

Evaluating the Comparative Efficacy of Internet and Traditional Information Delivery Methods For Policy Analysis in the Consumer Sciences

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The importance of using technology in higher education has long been evident, especially for certain fields such as the hard sciences and engineering (Green & Gilbert, 1995). The field of Family and Consumer Sciences is recognizing the importance of integrating technology into the curriculum. Information gathering and management is emerging as a very important area of technology for educators and students.

One of the most important advances in information delivery methods has been the Internet. According to the U.S. Department of Commerce (1998), there were more than 100 million people using the Internet by the end of 1997, accessing in excess of 1.5 million domain names, with estimates of one billion users by the year 2000 (Negroponte, 1998). Education can take advantage of the Internet in several ways. Materials may be easily updated without the time and monetary cost of republishing printed versions, providing students and researchers with economical access to the most up-to-date information available (Brown, Nielson, & Sullivan, 1997). Students also express great enthusiasm for the Internet which may encourage them to research.

There are drawbacks, however, to the wealth of information found on the Internet. The sheer volume of information can be daunting to even the most seasoned researcher. The efficiency of researching on the Internet decreases when users are forced to wander from site to site, while trying to find sources of information that match their needs (Carvin, 1999). Students, in particular, need the skills and tools to make their information searches as efficient and precise as possible.

The authors of this paper, through a USDA Challenge Grant entitled "Navigating Cyberspace for Policy Analysis in Family and Consumer Sciences," have created a policy analysis website, PolicyWeb (<http://www.fcs.uga.edu/policyweb>), which facilitates policy research in the Consumer Sciences on the Internet. PolicyWeb contains a series of lessons covering important aspects of using the new technology in research and policy analysis in addition to a database of policy related Internet resources.

Technology, Education, and Policy Research

PolicyWeb presents information on two main topic areas: Using the Internet in general and using the Internet for policy research in Family and Consumer Sciences specifically. Since PolicyWeb was not created with one specific course in mind, it can be helpful in many courses, both in Family and Consumer Sciences and other disciplines, and is free to all Internet users. Two search engines facilitate use of the website. The first search engine performs key-word searches for the entire text of the website lessons. The second search engine searches the database of policy-related Internet resources. This database has two main advantages. First, all sites in the database are useful in policy research, eliminating the hundreds or thousands of query matches that a typical search engine returns that are often unrelated to the search topic. Second, the matches found in the database are returned with a concise description of the website and the information it contains, including quality ratings, to help users quickly find sites best suited to their needs.

Evaluation of the PolicyWeb

An undeveloped area in general is the testing of the effectiveness of using the World Wide Web as an educational resource (Brauch, et al., 1996; Trochim, 1997). This research tests whether the PolicyWeb website achieves its goal of providing a convenient, easy-to-use and understandable source of Internet and policy research information.

The PolicyWeb website was tested against other methods of delivering the same (or similar) information to determine its efficacy. Family and Consumer Sciences students were randomly assigned to complete the worksheet using one of three resources; the PolicyWeb website, a hard (printed) copy of the PolicyWeb text and database or a set of comparison websites that were chosen for their similarity to PolicyWeb¹. Comparing the PolicyWeb website and printed PolicyWeb users tests for differences in delivery method while comparing PolicyWeb users to the control website group tests for differences in content.

The research was conducted between January and March of 1998 with five Housing and Consumer Economics classes at a large Southern research university. Students were randomly assigned to the different

¹ Since no single website covered both using the Internet and policy research, two free access websites, Learn the Net (www.learnthenet.com) and VoxPop (www.voxpop.org) were chosen.

resource groups within individual classes. Information was collected via worksheets on experience with computers and the Internet, basic demographic information and included a pretest of Internet and policy research questions, in addition to testing Internet and policy research skills.

Sample Characteristics

The majority of the 151 students in the final sample were White (87.4%) or Black (10.6%), and female (61%). Seniors (53.6%) and juniors (36.4%) dominated the sample. Consumer Economics majors were the largest major represented (40%), with students from Child and Family Development (36%), Consumer Journalism (6.7%), Housing (3.3%), Textiles, Merchandising and Interiors (1.3%) and 12.7% indicating "other."

One half of the students in the sample owned their own computer. Students reported that they had used computers for word processing (98%), e-mail (88%), spreadsheets (68%), the Internet (83.4%), and to create homepages (8.6%). Seventy-three percent of the students reported that they would rather research on the Internet than in the library, the majority noting that it was "faster and more convenient" to use the Internet.

In terms of learning about the Internet, most students reported that the bulk of their experience lay outside of formal educational settings. Students indicated (by choosing all responses that applied) that they had learned about the Internet by "just playing around" (91%), using the Internet with friends (72%), using the Internet at home (46%), taking a college computer class (36.4%), reading books, magazines, and other printed resources (21%), in high school classes (15%), and from Internet seminars and workshops (6%). These findings may indicate that having guides to the Internet on the Internet may be a very good way of facilitating Internet knowledge and productivity.

