IS SERVICE LEARNING MORE OR LESS EFFECTIVE THAN TRADITIONAL FACE-TO-FACE LEARNING IN TECHNOLOGY EDUCATION IN THE COMMUNITY COLLEGE ENVIRONMENT?

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A Thesis

Presented to

the Faculty of the College of Business and Public Affairs

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In Partial Fulfillment

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Master of Science

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by

David C. Childress

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Accepted by the faculty of the College of Business and Public Affairs, Morehead State University, in partial fulfillment of the requirements for the Master of Science.
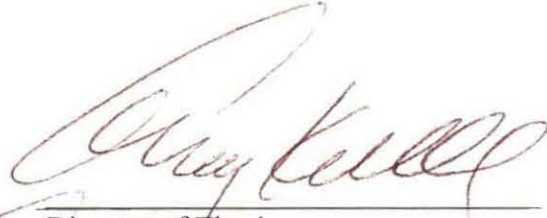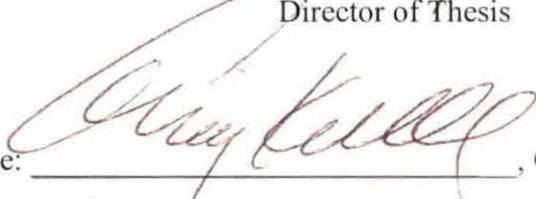
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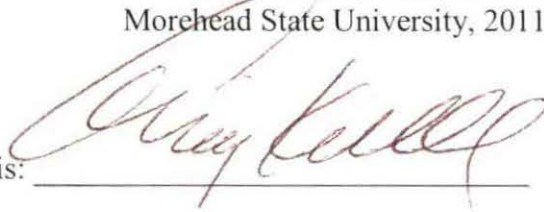Date

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David C. Childress, M.A., M.S.I.S.
Morehead State University, 2011
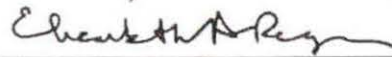
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Service Learning in higher education is an experiential learning pedagogy that allows students an outlet to use newly learned skills from the classroom to help the local community in various projects. Service Learning has been utilized in several educational settings as shown in the literature review, but it is the goal of this study to determine if Service Learning is more or less effective than traditional face-to-face methods for achieving student learning outcomes in community college introductory technology courses. The study includes data gathered over a period of three and one-half years, utilizing a grant promoting the use of Service Learning. The study uses a mixed methods research model to determine if Service Learning is more or less effective than a standard lecture mode in technology education in a community college environment. The quantitative results indicate an 8.98% increase in students' test scores of a letter grade of "C" or better when taught utilizing Service Learning pedagogy. The greatest increase in student grade scores from was the range from "E" to "C" using a grading scale of 90-100= A, 80-89=B, etc. When the post assessment
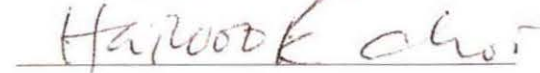
test scores were averaged, the Service Learning group had a 1.73% higher score than the non-Service Learning group.

The qualitative results pulled from surveys and reflection papers showed that student satisfaction and engagement with the class project were overwhelmingly favorable. The study indicates that Service Learning can be a valuable pedagogical tool in teaching technology in a community college environment.

Accepted by: _____ , Chair

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I want to thank my mother, Marie, and brother, John; both of whom have always encouraged and supported me in my endeavors.

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I also want to thank all my Professors who spent their time showing me the reasons WHY instead of just saying DO.

We learn by doing.
~Artistotle

Learning is a treasure that will follow its owner everywhere.
~Chinese Proverb

Knowledge is of two kinds. We know a subject ourselves, or we know where
we can find information upon it.
~Samuel Johnson

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Purpose Statement

The objective of this study is to determine whether the use of Service Learning pedagogy is more or less effective than traditional face-to-face pedagogy for achieving student learning outcomes in community college introductory technology courses.

Background and Need

Learn and Serve America (L&S, 2010) program defines service-learning as: "A method under which students or participants learn and develop through active participation in thoughtfully organized service that is conducted in and meets the needs of a community; is coordinated with an elementary school, secondary school, institution of higher education, or community service program, and with the community; and helps foster civic responsibility; and that is integrated into and enhances the academic curriculum of the students, or the educational components of the community service program in which the participants are enrolled; and provides structured time for the students or participants to reflect on the service experience." (L&S, 2010, p. 1-2.)

Service Learning is a method of teaching, learning and reflecting that combines academic classroom curriculum with meaningful service projects, generally, in the local community. As a teaching methodology, Service Learning falls under the philosophy of experiential education (Rocha, 2000.) More specifically, it integrates meaningful community service with instruction and self-reflection to enrich the learning experience, teach civic responsibility, encourage lifelong civic

engagement, and strengthen communities for the common good (L&S, 2010.) In addition, Service Learning differs from community service because it adds a "reflection"[1] component to the lesson and is directly linked to achieving student learning outcomes.

The researcher for this study is the Service Learning Project Coordinator at Ashland Community and Technical College (ACTC) which is located in Ashland, Kentucky. Ashland is located in eastern Kentucky, and borders both Ohio and West Virginia. ACTC draws the majority of its student population from this area. ACTC was awarded a Learn and Serve America (LSA) (L&S, 2010) grant from the Kentucky Campus Compact beginning in fall 2007 to utilize Service Learning as part of its teaching curriculum (See Appendix A.) Service Learning at ACTC uses a standard model incorporated by the Kentucky Community and Technical College System (KCTCS) known as PARC, which stands for Preparation, Action, Reflection, and Celebration. In the literature review, Service Learning is well documented as a teaching method; however, there was insufficient data comparing it to a standard face-to-face mode of instruction to determine whether it could improve student learning outcomes for teaching technology in a community college environment. As Eyler (2000) notes:

> Research emphasizes the impact of service learning on college students'
> development. Less evidence exists of its cognitive impact. To improve

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[1] A reflective paper is a journal the student must write and "reflect" on what was learned by the assignment or task. This may include what worked best, and/or what didn't, and what would the student do to change or improve the learning experience in the future, for example.

academic learning quality, researchers must identify intellectual outcomes best facilitated through service learning, create measures of these outcomes to embed into instructional processes, and conduct research on alternative pedagogical techniques to identify those which produce optimal learning and cognitive development.

Furthermore, Bringle (1996) notes that emphasizing service in education has not only the potential to enrich learning and renew communities, but will also give "new dignity to the scholarship of service." Community colleges have valuable resources; for example, students, faculty, staff, classrooms, libraries, and technology, and those become accessible to the community when partnerships with these institutions address community needs. Community colleges also have the tradition of serving their communities by strengthening the economic development of the region, addressing educational and health needs of the community, and contributing to the cultural life of the community (Bringle, 1996.) Prentice (2007), notes that community colleges educate students from both oppressed and marginalized groups, yet there is almost no literature on community colleges and issues of social justice. Student participation in Service Learning has been tentatively linked to development of higher social justice awareness. Greene's, (1995, p.3), study explores if, and how, college students came to critically examine their assumptions about self and society during the course of their involvement in an international service-learning program, but leaves many questions concerning the use of Service Learning in a community college environment unanswered. It is considerations such as these that highlight the greater success in student achievement when using Service Learning over traditional

face-to-face pedagogy for achieving student learner outcomes in community college introductory computer classes.

Literature Review

Introduction to Service Learning

Service Learning is the use of performing community service within the context and content of a class. The importance of Service Learning is that it provides an authentic audience for the students, and thereby creates a meaningful learning experience which impacts and improves student learning while performing a community service or deed. Research shows that Service Learning is a valuable academic tool for the student and community alike. This literature review details the history and use of Service Learning as a widely recognized and successful teaching method.

One of the progressive strengths of Service Learning is the opportunity for students to participate in learning experiences that are not limited by the traditional classroom. Qualitative statements by students about the effectiveness of the Service Learning experience suggest that Service Learning is a valuable component of their educational experiences. The research of King (2004) is frequently cited as evidence that one of the benefits of Service Learning is the potential enhancement of students' abilities to critically reflect upon their experiences. How important the reflection process is in practice is often questioned, noting that Service Learning often leaves students' assumptions regarding privilege and equity unexamined; employing the concept of "defamiliarization" as the subjective process by which students gain the

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ability to "break with the taken-for-granted and set the familiar aside" (Greene, 1995, p.3). Greene's (1995) study explored if, and how college students came to critically examine their assumptions about self and society during the course of their involvement in an international Service Learning program. Greene's (1995) article gave a good overview of the use of Service Learning in education.

Because of its positive impact, some Service Learning students' written reflections reinforce the conclusion that Service Learning plays an integral role in the reduction of undesirable attitudes and assumptions in students' self-perceptions. Improved attitudes and self-perceptions tend to lead students to more invigorating and successful learning experiences. Borden (2007) supports this analysis of Service Learning by detailing a project involving students enrolled in an intercultural communication class that employed Service Learning. In this study, participants were given the Generalized Ethnocentrism (GENE) scale developed by Neuliep and McCroskey. The GENE scale was applied at the beginning and conclusion of a semester of Service Learning. Results indicated a significant decrease in ethnocentrism[2] from the beginning to the end of the semester. Analysis of students' written reflections about their service experiences reinforced the conclusion that Service Learning played an integral part in reducing ethnocentrism, therefore creating a meaningful and effective learning experience.

