Conceptual and technical scaffolds for end user development: Using scenarios and wikis in community computing

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Abstract

Community group members are often technologically disadvantaged end users. I explore the use of scenarios and wikis to encourage community groups to become more literate in information technology. My fieldwork suggests that scenarios and wikis can empower community group members as designers, allowing them to become producers of web content rather than just consumers.

1. Introduction

Community computing is about community groups impacting their society with goals such as information dissemination among local citizens, community-related discussions, regional economic development and social services, and so on [3]. One way to achieve such goals is for community groups to take greater control of information technology (IT). The paradox of this situation is that community group members often lack IT literacy and thus, often become technologically disadvantaged and marginalized end users.

End user development (EUD) goes beyond enabling non-developers to code in a programming language. Broadly, it is about exercising greater control over IT, such as enabling design of computer-based applications without getting entangled in the nitty-gritty details of programming [8].

There has been little work in EUD for community computing. Early work in EUD had the goal of empowering computer users to pursue personal exploration and learning goals (e.g., [7]). Other work aimed to provide more accessible support for tasks that could benefit from programming techniques (e.g., [6]) and web-enabled technologies (e.g., [1]).

In this paper, I explore ideas about how to respond to the special needs of technologically disadvantaged community groups. Specifically, I present an example of conceptual and technical scaffolds as powerful tools to help facilitate community groups participate in technology design processes and eventually become part of everyday IT literacy.

2. Facilitating greater control over IT

As part of a larger community computing participatory design project [5], I worked with Spring Creek Watershed Community (SCWC) to redesign their web site over a course of 13 months (method details in [4]). SCWC was misrepresented on their previous web site that was created and maintained by a commercial vendor. This was largely because SCWC did not have much input into the design process, and as a consequence, did not have control of their IT.

My goal was to encourage SCWC to become more IT literate through active participation in their web site redesign process. SCWC held eight web site committee meetings, in which I was involved. These meetings were led by “Kathy” (names have been changed for privacy), the lead coordinator of SCWC, and attended by several technical and non-technical volunteers. The use of scenarios as conceptual scaffolds and wikis as technical scaffolds empowered SCWC to become designers of their web site.

2.1. Scenarios as conceptual scaffolds

One agenda item for SCWC was to make the front page content of their web site specialized for their stakeholders. Three different types of web site audiences were identified by SCWC: new visitors (first-time users), sympathetic members (users involved in SCWC activities), and decision makers (board members). I suggested the formulation of scenarios [2] to better understand what each audience would look for on SCWC’s web site and how they would use the information on the front page. I gave a scenario example for new visitors, and encouraged Kathy to draft scenarios for the other audiences.

The result of scenario development was positive. Kathy wrote a scenario for decision makers that asserted the core message of their web site related to local municipality planning, and not just watershed preservation as was portrayed by their previous web site. Her scenario also delineated the navigation...
2.2. Wikis as technical scaffolds

SCWC’s previous web site did not allow them to change the content. This was because of two reasons. First, the vendor did not give administrative privileges of the web site to SCWC. Second, SCWC members like Kathy did not have technical knowledge (e.g., HTML) to change the web site content.

To prevent a similar situation in the future, I suggested that the new SCWC web site be designed as a wiki. A wiki-enabled web site would allow non-technical members of SCWC to change content without knowing programming code. The premise was that such functionality would remove the dependency of SCWC on technical people for maintaining their web site, and hence, they would sustain in-house control of their IT. To operationalize this, I provided a basic template of SCWC’s web site on BRIDGE (http://bridgetools.sourceforge.net), a wiki-enabled, web-based system for authoring web pages.

Kathy, along with another staff member, “Betsy”, actively used BRIDGE over a period of approximately three months to develop content for their web site. When it was initially introduced to Kathy, she commented about BRIDGE: “This is just motivating me...you’re putting something in front of me that I can use.” BRIDGE was a technical scaffold to help SCWC maintain control of their IT as they could contribute content directly to their web site.

Later, SCWC ported their web site from BRIDGE to Mambo (http://mamboserver.com), a similar wiki system but with more specific content management capabilities. Through this process of using these wiki systems, Kathy and Betsy became more IT literate, learning lower-level operational knowledge (e.g., basic HTML tags) and higher-level strategic knowledge (e.g., implications of adopting a particular technology). Currently, SCWC members (like Betsy) are actively engaged in technical discussion forums regarding issues in Mambo, they maintain the web site by themselves, and document their evolving technical practices for future incoming volunteers.

3. Conclusion

Scenarios enabled SCWC to understand the audiences of their web site and tailor content accordingly. The use of a wiki allowed SCWC to become producers (or authors) of web content rather than just consumers. Such conceptual and technical scaffolds can evoke learning and enhance sustainability in community groups in context of IT design [4]. After all, community groups are an essential part of universal access. We should make a concerted effort to explore ideas, such as the ones mentioned in this paper, to incorporate community groups as an integral part of the design process and everyday IT literacy.

4. References


