

Design that affects digital media based collaboration

Introduction

The emphasis of my dissertation is design that affects digital media based collaboration. The objective is to improve collaboration techniques on a web-based digital platform using currently available technologies and commonly accepted collaborative techniques. I will develop a model to address digital media based collaboration. To develop this model, my research will focus on three specific areas: communication, coordination, and cooperation. I will approach my research from a design perspective, synthesizing current technologies and communication tools. I will design a web site to test collaborative concepts. My final paper will detail design practices, success rates based on user participation, and tools that facilitated effective collaboration.

The outcome of my research will be an effective digital collaboration model that improves current technologies and emphasizes user-centric design and computer mediated communication.

Mitchell Kapor, the designer of the Lotus 1-2-3 spreadsheet, stated in his 1991 software design manifesto, that software was abysmal because it was engineered and not designed. I will argue that most web sites and social networks are lacking because of an emphasis on “engineering,” with a myopic approach to user-centric design. I will explore current technologies and established web sites, noting the user interface applications that appear to work, and suggest alternative designs for identified deficiencies. From these findings, I will synthesize the most effective attributes into a

collaborative web site project called Artist Consortium. The Artist Consortium web site will provide a valuable platform to apply proposed solutions and test hypotheses.

The challenges are to design a collaborative environment that encourages participation, facilitates effective communication, and promotes a strong community. Jakob Nielsen in his article titled, *Participation Inequality: Encouraging More Users to Contribute*, describes the internet as a collaborative environment that is roughly controlled by 10% of the users which he labels “heavy contributors” and “intermittent contributors” and the other 90% as “lurkers,” who never actively participate in blog postings, social networks, and newsgroup discussions. Nielsen describes this inequality of internet participation in his model labeled the 90-9-1 rule (Nielsen 1). Taking Nielsen’s and others’ research into account, my objective will be to design a web site that reflects and utilizes this disparity in participation, while still forming a robust and fully interactive community.

Digital Collaboration Model

The collaborative model that will serve as the foundation of my research will examine a prevalent issue that I label the digital collaborative paradox. To accomplish a collective intelligence and informed community as the Wikipedia project seeks, a diversity and independence is required by participants. On the other hand, a connectivity of purpose and commonality are key elements to encourage participation as displayed on such sites as Facebook and MySpace. Add in Nielsen’s 90-9-1 rule and the idea of people fully participating and effectively collaborating seems impossible. My objective is to create a model that resolves the digital collaboration paradox by capitalizing on the intelligence of diversity, reframing active roles and non-active roles

as described by Nielsen, and motivating participation by formulating shared commonalities.

The model will explore the relationship between three areas of collaboration; communication, coordination, and cooperation, and attempt to redefine the design elements that currently influence collaborative web sites. Communication describes the means of conveying and effectively delivering a message. In my work, I will address communication issues by emphasizing the facilitation of information. Coordination considers the ability for participants to effectively interact and work together. Current technologies will provide the solutions to most coordination issues. Cooperation describes users' state of mind and willingness to engage in the process and interact with other participants. Design of the environment, information and user-centric considerations will enhance the collaborative experience and encourage cooperation.

In an effort to design an effective digital collaborative model it will be necessary to redefine conventional collaborative ideas to fit a virtual environment on the internet. Examples of new thinking necessary to facilitate this model are full-representation opposed to equal-participation, relevance in place of interests, and new definitions of "enrolled," "participation," and "contributor" which indicates a type of information instead of a degree of contribution.

Why Digital Collaboration (Literature Review)

As the World Wide Web evolves and internet applications broaden in reach and services, one trend that continues to strengthen is the popularity and sophistication of social networks. Digital collaboration is a key element to enhancing and ensuring long-

term success in these virtual communities and emergent communication tools.

Although the field of design, computer design, and collaboration are well researched areas and the published research vast, the field of digital media based collaboration and effective digital design are emerging. The communities are still forming, and the digital design already reforming from static pixels to animation and interactivity that better represent a digital community in its infancy. The scholars have been limited to speculation and ethnographers have just begun to collect data on the cultural impact. Following is a partial list of leading thinkers and scholars that have produced literature exploring social networks, computer mediated communications, design and a visual literacy that is changing everything.