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[2] Ethnocentrism is the tendency to believe that one's ethnic or cultural group is centrally important, and that all other groups are measured in relation to one's own. (http://www.merriam-webster.com)

Further support regarding students' reflections about the positive impact of Service Learning was examined by Alexandrowicz (2001). The author described the process of incorporating case study development by students in a teacher education methods course. The teacher candidates engaged in the following activities: 1. Reviewed the elements that were necessary for case study development; 2. Gathered information about the sociocultural background of their tutees; 3. Examined the contextual factors that might affect their tutees; 4. Reviewed the pedagogical factors that might be involved in the case; 5. Wrote a rough draft; 6. Revised and completed their case studies; 7. Wrote a final reflection paper and gave an oral presentation about their experiences. The students' weekly and final reflections, in addition to the high quality of their case studies, suggested that case study development by teacher candidates was an effective approach to increasing their understanding and/or competence. Alexandrowicz also detailed many potential benefits of using a Service Learning approach to education, along with good recommendations about carrying out a Service Learning curriculum. The author developed a good approach for handling a Service Learning curriculum that would be beneficial in the post-secondary classroom by detailing many of the methods used in research and describing the qualitative aspect of the research very well.

In 2005, Quezada and Christopherson highlighted the significance of Service Learning as detailed through student reflection. These undergraduate university students' reflections focused on outcomes regarding their learning experiences as facilitators in a challenging and adventure-based team-building community Service

Learning course. Three emerging themes were analyzed regarding views of community service and perceptions of the influences the course had on the university students. The evaluations emphasized the need to provide alternative and exciting community Service Learning experiences.

Additional implications and perspectives of Service Learning were outlined in university students' reflections examined by Swick and Rowls (2000). These student perspectives were examined in the context of Serow's (p. 1) conceptual scheme of competence, participation, relationships, and understanding. Two hundred and forty undergraduates in education and fifty-nine professional program interns participated in the study. Their responses to a Service Learning survey suggested that Service Learning positively influenced them in relation to personal, professional, academic, and career functioning. The student "voice" on Service Learning provided many insights about ways to strengthen Service Learning in college classes. The author gave a good overview about implementing a Service Learning program and the results which followed. A majority of the students (92 percent of the undergraduates and 60 percent of professional program interns) viewed their Service Learning work as meeting important community needs. These students believed they gained new skills, particularly in learning more about their field. The professional program interns also noted that they gain increased competence in specific teaching skills, such as classroom management, lesson planning, and dealing with the special needs of students. The students noted, however, that for Service Learning to be a competence promoting experience, the service had to be well-designed and related to

meeting authentic community needs. Analysis of student survey responses revealed

that the more time students participated in Service, the more they also perceived the

experience as being substantive and worthwhile to themselves and to the community.

Because of their reflections, they were able to point to the following as essential in a

Service Learning curriculum:

- Access to meaningful Service Learning placements where needs and expectations are clearly articulated
- Clear linkages between course goals and Service Learning activities
- Opportunities to reflect about the Service Learning experience with peers, faculty and on-site staff
- Close partnering and communication between faculty and Service Learning site staff
- Overall time requirement and the need for "friendly" scheduling opportunities
- Opportunities for students to have input on the structure and nature of their Service Learning
- On-going feedback on their Service Learning performance and impact that it may be having on their clients
- Planned and meaningful demonstration activities where students can "show and tell" about the highlights of their Service Learning
- Systematic connection of Service Learning outcomes to the planning of future Service Learning activities

A review of university students' evaluations and reflections of Service

Learning leads one to the conclusion that it is an effective teaching tool. Based on

research findings, the indication is that expanding the use of Service Learning in

education is a beneficial endeavor. The findings of several research documents

support the integration of Service Learning into a variety of academic areas.

As post-secondary institutions look for new ways to improve the educational

experience, Service Learning is one option that must be explored. Tannenbaum and

Brown-Welty (2006) observed that educators continually seek effective strategies to address the educational needs of students. Two popular strategies are Service Learning and after-school programs. The purpose of this study was to begin to explore the value of embedding Service Learning into after-school programs. The preliminary results suggested that students participating in the Service Learning component of the after-school program had greater improvement in their grade point averages and conduct grades, and were less likely to be suspended than students who did not participate in the Service Learning component.

As a teaching tool, Service Learning proves to be an important factor in student success as discovered by Johnson (2003) who examined the value of Service Learning through the results of research that integrated carefully designed community service projects with the academic curriculum. According to Johnson, two students participated in Service Learning programs that involved curriculum-based learning through service to the community. Looking back on thirty-two years of experience, their teacher was quoted as saying, "Service Learning is by far the best teaching strategy I've ever used with my students, regardless of their grade or ability. It's a win/win situation. Students learn in exciting ways, others benefit, and teachers continually get to see the curriculum from a new point of view." He went on to describe many student related benefits of using a Service Learning curriculum, including better student involvement and interest in class projects.

Developing better student involvement and interest in class projects was described by Mettal and Bryant (1996) who offered a model of Service Learning that

was widely used by other educators. The article explored Service Learning research as a solution and gave project descriptions; benefits for students, faculty, community and the university; and support for service learning research as scholarship. They describe two projects: a project providing parent education to young families while researching effectiveness of temperament education, and an intergenerational program to determine whether community theater can enhance self-esteem and life satisfaction. Helpful Service Learning program design recommendations were made.

Another value of the use of Service Learning in the classroom is the impact of its use on students' views of themselves as being successful learners. The effects of Service Learning on university students was examined by Rocha (2000) who compared the effects of experiential learning on policy-related values, competency, and activity levels of two groups of university Masters students. The study group received experiential Service Learning in the MSW program, primarily in an advanced policy course, while the comparison group did not. The author explained experiential teaching and service learning methods, as well as the activities included in the policy course. Results indicated that both groups place a high value on political skills; however, the experiential group was significantly more likely to perceive themselves as competent policy practitioners and to perform policy-related activities after graduation. The study gave a good overview of the statistical methods used to draw conclusions; ANOVA and descriptive statistics were discussed.

Research by Madsen (2004) supports the theory of improved student self-worth when she suggested that students who are willing to participate in Service

Learning projects benefit from the experience and have positive experiences about themselves and the project. Madsen classified student perceptions of motivation into three categories including general motivation toward the project, motivation to complete the project for others, and motivation for personal reasons.

Improved student motivation as a direct benefit of Service Learning was also assessed by Waskiewicz (2001). She focused on the personal and professional growth of sophomore occupational therapy students as a result of engagement in Service Learning. One student mentor commented, "I just want to let you know that I had so much fun doing this. This project is one of those things that you can't learn from a textbook. I think it has to do with a very good group of people that all helped to make it work."

An increase in motivation and participation in both students and teachers alike was discovered by LaMaster (2001) who described an early field experience designed to include a Service Learning component and assessment. It discussed the goal of the Physical Education Project conducted among high school students and teachers; the impact of the project on teaching; the survey results on students' perspectives on the project, and the positive impacts observed in the project. The article detailed how a Service Learning project was conceived and implemented. The study examined a college and high school that collaborated on an early field experience for pre-service physical education teachers combined with a Service Learning component. Evaluation indicated that high school student motivation and participation increased,

high school teachers learned new teaching strategies, and pre-service teachers experienced decreased apprehension and increased motivation toward teaching.

In addition to improved self-image, Service Learning offers students other advantages. Soslau and Yost (2007) described the results of an action-research Service Learning project aimed at increasing and enhancing urban students' knowledge and motivation to learn. The project was an extension of the students' classroom experience through a community-based Service Learning project. The study sought understanding of how Service Learning as an instructional method has the potential to increase student learning and motivation through real-life connections to content and experiential learning opportunities. The study was guided by a university professor in the design and implementation of a Service Learning action-research project as part of a school/university partnership at a middle school located in a large urban school district. While the study dealt primarily with middle school children, it implemented the core components of Service Learning. It was a useful study for anyone researching the effectiveness of a Service Learning curriculum.

The university population is a very diverse group of learners with varied learning skills and needs. Prentice (2007) noted that community colleges educated students from both oppressed and marginalized groups, yet there is almost no literature on the community college and issue of social justice. Student participation in Service Learning has been tentatively linked to the development of a social justice lens. The researcher analyzed community college students' post-course civic engagement surveys to investigate the effect of Service Learning experiences on the

emergence of any of three types of citizenship: personally responsible citizenship, participatory citizenship, or justice-oriented citizenship. Findings were mixed for personally responsible citizenship, but there were significant data supporting the development of participatory citizenship and in students who had taken between two and five previous courses that had included Service Learning. These encouraging findings support the idea that Service Learning played a role in helping community college students take on an active role in their communities. The article presented types of statistical tests and was a good summary of a Service Learning program.

According to Esterling and Rudell (1997), implementing Service Learning in the curriculum can be accomplished by combining community service with academic study. They demonstrated an evolution of Service Learning including four basic elements incorporated in university courses. They find that these elements form the basis of most Service Learning teaching: Preparation, Action, Reflection, and Celebration (PARC). They also offered good citations on Service Learning that were found in other literature searches.

In considering how Service Learning can be integrated into a university curriculum, Giles and Eyler (1998) discussed a research agenda. It included references to some of the studies conducted; details on issues addressed at the Wingspread Conference held in March 1991; and detailed ways in which studies involved with student learning were conducted. Giles appeared in many citations concerning Service Learning and is a good source for future research on it.

Further suggestions for curriculum implementation of Service Learning were submitted by Young (2007) who offered insights regarding the tactics used by institutions to implement and sustain Service Learning at various levels of commitment as identified by Holland (1997). An analysis of data collected from twelve directors of Service Learning centers provided a description of common practices associated with implementing and sustaining Service Learning initiatives at the institutional level, focused on organizational tactics associated with funding, administration, faculty recruitment and support, and student involvement and assessment. Holland's (1997) paper references several sources used for Service Learning and clearly details the limitations of the study. Many of their studies were over thirteen years in length and involved several thousand students.

