

**BRIDGING DIGITAL AND GENDER DIVIDES: A PRELIMINARY STUDY APPLYING USES AND GRATIFICATION THEORY TO DOT DIVA'S RECRUITING STRATEGIES**

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**ABSTRACT**

*The paucity of females in computing courses at both high school and college levels as well as the lack of female computing majors and professionals in the industry has been well documented. This study investigates whether one Web site's attempt to recruit female computing majors warrants further examination by applying the Uses and Gratification Theory to analyze the likely success of Dot Diva's recruitment strategies. The analysis indicated the site has the potential to satisfy viewers' cognitive, affective, personal integrative, social integrative, and tension release needs and thus warrants future research involving the target audience. The analysis also discovered that the site lacked interactivity but met standards for demassification and asynchronicity.*

**Keywords:** Computer Mediated Communication, Gender and Computing, Uses and Gratifications Theory, Recruiting Computing Majors

**INTRODUCTION**

The National Center for Women and Information Technology (NCWIT) reports that the U.S. Bureau of Labor Statistics projects that in 2018 there will be a total of nearly 1.4 million computing-related jobs in the U.S., which is a 22% increase from 2008 [8]. More specifically, network systems analysts and computer software applications engineers are expected to be two of the top 30 fastest-growing professions in that time frame. Unfortunately, the number of those graduating with degrees in computer or information science has been declining steadily since 2004. At the current rate of completion, less than one-third of the vacant computing jobs expected to be in place by 2018 could be filled by U.S. graduates with computing degrees.

The lack of interest in computing is evident in terms of gender as well. The NCWIT notes that in 2009, 1.6 million students took U.S. Advanced Placement (AP) exams and more than half were female (56%); however, only 18% of the students who took a computer science (CS) AP exam were female [8]. Since 1999, the CS AP exam consistently had the lowest female percentage of any of the 37 AP exams, hovering at 18% or lower. The number of girls taking the CS AP exam reached high points in 2009 (3,861) and in 2001 (3,531). This low percentage of girls taking the CS AP exam is significant because research indicates that students taking an AP exam in a given subject area are more likely to complete college coursework in that area than students who do not take the AP exam. This research finding is supported within the framework of degree distributions: In 2009, U.S. women earned 57% of all undergraduate degrees, 52% of all math and science degrees, 59% of undergraduate degrees in biology, and 42% of mathematics degrees, but only 18% of all computer and information science degrees [8]. Since 2000, interest in the CS major among male and female college first year students has decreased steadily, with only about 2% of male first year students intending to major in CS, compared to 0.3% of female first year students [8].

To help combat the low numbers of females seeking to major in computing, the NCWIT compiled findings from various peer-reviewed research findings to offer the following suggestions to help encourage students to pursue computing: offer early, positive experiences with computing; offer adult encouragement (especially from parents); provide positive role models (female role models positively influence girls); and provide more information about what computing professionals actually do in their jobs [8].

One way high school students have been encouraged to pursue computing is through the development of Web sites specifically targeted to provide more information about the computing profession and to recruit more computing majors. One such Web site is Dot Diva. Given the increased need for computing graduates in the near future as well as the lack of female computing majors, this study analyzes the Dot Diva Web site using the Uses and Gratifications Theory to determine its likelihood of successfully persuading viewers to pursue a degree in computing. I begin with an overview of the Dot Diva Web site. Second, I offer a review of extant literature focusing on the Uses and

Gratifications Theory. Next, I conduct my analysis of the Dot Diva Web site. Finally, I conclude by summarizing my findings and offering directions for future research.

For the purposes of this paper, I adopt the NCWIT's approach and use the terms "computing," "computer science," and "information technology," or "IT" interchangeably to mean the design, development, and application of all forms of technology to manipulate, store, exchange, and use information in its various forms.

### **DOT DIVA WEB SITE**

The Dot Diva/New Image for Computing initiative began in 2010 and is sponsored by WGBH, one of the oldest and most accomplished producers of public media; the Association for Computing Machinery (ACM), the world's oldest and largest educational and scientific computing society; and the National Center for Women and Information Technology (NCWIT). Funding for the initiative is provided by a grant from the National Science Foundation and Google is identified as an additional source of funding.

According to their Web page, "Dot Diva's mission is to create an exciting and positive image of computing for high school girls. Our nationwide survey revealed that not only do the majority of girls think of computing as 'boring' and 'hard,' but they believe it fails to deliver two crucial benefits: 'working with others' and 'making a difference in other people's lives.' Our ultimate goal is to transform this negative perception" [2].