Analysis Results

Ordinary least squares (OLS) regression was used to test whether using the PolicyWeb content and website were significant at increasing Internet and policy research knowledge, as measured by the assigned worksheets. Since the researchers were interested not only in the effect of PolicyWeb, but also in the effect of other factors influencing Internet

expertise, a regression model was deemed appropriate². The effects of demographic characteristics, prior computer experience, total time spent on the assignment and the resource used were investigated. (see Appendix for regression results).

The first model focused on the total final worksheet score. Only two variables were significant for this model. Students who spent more time on their worksheets did significantly better than other students and students who used the VoxPop/Leam the Net combination did significantly worse than the PolicyWeb website group. None of the other predictors had a significant effect at the .10 level or better. Since the PolicyWeb manual variable was not significant, it appears that there was no advantage in terms of learning outcomes to using the Internet as a delivery method.

The next two models dealt with the two specific parts of the worksheets; Internet skills and policy research skills. By dividing the scores to reflect these two different aspects of the worksheets, differences between the effectiveness of Learn the Net (Internet skills website) and VoxPop (policy research website) individually in comparison to the PolicyWeb website were investigated.

In the case of the Internet section scores, spending more time on the worksheets was still associated with higher scores while using Learn the Net was associated with lower scores. This indicates that the information on the PolicyWeb website was more useful to students completing the Internet skills section of the worksheets than the information found on the Learn the Net website. Looking at the policy research section scores, students who spent more time completing the worksheets, who had higher grade point averages, and were White had scores that were significantly higher than other students. Since the VoxPop variable was not significant, that finding indicates that the VoxPop and PolicyWeb websites were equally useful in completing the policy research section of the worksheets.

Conclusion

In terms of method of delivery, no significant differences in scores were found between the PolicyWeb website and printed PolicyWeb manual users. This would then indicate that decisions regarding which method of delivery to use with Family and Consumer Sciences students would need to focus on other aspects of the mediums. Students in the sample stated a strong preference for using the Internet instead of going

² ANCOVA models yielded the same results.

to the library, based on a desire for convenience and speed. The Internet is not place bound, so students can conduct research from any place with an Internet connection, thus avoiding the hassles of getting to campus, finding parking, and sharing library resources with other students.

However, PolicyWeb did produce higher worksheet scores than the Learn the Net website, indicating that students found the PolicyWeb Internet information more useful. The authors believe that coupling that information with policy research information on the same website will be especially useful for students in the Consumer Sciences who frequently deal with policy issues facing the nation. Virtually no field in Family and Consumer Sciences is untouched by policy issues. It is important for future Family and Consumer Sciences professionals to learn the most efficient and better productive ways to access policy information that affects the well-being of families and consumers. While these findings are preliminary, we hope others will continue to test the efficacy of placing educational information on the Internet so that students are better prepared for applying their knowledge in the rapidly changing technological world.

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Appendix

Table 1. Summary of Regression Analysis for Variables Predicting Final Worksheet Score

Variable	Standardized Coefficient	t	Significance
HCE major	.083	.879	.381
Computer exp.	-.030	-.346	.730
White	.077	.947	.345
Year in school	-.038	-.439	.661
Female	-.159	-1.598	.112
GPA	.139	1.590	.114
Pretest score	.124	1.416	.159
PolicyWeb manual	.084	.867	.388
Learn the Net/VoxPop	-.282	-3.019	.003
Tot.time on worksheets	.282	3.351	.001

Table 2. Summary of Regression Analysis for Variables Predicting Internet Skills Score

Variable	Standardized Coefficient	t	Significance
HCE major	.089	.974	.332
Computer exp.	.010	.124	.902
White	.028	.358	.721
Year in school	-.021	-.251	.802
Female	-.045	-.456	.649
GPA	.118	1.367	.174
Pretest score	.084	.981	.328
PolicyWeb manual	.018	.190	.849
Tot.time on Internet q's	.178	2.141	.034
Learn the Net	-.384	-4.193	.000

Table 3. Summary of Regression Analysis for Variables Predicting Policy Research Skills Score

Variable	Standardized Coefficient	t	Significance
HCE major	-.036	-.396	.692
Computer exp.	-.016	-.191	.848
White	.150	1.899	.060
Year in school	.086	1.037	.302
Female	-.096	-.973	.332
GPA	.218	2.522	.013
Pretest score	.120	1.393	.166
PolicyWeb manual	.114	1.207	.230
Tot.time on policy q's	.271	3.256	.001
VoxPop	-.124	-1.358	.177

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