Implications for Further Studies

While much research is available about the impact of Service Learning in the classroom, there is a need for additional research that focuses on the technology curriculum. Implementation of Service Learning is a successful model across many disciplines, from elementary to college level, and offers many benefits to students and teachers. These models and associated benefits should translate to most subjects including that of technology.

Summary of Literature Review

One of the progressive strengths of Service Learning is the possibility of gaining learning experiences that are not affiliated with the traditional classroom. Niemann (1996) indicated that traditional schools cover many of the important basics

but play a relatively small role in the overall learning experience. A conventional education will not provide all the information necessary to carry one through a working lifetime. In addition, Boyer (1994) indicated that higher education needs to reconsider its mission to be that of educating "students for life" and to develop responsible citizens. Gregson (1995) stated that "To contribute to democracy, rather than hinder it, educators need to employ a pedagogy that is both concrete and transformative."

In 2007, Frazer discussed the fact that many schools are turning to community Service Learning to complement traditional instruction (Campus Compact, 2000). With an emphasis on experiential learning, it was noted that Service Learning offered a logical alternative to traditional instruction while concurrently addressing concerns about declines in community life (Putnam, 2000). The purpose of this study was to illuminate the impact of community clients on student learning, particularly in project-based Service Learning courses at the post-secondary level.

The studies presented suggest that Service Learning is a valuable strategy for improving student learning, motivation, sense of self-worth, and subject matter retention, while at the same time improving teacher satisfaction and motivation. These findings lead to a recommendation of Service Learning practice in the classroom as a significant improvement over the traditional classroom strategies and practices.

Significance of Study

This study is relevant because computer competency is important for every college student and computer literacy is required in many vocations. In addition, computer literacy classes are required in most community college programs and many of those students find the course challenging, even with computer experience from high school or previous job experience. Improving student success in the course would have a major impact for them and potentially community colleges across the country. Implementing Service Learning requires significant time and effort in both course and project planning, plus the time involved working with community partners. There is a need to demonstrate that it makes a difference in learning outcomes, particularly in technology courses.

Research Methodology and Questions

After reviewing the available literature on the subject of Service Learning and the teaching of technology in a community college environment, researchers at Ashland Community and Technical College sought to answer three main questions:

Q1. Is there a significant measurable difference in test grades on the comprehensive assessment exam between introduction to computer students exposed to Service Learning and those who are not?

Q2. How do students perceive the effectiveness of the Service Learning experience using technology as indicated by their survey responses and reflective journals?

Q3. What do study findings indicate about the effectiveness of Service Learning as a teaching strategy for improving student learning outcomes in college introductory computer classes?

Currently, thirty sections of CIS100, Introduction to Computers, have been taught using a Service Learning component. Due to various class sizes and attrition, this equates to 477 total students who have participated in Service Learning since fall 2007.

Twelve to sixteen sections of CIS100 are taught per semester at Ashland Community and Technical College, including classes taught by faculty not utilizing Service Learning. For this study, all students in five to six sections of CIS100 per semester were used as the Service Learning population. The students in the sections of CIS100 involving a Service Learning curriculum are unaware that Service Learning is going to be incorporated into the curriculum until the third week of class. In addition, the survey population is a representation of Ashland Community and Technical College's student body. This includes a mixture of males and females of various ages, including traditional and non-traditional students, all with diverse technological backgrounds. All sections of CIS100 were taught primarily face-to-face and were web-enhanced, via BlackBoard.[3] Each section took the same post-assessment test. However, since Service Learning assignments were not announced in advance, students were not aware when registering for classes that a different methodology would be used, thus minimizing potential bias of students self-selecting into Service Learning sections.

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[3] Blackboard develops and licenses software applications and related services to over 2200 education institutions in more than 60 countries. These institutions use Blackboard software to manage e-learning, course delivery, transaction processing, and online communities.

Service Learning not only uses traditional methods of education, but adds a "hands on" component as well. Edvinsson (1997) notes there are two kinds of knowledge. One is explicit knowledge, which can be expressed in words and numbers and shared in the form of data, scientific formulae, product specifications, manuals, universal principles, and so forth. This kind of knowledge can be readily transmitted across individuals formally and systematically and, therefore, is quantitatively measurable. The second type of knowledge is tacit. Edvinsson (1997) notes that there are two dimensions to tacit knowledge. The first is the "technical" dimension, which encompasses the kind of informal and hard-to-pin-down skills or crafts often captured in the term "know-how." Highly subjective and personal insights, intuitions, hunches and inspirations derived from the actual experience fall into this dimension. Furthermore, tacit knowledge also contains an important "cognitive" dimension. It consists of beliefs, perceptions, ideals, values, emotions and mental models so ingrained in us that we take them for granted. Though they cannot be articulated very easily, this dimension of tacit knowledge shapes the way we perceive the world around us. This body of knowledge is measured qualitatively. This process involves uncovering patterns, themes, and categories (Marshall & Rossman, 1989).

Method

Due to the types of data involved, in this study a mixed methods approach is appropriate; specifically, the sequential explanatory strategy (see Table 1). Creswell (2003) notes that this method is the most straightforward of the six major mixed methods of research, and this is one of its main strengths. The priority will be given

to the quantitative data with the qualitative data to help explain the results. Driskoll (2007) notes that researchers have been using mixed methods research for many decades (p. 19) and that mixed method designs can provide pragmatic advantages when exploring complex research questions (p. 26.)
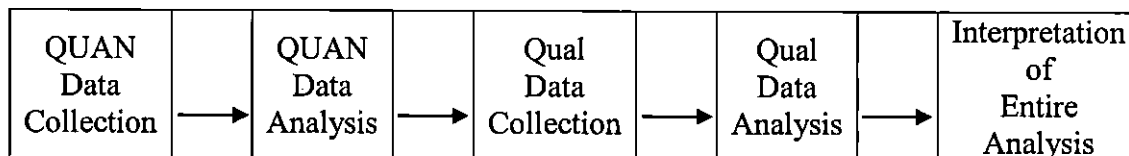
QUAN Data Collection		QUAN Data Analysis		Qual Data Collection		Qual Data Analysis		Interpretation of Entire Analysis
	→		→		→		→	

Table 1 Sequential Explanatory Design

Service Learning Lesson Utilized

The Service Learning lesson was composed of several parts, most of which had a computer related task associated with it. For example, the students were told about the focus of the grant which was "natural disaster" related. (Campus Compact Expand). Each student had to pick a "natural disaster" that could occur in the tri-state area of Kentucky, Ohio, and West Virginia. Topics included forest fires, floods, tornados, hail, emergency preparedness, basic first aid, and several others. Students then chose a particular age group for which to build a PowerPoint presentation; for example, elementary, high school, college or adult general audience. More details about the Service Learning lesson are provided in Appendix F.

Once the topic was chosen and approved, each student had to write a minimum of two pages, using MSWord, on the background of their chosen topic, including references. In other words, the Who, What, When, Where, Why and How of the topic. This was the first step in the "Preparation" part of the PARC model of

Service Learning. The student then had to submit the paper via email attachment, furthering the use of computers and related technology. Once the topic had been approved, the student then had to transfer the information researched onto a PowerPoint presentation. The PowerPoint had several technical requirements, including a minimum of eight slides (not including citation slide) and a maximum of twenty slides with the addition of a reference slide, the use of animation, sound as an object, *i.e.,* a song playing in the background or a sound effect as a clipart or text object appearing in the slideshow. The student could use one song played during the presentation or a minimum of three sound effects. Additionally, the presentation was required to have timed transition effects, clipart or photos, animation, motion paths, and text boxes. Also, but not required, students could add Word Art, video, or other elements of PowerPoint for added effect. During each course, students were thoroughly instructed on how to add each element previously noted to their PowerPoint. Ultimately, the most important element of each PowerPoint was content.[4] The importance of content to a presentation was also thoroughly discussed with each class involved.

Most importantly, from a Service Learning standpoint, the fact that each presentation would be used to inform and/or persuade others was always stressed and relayed to each class repeatedly during each semester of the grant period. This fact was verbally relayed, posted on BlackBoard, and contained in the posted Service

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[4] Content – The Who, What, When, Where, Why and How of a topic; the substantive or meaningful part of an article, for example.

Learning assignment itself. The main goal was to stress the magnitude of the project and to instill the importance of doing a good job on each of their respective projects. During the "Action" phase of the project, each PowerPoint was presented to the class by the student. The goal was to take the top five presentations, as voted on by each class, to be used to inform and/or persuade various members of the local community including other students. Again, students were made aware of this caveat in each participating class, with the hope of instilling the importance of the project and to add additional incentive to do well. Projects deemed excellent were also demonstrated to classes in successive semesters before those students began creating their own presentations, to provide an example of what was expected.

After giving the presentation, each student was required to write a Reflection[5] paper. The requirement was one to two pages, double-spaced, detailing what was learned during the assignment. This included what students thought worked and what didn't, and what they would change about the project to improve it. Additionally, students were asked what they thought about the Service Learning project and whether or not they felt it added benefit to the assignment. Grant coordinators were instructed to advise respondents that they were asked to complete the survey instrument (Appendix G) because they were enrolled in a service-learning course supported by the Learn and Serve America – Higher Education consortium grant.

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[5] Careful thought, especially the process of reconsidering previous actions, events, or decisions.

