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# SERVICE-RESEARCH: COMMUNITY PARTNERSHIPS FOR RESEARCH AND TRAINING

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## ABSTRACT

Information Systems researchers using an experimental paradigm are usually in need of subjects for their experiments. At the same time, non-profit organizations in the community frequently can not afford computer training for their employees. This paper presents a case study where experimental researchers and community organizations formed a partnership for training and research that was mutually beneficial. The researchers had access to hundreds of subjects for their experiment on Internet training methods, and the employees of the community organization received training free-of-charge. We have coined a new term, "service-research," for this approach to experimental research, and this paper describes possible future applications of service-research.

## INTRODUCTION

In the current technological environment, schools, libraries, and other community organizations are connecting to the Internet at a rapid pace. These non-profit organizations generally have limited resources available, and the technology budgets are generally small. Non-profit organizations generally spend their small technology budgets on hardware and software, and often do not have the funding to provide training for their users.

At the same time, information systems researchers using an experimental paradigm to study computer training are usually in need of subjects for their experiments. The needs of the community organization and the needs of the researchers can possibly be complementary. While gaining access to subjects, the researchers can also be performing a service to the community. This paper provides a case study, describing the process of integrating community service and information systems research.

## THE RESEARCH EXPERIMENT

The researchers wanted to implement an experiment to test the effects of different training methods on novice users learning to use the Internet. As part of the experiment, the researchers tested the effects of error management, exploration, and conceptual models on the performance and satisfaction level of novice users in performing web-based tasks (Lazar & Norcio, 1998). It has been identified that, on the Internet, novice users have more opportunities to make errors and become frustrated (Lazar & Norcio, 1999b; Ramsay, Barbesi & Preece, 1998). To test hypotheses related to training methods, a large number of subjects is needed. Since the subjects must be novice users, it would not be possible to use students from information systems classes as subjects. Anyone studying systems analysis and design, or database design, or decision support systems, could not be considered a novice user of the Internet. Therefore, a source of novice subjects was needed.

## THE NEED FOR TRAINING

The need for training is not surprising. Training end-users has been cited repeatedly as a major factor in the success of an information system (Hoffer, George & Valacich, 1999; Martin, DeHayes, Hoffer & Perkins, 1994; Whitten & Bentley, 1997). Without training, users may not have an understanding of how to effectively use their computers to perform tasks. Unfortunately, for many non-profit organizations, training may be a "less-visible" expense (United States General Accounting Office, 1998). It is difficult to cut back on software or hardware without obvious limitations. Costs for wiring and Internet service through an ISP cannot be eliminated without severing the connection to the Internet. For many schools, they must first renovate their facilities before they can even install network wiring. Older buildings may lack space for wiring, may lack enough power outlets, and may lack proper ventilation. These changes needed to support the hardware installation must be made. Cutting back on training causes difficulties, however, the limitations due to training cuts are not as obvious. The long-term effects of not spending money on training may not be immediately visible. Government-affiliated organizations may also have restrictions on how funding may be spent, and in some cases, funding from certain sources may not be spent on training (United States General Accounting Office, 1998). In some cases, training is simply not affordable. Because of all of these factors, many times, training is not provided for the employees of non-profit organizations.

Government programs to help non-profit organizations tend to overlook training. For instance, as part of the Telecommunications Act of 1996, the Federal Communications Commission implemented the Universal Service Program, also known as the "e-rate" (Federal Communications Commission, 1997; U.S. Congress, 1996). The purpose of the e-rate is to assist schools and libraries in connecting to the Internet, by providing discounts on Internet service and network hardware. The E-rate funding covers costs such as telecommunications hardware, software, wiring, and Internet service. However, the e-rate does not provide any funding or discounts for training costs (Federal Communications Commission, 1997). Therefore, frequently training is either minimal, or does not take place at all.

## THE NEEDS OF THE COMMUNITY ORGANIZATION

The Archdiocese of Baltimore <<http://www.archbalt.org>> includes Baltimore city, its suburban counties as well as all the counties of western Maryland. The Archdiocese operates 78 elementary schools, 22 high schools and 155 parishes. It employs over 2800 teachers and over 1000 parish staff members.

In 1998, the Archdiocese of Baltimore connected most of their schools and parishes to the Internet. There are a large number of budgetary items involved in such a networking effort, and expenses are high. The Archdiocese had to consider the costs of computer hardware, software, wiring, and in some cases, renovations of older buildings. However, as frequently occurs in non-profit organizations, the Archdiocese did not have the facilities to train hundreds of employees, and they could not afford to rent a facility or pay trainers, because the costs could run into the thousands of dollars. The researchers both had a working relationship with the Archdiocese, and identified this as an excellent opportunity to help a community organization, while gaining access to research subjects at the same time. Contact was made with the director of Information Services for the Archdiocese of Baltimore.

## IMPLEMENTING THE RESEARCH

The researchers and the Archdiocese first agreed upon the general concept of collaboration on this project. The researchers would provide Internet training for up to 400 Archdiocese employees, free of cost. At the same time, the Archdiocese would advertise the training sessions, and encourage employees to register for the training sessions. It was made clear throughout the process that this was a research project. The experiment had previously been approved by the appropriate Institutional Review Board.

Once the general terms of the partnership were worked out, there were still many specific details to be worked out. For instance, the place of employment for the researchers was not located close to the work or home locations for a majority of the Archdiocese employees. Most of the Archdiocese employees live towards the northern parts of Baltimore City and Baltimore County. A computer lab at another local university, which was

geographically closer for a majority of the Archdiocesan employees, was reserved at no cost.