Social Networks

James Surowiecki in his book, *The Wisdom of Crowds*, describes a collective intelligence that outperforms any one expert and wisdom unique to groups (Surowiecki 32). Cass Sunstein is less euphoric in his analysis of the power of groups and adds some sobering statistics and research to show that the right group of people with the proper focus, and diversity can avoid group think and has the potential to outperform the individual expert (Sunstein 39). Ten years earlier Pierre Levy stated in his book, *Collective Intelligence*, "Nobody knows everything, and everybody knows something, all knowledge resides in humanity" (Levy 13), which supports the benefits of groups, and hints at the power of a digital space that can expand the boundaries of community. Nicholas Negroponte claimed we were in a post-information age in 1995 (Negroponte 163), the same year as Levy described an emerging cyberspace and Kevin Kelly

published his book *Out of Control* exploring man's emerging relationship with technology and the "Hive Mind" (Kelly 5).

In 1999, the MySpace web site was launched and it wasn't until 2004 that the term Web 2.0 became ubiquitous describing a virtual space that encouraged and supported group interaction and collaboration. Facebook followed and the digital community epoch was firmly in place. The Wikipedia project, a digital collaborative model, was launched in 2001 and the practical research began as scholars and social commentators described the digital communities and collaborative spaces in such books as *Wikinomics* by Don Tapscott and Anthony Williams, and *Everything is Miscellaneous* by David Weinberger. Other books that have observed, documented, and shaped our understanding of the virtual spaces, new communities and social networks include *Here Comes Everybody* by Clay Shirky, *A whole New Mind* by Daniel Pink and *The Social Life of Information* by John Seely Brown and Paul Duguid. Before the introduction of virtual communities and communication via electronic mail, Lewis Mumford, Marshall McLuhan, and Neil Postman studied and wrote extensively on the visual culture and the influences of media during the 60's, 70's, and 80's respectively.

Computer mediated communication and design

Since *Time Magazine* named computers as "Man of the Year" in 1983, much has been published exploring the digital man, and the computer as a platform that would change society. In each instance, communication, a new literacy, and collective intelligence are discussed at some level. In 1987, Dr. Nadin in collaboration with Marcos Novak wrote a paper titled *Design Machine: Conceptual Framework*. In this paper Nadin and his collaborator explored the theory of design and computer aided

design. In 1991 the World Wide Web became publicly accessible, five years after Terry Winograd and Fernando Flores published their book *Understanding Computers and Cognition* which explored computers, language and the direction of digital design. Winograd, a professor at Stanford, has spent 35 years exploring design, computer aided design, communication and digital literacy which is best encapsulated in his book, *Bringing Design to Software*.

The topics of computer mediated communication, the influences of digital collaboration, and virtual communities have been extensively researched; still with the evolution of web 2.0 and rapid rate of change enabled by emerging technologies, the topic of media based collaboration and specifically design that influences effective collaboration has only cursorily been addressed. Mitchell Kapor described a lack of a design perspective in the creation of digital applications (Kapor 1). I would argue almost twenty years later we are still ignoring form over function and favor an “engineered” approach to design.

Methodology

I will argue that collaboration on the internet, which I call digital collaboration, is similar to non-digital, person-to-person collaboration that occurs off-line and utilizes similar techniques and considerations involved in group dynamics, experiential learning and team building. Using proven techniques in team development I will duplicate these processes into a digital format and using the same gauges of success, I will test the groups’ ability to effectively communicate and collaborate.

To test my collaborative theories I will rely heavily on qualitative analysis of current web sites and quantitative review of membership data and site visits to gauge the popularity and success relative to competitive sites. Additional research will involve the creation of a web site that caters to the Dallas area artists and local art organizations called the Artist Consortium. This case study will provide a platform to test theories and collaborative concepts with a final analysis using enrollment numbers, and interviews to evaluate the effectiveness of the proposed digital collaborative model. By designing my own web site, I will be able to monitor user participation, page visits, and accurate enrollment numbers, while building-in applications that give an accurate reflection of digital collaboration.

Evaluation criteria for the research of current social network web sites will include unique features, effective design elements, purpose of site, and target audience. In the evaluation of the Artist Consortium site, I will record the degree of interactivity by users, level of connectivity by usage of services, and links to fellow users, and documenting the users' experience in personal interviews and online surveys.

