

Communication Design Quarterly

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Communication Design Quarterly

ACM SIGDOC (Special Interest Group Design of Communication) seeks to be the premier information source for industry, management, and academia in the multidisciplinary field of the design and communication of information. It contains a mix of peer-reviewed articles, columns, experience reports, and brief summaries of interesting research results. *Communication Design Quarterly* (CDQ) is archived in the ACM Digital Library.

We invite you to contribute in any of the following areas:

- Peer-reviewed articles. Articles that cross discipline boundaries as they focus on the effective and efficient methods of designing and communicating information; disciplines will include technical communication, information design, information architecture, interaction design, and human-computer interaction.
- Experience reports. Experience reports present project- or workplace-focused summaries of important technologies, techniques, or product processes.
- Interesting research results. Short reports on interesting research or usability results that lack the rigor for a full article. For example, pilot studies, graduate student projects, or corporate usability studies where full details can't be released.

We are also interested in proposals for guest editing special issues. As a guest editor, you would be responsible for providing two peer reviewed articles on a specific topic and, potentially, coordinating with the column editors so their columns can complement the issue's theme.

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CDQ editorial

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Welcome to *Communication Design Quarterly* issue 3.1.

We start our third year of publication with plans for another year full of high quality information about communication design. We have some special themed issues planned and will have many interesting columns. As always, we need your work. Consider submitting either research articles or work experience articles.

This issue contains two posters that were presented at the SIGDOC annual conference this past October. It also contains a column on data visualization and an article on personas for international users.

This issue is also marks the final issue for 2014. Soon a new year will begin and with it, hopes and plans for a better time. No matter how wonderful your life has been this year, I hope that this upcoming year will be better.

Hope you enjoy this issue and thanks for reading *Communication Design Quarterly*.

Notes from the Chair

Liza Potts

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This year's SIGDOC conference was awe-inspiring to me. We have been working for several years now to change the tone and openness of our SIG, and this year it was fantastic to see so many dynamic, diverse points of view both in our presentations and hallway conversations. Big thank you's to all of you who volunteered, including our conference chair Kathie Gossett, our program chairs Brian McNely and Dave Jones, our poster chairs Ryan Omizo and Clare Cotugno, our graduate student competition chair Alice Daer, our publicity chair Beth Keller, our publicity assistants Allegra Smith and Laura Gonzales, and the rest of our program committee. And a personal thank you to our executive board—Claire Lauer and Stewart Whittemore for all that they do to help SIGDOC continue forward. It was an immense pleasure to see all of you enjoying the fellowship of our event, and I hope to see you in Limerick this summer!

Below are some announcements about different activities and projects that your SIGDOC board and volunteers have been working on. We are continuing with our primary goal of outreach and inclusivity: connecting to other organizations in our field, pursuing opportunities to become a more inclusive SIG, and planning for our future. If any of these activities interest you (or you have ideas to share), please feel free to contact us and get involved!

Report from the SGB Meeting

In October, I attended the SIG Governing Board meeting for the Association of Computing Machinery (SIGDOC's parent organization). When we met in Chicago, we discussed a number of issues that were of interest to SIGDOC. Most importantly, I want you to know that ACM is continuing to grapple with the issue of open access. Here are my impressions of these conversations, and I

encourage you to participate here. For ACM, the Digital Library remains a vital piece of their budget, and they are concerned about how OA could affect this budget. They remain a non-profit publisher, interested in publishing our research and work.

This issue is something we have discussed in depth in SIGDOC. CDQ remains open for the quarter in which it is released in an effort to spread our information widely and support open access publishing. I am committed to furthering this discussion on OA at the ACM level, and I encourage you to discuss these issues together on our various social media networks. You can read the full agenda here: <http://www.acm.org/sigs/sgb/minutes/october-16-2014-sgb-meeting-materials/october-16-2014-sgb-meeting-agenda>.

Women in Technical Communication

As part of our co-sponsorship of the Women in Technical Communication group, we hosted a networking breakfast on the morning of the first day of our conference (September 27). We welcomed attendance from all who self identify as women interested in technical communication. Our featured speaker, Annette Vee, gave a talk on “The dream of coding for everyone and the legacy of mass literacy campaigns” to a packed audience. Thank you for attending!

