Designing Welcoming and Inclusive STEM Department Websites

Beth A. Montelone, Ruth A. Dyer, Cynthia Burack, and Suzanne E. Franks
Kansas State University/The Ohio State University/Independent Scholar

Abstract — Websites have tremendous power to create first impressions. Prospective and current students and employees increasingly rely on the Internet for information about academic programs, people, and institutions. Department websites are one source for that information, but they also convey information about departmental culture and environment. Culture-communication certainly derives from content, but just as importantly, it is impacted by design and structure. Engineering and science departments interested in broadening their appeal to underrepresented groups must look to their own websites. What culture is being communicated – explicitly, implicitly – and to whom does it appeal? The Kansas State University ADVANCE project team recognizes the power of website messages. Six K-State science and engineering departments have worked for two years on an ADVANCE-sponsored website initiative. These departments agreed to work on improving delivery of welcoming and inclusive messages to students, faculty, and staff via their departmental websites. They participated in a three-step process: workshops; revision of existing websites; evaluation and feedback. This paper shares information about each step of the process, the lessons learned, and best practices that have been identified.

Introduction

It is almost a given that the Internet has dramatically changed nearly every aspect of Western society. This is particularly true at universities, which were the original nodes on the Internet (History of Computing Project, 2001). University faculty members in science, technology, engineering, and mathematics (STEM) departments have incorporated Internet use into their teaching, research, and service, and, as the WorldWideWeb and web browsers became available, they developed websites to share information with and advertise themselves to a variety of constituents. However, unlike the case of for-profit companies, which came later to the web and made use of professional designers, many university-related websites, particularly those of individual academic departments and faculty members, were not professionally designed. Many academic department websites were developed by one or two enthusiastic faculty members or designed by students interested in web creation. As a result, the content and aesthetics of department websites vary widely.

Students, particularly 'Millennials' who grew up with the Internet, now use it as their main source of information on many topics (Oblinger, 2003). Departments should be conscious of this fact and ensure that their websites convey the message that they wish since websites in many cases are their primary public faces. It is not enough for departments to simply place

information on a website; it should be expressed in a context and atmosphere that is welcoming, inclusive, and conveniently organized.

The Kansas State University (K-State) ADVANCE Institutional Transformation Project was designed to improve recruitment, retention, and advancement of women faculty members in STEM disciplines. Authors Dyer, Franks, and Montelone, who were part of the team that created the K-State ADVANCE proposal, recognized that websites are a very important tool in recruiting of both faculty and students. Thus, included in the project as a critical department-level project initiative, was a website review and revision process. The assistance of Burack as a consultant was solicited for this aspect of the project. Her work made use of her research on group conflict and cooperation as well as the importance of communication in groups and institutions (Burack, 2004; Burack & Franks, 2004).

The Website Revision Process

Six STEM departments were selected to be 'early adopter' partners in the K-State ADVANCE project. Two departments are in the College of Arts and Sciences (Biology and Geology), two are in Engineering (Biological/Agricultural Engineering and Chemical Engineering), and one each was chosen from Agriculture (Animal Sciences and Industry) and Veterinary Medicine (Diagnostic Medicine/Pathobiology). ADVANCE Project leaders met with members of each partner department and explained the initiative. Departmental faculty members attended a workshop conducted by Burack in March 2004 at which she presented information on the importance of various aspects of websites in communication. The two broad categories of content that she discussed were (1) Inclusion and (2) Aspirations. The Inclusion category focused on educational-aesthetic criteria: color, font, and language; uses of inclusive language; images of women; and inclusive links to other sites (*e.g.*, .the Society of Women Engineers or the Society of Hispanic Professional Engineers). The Aspirations category encompassed criteria that addressed broader, more complex demonstrations of inclusiveness: expressing an affirmative commitment of the unit to diversity, eliminating discriminatory traditions and practices, showing the relationship of science and technology to the real world, and characterizing female and male students or professionals in similar terms.