The splash page of the Web site features a layout that remains consistent on the site: A filigree design is in the upper left corner and placed against a cream background; emanating from the filigree design is a color continuum beginning with burnt orange at the top and subtly changing to fuchsia at the bottom. A white page occupies two-thirds of the left side of the site with one inch margins on the left and top of the page. At the top of the white page, the Dot Diva logo is placed on the left side and is followed with this statement: "We're young women with the power and passion to make a difference. We believe in the potential of computing to build a better world." Under the logo and the mission statement, viewers first see a Caucasian young woman holding a globe over her head, looking directly at the viewer, and smiling; the picture then automatically shifts to an African American young woman wearing headphones, smiling, and looking to the left of the viewer. Under the photo, four tabs appear: What IS a Dot Diva?, Profiles, Become a Dot Diva, and The Webisode. Under these tabs viewers can click on sections for Educators and Parents, About Us, Blog, Credits, and Contact Us.

In the upper right corner, viewers are asked What's Your Passion? Under the question, viewers are able to select from 35 different topics of interest.

Immediately under the "Passion," section is the "Dot Diva on Facebook" section. Viewers are able to see how Dot Diva is represented on Facebook. In this section, viewers may watch a video produced by MSNBC titled "Generation Next: Training Girls to be Tech Savvy" and also have the option to "Like" Dot Diva as well as see the images of the others who have "liked" Dot Diva.

When viewers click on the What IS a Dot Diva? tab, they see pictures of young women engaging in active tasks (e.g., monitoring a horse's health with computer equipment) and read the following text: "We're young women with the power and passion to make a difference. We believe in the potential of computing to build a better world. We're idealistic . . . Dot Divas dream of a better world. We imagine: devices to track endangered dolphins, GPS systems for people who are blind, and digital medical records in every emergency room. We're passionate about the big picture—improving life. . . and down-to-earth. Everyone has dreams about making a difference. Computing makes ours come true. We can design: smart phones that are smarter, software to help archaeologists decode ancient languages, and mobile forensics labs for instant analysis at crime scenes. It's a great feeling knowing we're part of the solution. [New page] We're about style . . . Think of your favorite phone app—a Dot Diva may be behind it! Logical and intuitive, visionary and practical, we can create: a virtual fashion show for a hot new designer, video games for girls by girls, and a digital gallery for local artists. We design things people love. . . and function. Almost every breakthrough in medicine, communications, and going green depends on computing. Dot Divas develop: better ways of scanning DNA for childhood diseases, e-readers that hold an entire library of books, and satellite reforestation technology to reduce our carbon footprint. We're leading the way to the future. [New page] We're

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passionate . . . It stretches our imaginations, calls upon our problem-solving skills, and takes the power of teamwork. One of the best rewards of being a Dot Diva is working with lots of great people... and always in demand. Computing is the wave of the future, and tons of exciting new jobs are being created all the time. Plus, the pay is great—the average starting salary for a computer science major is more than \$60,000!”

When viewers click on the What’s Your Passion? tab, they are able to read how one can use a computing education in the following areas: Advertising; Archeology and Anthropology; Art & Art History; Astronomy & Space Exploration; Business; Communications; Computer, Graphics, & Media; Cooking; Disabilities; Education; Engineering; Environment; Fashion & Design; Film, TV, & Theater; Forensics & Detective Work; Gaming; Health & Fitness; Human Rights; Humanitarian & Disaster Relief; Internet Technologies; Journalism; Languages; Law; Literature; Math; Medicine; Music; Politics; Poverty & Social Justice; Psychology; Public Safety; Robotics & Artificial Intelligence; Science; Social Networking; and Sports. In the majority of the areas, viewers can also click on profiles that highlight the careers of specific women in the computing field. Viewers may also access these profiles by clicking on the Profiles tab.

When viewers click on The Webisode tab, they are able to view an episode that is summarized in the following manner: “Kate, a sarcastic fan of alt- and indie-rock. Ali, a lover of kittens, chick flicks, and the mall. Two girls with nothing in common . . . except for being ace programmers at a seriously crazy video game company. As they work to launch Rocklette’s first-ever game, these two Dot Divas have to outwit their smarmy boss, Kate’s doofus boyfriend, and the spy within their midst.” Viewers are also encouraged to post their responses to the Webisode in a comment section positioned immediately below the Webisode screen. Viewers are also able to “like” the Dot Diva Web page using the Facebook feature on this page.

