice. Fashion stylist students had creative vision and ability in presenting apparel products the best aesthetical way with the specific purpose of visual promotion.

The interior design major involves the application of technical and creative solutions with the aim of generating a built interior space that is functionally and aesthetically appropriate. Interior design students learn the elements of the design process including programming, schematic design, design development, and construction documents. Interior design students who participated in the project were juniors who had the ability to create retail environments using knowledge and skills such as drawing, presentation, furniture design, materials, sustainable design and energy conserving/producing systems, lighting, acoustics, and mechanical systems.

In this multidisciplinary cooperative learning setting, small groups were formed and each group included students from the four disciplines. Then, students were introduced to a situated learning environment.

Situated Learning: Developing Fashion Brands

A hypothetical scenario was given in which students were challenged to create fashion brands of apparel companies though five sequential projects in 16 weeks. Each project was

designed to provide the basic guidelines for students from market research to future plan. During the project periods, instructors introduced new discipline knowledge and skills that pertain to the course students were enrolled in. Every decision that students made to complete each project was based on research and group discussion. Groups representing different fashion brands were formed with students from the four disciplines, and students from the corresponding disciplines were asked to use their own project work in a cooperative effort in order to incorporate their discipline expertise in developing fashion brands. Students held official and unofficial meetings to communicate ideas and goals. Completing each project successfully required the fundamental understanding and responsibility that students are expected to carry in their future professional careers. The results of each project were presented formally as written reports, visual boards, sample garments, and oral presentations. Instructors from each discipline supervised student activities and evaluated their performances.

Projects and Flow

Project 1 Market research. In the first project, environmental scanning was performed by fashion merchandising students to understand the consumer market, current issues in fashion industry, and external environment of fashion brand. Fashion merchandising students in each group cooperated to research information related to global issues in social, economic, geographic, and technological changes, trend areas for consumer market and product categories, as well as popular cultures. In order to research current issues in fashion industry, different theme was applied each year to review in-depth (e.g., sustainability). Results of Project 1 were presented and shared among fashion merchandising students in different groups. Students were able to learn more about consumers and external environment in fashion industry from other groups' research.

Project 2 Target market research and branding. Based on the environmental scanning, fashion merchandising students made an initial plan of developing fashion brands: the type of target market, the type of fashion brand, the type of products, the price range of products, and the brand image. Students were advised to create unique, but realistic plans for their brands. Then, students recruited potential customers of their brands to conduct focus group interviews and learned specific target market needs and preferences. Based on the results of target market research, fashion merchandising students created fashion brands. Project 2 was presented to all instructors and students, including fashion design, fashion styling, and interior design students. This presentation was the first official meeting that started the process of MCSL among the students from all disciplines. Students began discussions to clearly understand the characteristics of target market and the uniqueness of each brand. Various techniques were used for effective and efficient communication that worked best for each group. For example, group chatting rooms on social media were created to exchange ideas and send electronic files.

Project 3 Product development. Based on the target market research and branding, fashion design and merchandising students started brainstorming for the direction of product development. As a group, a seasonal line of each fashion brand was developed. Fashion merchandising students made trend reports and shared the results with fashion design students. Then, students selected the fashion trends that best fit their target market's preferences and the characteristics of their brands. Selected fashion trends and target market's preferred product attributes were considered in item design, line development, specifications development using ASTM standards, materials sourcing, and creation of sample garment. Every step in product development was discussed and approved

to proceed by all fashion design and merchandising students as well as instructors. Project 3 was presented with Project 4.

Project 4 Costing, pricing, and production sourcing. After product development, fashion design students started the sample production, and fashion merchandising students began Project 4. Based on the line development, fashion merchandising students researched potential contractors for production sourcing. After selecting the best manufacturing contractors for their lines, fashion merchandising students developed initial assortment plans including product category, classes, subclasses, stock level, unit quantity, unit cost, and unit price. Projects 3 and 4 were combined and presented to all students. Students were able to understand the characteristics of their brands more clearly as specific outcomes were provided.