In the workshop, participants were shown examples of websites that displayed desirable or undesirable characteristics in a variety of contexts for each of the criteria in the Inclusion and Aspirations categories. For example, Burack provided examples of websites that used color or font size in a manner that impaired readability of the website text. Some websites did not include *any* images of women, while others prominently displayed women scientists or engineers. Some websites identified male and female faculty differently (*e.g.*, Dr. Joe Smith vs. Jane Doe), while others provided balanced professional descriptions of female and male faculty.

Burack also met with the web coordinators from partner departments (some of whom were faculty members) for discussion of issues involved in revising their websites. Some of the concerns raised by the web coordinators were that (1) their websites needed to appeal to a broad range of constituents, (2) speed of access to websites was reduced when a large number of images were incorporated, and (3) they had limited expertise and experience in designing websites. Burack suggested that departments identify which constituents should be considered as the top priority and make the first set of changes to address this group. Subsequent efforts

could then be focused on other audiences. She also noted that it is possible to incorporate some images, as long as they are not too large. She was sympathetic to the issue of access and suggested that a reasonable compromise could be reached between the number and detail of the images and the speed of access. Burack advised departments to either create teams to collaborate on the design or to consider utilizing the services of professional web designers.

The six partner departments were then tasked with reviewing their own websites and making appropriate revisions, on the basis of the criteria presented in the workshop led by Burack. This process was slightly different for each department, although in most cases a small committee of faculty members was responsible for the review and for designing the revised pages. In one department a professional web designer was hired to make changes as directed by the department head.

Burack returned to K-State for a follow-up visit in October 2004. At this time, she had individual meetings with each of the six ADVANCE partner departments to discuss their progress and make suggestions for additional improvements. She also presented her introductory workshop on the importance of website design for gender equity to faculty members from other (non-partner) STEM departments.

When a department had completed revisions to its satisfaction, it submitted its website for review by Burack. She provided feedback based on a rubric that she developed and that is described elsewhere (Burack & Franks, 2006). Her analysis, which was presented in a final report to each department, included a rating of the website on each element of the rubric and suggested additional enhancements that could be made.

The K-State ADVANCE website contains information that Burack presented at the workshops. This includes links to sites illustrating various aspects of the rubric used for evaluation and suggestions for diversity-friendly language that can be incoporated into mission statements and other text on department websites (K-State ADVANCE Project, 2006).

Focus Group Results
To obtain additional input on the effectiveness of the website revision, the K-State ADVANCE Project team convened focus groups of graduate students and junior faculty members. These individuals were asked to evaluate both the original and revised websites and provide us with their perspectives and comparison of the two versions. These groups were selected because it was assumed that the newly hired faculty members would have used websites in their recent job searches and that the graduate students would soon be doing so. The focus groups were conducted by the K-State Office of Educational Innovation and Evaluation.

The faculty members who participated in the focus groups had been at the university less than two years, and the graduate students who participated were doctoral students. There were two groups of faculty members from non-partner STEM departments; one focus group had five female faculty members and the other had three male faculty members. The two groups of doctoral students also were from non-partner STEM departments; one focus group had four women and the other group had two men. The focus group participants were asked to review, prior to the session, the six revised departmental websites and three of the original archived

websites. Three of the departments had conducted an ongoing revision and did not retain copies of their original pages. The focus group members evaluated each of the nine websites on (1) how welcoming the site was; (2) the ease of navigation of the site; and (3) their overall impression of the site. These evaluations were discussed among the participants during the focus group meetings. For the three departments for which both the original and revised websites were available for review, participants were asked to specify which version they preferred. The focus group members were not informed as to which version of the website was the original. The mean ratings from the focus groups and a summary of the discussion of these groups were provided to the K-State ADVANCE Project team by the evaluators.

Male and female faculty members found websites welcoming if they included the following characteristics: quality pictures, accurate and up-to-date information, links to other helpful websites, current news and events, and bulleted, easy-to-find links. Women faculty members mentioned that a site was perceived as welcoming if it included images of diverse individuals and women in prominent or active roles.

Male and female doctoral students identified the following characteristics as making a website welcoming: good graphic and design layout, drop-down menus from top tabs, easily located information, modest amounts of text, and photographs that included graduate students interacting with faculty members in classrooms and laboratories. Doctoral students and faculty members consistently identified the same websites as being the most welcoming. No differences emerged when male responses were compared with female responses as to which websites were the most welcoming.