A newly launched initiative from the Women in Technical Communication group is MentorMonday. This event is a weekly discussion on Twitter and Facebook using the hashtag #womeninTC. We have discussed co-authoring, midsemester stress, and other topics. I encourage you to participate in these discussions on Twitter and Facebook, and submit weekly topic ideas to Women in Technical Communication group member Kristen Moore.

Planning for SIGDOC 2015

Our conference chair, Kathie Gossett, and our program chair, Dawn Armfeld, are in the midst of planning for SIGDOC 2015. Our conference theme is Comhéadan, which is Irish for “interface as a common point or link.”

You will notice that we have created a wide variety of submission types for next year's conference, based on your feedback and the success of SIGDOC 2014. We are also changing the process for submissions by creating a proposal stage that lets you receive feedback before diving into the longer paper or poster brief. Take a look here for more information:
<http://sigdoc.acm.org/conference/2015/>).

We will be co-locating our conference with IEEE's ProComm in Limerick, Ireland. We are very excited to about the possibilities of returning to Europe again, and we're looking forward to seeing all of you there. Many of you have stepped forward to volunteer, and we're grateful for your help. Feel free to contact either Kathie or Dawn if you want to volunteer.

Data Visualization

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Introduction

Human mind is very visual; data visualization is an ancient need. Since humans strived for survival they depicted hunting strategies on caves walls, they also kept statistics of how many animals and of what kind they caught on dwellings. In the history there are of visuals alphabets, like Phaistos, Sumerian, Assyrian cuneiform, were based on visuals rather than on sounds. Then, Egyptians and Maya civilizations, created pictographic images to communicate within social classes and across generations. For strategically purposes, maps were used to depict a kingdoms' richness. The most antique map dates from 2500 B.C. from the city of Ga Sur at Nuzi (Mesopotamian) which describes the Euphrates river sided by two mountains. Homero map (Homero, 900BC) or Ptolemy map (Ptolemy, 200AD) are also very well known as the most important maps of the ancient world. In the sixteen century (1502) in the Portuguese discoveries the kingdoms richness and territories were depicted as shown in the Cantino map. Later, in the eighteen century, William Playfair, created various types of diagrams to depict statistical information, he wrote a book applying those representations techniques (Playfair, 1805). In our era in the 70's the first infographics appeared in journals and magazines in order to summarize information and create a great impact in a massive way. Several practitioners and academicians in diverse areas need to present data graphically. From geographers, to economists, military, statisticians, engineers, biologists, to many others fields, many professionals need to see and understand data graphically. In

this context, it is virtually impossible to relate to a particular field. On the other hand, the use of several disciplines in the design of data visualization artifacts is a reality. In fact, the use of principles, concepts, techniques and theories come from multiple backgrounds: programming, web design, semiotic or psychology. These areas give an important contribute to the process of transforming data into understandable information; these areas complement each other.

Many knowledge fields contribute to data visualization

Data visualization is a field that has inputs from many disciplines. Psychology studies data perception, or the impact of some elements on perception, such as colors and shapes. Computer science and statistics developed several new areas like machine learning and data mining techniques. Graphical and multimedia designs are critical to building infographic dashboards. It may be materialized in the production of infographics and dynamic dashboards. These dashboards are materialized in several elements: data, scales, lines, bars, and colored shaped sizes. Few (2004) referred to these elements by specifying that data aims to measure things (quantitative data) and to classify (categorical data). Scales, on the other hand, can be nominal, ordinal and interval. Nominal scales have no particular order; they can be represented to categorize a population for instance. Ordinal scales have an intrinsic order; usually numerical and interval scales are a result from quantitative and ordinal scales. Lines are used to represent connections or series of points. Lines help the audience to understand the trend for example. Bars have a visual impact on weights of some phenomena, dividing that phenomena in groups and giving different perception on quantitative measures or quantitative data. The use of shapes and colors also help the audience to interpret qualitative values, rather that quantitative data. Although shapes and colors are important in infographics, when using it one must pay attention to avoid some pitfalls. For example, the misuse or overusing of certain colors may have a contrary effect, they might mislead the interpretation. Another common pitfall is to highlight the unimportant information rather than focus the attention on the

aim of the measured reality (Few 2012). In SIGDOC, this is not a new subject. In the context of design of communication and technical documentation community, several authors studied this subject e.g. Zimmermann (1997); Stamey, Honeycutt and Blanchard (2005); (Durão, 2014) and (Costa, Bofill, Baptista, Neves, & Durão, 2014).