Project 5 Retailing, retail environment and promotion. After the Project 2 presentation, cooperative work in creating a retail store for each fashion brand began between fashion merchandising and interior design students. Target market research revealed preferences for elements and attributes of the retail environment as well as brand images of each fashion brand. Based on the results, interior design students created flagship stores. Fashion merchandising students and interior design students exchanged the ideas about ambience, space and components including layouts, type of fixtures, use of colors, lighting, and materials. Preliminary and final presentations were given by interior design students, and the final version of flagship store design was selected.

Upon the completion of Project 3 and 4, fashion styling students began brainstorming the direction of visual promotions. Based on discussions with fashion design and merchandising students, fashion styling students created advertisement and lookbook focusing on brand image, visual information of product, and styling for the fitting model in sample garments. Fashion merchandising students developed marketing and retail strategies including distribution channels, customer communication programs, promotional plans, and brand outlook. Results of Project 5 were presented by interior design, fashion styling, and fashion merchandising students. All students participated in the showcase of their fashion brands. Fashion merchandising students compiled all previous projects and gave a final presentation, the investor presentation.

METHOD

Study Design and Measure

In order to test the effectiveness of MCSL in improving students' knowledge and soft skills, a semi-structured survey design was developed. Measures related to Objective 1 (i.e., application of current discipline knowledge in assigned activities) were adapted from the Instructor and Course Evaluation (ICE) form developed at a Midwestern university in the U.S. (e.g., "During the projects with students from other disciplines, I was able to learn to apply current and previous course materials in completing the assigned tasks."). Respondents indicated their agreement with each item in the 4-item scale by writing a response alternative on a scale of 1 = strongly disagree to 7 = strongly agree. Questions related to Objective 2 (i.e., gains in advanced knowledge though practical performance) were also adapted from the ICE (e.g., "During the projects with students from other disciplines, I was able to learn how professionals in my field gain new knowledge."). Respondents answered each item in the 6-item scale by writing a response on a scale of 1 = strongly disagree to 7 = strongly agree. Objective 3 (i.e., development of soft skills) was measured using a 15-item scale adapted from the studies by Shuayto (2012) and Bailey and Mitchell (2006/2007)

(e.g., "The project with students from other disciplines helped me to develop interpersonal skills in communicating and interacting with other people, both individually and in groups."). Respondents indicated their agreements on a scale of 1 = strongly disagree to 7 = strongly agree. Additional questions in the form of constructed phrases and open-ended short essay questions were developed by authors to collect the individual respondents' experiences of MCSL (e.g., "Did the experience provide any new insight into the function of cooperative and/or collaborative work process?").

Data Collection and Analyses

A semi-structured survey was conducted after all projects were completed. Respondents were 33 students in four groups who participated in the proposed learning: Fashion merchandising (N = 16), interior design (N = 8), fashion design (N = 5), fashion styling (N = 4). Descriptive statistics were used to report means and standard deviations. Reliability was assessed using Cronbach's α, measuring the internal consistency of the items within each construct (e.g., a reliability of 4-item scale measuring application of discipline knowledge). Confirmatory factor analysis (CFA) investigates the construct validity of hypothesis-based testing instruments and adds a level of statistical precision. Thus, CFA was used to verify the validity of the measures for each construct (e.g., a degree to which 4-item scale measures application of discipline knowledge). Data were analyzed using ANOVA.