Factors reported by both faculty members and doctoral students as contributing to ease of navigation of websites included bulleted links; convenient access to departmental information such as faculty forms and promotion and tenure materials; tabs from the home page remaining on subpages; and ease of returning to the department's homepage from subpages.

Websites were also rated on overall impressiveness. Faculty members identified the following aspects as contributing to their judgment of a website as impressive: ease of navigation; detailed and clear tab structures; minimal clutter, *i.e.*, not too much text; content that was clear, complete, and up to date; inclusion of faculty credentials; and visual appeal. Doctoral students noted that impressive websites were well-organized and functional, *i.e.*, no broken links; included attractive images; were simple and not overly cluttered; and advertised the department well.

Focus group members also identified aspects of the websites that they did not like. Factors reported as negative by male faculty participants were small font sizes, absence of faculty publication information, excessive white space on a page, slow loading, and difficult navigation. Female faculty participants did not like links positioned on the right side of the screen, specific background colors, pages too crowded with text, the lack of a link back to the home page from subpages, and the absence of information on current activities in the department. Both faculty members and doctoral students did not like unorganized sites, information that was in a location that did not 'make sense', and sites that contained images that did not load or information that was outdated. Participants disliked websites that contained either too much information or too little information.

Focus group members were asked to identify improvements to the websites that would make them more welcoming to new women faculty members and graduate students. Male faculty participants suggested including pictures of diverse individuals, particularly of women in roles of authority and in traditionally male fields such as agriculture. They also felt that statements acknowledging diversity as central to the department were important. They mentioned that such statements could be in a quote from the department head or in a more general statement, such as including the phrase "equal opportunity employer" on all pages. Similarly, female faculty participants noted that having an image of a woman in a position of authority, as is the case for two of the partner departments who have images of their female department heads on their homepages, is very appealing. Alternatives that were suggested for departments that did not have female department heads included highlighting women faculty members in the department, for example in a section on new faculty; reporting activities of department and college leaders in promoting women in STEM disciplines; and incorporating a link to the K-State ADVANCE website.

Both male and female doctoral students noted that if too much attention were drawn to issues of gender on a department's website, the result might be an undesirable emphasis on the small numbers of women faculty members or graduate students in that department or that the website might not appear welcoming to both genders. However, they also noted the importance of including statements indicating support for diversity, including links to resources helpful for all graduate students, and including links to diversity- and gender-specific program sites.

Two general themes emerged from the focus group discussions. (1) Faculty participants, particularly women, observed that the websites of their own departments were outdated and in need of upgrading to improve their welcoming quality and ease of navigation. This was mentioned as a critical factor for recruitment of graduate students and faculty members and for presenting a strong image for the department. They recognized the need for the department to assign responsibility to someone for managing the website. Doctoral students, in particular, noted that websites have become an important tool for learning about academic programs at universities. (2) Some faculty participants spoke of the importance of all faculty members having high-quality individual websites showcasing current research and listing publications. Doctoral students also identified this as an important issue for student recruitment, but noted that it is important for these pages to be organized and accessed in a logical manner from the department homepage.

Discussion

The aspects of the websites identified by the focus groups as making them welcoming and easy to navigate strongly paralleled the criteria used by Burack in her evaluation rubric. Five of the eight criteria contained within the rubric (color and font, images of women, diversity-friendly links, affirmative committment to diversity, characterizing female and male students or professionals in similar terms—in this case, showing women as leaders) were specifically volunteered by focus group participants in their discussions. Particularly compelling were (1) the comments regarding the significance of sites containing images of women, especially in leadership roles, and (2) the recommendation to incorporate statements of commitment to

diversity and links to sites promoting inclusion, diversity and advancement of women. This underscores the importance of these criteria in the rubric.