Trends

In what concerns data visualization, we identify the following trends: the subject is again a fashionable, infographics generalization, mobility, social media, geolocalization, data mashups, big data, globalization and science communication. This is a subject that is analyzed for many years. In fact, google searches show that data visualization was many searchers several years ago and decreased. Now the number of searches is also increasing again. We may verify that there is a u-shape of the Google search graph. Nowadays also science uses infographics in the attempt to reach more people and to simplify the communication, bridging different knowledge backgrounds and cultures. In smartphones, icons are simplified and understandable by millions of users in similar ways. Infographics improve our mobility. Nowadays cities have many infograms to help people in their transportation, for example, traffic signals, complex subway or railways maps. Social media produce a large quantity of data, most of it unstructured data. Every participation of every person is generating data to be captured, treated, analyzed, and many times distributed and presented visually. Social media are providing new data on how people feel, almost about anything. We are mobile sensors across the world providing geolocated information about traffic; diseases spread, places where we have been on holidays among other subjects. Mashups combine various types and sources of information. In our society we have a need to overview many more information sources, in order to do so mashups display visually many combinations of faceted information bits. With the velocity, variability and huge volume of data on the Internet coming from our every detailed activity we produce a humongous quantity of data. Big Data uses the most exquisite dashboards to help us on decision making. In our virtual communities and digital social

networks, we often use standardized symbols/smiley to express emotions. Individuals share pictures to let the world know our likes and dislikes. Images are liked many more times on social media more than text. We communicate through images across groups of different countries and yet we find a way to become understandable despite languages and cultures. Science aims to solve humankind problems and bring better solutions to our world. In order to do so, scientists must communicate with everyone on simpler and quick bases. We experience the trend of scientific infographics reaching every of us in an efficient way and bringing more understandable realities to everyone. A new trend in science is to produce graphical abstracts and multimedia contents to accompany the articles, it allows the reader to get an overview of the study in a glimpse.

Data Visualization Tools

Data visualizations tools are used in industry to support decision making and also in academia. In the business analytics visualization are most useful to fully monitor all the activities and also to undertake decisions in time. In industry, analytics is very useful to understand the company's market position. As an example, competitive intelligence measures multiple opinions, customers, potential market, competitors, to reach strategic early warnings. In academia there are examples of data visualization that measure the most cited journals by subject areas and categories, by countries or the institutions ranking

Conclusions

Data visualization changes the way people experience information and the way we live. In what concerns data visualization, we identify the following trends: the subject is again a fashion, infographics generalization, mobility, social media, geolocalization, data mashups, big data, globalization and science communication. This is a subject already studied in the SIGDOC community for several years. Now-a-day, data visualization is increasing in many fields, like science communication.

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Rhetorical Functions of Hashtag Forms Across Social Media Applications

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Introduction

This study examines an ethnographically-collected set of social media posts from 5 applications in order to understand the rhetorical functions of something we call “metacommunicative” hashtags (e.g., #PackersGottaWinThisOne, #thisweddingisawesome).

Through a process of inductive analysis, we identified recurring genre functions that are both context-specific to applications’ ecologies and, at the same time, “stabilized enough” (Schryer, 1993, p. 204) to warrant the use of rhetorical genre theory as a tool for understanding their communicative purposes.

Materials & Methods

An “iterative analysis” framework (Tracy, 2013; Srivastava & Hopwood, 2009) was applied to a corpus of 500 social media posts collected over a period of 18 months from 5 applications: Twitter, Facebook, Pinterest, tumblr, and Instagram.