Lastly, each student was given a personal pocket First Aid kit (See Figure 1) purchased from grant funds from the local chapter of the Red Cross. This marked the "Celebration" phase of the PARC model. It must be noted that part of the grant required establishing a community partner to help fulfill the requirements of the grant. The students were not told about the First Aid kit at the beginning of the project. It was an "unexpected surprise" given at the last day of class for each student thus completing the final phase of the PARC model.

Figure 1 Pocket First Aid Kit supplied to participating students provided by grant funds.

Reflection

Krans and Rourke (1994) stated that the likelihood of actualizing of these potential benefits is enhanced when students are afforded the opportunity to reflect upon their experiences via journals, short papers or discussion groups.

Furthermore, Toole and Toole (1995, p. 100), noted that reflection helps students "Prepare for, succeed in, and learn from Service experiences." Participating students wrote a reflective journal with a two page minimum, double spaced, as part of the Service Learning component. Open-ended questions were used to provide a

starting place for participating students to provide input on their thoughts on the

Service Learning project. Students were told that the reflection part was to be graded

as an assignment. However, to avoid adding bias, students were told that it was

completing the assignment that earned their grade, and they were asked to give their

honest opinion on the following questions:

I want you to reflect on what you learned about your project.

1. What did you learn about the assignment and your topic?

2. How do you feel it may affect others who may watch your presentation?

3. Do you think that you learned more by working on a Service Learning
    assignment?

4. What would you do to improve the learning?

Reflection papers were collected as the last assignment of the semester. An

assignment was created on BlackBoard so students could upload their papers.

Data Collection - Quantitative

All CIS100 students at ACTC take an assessment test at the end of each

semester. The assessment test consists of 50 multiple choice questions, which cover a

wide range of computer terminology and applications. Using the KCTCS CIS100

course description document, which includes 32 competencies (See Appendix I.) The

CIS100 Assessment test was developed by three CIS100 faculty members, each with

a minimum of 18 graduate credit hours in computer science graduate level study. The

test is comprehensive, covering twelve chapters of terminology from the O'Leary

Computing Essentials textbook, which was used at the time of this study and used in

all sections of CIS100 at ACTC. This exam is the one measurable constant between

both non-participants and participants in Service Learning.

Data Collection - Qualitative

A survey instrument was utilized by all participating sections of CIS100. This

survey instrument was developed in part by the Director of the grant, Dr. David

Deggs, Ph.D. (Deggs, 2010.) Its main design was developed partially based upon

College Student Post-Program Survey developed by Grand Valley State University

and Michigan Campus Compact. Please see Appendix G for an example of the survey

that was used by students participating in the study using a 4-level Likert scale.

Cronbach's[6] α (alpha) was calculated in order to determine if the instrument had an

acceptable level of reliability for use in the study by Dr. Deggs. The scale items

included in the instrument (Appendix G) as used in this study had a Cronbach's α of

0.916. The instrument also included demographic information including

classification, gender, GPA, and type of institution attended. Questions about

previous involvement in community service, philanthropy, or volunteer projects as

well as previous enrollment in a service-learning course were included in the

instrument (Deggs, 2010). Table 6 shows the results of the survey.

The survey was administered to students at the end of the semester, after the

final exam was taken. It was explained to the students using Service Learning that

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[6] Cronbach's alpha is a statistic calculated from the pairwise correlations between items. Internal consistency ranges between zero and one, with higher values (>.9) indicating a high reliability. http://www.ats.ucla.edu/stat/spss/faq/alpha.html

participation in the survey would not count toward their grade in any manner and to be candid in their responses. After completing the survey, students were asked if they had completed and turned in their reflective paper via email attachment. After signaling a positive response, participating students were given a first-aid kit provided by grant funds. This event marked the "Celebration" phase of the PARC model mentioned earlier.

Validity and Reliability

To help check the reliability of the assessment test given to the students, results were compiled for all sections of CIS100. The same post-assessment exam was used by each section for the entire study. The post-assessment results for pre-Service Learning students were similar. As Zikmund (2003) notes, this should help determine the external validity for the baseline non-Service Learning group. In addition, each class is representative of the Ashland Community and Technical College student population with students of different ages, genders, and technology backgrounds from around the tri-state (Kentucky, Ohio, and West Virginia) area.

The internal validity and reliability of the survey instrument was also examined by David Deggs, Ph.D. (2010) who was the principal overseer of the Learn and Serve grant. Dr. Deggs' calculations using SPSS[7] indicate that the survey results had a Cronbach α (Alpha) of .916, which is well above the acceptable level of social science research (Deggs, p. 5). Grant coordinators were instructed to advise

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[7] Statistical Package for the Social Sciences (SPSS) - is a computer program used for survey authoring and deployment, data mining, text analytics, and statistical analysis (Wellman, 1998.)

respondents that they were asked to complete the instrument because they were enrolled in a service-learning course supported by the Learn and Serve America – Higher Education consortium grant. Completion of the instrument was voluntary.

Institutional Review Board (IRB) and Ethics

Before conducting any research involving human subjects, care must be taken that no person will be harmed in any way. This also includes ethical concerns such as privacy and breach of confidentiality, for example. The quantitative and qualitative data used in this study was aggregated and made completely anonymous. All students involved were over 18 years of age.

An expedited exemption[8] from the Morehead State University (MSU) Institutional Review Board was obtained; in addition, the researcher has taken and successfully passed the Collaborative Institutional Training Initiative (CITI) ethics exam (Appendix D), required by the Morehead State University IRB before a study involving students can take place. In addition, a refresher CITI exam (Appendix E) was completed successfully. An expedited exemption from the Kentucky Community and Technical College (KCTCS) Institutional Review Board was also obtained (See Appendix B & C.)

Analysis of Findings

The post-assessment tests given to all CIS100 students are based on a 0-100 percent scale, and the descriptive statistics include the average, mean, standard

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[8] Morehead State University Notification of Exempt Protocol Review Number 08-07-01, reapproved 5-24-2011.

deviation, and ranges of the scores with and without Service Learning. Additionally,

the quantitative data was analyzed using analysis of variance (ANOVA.[9])

Quantitative Data Analysis

For purposes of analysis, students were divided into groups. Group 1 includes

846 scores of the students who took the post-assessment test without a Service

Learning component. Group 2 includes 477 scores of the students who used Service

Learning. This population was selected because the same post-assessment test was

utilized as with the group that performed Service Learning. However, it must be

stated that these two groups were from different time periods, running from spring

2002 to summer of 2007 for the non-Service Learning data, and fall 2007 to spring

2010 for the Service Learning students in the study. The non-Service Learning

pedagogy was taught as consistently as possible between the two time periods. In

Figure 2, the post-assessment scores with and without Service Learning are illustrated

by a histogram line graph. The Service Learning population was selected for the term

of the grant that used the same post-assessment test, and comparisons can be made

between the two groups. A grading scale of 90-100=A, 80-89=B, 70-79=C, 60-69=D

and 59 or lower =E was used. It is significant to note that there was an 8.98%

average increase in the earned letter grade of "C" or better in the group using Service

Learning. Table 3, illustrates the grade distribution between both populations. It

should be noted that the single largest increase was in the "C" range with a 7.21%

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[9] Analysis of Variance (ANOVA) Test used to determine if there's a statistically significant difference
between multiple alternatives.

improvement in the grade earned from those students who utilized Service Learning. Table 4 gives the descriptive statistics between the two groups, and it is significant to note that the population using Service Learning had a 1.73% average increase in their post-assessment scores. Additionally, the group using Service Learning had a much higher minimum test score: 40% versus 28% for the group without Service Learning. Furthermore, the standard deviation[10] is very low in both groups. The group not using Service Learning showed a standard deviation of 0.134914 and the group using Service Learning showed a standard deviation of 0.113866. This indicates that the test results in both populations had a very low statistical dispersion. The group not using Service Learning showed a somewhat wider deviation, but also had a larger population, 369 more students, which could explain the difference between the two. Table 4 illustrates the differences between the two groups from the values in Table 3. The Service Learning group scored higher in the average (1.73%), median (2.00%), and mode (8.00%). It is noteworthy that the minimum score was 12.00% higher with the Service Learning group.