When viewers click on the Become a Dot Diva tab, they are able to “Connect the Dots” by joining other Dot Divas on Facebook, Twitter, Flickr, and YouTube. They are also able to “Get Resources”; these resources will get viewers started as a Dot Diva and help them learn about “high school classes, after school opportunities, computer camps, college programs, careers, and more.” Viewers may select from Fun Stuff to Try, Computing and Culture, Clubs and Summer Camps, Computer Science in High School and College, Women in Computing, and Careers in Computing.

In the upper right corner a tab for Educators and Parents is posted. When viewers click on this tab they are provided with a voluminous amount of resources to help redefine computing for young women; however, since the target audience of this analysis is the young women being recruited enter the computing profession, the materials contained in this section will not be examined.

While the layout of the site seems simple and easy to navigate and the content is straight forward and easy to comprehend, applying the principles of the Uses and Gratifications Theory to the site will assist in assessing the Web site’s potential for success.

## USES AND GRATIFICATIONS THEORY

The Uses and Gratifications (U&G) approach is what McQuail [7] recognized as being sub-topics of media effects research; a sample of early studies conducted within this approach include researchers examining the gratifications of listening to soap operas [3], children’s interest in comics [15], and the function of newspaper reading [1]. As Kuehn [6] notes: “One basic assumption of the [U&G] approach is that personal use of media is an *active choice* made to satisfy needs. This choice involves the seeking out of media, the selection of a particular medium, and the applications of expectations of what that particular medium will provide to satisfy needs” (p. 178). Essentially, the U&G approach focuses on what individuals *do with* media rather than what media *does to* individuals [4].

Ruggiero’s [10] article offers a comprehensive overview of the development of the U&G approach. In this article, he notes that U&G research solidified in the 1940s when researchers began investigating why audiences engaged in specific types of media behavior. As research in U&G advanced over the next 20 years, investigators began identifying and operationalizing variables and relying less on self-report [13]. In the 1970s, Ruggiero [10] notes that “researchers intently examined audience motivations and developed additional typologies of the uses people made of the media to gratify social and psychological needs” (p. 6). In the 1980s and 1990s, U&G research continued to

employ social scientific standards but also distinguished itself from typical media effects studies by focusing on the audience's experiences rather than taking the perspective of the communicator as media effects researchers did [14]. The most significant change in U&G during this time was the reconsideration of the "active audience." U&G research always positioned the audience as actively seeking mediated interactions; however, during this time scholars noted that audience member's mediated experiences were now dependent on the communication process itself [10]. In other words, individuals would display different levels of interest and activity in various communication settings (e.g., those in dysfunctional relationships would be more interested in seeking out and paying attention to mediated experiences that helped solve relational problems when those problems were at their worst rather than during those times when individuals felt that the relationship was manageable).

While the U&G approach has evolved significantly, two typologies developed from the approach in the 1970s remain useful. McQuail, Blumler, and Brown's [8] typology of user motivations remains most useful for tracking uses and gratifications of media. The typology contains four categories of motivations: *diversion* (media function as an escape from routine), *personal relationships* (media function as a substitute for companionship), *personal identity/individual psychology* (media function as a way to develop and understand one's self), and *surveillance* (media function as a way to gather information to inform choices and actions). Katz, Gurevitch, and Haas [5] introduced another typology highlighting the social and psychological functions of the mass media: *cognitive needs* (media function as a way to strengthen information, knowledge, and understanding), *affective needs* (media function as a way to strengthen aesthetic, pleasurable, and emotional experience), *personal integrative needs* (media function to strengthen credibility, confidence, stability, and status—this need combines cognitive and affective needs), *social integrative needs* (media function to strengthen contact with family, friends, and the world), and *tension release needs* (media function to release tension or serve as a type of escapism; this activity results in the weakening of contact with self and one's social roles).

The U&G approach is easily applied to Internet users since these individuals are clearly positioned as active audiences. Combining U&G with the Internet is becoming more important: "As new technologies present people with more and more media choices, motivation and satisfaction become even more crucial components of audience analysis" [10, p. 14]. Given U&G's focus on the active role of the audience, Williams, Phillips, and Lum [11] note the usefulness of this theory to track the appeal of computer mediated communication by combining the concepts of interactivity, demassification, and asynchronicity. Interactivity is defined as "the degree to which participants in the communication process have control over, and can exchange roles in their mutual discourse" [12, p. 10]. Demassification occurs when an individual is able to select from wide ranging choices and has control over the medium; unlike mass media, new media allow users to create tailored messages [12]. Asynchronicity acknowledges that messages may now be processed at the receiver's convenience [12]. As Ruggerio [10] notes, with the Internet "an individual has the potential to store, duplicate, or print graphics and text, or transfer them to an online Web page or the e-mail of another individual. Once messages are digitized, manipulation of media becomes infinite, allowing the individual much more control than traditional means" (p. 16).