Data collection and analysis were ethnographically-focused and reflexive, using methods of participant observation so that we would be able to engage in “primary-cycle” coding in real time to determine whether users’ hashtags were functioning metacommunicatively or indexically.

A second round of coding used a combination of iterative (Tracy, 2013) and constant-comparative (Charmaz, 2006) methods to develop hierarchical codes, which eventually led to theoretical saturation (Strauss and Corbin, 1990).

Results

Guiding research question: “How do metacommunicative hashtags function as rhetorical genres?”

Emphasizing: used to add emphasis or call attention to something in the post or something the post describes or refers to; usually expressed without judgment as a comment or reflection. Examples: #evidenceofspring; #lateafternoon; #wedon’thavetheseingermany; #webrunchhard; #holydonut; #chocomoojuice; #goodtoknow

Critiquing: used when the purpose of the post is express judgment or verdict regarding the object of discussion (a described experience, an image). Examples: #chefdamianisawesome; #whatishethinking; #skinnyjeansfail; #couldbeworse; #whyarewefacebookfriends; #solittlebread; #fatesworsehanddeath; #bestviewedfromadistance

Identifying: used to refer to the author of the post; functions to express some identifying characteristic, mood, or reflective descriptor. Examples: #ihatemyself; #diabeticinshape; #geeiamsubtle; #justlikehermomma; #insidejokeswithmyself; #ishouldwatchmoretv; #needtofindmyhappyplace; #treadmillcrazyperson

Iterating: used to express humor by referring to a well-known internet meme or cultural event. Could be considered an “inside joke” or take the form of parody. Examples: #hashtag; #WhatDoesItMean (attached to an image of a ‘double’ rainbow);

#instagrace; #gramofgramofgram; #instacat; #fitspo;
#tooldforhashtags; #bookstagram

Rallying: functions to bring awareness or support to a cause or campaign. Often begins as organic, metacommunicative tag when deployed by individual users (e.g., #pitbullisnotacrime; #liftyourvoice; #standyourground; #whyyoushouldcareaboutsocalsecurity; #thestruggleisreal) but could morph into indexical tag via quick re-distribution within and across networks (#:YesAllWomen; #prayforboston; #IfTheyGunnedMeDown).

Conclusions

From a rhetorical perspective, metacommunicative hashtags should be viewed as “communicative genres” in the sense that they are dynamic, interactive functions of designed software being appropriated by users for tacit, recurring purposes of meaning-making within and across social technologies.

From a design perspective, developers might view this research as evidence that users use genres as “orienting devices that help communicating parties reach an intersubjective understanding of the situation,” (Lomborg, p. 58). Because social media are fluid forms with changing purposes and affordances, users’ communicative manipulations and experimentations must be acknowledged, documented, analyzed, and incorporated into the design process itself.

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Rhetorical functions of hashtag forms across social media applications

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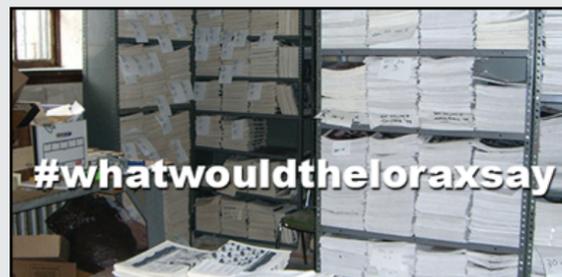
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Porn Architecture: User Tagging and Filtering in Two Online Pornography Communities

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Abstract

This poster brief describes ongoing research on user taxonomies in free internet pornography, examining tagging and filtering systems in two digital porn bulletin boards on the social network Reddit. These two communities—r/PornVids, a board for mainstream porn, and r/ChickFlixxx, a board for woman-friendly or feminist porn—offer unique insight into not only porn consumption patterns, but also ways of sorting pornography according to distinctly gendered preferences. The researcher concludes by describing future directions for empirical inquiry into internet pornography, making a case for the importance of affective considerations in user research and interface design.