The researchers and the director of Information Services at the Archdiocese planned a schedule of 16 training classes. The specific dates and times of the classes were approved by the Director of Information Services at the Archdiocese. It was very important to coordinate the schedule, since there were many holidays and teacher in-service days that could cause low turnout at the training sessions.

The director of Information Services was responsible for advertising the training classes to the employees of the Archdiocese, while the researchers were responsible for managing registration. It was advertised that these training sessions were part of a research experiment. As part of this advertising, it was noted that employees/subjects would need to meet certain criteria. Employees/subjects could not be computer professionals, and could not have previously taken a class on using the Internet. These were requirements based on the design of the experiment. Since the experiment was concerned with novice users, it was important that only users who were true novices enrolled in the training sessions.

Training sessions lasted four hours. Training modules were developed based on the research literature, and tested with a pilot study of subjects. When the employees of the Archdiocese arrived at the training session, each employee had an individual PC to use. Registration in each training session was limited so that each employee/subject had their own computer, and extra computers were available in case of technical problems or crashes. Before the training sessions began, the employees/subjects were required to fill out human subjects permission forms. This is standard for experiments involving human subjects, and is required by university and government policy.

After filling out the human subjects forms, the employees/subjects then received three hours of Internet training. The training covered issues such as the history of the Internet, how the Internet works, how to use the Internet, and using search tools. Based on the design of the experiment, different training sessions received different training methods (Lazar & Norcio, 1999a; Lazar & Norcio, 1998). For instance, some groups received training modules on error management, where users are instructed on what types of errors might occur, and how to respond to errors (Lazar & Norcio, 1999a; Lazar & Norcio, 1998). Some groups received training modules on exploration, where users are instructed on their

environment, and how to navigate through it, but users are not instructed on specifically what to type in (Lazar & Norcio, 1999a; Lazar & Norcio, 1998). Some groups received conceptual training, where users are given graphical representations (conceptual models) of their computing environment (Lazar & Norcio, 1999a; Lazar & Norcio, 1998). Some groups received a combination of these methods. The different training sessions represented the different treatment groups in the experiment. After the three hour training session, the employees/subjects had an hour to attempt a set of tasks. All subjects received the same set of tasks to perform, which involved information retrieval on the Internet. These tasks were a part of the data collection for the experiment. After an hour of attempting the tasks, the training session ended, the employees/subjects filled out a satisfaction survey, and the employees/subjects were thanked for their participation.

## IMPACT

In a three-month period, a total of 263 employees took part in the training sessions. The research experiment was successfully completed, and papers related to the research are now in preparation for submission. The researchers were able to access a large population of subjects, at no financial cost. At the same time, the researchers were able to assist a community organization in meeting their training needs. Hundreds of people in the community received Internet training, who otherwise might not have received Internet training. Two universities (the university where the researchers worked, and the university where the training sessions took place) received positive public relations in the community. There are currently talks underway to form additional partnerships in the future.

## SERVICE-RESEARCH

Partnerships for training between university researchers and community organizations benefit both partners. Researchers can perform community service at the same time as their research. In addition to the benefits of the research study, it is possible to help a community organization. Many community organizations are in need of assistance with managing their computer technology and with providing training for their employees. In the process of assisting the community, researchers can earn positive press for themselves, their research, their department, and their university. More people become aware of the research study, and become interested in the research work. This is truly a win-win situation. The community wins, because they receive assistance from

the researchers in meeting their technology needs. The researchers win, because they receive assistance in gaining subjects for their research experiments.

We have named this approach to research "service-research." In service-research, researchers assist the local community at the same time that they are performing their research. The service-research approach relates closely to the concept of service-learning. In service-learning, students take part in community service structured in a way that it relates to their course material (Jacoby, 1996; Lazar & Preece, 1999). Students gain valuable experiences, and at the same time, help their community (Jacoby, 1996; Lazar & Preece, 1999). In service-research, the benefits are similar to those in service-learning; the community receives assistance with their specific needs, and researchers get access to a large pool of subjects, with no corresponding expenses. An added bonus is that there is positive press for the professor, department, and university, as the "town and gown" relations can improve.

There are many opportunities for service-research in information systems research. Any research focusing on training would be an obvious candidate for service-research, because there are many employees at non-profit organizations who are in need of computer training. The researchers can provide training free of charge (related to a research experiment), and the community organization can provide access to subjects. Service-research might also be appropriate in research focusing on novice users, or end-user computing. In return for allowing researchers to study their actions or perceptions, the novice users/subjects might receive training or assistance of some sort.

In experiments related to different ways of presenting material in user manuals, the subjects could receive manuals free of charge, in exchange for taking part in the research experiment. Service-research might also fit the needs of those studying the management of information technology in non-profit organizations. Researchers could study the current management techniques, allowing them access to different organizations, and after the research is complete, make suggestions or recommendations to the non-profit organization. All of these possible approaches to service-research present positive opportunities for partnerships between non-profit organizations and university researchers. Researchers should be encouraged to ascertain what needs exist in the local community, and determine whether the research can possibly help members of the local community.

## SUMMARY

Because of the large expense of connecting an organization to the Internet, non-profit organizations may not be able to afford computer training for their employees. At the same time, the number of people on a college campus who could be considered a "novice user" is decreasing. Information systems researchers may therefore have trouble finding novice users to take part in their experiments. Service-research is a good solution to both of those situations. There are many possible applications of the service-research concept. The advantages of service-research are that researchers get access to subjects for their experiments, and at the same time are able to assist their local communities. Service-research is a win-win situation for all involved in the partnership.

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