RESULTS

Preliminary Findings

The majority of respondents were women (90.90%, N = 30); 87.90% were single. Ages ranged from 19 to 31 years, with a mean of 22.70. Ethnicity included Caucasian (N = 24), African-American (N = 6), Asian/Asian-American (N = 2), and Hispanic/Latino (N = 1). Table 1 shows measurement scale and results of descriptive statistics, factor analysis of variables, and Cronbach's α. Reliability was assessed using Cronbach's α and reliability of all scales is acceptable exceeding the desired level of .80. All items had factor loadings of over .60 or an average of .70 or higher. Results indicate high validity for small sample sizes, and the items measuring each construct were valid. Based on the analysis of variance, 69.97% of variance was explained by application of discipline knowledge, 69.41% by gains in advanced knowledge, and 62.47% by development of soft skills. Results showed that the mean ratings of all constructs were higher than 5 = somewhat agree (application of discipline knowledge, M = 6.00; gains in advanced knowledge, M = 5.62; development of soft skills, M = 5.66).

Table 1. Measurement scale, descriptive statistics, factor analysis of variables and Cronbach's α				
Item	Mean (SD)	Factor Loading	% of Variance	Reliability Cronbach's α
Application of discipline knowledge	6.00 (.84)		69.970	.85
During the projects with students from other disciplines, I was able to… 1. Gain factual knowledge (terminology, classifications, methods, trends) about my major field of study. 2. Learn fundamental principles of my major field of study. 3. Learn to apply current and previous course materials in completing the assigned tasks. 4. Develop specific competencies needed by professionals in my major field.		.835 .759 .637 .868		
Gains in advanced knowledge	5.62 (1.01)		69.414	.91
During the projects with students from other disciplines, I was able to… 1. Learn how professionals in my field gain new knowledge. 2. Develop creative capacities. 3. Develop a sense of personal responsibility, self-reliance, and self-discipline. 4. Gain a broader appreciation of intellectual-cultural activity. 5. Develop skill in expressing myself orally or writing. 6. Discover the implications of the course material for understanding.		.620 .767 .613 .724 .779 .662		
Development of soft skills	5.66 (.97)		62.466	.96
The projects with students from other disciplines helped me to… 1. Develop responsibility and accountability. 2. Develop interpersonal skills in communicating and interacting with other people, both individually and in groups. 3. Enhance verbal communication skills such as clarity of speech, remaining calm and focused, being polite and following basic rules of etiquette. 4. Build teamwork skills. 5. Develop ethical values (e.g., integrity, honesty, fidelity, charity, responsibility, self-discipline). 6. Increase decision making and analytical skills (i.e., the ability to visualize, articulate, and solve both complex and uncomplicated problems and concepts). 7. Enhance creativity thinking (i.e., the process we use to develop ideas that are unique, useful and worthy of further elaboration) and critical thinking (i.e., the process we use to reflect on assess and judge the assumption underlying our own and others ideas and efforts).		.640 .906 .805 .840 .862 .810 .690		

8. Improve persuading, negotiating, and influencing skills.	.652		
9. Gain listening skills.	.657		
10. Understand problem-solving process (i.e., problem identification, problem analysis, plan development, plan implementation, plan evaluation).	.722		
11. Develop ability to think creative ideas and effectively communicate the idea in a visual form.	.788		
12. Enhance time management skills.	.716		
13. Increase adaptability to new technologies and terminologies.	.627		
14. Learn to give and receive constructive criticism.	.752		
15. Develop multi-tasking skills.	.693		

Main Results

ANOVA revealed that there was no significant difference among four disciplines in application of discipline knowledge [F (3, 32) = .93, p = .440]; gains in advanced knowledge [F (3, 32) = .85, p = .479]; and development soft skills [F (3, 32) = 1.67, p = .196]. Respondents agreed that they were able to apply discipline knowledge in the assigned activities; to gain advanced knowledge from practical performance; and to develop soft skills through the MCSL process. Among 15 soft skills, enhancing creative and critical thinking received the highest mean score followed by enhancing verbal communication; enhancing time management skills; developing interpersonal communication skills; learning to give and receive constructive criticism; gaining listening skills; developing ability to think creatively and effectively communicate in a visual form; increasing decision making and analytical skills; developing responsibility and accountability; building teamwork skills; improving persuading, negotiating, and influencing skills; developing multi-tasking skills; understanding problem-solving process; developing ethical values; and increasing adaptability to new technologies and terminologies (See Table 2).