Introduction

Pornography has been vital to the development of internet communication technologies [6], and continues to constitute a large amount of daily online traffic [2]. The development and inclusion of porn created for women (often also created by women) as a genre has contributed to growth of a female porn audience. While much analytical work has been done on the differences between different types of pornography and their corresponding digital communities [6, 12], little attention has been paid to the information architecture underlying these communities, and the ways that users navigate them to find pornographic content that matches their preferences.

Reddit is a social networking forum that allows users (or "redditors") to share and vote on content on message boards, or

"subreddits," that coalesce around particular themes [8]. Users then rank this content through "upvotes," and the content then appears sorted in order of aggregate popularity by default. As of April 2014, there are over 2000 pornographic subreddits ranging from the normative to the fetishistic [11]. For this poster brief, the author analyzed user videos and sorting on two of the most popular pornographic subreddits: r/PornVids, a mainstream porn video board with over 93,000 subscribers [7], and r/ChickFlixxx, a porn subreddit compiled for women, by women, with over 21,000 subscribers [1]. Both subreddits link to free pornographic videos hosted on other websites, typically porn tubes such as YouPorn, RedTube, and PornHub.

While Reddit's interface maintains a consistent hierarchical system content ranked by users across all subreddits, the moderators of each subreddit can also establish tagging and sorting taxonomies. This poster brief explores the existing information architectures in place for both PornVids and ChickFlixxx.

The process of sorting and selecting pornography is an affective one for the digital porn consumer. Affect encompasses embodied, lived emotions and sensations of varying intensities [10], and it is essential to the study of pornography because of the often visceral reactions to erotic imagery [6]. Ultimately, this poster brief argues that affect and eroticism are both important considerations in user research [3], tagging systems, and information architecture in an increasingly peer-sourced, group-ranked online culture.

Feminist and Mainstream Pornography

Studios and individuals began producing widely available hard-core pornography for women (as opposed to soft-core erotica) in the early 1990s; the growth this genre since then is indicative of increasing demand by female consumers [9]. Feminist pornography¹, broadly, encompasses pornography that:

1. is written, directed, and/or produced by women
2. depicts "genuine female pleasure;" and/or
3. challenges or dismantles traditional depictions of sex and sexuality found in mainstream porn videos [12]

Porn studies as a discipline embodies a feminist research praxis in that it values the theory and knowledge of practitioners as well as scholars; the 2013 *Feminist Porn Book*, as well as Routledge's interdisciplinary *Porn Studies* journal both include essays and articles by pornographic actors, directors, and producers, in addition to scholars from both the humanities and social sciences.

Reddit Information Architecture and Tagging

Current Subreddit Filtering Systems

Reddit's default method for displaying content is by aggregate popularity: the posts or links with the most upvotes during a particular week appear first on the page [8]. This is just one way to I also use "woman-friendly" and "female-friendly" in this poster brief to describe pornography for women. While "feminist pornography" is the more commonly used term in the scholarly literature, "womanfriendly" and "female-friendly" are typically used on porn websites. sort content on a particular subreddit, however: users also have the option of viewing content according to what's "rising," or gaining a large number of upvotes in a short period of time; what's "controversial," or receiving a large number of both upvotes and downvotes; and what's on "top," or the content that has been upvoted the most over the last day, week, month, year, or the top content of all time.

Each subreddit has at least one moderator who advertises and maintains the community, establishing subreddit rules and addressing users. While the moderators of PornVids and Chickflixxx have established conventions for tagging shared videos, titles and tags often fail to encompass the full spectrum of acts that take place in a video, as well as its affective modalities. For example, videos on PornVids must include a title, a tag, the gender of the actors of the video, and the length of the clip (e.g. "Incredible Amateur Mia Malkova Sex Tape [MF, 62 min]." ChickFlixxx only requests that users "describe the good bits" [1] of videos that they post.

Smarter tagging and sorting systems for group-ranked content

Current tagging conventions, as well as Reddit's default display of frequently viewed posts, are not truly indicative of the post's content, nor user preferences. Even when placed within the context of a particular subreddit, such as a feminist porn community, the site's system of upvotes and downvotes shed little light on the actual content they link to—what acts are taking place? In what context? Whose bodies are being shown?