In sum, the U&G theory focuses on the audience as an active participant who makes cognizant choices when interacting with media; this mediated interaction, in turn, serves to fulfill a variety of intellectual, personal, and social needs.

## ANALYSIS

One way those in the computing field have tried to overcome the paucity of females in the discipline has been to create Internet sites with the express purpose of encouraging girls and young women to become more active in technology, to pursue degrees in computing, and to become computing professionals.

While the two U&G typologies described above are similar, this study utilizes Katz, Gurevitch, and Haas' [5] typology because it better represents the interconnectedness of the needs media can satisfy. This typology includes cognitive needs, affective needs, personal integrative needs, social integrative needs, and tension-release needs.

### Cognitive Needs

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Cognitive needs function as a way to strengthen information, knowledge, and understanding. Given that the primary goal of the Dot Diva initiative is to reframe how girls and young women perceive computing, one would expect to find a significant amount of content devoted to providing viewers with alternative perspectives of computing. This was certainly the case in the What's Your Passion? and Become a Dot Diva sections. The What's Your Passion? section provides viewers with a wide variety of career opportunities and offers specific computing applications for each area. The Become a Dot Diva section is notable for providing viewers with occupational information about computing as well as explaining what computing courses in high school and college would be like. This information is from credible sources such as the College Board, Carnegie Mellon's School of Computer Science, and the Association for Computing Machinery. Viewers are very likely to grasp the main concept of the site, which is to reposition computing as anything but "boring" or "hard" and to demonstrate how those in the computing profession are able to work with others to make a difference in the lives of others. Thus, viewers' cognitive needs are likely to be met by this site.

### **Affective Needs**

Affective needs function as a way to strengthen aesthetic, pleasurable, and emotional experiences. Viewers may experience a myriad of emotions that could drive them to the site, including anger, frustration, or a sense of isolation that they are the only females interested in computing. Conversely, viewers may arrive at the site because they are confident in their decision to pursue a computing career and would like to know there are other young women interested in the same areas. In this way, the Web site may serve as a type of normalizing function whereby viewers are able to read about the Profiles of those who are already succeeding in the field. The use of the profile may also serve to develop viewers' sense of worth which, in turn, would lead to a pleasurable reaction. For example, the young woman profiled under the Math section notes: "I want to use the power of math to help people get the information they need. You can develop: Software that analyzes DNA sequencing in plant and animal genomes. Global climate models to predict how Earth's climate is changing. A data mining tool that measures poverty and income inequality around the world." This profile is written to appeal to the needs of the viewer who is already interested in math. Consider the profile under the Cooking section: "I want to create a high-tech kitchen. You can develop: Internet-enabled refrigerators and cabinets that monitor your food supplies and organize your shopping list based on the recipes you select. A digital cookbook that guides you from the beginning of a recipe to the end, and includes a question-and-answer capability. A sensor that lines the bottom of a cake pan and notifies you when your cake is done to perfection." This information is formatted in the same manner as the Math profile; however, the content is designed to appeal more to this particular viewer's interest. Given the fact that the site contains almost all topics in which could possibly be interested, girls will be pleased to see their own interests represented. This pleasure associated with having one's affective needs met will presumably increase the likelihood of the viewer reconceptualizing her understanding of computing.

In terms of strengthening aesthetic experiences for viewers, the layout of the Web site is pleasing and features gendered colors (fuchsia) and patterns (the filigree design) as well as very attractive individuals featured in the profile section.