Table 2. Mean scores of soft skills	
Item	**Mean**
Enhance creativity thinking (i.e., the process we use to develop ideas that are unique, useful and worthy of further elaboration) and critical thinking (i.e., the process we use to reflect on assess and judge the assumption underlying our own and others ideas and efforts).	5.97
Enhance verbal communication skills such as clarity of speech, remaining calm and focused, being polite and following basic rules of etiquette.	5.91
Enhance time management skills.	5.85
Develop interpersonal skills in communicating and interacting with other people, both individually and in groups.	5.82
Learn to give and receive constructive criticism.	5.76
Gain listening skills.	5.76
Develop ability to think creative ideas and effectively communicate the idea in a visual form.	5.73
Increase decision making and analytical skills (i.e., the ability to visualize, articulate, and solve both complex and uncomplicated problems and concepts).	5.73
Develop responsibility and accountability.	5.73
Build teamwork skills.	5.58
Improve persuading, negotiating, and influencing skills.	5.58
Develop multi-tasking skills.	5.45
Understand problem-solving process (i.e., problem identification, problem analysis, plan development, plan implementation, plan evaluation).	5.42
Develop ethical values (e.g., integrity, honesty, fidelity, charity, responsibility, self-discipline).	5.33
Increase adaptability to new technologies and terminologies.	5.30
Note: Respondents indicated their agreements on a scale of 1 = strongly disagree to 7 = strongly agree.	

Open ended essay responses reflected both insight and frustration. Some positive discussions include: "I experienced what it may feel like to work for consumers, not for me", "I learned a little about persuasion…working within the boundaries of clients' needs was not as difficult as I thought", "It reminds me to stay open-minded to others' ideas", "The group I was working with was very easy to get along with…even though there were some disagreements, we were able to function well together", "It taught me how to handle difficult group members", "I learned to take criticism to improve myself", "Communication is a key and visual presentations are important to convey ideas", "It allowed to interact directly with a client and helped to deal with translating the needs into design", "The interaction was very helpful to see what will be like when we become established in our profession", "It was an eye opener for a real project in the future", and "I gained confidence in the idea that I could be successful… the future seems less intimidating."

On the other hand, some respondents mentioned difficulties that they experienced during the projects: "I wish I would have had more time with a teacher to direct me with the other students whom seemed not as involved or interested as I was", "It is tough to negotiate sometimes", "It was terrible. My group members did not get along and it created arguments every step of the way. They did not effectively communicate", "It was very irritating to work with some individuals who did not want to listen to my ideas", "There are many different types of people out there and it is difficult to keep everyone happy", "It was stressful because of lack of communication, ideas being changed last minute…everyone was on a different page", "I felt that my entire group did not participate because I was the only one putting in effort", "Just because it makes sense to me, does not mean others get it", "It is important to have a clear understanding of what is expected", "Group projects are stressful and can be irritating", "I wish that I was involved with the projects earlier", "I did not have enough time to finish the garment the way we wanted", and "I recommend more meetings".

DISCUSSION & CONCLUSION

The current study investigated if a multidisciplinary cooperative and situated learning (MCSL) environment would help students in gaining discipline knowledge and developing soft skills. Through the proposed learning experience, students completed five projects and developed new fashion brands as groups of students from four disciplines–fashion design, fashion merchandising, fashion styling, and interior design. Results of the study are consistent with previous literature indicating the effectiveness of cooperative learning (Johnson et al., 1991; Kim at el., 2008; Ormrod, 2008), multidisciplinary learning (Chung & Meneely, 2012; Kimmons & Spruiell, 2005; Noroozi, et al., 2013), and situated learning (Byun et al., 2012; Wojahn et al., 2001).