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[10] Standard deviation is a statistical term that measures the amount of variability or dispersion around an average. Standard deviation is also a measure of volatility. Generally speaking, dispersion is the difference between the actual value and the average value. The larger this dispersion or variability is, the higher the standard deviation. The smaller this dispersion or variability is, the lower the standard deviation (Mathrevision.com, 2011).
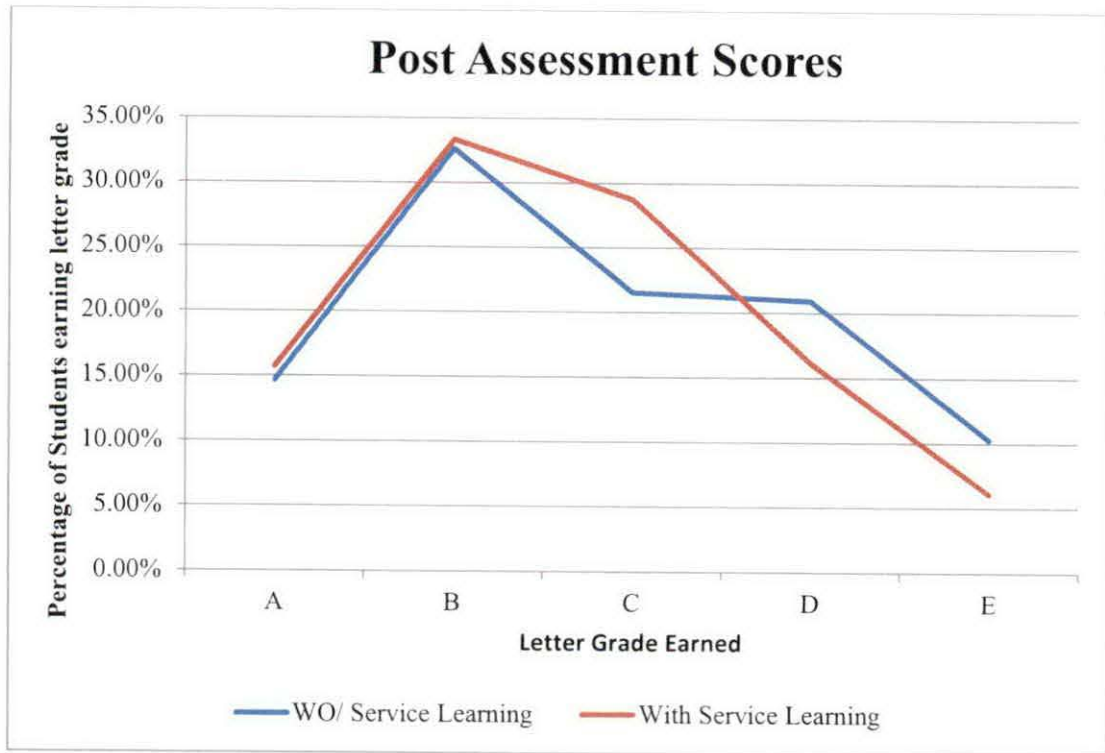
Post Assessment Scores

Figure 2 Post-Assessment Scores showing averages with (477) and without Service Learning (846 Students)

WO/ Service Learning			With Service Learning			Difference	
846 Total Scores			477 Total Scores				
N°·	Percentage	Grade	N°·	Percentage	Grade		
124	14.66%	A	75	15.72%	A	1.06%	Higher
276	32.62%	B	159	33.33%	B	0.71%	Higher
182	21.51%	C	137	28.72%	C	7.21%	Higher
177	20.92%	D	77	16.14%	D	-4.78%	Lower
87	10.28%	E	29	6.08%	E	-4.20%	Lower

Table 2 Grade Distributions between Both Populations.

	W/O Service Learning	WITH Service Learning
Population	846	477
Average	75.91%	77.64%
Median	76.00%	78.00%
Mode	88.00%	80.00%
MAX	100.00%	100.00%
MIN	28.00%	40.00%
STDEV	0.134914	0.113866

Table 3 Descriptive Statistics between Both Populations.

Item	Difference	Result
Scores	369	Higher with Non-Service Learning[11]
Average	1.73%	Higher with Service Learning
Median	2.00%	Higher with Service Learning
Mode	8.00%	Higher with Non-Service Learning
MAX	0	No Difference
MIN	12.00%	Lower with Non-Service Learning
STDEV	0.021048	Lower with Service Learning

Table 4 Differences in Statistical Scores between Populations

ANOVA Test Results

SUMMARY

Groups	Count	Sum	Average	Variance
w/o Service Learning	846	642.18	0.759078	0.018202
Service Learning	477	370.324	0.776361	0.012965

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.091106	1	0.091106	5.584184	0.018268	3.848508
Within Groups	21.55206	1321	0.016315			
Total	21.64316	1322				

Table 5 Anova: Single Factor - Results based on Quantitative Data taken from post-assessment exams from both populations, *e.g.*, Service Learning and non-Service Learning.

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[11] Non Service Learning has larger sample size

Table 5 shows the ANOVA[12] test results that were used to compare the two populations. The null hypothesis states there will be no difference in post-assessment scores between the two groups. As the F value of 5.584184 is greater than the F critical value of 3.848508, this indicates that there is a significant difference between the two groups and the null hypothesis must be rejected. Additionally, the ANOVA test had an alpha of .05 which suggests within a 95% certainty that there is a significant difference between the two groups, as shown by the P-value of 0.018268, which is less than the alpha value of .05; this also suggests that there is a significant difference between the two groups and the null statement must be rejected.

Qualitative Data Analysis

The qualitative data analysis used a data transformation (Caracelli, 1993) technique to transfer the qualitative survey instrument results into quantifiable data. In addition, content analysis[13] and word frequency analysis were used on the reflection papers to look for themes and key words. Creswell (2003) notes that this is a popular method for analyzing mixed method data. Furthermore, NVivo[14] was

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[12] ANOVA - a statistical method for making simultaneous comparisons between two or more means; a statistical method that yields values that can be tested to determine whether a significant relation exists between variables

[13] Content analysis is a highly flexible research method that has been widely used in library and information science (LIS) studies with varying research goals and objectives. The research method is applied in qualitative, quantitative, and sometimes mixed modes of research frameworks and employs a wide range of analytical techniques to generate findings and put them into context (White, 2006.)

[14] NVivo is a software package used to compile several types of data. It is widely used for qualitative data analysis. http://www.qsrinternational.com/products_nvivo.aspx

utilized to help find patterns and recurring themes in the data in addition to word

frequency. See the Analysis of Reflective Journals (p.34) for details.

Survey Results

The results from the survey included, on average, 374[15] responses, as shown

in Table 6. These questions were pulled from the survey instrument given to all

participating Service Learning students, as shown in Appendix G, on page 52.

	Service Learning Survey Summary Taken from 374 Student Responses				
No.	*Question*	SA – Strongly Agree	A – Agree	D – Disagree	SD – Strongly Disagree
1	I enjoyed participating in this class service-learning project.	53.3%	44.7%	1.4%	0.6%
2	I learned from participating in this service-learning project.	58.8%	39.5%	1.4%	0.5%
3	I understood how the class service-learning project related to the course I was taking.	57.2%	40.1%	2.2%	0.8%
4	I believe I made a difference in the lives of people who I worked with in this service-learning project.	36.7%	51.5%	16.0%	0.9%
5	I would recommend this service-learning project or course to my friends.	49.9%	45.5%	4.3%	0.5%
6	I will likely continue as a student at my college or university.	59.0%	31.5%	8.8%	1.1%
7	I will likely take another service-learning course.	36.4%	45.8%	16.7%	1.2%

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[15] It must be noted that some respondents did not respond to each survey question and the percentages are averaged based upon valid responses.

8	I will likely participate in a community service, philanthropy or volunteer project in the future.	43.5%	44.0%	11.8%	1.1%
9	I have shared information about emergency preparation and disaster response that I learned through this project with family or friends.	47.5%	41.6%	10.4%	0.8%

Table 6 Service Learning Survey Summary

The following discussion highlight some of the individual questions from

Table 6: For statement #1, "I enjoyed participating in this class Service Learning

project" 98% of the 374 responses were marked as Strongly Agree or Agree, while

only 2.1% responded as Disagree or Strongly Disagree. This outcome supports

previous research by Madsen (2004) which suggested that students who are willing to

participate in service-learning projects benefit from the experience when they

recognize the benefits of service projects for others as well as themselves. Question

#2; "I learned from participating in this Service Learning project" indicated that

98.3% of the 374 respondents listed Strongly Agree or Agree, while only 1.9% listed

Disagree or Strongly Disagree as their response. Question #5; "I would recommend

this Service Learning project or course to my friends" indicated that 95.4% of the 374

students who responded listed their responses as Strongly Agree or Agree, while only

4.7% marked Disagree or Strongly Disagree. Notably, on question #8 "I will likely

participate in a community service, philanthropy or volunteer project in the future"

87.5% of the respondents indicated Strongly Agree or Agree, while 12.9% indicated

Disagree or Strongly Disagree. Finally, on question #9; "I have shared information

about emergency preparation and disaster response that I learned through this project

with family or friends." From 373 responses, 89.0% indicated their response as

Strongly Agree or Agree, while 11.2% marked Disagree or Strongly Disagree.

Analysis of Reflective Journals

NVivo was used to sift through 225 condensed pages of reflection papers

submitted by participating students to look for repeating themes and also to perform

word frequency analysis. Service Learning root words were selected from

http://www.myvocabulary.com, who maintains vocabulary word lists for various

occupations and topics supplied by educators. These included words and phrases

associated with Service Learning activities including: learned, learning, reflection,

and others as shown in Table 7. These words were selected for NVivo to make a

comparison between them and the reflection papers turned in by participating

students. Out of 58,157 total words, 4,106 which are unique, here are the top twenty-

one Service Learning words listed in Table 7 and the percentage of occurrence

throughout the reflection papers submitted:

		Word		# of occurrences	Percentage Of occurrences:
	1	LEARNED		430	10.47%
	2	INFORMATION		209	5.09%
	3	THINK		172	4.19%
	4	LEARNING		168	4.09%
	5	LEARN		131	3.19%

6	LIKE	126	3.07%
7	ASSIGNMENT	116	2.83%
8	HELP	111	2.70%
9	SERVICE	105	2.56%
10	RESEARCH	93	2.26%
11	REFLECTION	88	2.14%
12	FUN	81	1.97%
13	INTERESTING	61	1.49%
14	KNOWLEDGE	57	1.39%
15	ENJOYED	56	1.36%
16	COMPUTERS	36	0.88%
17	CHANGE	35	0.85%
18	UNDERSTAND	29	0.71%
19	BENEFICIAL	15	0.37%
20	POSITIVE	12	0.29%
21	TECHNOLOGY	6	0.15%

Table 7 Reflection Paper Word Frequency - Note: Percentages are based on the 4,106 unique words appearing in the reflection papers.

It is interesting to note that the word "Learned" was the highest ranked

Service Learning word and had the largest percentage of occurrences.