Artists Consortium

The Artist Consortium will be a virtual space (web site) designed to connect a community of artists, art enthusiasts, and those who would benefit from a creative touch. The intention is to create a self-populating database similar to the Wikipedia model that connects buyers with sellers, organizations in need with volunteers, and resources to individuals who are working as professional artists.

The artist consortium web site will combine features of other social networks and web sites such as the organization of craigslist.org and the collaborative and information collection model of wikipedia.org. Sites such as amazon.com and eharmony.com utilize technology that captures the users' information and links them with products, services and other participants based on personal preferences. Google.com provides a search model that would be necessary for a large database as the Artist Consortium, while myspace.com, facebook.com and flickr.com provide insight into successful personal web spaces and gallery type displays of work that an artist will want to share. The community connection that is fundamental will be modeled after sites such as meetup.com and linkedin.com. Finally, communication necessary for a collaborative environment will utilize RSS feed technology, blog capabilities and web site models such as twitter.com to build a strong, connected community.

Conclusion

If participation is a fundamental element of collaboration and Jakob Nielsen is correct that one percent of internet users represents ninety-percent of the activity, and this inequality can only marginally be improved, then the idea of conventional collaboration is weak at best, and practically impossible. The current trend to create web sites for the few with a focus on applications and function over design seems to represent most web design and not provide the best environment to facilitate the greatest level of collaboration.

In my work, I will expand the conventional collaborative model to include a digital influence and design a web site that promotes an effective communication tool and collaborative environment. My work will take into consideration Nielsen's 90-9-1 rule,

but will pull on the work of Levy, Surowiecki, Rheingold, and Tapscott who have researched and explored the collective intelligence and wisdom of crowds. I will use these findings to help design an effective collaborative model for digital media.

Committee Members

I have selected five UTD faculty members who represent a wide sphere of expertise and experience. Their guidance will help focus the research in a field with such broad implications and reach. In some capacity, each member has developed curriculum and taught variations of computer mediated design and communication. Collectively they are accomplished in digital art, visual communication, and emerging technologies in digital communication or literally written the books that explore the history of design, visual literacy and computer as new media for creation, expression, and collaboration. The five candidates that I have selected for my committee are Mihai Nadin, Thomas Linehan, Charissa Terranova, Dean Terry, and David Channell.

Dr. Mihai Nadin, as chair of my committee, will provide steady guidance for my research. Dr. Nadin specialized in aesthetics for his doctoral degree at the University of Bucharest. A short list of his many areas of research include art critique, the history of design and computer design, aesthetics, and computer mediated communication. In his 1987 book, titled *The Civilization of Illiteracy*, Dr. Nadin explores a new visual literacy and the impact of digital content and electronic media on society.

Dr. Thomas Linehan, director of the Arts and Technology program is a pioneer in the field of computer graphics, design and animation. Dr. Linehan has founded and developed three different cutting edge technology and art programs at three different

universities and his contributions to the field of computer generated content is only surpassed by the who's who of accomplished people that have studied and participated in programs developed and headed by him.

Dr. Charissa Terranova is the director of The University of Texas at Dallas artists residency program called CentralTrak and assistant professor of Aesthetic Studies in the school of Arts and Humanities. Dr. Terranova is an internationally recognized scholar of modern and contemporary art and architecture. She holds an M.A. and Ph.D. in architectural theory and history from Harvard University and an M.A. in art history from the University of Illinois at Chicago.

Professor Dean Terry is the director of the University of Texas at Dallas Mobile Lab and Online Worlds Lab conducting research in mobile communication and virtual environments; as well as, the head of the Emerging Media and Communications department. Professor Terry is a successful entrepreneur, with 15 years experience in the digital media business, an award winning film maker and accomplished lecturer and thinker in areas such as online virtual worlds, social networks, and new media art and philosophy.

Dr. David Channell is professor of Historical Studies in the school of Arts and Humanities with relevant areas of specialty being: History of science, technology and medicine; philosophy of science and technology; science and religion; and art and technology. Dr. Channell received his Ph.D. in History of Science and Technology at Case Western Reserve.

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