Findings of the study showed that students were able to apply discipline knowledge in completing projects as they gained factual knowledge and applied current and previous course materials in completing assigned tasks. As students practiced what professionals in their fields would perform, students were also able to develop advanced knowledge such as creative capacities and the implication of course materials for understanding. In addition, results indicated that students developed soft skills while they interacted with others and contributed to achieve a common goal as a group. Creative and critical thinking was the most developed students' soft skill. Other soft skills that ranked top five include verbal communication, time management, interpersonal communication skills, and learning to give and receive constructive criticism. Not surprisingly, these skills were often identified as important and desired soft skills for college graduates in recent articles (Adams, 2014; Robles, 2012; Talent shortage survey, 2013; What are the 'soft skills', 2012).

Indeed, some positive discussions from the open ended essay questions were related to the developments of professionalism, persuasion skills, positive attitudes, problem solving skills, taking criticism, and interpersonal communication skills. Through situated learning, students were excited to have hands on experience of practical performances expected in their fields. Students learned to think for consumers and clients as professionals would do. In addition, many students actually enjoyed working with others, within as well as outside their discipline. Students found that multidisciplinary and cooperative learning actually was not difficult if they communicated well and interacted to meet goals. Meaningful results were also found in the negative comments. Difficulty was primarily due to the multidisciplinary cooperative learning environment, and most problems arose from the interaction with others such as handling disagreements among group members, lack of time management, and irresponsibility. Previous research indicated that conflicts arose among diverse disciplines may prevent successful collaborative problem solving due to the different perspectives (Rummel, Spada, & Hauser, 2009). Ironically, the results support the importance of soft skills and indicate the need of curriculum development that builds students' soft skills. In courses using a MCSL environment, students will be naturally exposed to various circumstances that create challenges and conflicts, and will learn to solve problems using soft skills.

Limitations and Suggestions for Future Research

Although this study contributes to the literature by showing the effectiveness of MCSL in acquiring discipline knowledge and developing soft skills, previous studies argue that multidisciplinary learning may not always bring the expected outcomes if students from different subject areas do not establish 'common ground' that is vital to group performance (Beers Kirschner, Boshuizen, & Gujselaers, 2007; Rummel et al., 2009). The current study recommends that students

be provided with enough time and opportunities to share information and understand the expertise of their learning partners before engaging in this type of learning experience (Noroozi et al., 2013). Another limitation of the current study is that it would not be valid to generalize the effects of situated learning environment on other disciplines without considering the unique characteristics of each particular workplace. Results of this study are restricted to the data of small sample size chosen to examine. However, this limitation is not overly problematic because the current study utilized a cooperative learning environment of small groups. A future study that replicates the findings can enhance the external validity of the study.

Results of the current study recommend that a MCSL will be beneficial when the learning environment is expanded to a 'real world.' For example, students may build a whole package marketing team and help an entrepreneur establish a small business of fashion brand. At the end of projects, 'the client' is invited to the final presentation to select the best plan of business to invest on. Another suggestion is to have potential target markets involved. Participants from the focus group interview are invited again to see how their preferences are incorporated in the results of projects and turned into a real fashion brand that they may want to shop apparel products from. These implications may provide students with opportunities to connect with a real world experiences.

As found in previous research (e.g., Byun et al., 2012), scheduling joint-class projects was a challenge in the current study. Students had official/unofficial meetings and were allowed to communicate freely during class meeting times of each discipline. In addition, students used various technologies to discuss about goals, share information, and complete projects. However, some students regretted that group members from all disciplines did not enroll in one common class where more efficient communication had have been accomplished. Therefore, it is recommended that implementation of this learning must be designed carefully to provide the best learning environment for students, possibly with incorporating the most effective communication technologies and systems. If such limitation is resolved, multidisciplinary cooperative and situated learning (MCSL) can be successfully implemented with different universities and even with different countries.