The architecture of a peer-sourced, group-ranked community such as Reddit could better represent content to users by compiling images of linked content as well as differentiating between types of videos (e.g. penetrative sex, soft-core erotica, humor/parody porn, how-to porn videos, etc.) in both titles and tags. Tagging and filtering systems could extend beyond the physical acts portrayed in videos, offering insight not only into partners and positions depicted on screen, but also the feelings that these images arouse in users. Psychophysiological responses to media can be categorized through a number of affective taxonomies, such as Plutchik's Wheel of Emotion [10]; users could tag media using affective terms such as "impressing," or "disgusting" to describe their reactions to videos.

Additionally, trigger warnings—explicit labels on acts, behaviors, or images that could offend or upset users—would also take into consideration the visceral, affective responses of porn consumers, particularly feminist porn consumers wishing to challenge traditional pornographic depictions of sex and sexuality that may perpetuate sexism or violence against women [12]. Currently neither of these subreddits enable users to easily find the pornography that touches their particular affective sensibilities. In this way, the ideal tagging and sorting system in this particular context could involve collaborative, negotiated meaning-making [4] that takes into account the emotional and embodied experience that is porn consumption. In this way, the participatory power of Reddit [8] could be harnessed not only to gather pornographic content, but to categorize and classify it.

Implications and Directions for Future Research

This discussion of user preferences and taxonomies of online pornography is a part of larger conversations about cultural shifts both documented and perpetuated by digital rhetoric [8]. The author plans to conduct a pilot study examining the content of videos linked in PornVids and ChickFlixxx for her master's thesis, examining the acts taking place, the role of the male gaze [5], and the affective modalities [6] of both mainstream and feminist porn. Continued research on pornography also sheds considerable light on user browsing preferences and behaviors.

The affective experience itself is an important analytical tool in user research and user-centered design. Nowhere is this more apparent as in the case of internet pornography, as porn sites continue to receive more daily web traffic than Netflix, Amazon, and Twitter combined [2].

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PORN ARCHITECTURE

user tagging and filtering in two online pornography communities

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The researcher's master's thesis aims to delineate and quantify the differences between woman-friendly (or feminist) and mainstream pornography. Much feminist pornography research only examines the *content* of these two different genres of pornography, and not the structure and functionality of the websites used to find and view porn. On such group-sourced, peer-ranked websites as Reddit, users can find links to many different types of pornography, but not without potential difficulties around sorting and filtering videos to find content that truly reflects their particular gendered, erotic, and affective desires. Guiding questions include:

1. What are the content strategies and information architectures currently in place to help users locate and select their pornography of choice?
2. How could these be improved, taking into account the growing diversity of porn consumers?



“Why pornography?”

Pornography is an “innovation engine,” (Paasonen 2011) with the adult film industry pioneering the development and widespread adoption of such technologies as home video recording systems and secure online credit card transactions. Internet pornography research in particular sheds