Overwhelmingly, the students' responses were very positive in their opinion of

Service Learning projects. Negative responses were generally tied to the narrow

scope of topic (disaster preparedness) the students were limited to due to the Service

Learning grant requirement. Several students wanted to expand on or cover other

topics. Here are a few excerpts taken from the reflection papers:

"Looking back, I not only helped myself in doing this project, but I also potentially

helped someone else, and that is what truly counts in doing a project like this."

"I feel as if I put a great deal of effort into the project, and I am pleased with the

results. I have become much more aware of the need for proper preparation for a

natural disaster or interruption in public service, and I hope I am able to apply this knowledge to my own household, and those of my family."

"The service learning project was a unique way to inform others on various topics."

"I have taken the advice of my own service learning project and have been working very hard around the barn to clean up the clutter, sweep away the old hay scraps, take down cobwebs, and check wiring to prevent fire. My beloved animals are too important to me to risk their lives when there are actions that can be taken to protect them from a barn fire. I plan on sharing this PowerPoint with my 4-H horse club at the next meeting and having open discussion about barn fires and how we can help prevent them."

"All in all I really enjoyed this assignment. It was a fun way to present information obtained by research. As an aspiring teacher I could see where this assignment could be geared toward 5th graders and above as a group assignment that required research on a certain topic. Rather than have to write yet another paper this project unlocks the creativity so one is free to create and explore all the while learning about an important topic and making one more technologically savvy."

"Overall the assignment was fun and very informative, and was more fun than it was work. In the future if ever assigned a PowerPoint assignment I will be able to be much more detailed and informative because of having this experience to do this assignment."

The students' comments were very uniform and positive in their response throughout the length of the study.

Conclusions

Drawing a conclusion from both the quantitative and qualitative data,

including the end of semester surveys and the reflection papers, the answer to the

question, "Is service learning more or less effective than traditional face-to-face

methodology for achieving student learning outcomes in Community College

introductory technology courses?" is yes, within the noted parameters and the

limitations of the study. Student engagement and satisfaction with the project were

high, as illustrated by the survey results and reflection paper feedback.

While the post assessment test was used for the quantitative data analysis, it

must be noted that the exam did not directly measure the Service Learning project,

but the overall progress of each student at the end of each semester. The assessment

exam measures terminology and concepts learned throughout an entire course, while

the Service Learning project made up a total of three projects during the semester; the

research and background paper, the actual PowerPoint, and the reflection paper. This

could also be viewed as a strength, rather than a limitation, because the ultimate

objective was to determine if Service Learning improved student learning outcomes

for the entire course, and it did.

> Q1. Is there a significant measurable difference in lecture test grades on the
> comprehensive assessment exam between introduction to computer students
> using Service Learning and those who are not?

As detailed in the analysis chapter, the assessment exam scores of those

students involved with Service Learning were significantly higher, as supported by

the results from the descriptive statistics and ANOVA calculation (see Tables 2, 3 and

5) comparing the two populations. It should be noted that the overall grades of the

Service Learning students were skewed towards higher marks. (See Table 2, p. 29)

The scores from the Service Learning project with a "C" or better are 8.98% higher

than the non-Service Learning group, which is significant.

> Q2. How do students perceive the effectiveness of the Service Learning
> experience using technology as indicated by their survey responses and
> reflective journals?

The qualitative results pulled from the surveys and reflection papers, showed

that students perceived their experience with the Service Learning project as

overwhelmingly favorable. The results indicated in Table 6 show that, on average,

49.14% students chose "Strongly Agree" for the nine questions posed on the survey

and 42.69% chose "Agree" for the nine survey questions. Added together, the two

averages equal 91.83% of the students who chose "Strongly Agree" and "Agree."

While there were a few unfavorable answers in the reflection papers from

participating students, those tended to relate to the presentation topic that had been

chosen, e.g., emergency/disaster preparedness, due to the grant requirements; some

students wanted more flexibility in choosing the topic. As shown in Table 6 (p. 32-

33), on average, 8.11% of Service Learning students indicated "Disagree" on the

survey and 0.83% of the survey questions were marked as "Strongly Disagree." The

negative reflections and surveys were, by far, in the minority of the overall results.

There were no complaints about the use or concept of Service Learning from any

student surveyed.

Q3. What do study findings indicate about the effectiveness of Service Learning as a teaching strategy for improving student learning outcomes in college introductory computer classes?

The quantitative results taken from the post-assessment exam of both the Service Learning and non-Service Learning groups clearly showed an increase in grade scores earned, as shown in Figure 2 on page 29. When compared, as shown in Table 2, (p. 29), the post-assessment test scores from 90-100% were 1.06% higher with Service Learning and the test scores from 80-89% were 0.71% higher with the Service Learning curriculum. The scores earned from 70-79% were 8.98% higher in the Service Learning group. In contrast, the grades from 60-69% were 4.78% lower and from 0-59% the grades were 4.78% lower in the Service Learning group, as shown in Table 2.

The student survey indicated a 98% overall favorable response in student enjoyment with Service Learning. The survey question: "I learned from participating in a Service Learning project," had a 98.3% favorable response from 374 Service Learning participants. The qualitative results from this study clearly indicate that the use of Service Learning based projects should be expanded in the area of technology education. Both the quantitative and qualitative results from the post assessment exam, student survey and student reflection papers indicate that service learning was effective in improving learning outcomes and student's valued the experience. These results support the expanded use of service learning in the introductory computing class.

Limitations

It must be also noted that the student population used for this study was specific to the Ashland Community and Technical College (KCTCS) student population in the Ashland, Kentucky and local tri-state (Kentucky-Ohio-West Virginia) area and, therefore, not truly random. The results of another study could be different when used in other locations and with a different student population.

Implications and Further Research

It would be beneficial to do another study, but incorporating more Service Learning assignments throughout the semester and directly correlating those scores with Service Learning and student learning outcomes. In addition, while it is a good idea to have a unifying theme for the project, *e.g.*, disaster preparedness, it is suggested that expanding the scope of projects or places to help would allow students to have more choices and avoid project duplication. This would help with student satisfaction by allowing more flexibility in project choices.

As shown in Table 2 on page 29, the greatest increase in test scores was on the lower end of the scale E through C. This poses another question for further study, *e.g.*, "Do all students benefit equally from Service Learning projects? Do Service Learning projects help increase the test scores of marginal students in a community college environment?" It would be beneficial to track student retention in Service Learning classes versus non-Service Learning classes to determine if there is any difference between the two groups. If Service Learning tends to boost performance on learning outcomes at the lower grade range, and students who are at risk of failing

often drop out of classes, would the use of Service Learning tend to improve the completion rate in introductory computer classes?

It should be noted that there was a limited population from which to draw both before and during the Service Learning grant. Correspondingly, it would also be beneficial to increase the population size and geographical area for another study in the future.

It would be beneficial to redo the study as concurrently as possible between Service Learning groups and non-Service Learning groups to avoid any pedagogical changes that may occur during a long term consecutive study between two groups, as performed in this study.

The research and findings indicate that Service Learning can be an effective and dynamic teaching methodology which has the potential to positively impact the student on an educational and personal level, as well as enriching the educational system and the community. It will be interesting to see what future research reveals.

Appendices

Appendix A - Letter Awarding grant to Ashland Community and Technical College

Kentucky | Campus Compact

Members

Bellarmine University

Berea College

Campbellsville University

Centre College

Eastern Kentucky University

Georgetown College

Kentucky Community and Technical College System
  Ashland
  Big Sandy
  Bluegrass
  Gateway
  Hazard
  Henderson
  Maysville
  Southeast Kentucky
  West Kentucky

Kentucky State University

Kentucky Wesleyan College

Morehead State University

Murray State University

Northern Kentucky University

Pikeville College

Transylvania University

Union College

University of Kentucky

University of Louisville

University of the Cumberlands

Western Kentucky University

Gayle A. Hilleke
Executive Director
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Kentucky Campus Compact
Nunn Drive, FH 538
Highland Hts., KY 41099
(859) 572-7614
(859) 572-1445 (fax)
kycompact@nku.edu

February 19, 2007

Greg D. Adkins
President
Ashland Community and Technical College
1400 College Dr.
Ashland, KY 41101

Dear President Adkins:

Congratulations! I am writing to inform you that Ashland Community and Technical College has been selected to receive a Learn and Serve grant through the Kentucky Campus Compact (KyCC.) The ACTC application was submitted by David Childress who served as the author and will be primary contact for the grant.

The Learn and Serve grants are funded through the Corporation for National and Community Service and focus on promoting service-learning, providing opportunities for students to serve, and meeting the needs of communities. The KyCC Ready and Response Learn and Serve grant is in collaboration with the Louisiana Campus Compact and focuses on disaster relief and preparedness. In total, nine grants were awarded -- six in Kentucky (Ashland Community and Technical College, Bellarmine University, Big Sandy Community and Technical College, Henderson Community College, Northern Kentucky University and West Kentucky Community and Technical College) and three in Louisiana (Louisiana State University, Louisiana Tech University and River Parishes Community College.)

The ACTC grant received positive comments from the peer reviewers for its goal to strengthen service-learning on campus while supporting the learning of K-12 students. ACTC will receive $6,500 a year for three years to support the proposed activities.

In the Ready and Response budget, there is a line item for the presidents of the nine institutions to interact and/or to support their own professional development. Our hope is that sometime during the three years of the grant the nine presidents could gather for a forum. Over the next few months, we will contact you concerning possible ideas.