REFERENCES

Adams, S. (2014). The 10 skills employers most want in 2015 graduates. *Forbes*. Retrieved June 23, 2015 from http://www.forbes.com/sites/susanadams/2014/11/12/the-10-skills-employers-most-want-in-2015-graduates/

Alam, M., Gale, A., Brown, M., Khan, A.I. (2010). The importance of human skills in project management professional development. *International Journal of Managing Projects in Business, 3*(3), 496-516.

Arnold-Smeets, L. (January, 2015). 5 hard and soft skills that will get you hired. *PayScale*. Retrived June 23, 2015 from http://www.payscale.com/career-news/2015/01/5-hard-and-soft-skills-that-will-get-you-hired

Bailey, J., & Mitchell, R.B. (2006/2007). Industry perceptions of the competencies needed by computer programmers: technical, business, and soft skills. *The Journal of Computer Information Systems, 47*(2), 28-33.

Bajada, C., & Trayler, R. (2013). Interdisciplinary business education: Curriculum through collaboration. *Education & Training, 55*(4/5), 385-402.

Beers, P. J., Kirschner, P. A., Boshuizen, H. P. A., & Gijselaers, W. H. (2007). ICT-support for grounding in the classroom. *Instructional Science, 35*(6), 535–556.

Bridge that gap: analyzing the student skill index (2013). *Chegg*. Retrieved January 20, 2014 from http://cramster-blog.s3.amazonaws.com/Skills%20Gap/Bridge%20that%20Gap % 20White%20 Paper_FINAL%20102313.pdf

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18*(1), 32-42.

Byun, S-E., Kim, H., & Duffey, M. (2012). A multicourse collaborative project within a global context: Multidimensional learning outcomes for merchandising and interior design majors. *Clothing and Textiles Research Journal, 30*(3), 200-216.

Chung, S.E., & Meneely, J. (2012). Profiling group dynamics within business and design student teams: Relationships among personality traits, problem-solving styles, and creative performance. *Journal of Interior Design, 37*(3), 23-45.

Dickerson, A., & Green, F. (2004). The growth and valuation of computing and other generic skills. *Oxford Economic Papers, 56*(3), 371.

Felder, R.M., & Brent, R. (2007). Cooperative learning. In P.A. Mabrouk (ed.), *Active learning: Models from the analytical sciences,* ACS Symposium Series 970, Chapter 4, 34-53. Washington, DC: American Chemical Society. Retrieved July 1, 2015 from http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/CLChapter.pdf

Garner, H. (1995). *Teamwork models and experience in education*. Boston, MA: Allyn & Bacon.

Goleman, D. (1995). *Emotional intelligence*. London, U.K.: Bloomsbury.

Goleman, D. (1998). *Working with emotional intelligence*. London, U.K.: Bloomsbury.

Hamilton, N.M. (1997). Key strategic models for CAL development. *Innovations in Education and Training International,* 34, 263-267.

Handley, K., Clark, T., Fincham, R., & Sturdy, A. (2007). Researching situated learning: participation, identity and practices in client-consultant relationships. *Management Learning, 38*(2), 173-191.

Herrington, J., & Oliver, R. (1995, December). Critical characteristics of situated learning: Implications for the instructional design of multimedia. In *ASCILITE Conference* (pp. 253-262). University of Melbourne, Melbourne.

Instructor and Course Evaluation Form (n.d). Retrieved from Southern Illinois University Carbondale: http://web.coehs.siu.edu/ncate/standard5/reports5/Instructor%20Course%20 Evaluation%20form.pdf

James, R.F., & James, M.L. (2004). Teaching career and technical skills in a "mini" business world. *Business Education Forum*, *59*(2), 39-41.

Johnson, D.W., Johnson, R.T., & Smith, K.A. (1991). *Active learning: Cooperation in the college classroom*. Edina, MN: Interaction Book Co.