### **Personal Integrative Needs**

Personal integrative needs function to strengthen credibility, confidence, stability, and status—this need combines cognitive and affective needs. Again, one would expect this need to be met given the very mission of the initiative. The site definitely strengthens the credibility of females in computing by highlighting the successes of current practitioners. Viewers may also shift their perceptions of computing from being only for "nerds who work with robots" to one that is able to be applied to fashion, advertising, and humanitarian/disaster relief. The site successfully combines information about various computing occupations, the high demand for these occupations, and the financial rewards of the occupation (viewers learn that the average starting salary for a computer science major is \$60,000). The Become a Dot Diva section also serves to strengthen the confidence of the viewers by alerting them to organizations that are devoted specifically to helping support women in computing; the organizations viewers are encouraged to visit or join include the ACM's Committee on Women in Computing, The Committee on the Status of Women in Computing Research, The National Center for Women & Information Technology, and The Anita Borg Institute for Women and Technology. Including these organizations as options for

viewers to join may also enhance viewers' confidence that this career path is the correct one since they can tell that they will have support from a variety of national organizations.

## **Social Integrative Needs**

Social integrative needs function to strengthen contact with family, friends, and the world. This site effectively fulfills this need primarily via secondary sources, and most notably by redirecting viewers to social networking sites. Viewers are encouraged to connect through Facebook and Twitter. The site also directs interested parties to potential clubs and summer camps where they will be able to connect with those who share an interest in computing. The site features seven different summer camps recommended by the ACM and the Computer Science Teachers Association; it is also encouraging to note that the camps have various price points and some are even online, suggesting viewers with various economic backgrounds would be able to make use of the site's suggestions and fulfill social integrative needs. Surprisingly, the only place where viewers can actually communicate with each other is under The Webisode tab; here, viewers can post their own reactions to the Webisode as well as read others' reactions to the Webisode. The Profiles section allows viewers to "meet" women who are currently active in the computing field; however, viewers are not able to correspond with those profiled which sets up a sender-based communicative message rather than an interactive one.

## **Tension Release Needs**

Tension release needs function to release tension or serve as a type of escapism; this activity results in the weakening of contact with self and one's social roles. The Dot Diva entire site could be considered by some viewers to be a tension release to a degree: Viewers ostensibly visit the site to learn more about computing options for young women; yet, the site offers a type of pseudo-escapism that implicitly reinforces the cognitive and affective needs.

Perhaps the most obvious form of tension release is the Webisode. The Webisode presents the story of two young women working as "ace programmers" for a video game company. Viewers may lose themselves while watching the Webisode; however, they are also exposed to what a young woman working in the computing field might encounter (satisfying cognitive needs while also reducing viewers' uncertainty about what to expect as a female in the computing field) and may be amused by Kate and Ali's experiences (satisfying affective needs). As noted above, The Webisode section is the only place on the entire site where viewers may interact with one another. Thus, while the Webisode may offer a type of escapism for viewers, it does not result in the weakening of contact with one's self for those who choose to comment on the content since they will have to process the Webisode through their own cognitive lens to be able to express their reactions to the episode.

Another type of pseudo-escapism is linked with the Fun Stuff to Try under the Become a Dot Diva tab. Viewers are encouraged to "Start creating games, animations, graphic design, music videos, and other amazing things right now, using easy-to-learn computer programming and technology tools." The tools include the following applications (descriptions about the applications from Dot Diva follow in parentheses): Blabberize (Turn your photos into talking heads. It's simple: upload a photo of a person, select a moving mouth that'll appear on the photo, and then record a message to go with it.), Big Huge Labs (Do fun and creative things with digital photos. Make a magazine cover, a movie poster, add comic book-style captions to photos, create a blog header, make a jigsaw puzzle from a photo, and a lot more.), Glogster (This simple editing tool lets you create digital posters from text, images, music, and video. Post and share them on the site. If your Glog stands out as especially creative, the Glogster Team may feature you as a "Mover and Shaker."), Scratch (The most easy-to-use programming language available—a great place to start your life as a Dot Diva! You can program e-cards, for example, or create an animated tutorial about American Sign Language.), Alice (Named after the main character in Alice in Wonderland, this beginning software program is a good next step after Scratch. What's especially cool about Alice is that you can create everything in 3-D. Choreograph an animated ballet or produce an interactive tour of a pyramid—led by Cleopatra!), App Invention (Build your own smartphone apps using the App Inventor for Android. You can create a great game or build a quiz app to study for a test—it'll even ask you the questions aloud! And it's simple—no code writing necessary.), Fresh Brain (Fresh Brain is a "technology platform for teens" that lets you produce music videos, set up a personal carbon emissions calculator, or create your own ring tones. The site provides you with the latest tools in technology as well

as a social networking environment so you can share ideas with other teens and collaborate on projects.), and digigirlz (Build a Web site or create your own podcast using these easy-to-follow tutorials from Microsoft.).