It is such a pleasure to work with Ashland Community and Technical College on this initiative. Thank you for your support of the Kentucky Campus Compact and of the service-learning efforts on your campus. It is through the leadership and support of higher education leaders like you that we are advancing the field of service-learning for the betterment of social transformation throughout our country.

Best Regards,

Gayle A. Hilleke

Gayle Hilleke
Executive Director

cc: David Childress

Note: The grant was extended to 3 ½ years

Appendix B – IRB Approval letter from Morehead State University

MSU Institutional Review Board for the Protection of Human Subjects in Research
NOTIFICATION OF EXEMPT PROTOCOL REVIEW

Principal Investigator/Researcher:

Name: David Childress   Title: Student

Campus Address: [   ]   Campus[   ]

Department: MSIS

Purpose:

Title of Project/Course: Is Service Learning more or less effective than traditional face-to-face learning in technology education in the community college environment?

Funding Source/Agency: N/A

Period of Project/Course: From: 7-2-08   To: 12/31/08

Protocol Review Number: 08-07-01

        Initial Review __X__   Continuing Review __X__

The human subject use protocol described above has been reviewed by the MSU Institutional Review Board for the Protection of Human Subjects in Research with the following results:

The IRB determined the project, as stated, is exempt based on federal regulation 46.101(b)(2). Federal regulations require that the IRB be notified if anything in the research changes, as additional review may be necessary.

__Yes ⊠   No ☐__   Approved, may proceed as written

__7/2/08__   Approval Date

In accordance with new procedures instituted by the IRB, **and because your study is exempt**, you are not required to complete continuation or final review reports. **However, it is your responsibility to notify the IRB prior to making any changes to the study. Please note that changes made to an exempt protocol may disqualify it from exempt status and may require an expedited or full-board review.**

__Yes ⊠   No ☐   N/A ☐__   Regulatory requirements have been met for the waiver of documentation of consent

__Yes ⊠   No ☐   N/A ☐__   Regulatory requirements have been met for the waiver of informed consent

__Yes ☐   No ☐   N/A ⊠__   Criteria for use of children has been met

Signed _____   Date: 7/2/08
    Chair, Institutional Review Board for the Protection of Human Subjects in Research

Please refer to the protocol review number in any future references to this protocol. *If any revisions are made to a project or if any unforeseen risks arise during an investigation, the principal investigator must submit Form H to the IRB, fully explaining all changes or unexpected risks.*

pc: Protocol File

Appendix C - IRB approval from Kentucky Community and Technical College System (KCTCS)

August 14, 2008

David Childress
Ashland Community and Technical College
1400 College Drive
Ashland, Kentucky 41101

Dear Mr. Childress:

After careful consideration of your application to the KCTCS Human Subjects Review Board, I have determined that you are eligible for a certificate of exemption from federal regulations regarding the protection of human subjects based on your research using a procedure that meets the exemption criteria regulations of Section 7(1) and 7(2).

Thank you for your cooperation in meeting the Federal requirements for conducting research that utilizes human subjects. We understand that you have been previously approved by Spalding University Human Subjects Review Board. We appreciate your notification to this board and we will keep your information on file.

Sincerely,

Keith W. Bird, Ph.D.
Chancellor
Chair, KCTCS Human Subjects Review Board

cc: Christina E. Whitfield, Ph.D.
    Director of Research and Policy Analysis

KCTCS

Appendix D – Collaborative Institutional Training Initiative Completion Report

Completed 7/2/2008.

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report
Printed on 5/24/2011

Learner: David Childress (username: dchildress0001)
Institution: Morehead State University
Contact Information Phone: 606-326-2004
Email: dcc17@yahoo.com
Group 1 Social and Behavioral Research (six modules):

Stage 1. Basic Course Passed on 07/02/08 (Ref # 1923026)

Required Modules	Date Completed	Score
Introduction	07/02/08	1/1 (100%)
History and Ethical Principles - SBR	07/02/08	5/5 (100%)
Defining Research with Human Subjects - SBR	07/02/08	5/5 (100%)
The Regulations and The Social and Behavioral Sciences - SBR	07/02/08	6/6 (100%)
Assessing Risk in Social and Behavioral Sciences - SBR	07/02/08	5/5 (100%)
Informed Consent - SBR	07/02/08	5/5 (100%)
Privacy and Confidentiality - SBR	07/02/08	4/4 (100%)
Morehead State University Module	07/02/08	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Appendix E – Collaborative Institutional Training Initiative Completion Report

Refresher Completed 5/24/2011.

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report
Printed on 5/24/2011

Learner: David Childress (username: dchildress0001)
Institution: Morehead State University
Contact Information Phone: 606-326-2004
Email: dcc17@yahoo.com
Group 1 Social and Behavioral Research (six modules):

Stage 2. Refresher Course Passed on 05/24/11 (Ref # 5849659)

Required Modules	Date Completed	Score
SBR 101 REFRESHER MODULE 2. Regulatory Overview	05/24/11	5/5 (100%)
SBR 101 REFRESHER MODULE 3. Fundamental Issues.	05/24/11	5/5 (100%)
SBR 101 REFRESHER MODULE 4. Vulnerable Subjects	05/24/11	4/4 (100%)
SBR 101 REFRESHER MODULE 5. Additional Topics	05/24/11	5/5 (100%)
How to Complete The CITI Refresher Course and Receive the Completion Report	05/24/11	no quiz
Morehead State University Module	05/24/11	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Appendix F – Sample of actual Service Learning assignments given to students. (4 pages)

CIS100 Service Learning Assignment

Service Learning Background

Service Learning is a method of teaching, learning and reflecting that combines academic classroom curriculum with meaningful service, frequently youth service, throughout the community. More specifically, it integrates meaningful community service with **instruction and reflection** to enrich the learning experience, teach civic responsibility, encourage lifelong civic engagement, and strengthen communities for the common good.

By integrating service-learning over the long term into the college's teaching methodology, students will get a sample of the "real" world which will help direct their learning and make them better prepared to function effectively upon entering the work force. Service-learning gives both students and the community a better understanding and appreciation of what each has to offer, while providing valuable training in natural disaster response to some of our most vulnerable residents.

Your Part in Service Learning

You are going to research and create a PowerPoint Presentation that deals with possible/potential disasters, either **natural**, such as fires, floods tornadoes, pandemics or **manmade** like a dam failing, chemical plant explosion, etc. that could occur in our Tri-state area Your focus should be the **Preparedness and/or Response** to those disasters.

1. Topics could include Forest Fires, Floods, Basic First Aid, Earthquake, Tornadoes, Lightning, Hail, Flu Pandemics, etc.

2. You should pick an age group as your "target audience" P-3, 4-6, 7-12, General Public.

3. The top 3 Presentations, as determined by the class and professor, will be used to inform and/or persuade local area schools and/or public about disaster preparedness and response.

That's right! Your presentation **will count** as a lab test grade and **could** be used to inform area school children, and/or the public in general, about how to prepare for a natural disaster or how best to respond to one.

An example for disaster **Preparedness** could be: having a safety checklist, first aid kit (what should be in it?), spare water (how much?), people food, pet food, flashlight, batteries, etc.

An example of disaster **Response** could be: in the event of a flood, do not drive in high water, locate area shelters (where?), do the shelters take pets? etc.

(Page 2)

Here is your Word Assignment(s): I want two pages *minimum*,
(not one page and one line) more if you need it, double-spaced (press CTRL 2 to turn double space on), to tell me what your Service Learning topic is. Research the *CONTENT*. **Remember: Who, What, When, Where, Why and How, and use those as your paragraph headings, whenever appropriate.**

1. Make sure your name, class, and date are on the document at the top right, and send it to me as an attachment.
2. Title 18pt bold and centered
3. Paragraph headings 14pt bold
4. Double spaced
5. Times New Roman or Arial 12 pt body
6. Add and size an appropriate clipart/photo below your title to represent your topic.

You may use the Internet, Library, local Red Cross, etc. to gather background information. Remember to cite this information on the last slide of your PowerPoint!

Due Date:

Important: One of the most important parts of Service Learning, and this assignment, is called "**Reflection**." Reflection deals with what you learned or discovered while you were working on this project. What did you learn about the topic? What surprised you most about the topic/project? What worked and/or what didn't? Would you have done anything differently? **This is to be kept in a journal (Word document) that you will turn in two weeks before the end of the semester.** Since we all do not want to watch 20 PowerPoint's on the same

topic, "Floods" for example, There will no more than 5 presentations on each subject and each target age group. First ones to submit topic is first served!! This is a wonderful opportunity to put your computer skills to good use. This project is a "Real World" application. You are helping your community and applying practical knowledge at the same time.

[1] Careful thought, especially the process of reconsidering previous actions, events, or decisions.

(Page 3)

MSWord Assignment
PowerPoint Topic

This is a Word assignment; however, you are going to be researching the topic for your PowerPoint presentation which will be occurring soon. You will use this as an outline.

Here are the guidelines for the PowerPoint:

Your presentation **MUST** have 8 informational slides minimum, 12 informational slides maximum. Your goal is to prepare a 3-5 minute long presentation. The first slide must include your Title, Name and Class. The last slide must include your references. Please do NOT plagiarize! Give credit where credit is due! Note: The citation slide does not count toward the total slide count.

In addition, the PowerPoint **MUST** include: (Don't worry, we will cover this!)
1. Sound
2. Animation
3. Transitions
4. Clipart/photos
5. ... and most importantly, **CONTENT**.

Content is the Who, What, When, Where, Why, and How of something. For example, WHY is it important to learn CPR? WHO do we contact to learn more? HOW much does it cost? WHERE should we go? WHEN does the lesson begin? ...and so on.