One of the outcomes associated with this process has been the recognition that significant improvements can be made with relatively low investment. It is certainly true that one could spend a large amount of money on such revisions, but the experience of departments at K-State has been that the cost associated with hiring a professional web designer to create a completely new site has entailed less than $5,000. This may be a reflection of the community in which K-State is located as well as the availability of individuals with this type of expertise. This low cost makes it possible for almost any department to professionally enhance its website. Another cost that must be considered is the time and effort required to continually update the website. One of the comments made frequently in the focus groups referred to the need for websites to have current and accurate content.

Challenges
In her follow-up visit to K-State, Burack visited with a small group of faculty members from each partner department who had worked on revisions to the department's website. During this consulation she provided feedback and suggestions for addtional improvements that could be made to the websites. One department took the position that it wanted its website to be perceived as neutral with regard to gender and ethnicity. Its viewpoint was that the department had multiple stakeholders and wanted to serve them equally. As Eisenhart and Finkel (1998) have noted, "This discourse [of gender neutrality] hides prototypically white male features of…work; confers legitimacy on women's professional contribution only when they act like men; [and] makes discussion of women's distinctive issues virtually impossible" (p. 181). Even when the various ways in which neutrality subverts rather than serves the goal of equity were explicitly described, the department remained committed to the status quo.

In addition, the representatives of this department argued against highlighting women or including links to professional organizations devoted to diversity issues on their site because of the concern that others may perceive that women faculty members are being treated in a preferential manner. The department representatives claimed that women faculty in the department expressed this sentiment. This is consistent with the findings of Eisenhart and Finkel's study of educational settings and workplaces that, like this department, had both a significant percentage of women and an established discourse of gender neutrality. The work sites were seen as and described by the women as good places for women even as the women experienced obstacles at work that men did not. Discussion of gender-linked difficulties was discouraged, even by other women. When a gender-linked obstacle was brought up, it was ignored, belittled, or ascribed to the particular circumstances of an individual rather than an issue of gender. Nearly everyone remained explicitly committed to an idea of the work sites as gender-neutral places where everyone was treated "the same" (Eisenhart & Finkel, 1998). Justifying an unwillingness to make *any* special considerations for gender "under a discourse of gender neutrality…hides, and thus leaves untouched, the culturally sanctioned male bias in the workplace" (Eisenhart & Finkel, 1998, p. 205).

Women who contribute to the discourse of gender neutrality may fear being perceived as undeserving, often as a result of being a target, knowingly or unknowingly, of pre-existing biases

throughout their careers. They understand that there is a risk associated with calling attention to their gender (Eisenhart & Finkel, 1998). Men who contribute to the discourse of gender-neutrality are defending the status quo, and may be uncomfortable with the idea of themselves as contributing to, or benefiting from, an inequitable situation. Some of these reactions reflect resistance to change, as well as discomfort with regard to large amounts of change and determining how much change is sufficient to make a difference. It is important to provide encouragement and support as individuals address these challenging issues.

Expansion and Institutionalization
The K-State ADVANCE Project has begun to expand its efforts to the other STEM departments at K-State beyond the original six partner departments. Proposals were solicited from the non-partner departments for initiatives to promote the project goals. Three of the proposals we recently funded included website revision activities. Departments have been asked to use Burack's criteria to guide their revisions and some of them plan to request that she conduct a formal review of their revised websites.

The outcomes from the focus groups conducted with non-partner department faculty members suggest that they may initiate or participate in website revisions in their home departments. Thus the assessment process may be instrumental in catalyzing additional institutional transformation.

The K-State ADVANCE Project P.I. team includes deans from the four participating STEM colleges and the Vice Provost for Academic Services and Technology. This leadership in the colleges and in K-State's central information technology unit will ensure that the website initiative is expanded to the university's entire web presence. The four colleges have recently completed major revisions of their websites, and a new university homepage was recently launched. As increasing attention is paid to the images conveyed by websites, it is anticipated that units will ensure that their websites project a welcoming and inclusive message.

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Author Contact Information

Beth A. Montelone, bethmont@ksu.edu
Ruth A. Dyer, rdyer@ksu.edu
Cynthia Burack, burack.1@osu.edu
Suzanne E. Franks, suzanne.franks@lycos.com