The above descriptions focus on the entertaining nature of the applications; however, viewers without extensive experience in coding need not worry as several descriptions stress the applications' ease of use. What is important to note is that while viewers need not have extensive computing experience, they will develop a minimal skill set by "playing" with these applications. Again, viewers who choose to use these applications are able to release tension while still satisfying cognitive, affective, and social integrative needs if they share their projects with friends and family or post them online at sites such as Flickr or YouTube.

## **Interactivity, Demassification, and Asynchronicity**

In addition to addressing the five needs associated with the U&G Theory, computer mediated communication can be more appealing to viewers by combining the concepts of interactivity, demassification, and asynchronicity.

The lack of interactivity on the Dot Diva Web site is remarkable given how recently the site was developed. Viewers are unable to interact with anyone on the site in real time; the site does include a "Contact Us" section, but an automated e-mail template appears. This site does not even feature a "Frequently Asked Question" section where users could post their questions and have them answered by already established Dot Divas or other visitors to the site. As noted above, viewers are only able to interact with each other when commenting on the Webisode. While participants have control over the content they select to view on the site, they are not able to exchange roles in their mutual discourse. Allowing viewers to exchange roles would be a substantial addition to the site since it would allow viewers to continue to satisfy cognitive needs by gaining more information about the field, affective needs by allowing them to identify with those in the field, and personal integrative needs by gaining confidence in their abilities to perform several roles in the field.

The criteria for demassification are met by this site since viewers are able to select from wide ranging choices and have control over the medium. The site takes into account several different types of viewers who might visit and allows these disparate audiences to tailor messages specifically toward their interests. For example, the Profiles tab features a wide variety of possible occupations within the computing field and viewers are able to select occupations that are of interest to them.

The site also meets the asynchronicity standard as viewers may process its content at their convenience. Asynchronicity may also play a factor in meeting the various needs of viewers: A first time viewer might click through various profiles, gain information about the field, and then review some of the applications featured under the Fun Things To Do section. While the viewer may not immediately begin using the applications, her interest may have been piqued enough that she will return to investigate them in the future. This delay may in fact benefit the site since the content may function as a type of sleeper effect which reminds viewers at a later date to consider computing as a field that includes females for whom there are several occupations.

## **CONCLUSIONS**

The purpose of this study was to examine Dot Diva Web site's likelihood of success for recruiting young women into computing using the Uses and Gratifications Theory. The analysis determined that viewers visiting the Dot Diva Web site are likely to have their cognitive, affective, personal integrative, and social integrative needs met. The site is incredibly informative and also works to recast the ways in which young women may perceive computing. Dot Diva's recruiting strategies target potential viewers' interests in working in exciting fields, earning a large salary, and making a difference in others' lives. Viewers who come to the site seeking tension release may very well enjoy their experience the most given that the entertaining activities featured on the site are replete with information about computing. While the site meets all five of the needs associated with the Uses and Gratifications Theory, its lack of interactivity may reduce viewers' satisfaction with the site; however, the site does allow for demassification and asynchronicity.

Since the Dot Diva Web site includes all five needs associated with the Uses and Gratifications Theory and has proven to be a worthwhile site to determine whether or not audiences are likely to alter their perceptions of computing so that it is no longer viewed by girls as being boring or hard, future research should include feedback from the site's target audience to determine if the site actually meets the viewers' needs. In the same vein of research conducted using the Uses and Gratifications Theory, a survey designed to assess the target audience's perceptions of computing and the likelihood that they would enter the field would be appropriate to be distributed and completed by girls who have spent some time on the Dot Diva site. Other research could also focus on users' reactions to the interactivity, demassification, and asynchronicity of the site.

Additionally, future studies could examine the messages developed for parents and educators. The site contains a wealth of information designed to help reconfigure the image of computing so that it is more desirable for young girls. This analysis could focus on the texts themselves and offer an examination of the rhetorical strategies employed by the authors as well as have the target audience (i.e., parents and educators) view and then respond to the materials via focus groups or close-ended questionnaires.

Given the low participation rate of females in computing, the Dot Diva Web site fulfills an important function. The site certainly has the potential to recruit more female computing majors which will, hopefully, result in larger numbers of women in the computing profession. This site also met the criteria identified by the NCWIT to help encourage students to pursue computing: Dot Diva offers early, positive experiences with computing; instructs parents and teachers in how to offer encouragement; provides positive role models; and provides a substantial amount of information about what computing professionals actually do in their jobs.

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