Karpova, E., Jacobs, B., Lee, J. Y., & Andrew, A. (2011). Preparing students for careers in the global apparel industry: Experiential learning in an virtual multinational team-based collaborative project. *Clothing & Textiles Research Journal, 29*(4), 298-313.

Kimmons, J.V., & Spruiell, P.R. (2005). Using problem-based learning in a multidisciplinary setting. *Clothing & Textiles Research Journal, 23*(4), 385-395.

Kim, H-S., LaFleur, R., & Schaeffer, K. (2008). A multi-course collaborative project: Using technology to learn. *Journal of Family and Consumer Sciences, 100*(3), 34-41.

Lam, M., & Adams, B. (2014). Utilizing industry contacts to enhance student learning in the core operations management course. *Academy of Educational Leadership Journal, 18*(1), 71-83.

Lankard, B. (1995). New ways of learning in the workplace. *ERIC Digest.* Retrieved July 1, 2015 from http://files.eric.ed.gov/fulltext/ED385778.pdf

Lave, J. (1991). Situating learning in communities of practice. In L. Resnick, B. Levine, M. John & S. Teasley (Eds.), *Perspectives on Socially Shared Cognition.* American Psychological Association.

Lave, J. & Wegner, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge, U.K.: Cambridge University Press.

Millis, B.J., & Cottell, P.G. (1998). *Cooperative learning for higher education faculty*. Phoenix, AZ: Oryx Press.

Mullen, J. (1997). Graduates deficient in "soft" skills.' *People Management, 3*(22), 18.

Murthy, S. (December, 2014). The 25 hottest skills that got people hired in 2014. *Linkedin Official Blog*. Retrieved June 23, 2015 from http://blog.linkedin.com/2014/12/17/the-25-hottest-skills-that-got-people-hired-in-2014/

Noroozi, O., Teasley, S.D., Biemans, H.J.A., Weinberger, A., & Mulder, M. (2013). Facilitating learning in multidisciplinary groups with transactive CSCL scripts. *Computer-Supported Collaborative Learning*, 8, 189-223.

Ormrod, L.E. (2008). *Human learning* (5th eds.). Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.

Robles, M.M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly, 75*(4), 453-456.

Rummel, N., Spada, H., & Hauser, S. (2009). Learning to collaborate from being scripted or from observing a model. *International Journal of Computer-Supported Collaborative Learning, 26*(4), 69–92

Shuayto, N. (2012). The case for soft-skills development in MBA programs. *Global Conference on Business and Finance Proceedings, 7*(2), 58-67.

Soft skills' a key to employment today (October, 2002), *Career Opportunities News, 20*(2). Retrieved January 20, 2014 from www.fergpubco.com

Stein, D. (1998). Situated learning in adult education. *ERIC Digest.* Retrieved July 1, 2015 from http://files.eric.ed.gov/fulltext/ED418250.pdf

Talent shortage survey (2013). *ManpowerGroup*. Retrieved January 20, 2014 from http://www.manpowergroup.us/campaigns/talent-shortage-2013/pdf/2013_Talent_ Shortage_ Survey_Results_US_lo_0510.pdf

Young, M.R. (2010). The art and science of fostering engaged learning. *Academy of Educational Leadership Journal,* 14, 1-18.

White, M.C. (2013, November). The real reason new college grads can't get hired. *Time.* Retrieved January 20, 2014 from http://business.time.com/2013/11/10/the-real-reason-new-college-grads-cant-get-hired

What are the 'soft skills' employers want? (2012). *National Careers Service.* Retrieved July 2, 2015 from https://nationalcareersservice.direct.gov.uk/aboutus/newsarticles/Pages/ Spotlight-SoftSkills.aspx

Wojahn, P., Drake, J., Riley, L.A., Hensel. E., & Brown, S.C. (2001). Blurring boundaries between technical communication and engineering. *Technical Communication Quarterly, 10*(2), 129-148.