In a presentation, you are normally informing or persuading. Remember, it is not a "slide show of pretty pictures" you want to inform or persuade your audience about something. Again, you are going to research and create a PowerPoint Presentation that deals with possible/potential disasters (Natural or manmade)

that can/could occur in our Tri-state area, **specifically Preparedness and Response to those disasters.**

PLEASE keep the presentation fun and reasonably lighthearted. This is your chance to be creative and have some FUN with the lesson, even though it is a serious topic. **When preparing your presentation, remember your target audience!!! (Age, education, and background) This will influence the amount of information, verbiage, style and tone of your presentation.**

At the end of the presentation, we should know a lot about your topic. Pretend your audience knows nothing about the topic of your presentation. **Your goal is to inform or persuade us.**

Put some effort into this!! Remember, the difference between "Try" and "Triumph" is a little "umph!"

Kentucky Campus Compact
Learn and Serve America – Higher Education
Higher Education Student Survey

This survey is being conducted by Kentucky Campus Compact in order to gain feedback about its Learn and Serve America-Higher Education grant which is funded by the Corporation for National and Community Service. You have received this survey because you are a student enrolled in a course that included a service-learning program supported by Kentucky Campus Compact. Survey results will be used to evaluate the Learn and Serve America-Higher Education grant and to research the effectiveness of service-learning programs. The survey should take less than 10 minutes to complete.

Your completion of this survey is voluntary and your responses will be kept confidential. In order to ensure your anonymity, please do not make any marks on this survey to identify you, the course you completed, or your college or university. You are free to withdraw from this survey at any time or refuse to participate without penalty. If you wish to not participate in this survey, please return the survey (uncompleted). Withdrawal or electing to not complete this survey will not affect your grade in this course. Survey results will only be reported in aggregate format and completed surveys will be stored under locked key.

If you have any questions about this survey, please contact David Deggs, Ph.D., via telephone at 225-241-1004 or via email at david.deggs@gmail.com. Questions about your rights as a participant in this research may be directed to Phillip J. Moberg, Ph.D.; IRB Chair, Northern Kentucky University, at either mobergp1@nku.edu or 859-572-1913.

Please tell us about you and your participation in the class service-learning project.

What is your classification?	☐ Freshman	☐ Sophomore	☐ Junior	☐ Senior	☐ Graduate Student
What is your age?	☐ 18 to 19 years old	☐ 19 to 22 years old	☐ 23 to 25 years old	25 or more years old	
What is your gender? ☐ Male ☐ Female	What type of college or university do you attend?		☐ Community College	☐ Four Year Public	☐ Private
What is your cumulative GPA?	☐ 3.5 to 4.0	☐ 3.0 to 3.49	☐ 2.5 to 2.99	☐ Below 2.49	

Have you taken a service-learning course in the past?   ☐ Yes   ☐ No

Have you participated in a community service, philanthropy or volunteer project in the past?   ☐ Yes   ☐ No

Please respond to the following statements using the scale to the right.	SA – Strongly Agree	A – Agree	D – Disagree	SD – Strongly Disagree
I enjoyed participating in this class service-learning project.	☐ SA	☐ A	☐ D	☐ SD
I learned from participating in this service-learning project.	☐ SA	☐ A	☐ D	☐ SD
I understood how the class service-learning project related to the course I was taking.	☐ SA	☐ A	☐ D	☐ SD
I believe I made a difference in the lives of people who I worked with in this service-learning project.	☐ SA	☐ A	☐ D	☐ SD
I would recommend this service-learning project or course to my friends.	☐ SA	☐ A	☐ D	☐ SD
I will likely continue as a student at my college or university because of my experiences in this service-learning course.	☐ SA	☐ A	☐ D	☐ SD
I will likely take another service-learning course.	☐ SA	☐ A	☐ D	☐ SD
I will likely participate in a community service, philanthropy or volunteer project in the future because of my experiences in this service-learning course.	☐ SA	☐ A	☐ D	☐ SD
I have shared information about emergency preparation and disaster response that I learned through this class service-learning project with family or friends.	☐ SA	☐ A	☐ D	☐ SD

NOTE: This survey was developed based partially upon College Student Post-Program Survey developed by Grand Valley State University and Michigan Campus Compact. That survey is available online at http://servicelearning.org/instant_info/sample_forms/index.php?popup_id=1768

Appendix G (continued) – Survey (detailed) questions given to each student at the end of each semester.

☞ Question: By participating in a Service Learning exercise:				
1. I enjoyed participating in this class Service Learning project.				
Strongly disagree	Disagree	Agree	Strongly agree	
1	2	3	4	
2. I learned from participating in this Service Learning project.				
Strongly disagree	Disagree	Agree	Strongly agree	
1	2	3	4	
3. I understood how the class Service Learning project related to the course I was taking.				
Strongly disagree	Disagree	Agree	Strongly agree	
1	2	3	4	
4. I believe I made a difference in the lives of people who I worked with in this Service Learning project.				
Strongly disagree	Disagree	Agree	Strongly agree	
1	2	3	4	
5. I would recommend this Service Learning project or course to my friends.				
Strongly disagree	Disagree	Agree	Strongly agree	
1	2	3	4	
6. I will likely continue as a student at my college or university because of my experiences in this Service Learning course.				

Strongly disagree	Disagree	Agree	Strongly agree
1	2	3	4

7. I will likely take another Service Learning course.

Strongly disagree	Disagree	Agree	Strongly agree
1	2	3	4

8. I will likely participate in a community service, philanthropy or volunteer project in the future because of my experiences in this Service Learning course.

Strongly disagree	Disagree	Agree	Strongly agree
1	2	3	4

9. I have shared information about emergency preparation and disaster response that I learned through this class Service Learning project with my family or friends.

Strongly disagree	Disagree	Agree	Strongly agree
1	2	3	4

Appendix H – Presentation sample (six pages) Note that this does not show or include animation, sound, layer and masking effects, transitions, etc., but is shown to illustrate a typical PowerPoint presentation on disaster preparation. This presentation is used to teach elementary school age children about dialing 911 in an emergency.

Emergency Services

- Fire
- Medical
- Police

Explain and have a plan in place for each emergency listed. Make instructions simple so that your child does not get confused. Let them know who shows up to help them and what sounds they may hear.

Important!

URGENT!

While training children on how to use 911, it is important to emphasize that 911 is not a joke. Thus, children should avoid calling the number leisurely. In this instance, a child's maturity level has a major role.

Dialing the right number

Use a unplugged phone to practice with your child how to dial the numbers. Parents can use magnetic numbers placed on the refrigerator to help child remember number during an emergency.

911

Don't Leave them scared and unprepared

What to tell dispatcher

Make sure your child knows their full name and address. Keep address posted in plain sight for children that can read. Teach your child how to explain to dispatcher what is happening and to stay on the phone until help arrives.
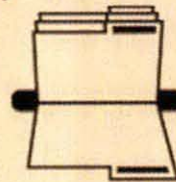
Keeping it fun

Use rhymes or simple songs to help your child remember these steps. Even drawings or posters kept by phone can help your child during emergencies.

911 . . . can get the firemen.
911 . . . can get the police.
911 . . . can get the ambulance.
but
911 . . . only for emergencies!

Why

- Your job as a parent is to make sure your child is safe, cared for, and always prepared. Don't leave your child unprepared for emergency situations. Teach them how to call for help in their time of need.

59

Beat the Statistics

- In 2007 ... % rise in the ... including pra... an re... 1 and eme...

- This sa... over 12,000 ... om minor children.

Sources

- WWW.FIRSTAID.ABOUT.COM
- WWW.NENA.ORG

Keep Our Children Safe

Appendix I: CIS100 Course Competencies (As of fall 2007)

Competencies:
Upon completion of this course the student can:

1. Identify types of computers, how they process information and how individual computers interact with other computing systems and devices
2. Identify the function of computer hardware components
3. Identify the factors that go into an individual or organizational decision on how to purchase computer equipment
4. Identify how to maintain computer equipment and solve common problems relating to computer hardware
5. Identify how software and hardware work together to perform computing tasks and how software is developed and upgraded
6. Identify different types of software, general concepts relating to software categories, and the tasks to which each type of software is most suited or not suited
7. Identify what an operating system is and how it works, and solve common problems related to operating systems
8. Manipulate and control the Windows desktop, files, and disks
9. Identify how to change system settings, install and remove software
10. Start and exit a Windows application and utilize sources of online help
11. Identify common on-screen elements of Windows applications, change application settings and manage files within an application
12. Perform common editing and formatting functions
13. Perform common printing functions
14. Format text and documents including the ability to use automatic formatting tools
15. Insert, edit and format tables in a document
16. Modify worksheet data and structure and format data in a worksheet
17. Sort data, manipulate data using formulas and functions and add and modify charts in a worksheet
18. Create and format simple presentations
19. Identify network fundamentals and the benefits and risks of network computing
20. Identify the relationship between computer networks, other communications networks (like the telephone network) and the Internet
21. Identify how electronic mail works
22. Identify how to use an electronic mail application
23. Identify the appropriate use of e-mail and e-mail related "netiquette"
24. Identify different types of information sources on the Internet
25. Use a web browsing application
26. Search the internet for information
27. Identify how computers are used in different areas of work, school, and home
28. Identify the risks of using computer hardware and software
29. Identify how to use computers and the Internet safely, legally and responsibly
30. Use a database management program to create, maintain, and print reports from a simple relational database.
31. Use a database management program to customize the user interface by creating and maintaining forms and reports.
32. Use a database management program to query tables using basic query operations such as "and," "or," "not," etc.

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