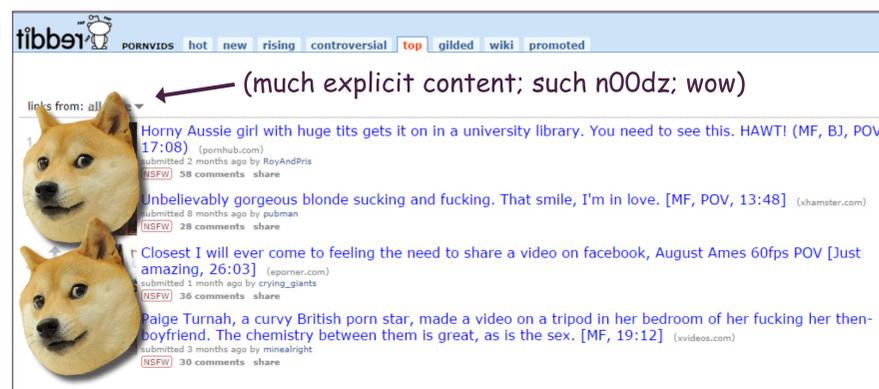
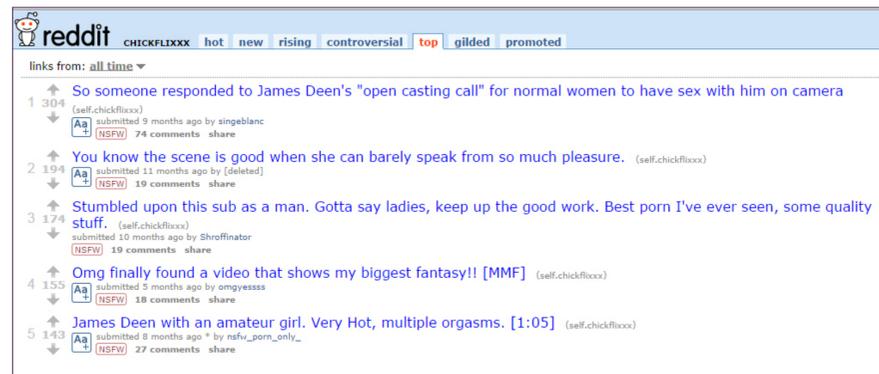
considerable light on user preferences and behaviors, as porn drives more daily web traffic than Netflix, Amazon, and Twitter combined.

Porn studies is an emerging area of scholarly inquiry, with the publication of multiple edited collections over the past decade (Attwood 2010; Taormino et al. 2013; Williams 2004), as well as an interdisciplinary *Porn Studies* journal from Routledge that published its first three issues in 2014.

“Why reddit?”

Reddit is a social networking forum that allows users to share and vote on content on message boards, or “subreddits,” that coalesce around particular themes (Potts & Harrison 2013). As of April 2014, there are over 2000 subreddits devoted to pornographic content, ranging from the normative to the fetishistic. Porn isn't directly hosted on Reddit, but rather Reddit users post links to pornographic content uploaded on other websites (typically free porn “tubes,” like YouPorn.com, RedTube.Com, and PornHub.com).

Because content is displayed in order of aggregate popularity on Reddit (also allowing users to see the number of votes each post receives), it is more indicative of user demand than a standard porn site. However, tagging conventions are not standardized across all subreddits, creating a number of different systems to examine and evaluate.



What does this mean? Implications & Recommendations

While both of these subreddits provide users with links to a variety of pornographic videos, the mainstream porn board actually offers tagging, sorting and filtering options to better enable users of all genders to find the content that best fits their desires.

Neither subreddit (nor most of the porn websites linked on them) provide the users with the options to filter content based on tags, performers, or the website that the content is hosted on. Reddit's interface enables users to search the entire site, or particular subreddits, for a term or phrase, but not to combine tags or use Boolean operators. Thus, Reddit and other porn providers could benefit from the following interface improvements:

- Identification of performers in videos (some sites have this, as well as the option to search by particular performer)
- Standardized tagging systems requiring multiple tags describing the acts taking place, the bodies being shown (gender, race, age), the type of pornography (POV, parody, particular styles such as massage or threesome, etc.)
- Thumbnails or other images for video identification and selection
- Ability to filter out content according to particular tags (for example, blocking content that includes emotional triggers such as simulated rape or violence)

ChickFlixxx, a woman-friendly porn community

- Videos ranked according to aggregate popularity (upvotes and downvotes)
- Occasional basic tags describing performers' gender(s), sex acts portrayed in video
- Performers' names rarely mentioned
- No images

PornVids, a mainstream porn community

- Standardized tagging system (descriptive title, at least one tag, length of video)
- Multiple tags often used
- Descriptive titles and more subjective/personal commentary (e.g. “Closest I will ever come to sharing a porn video on Facebook, August Ames 60fps POV [26:03]”)
- Thumbnail images included for easier video identification and selection

Takeaways?

- How are user choices and experiences **gendered**?
- How can we consider the **affective and erotic** experiences of web browsing when designing interfaces and user experiences?
- In what ways do **tagging taxonomies and practices** affect a user's interaction with, and selection of, digital content? (see Mazieres et al. 2014)
- How else can **internet porn interface & user research** be applied to the design of communication?

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Designing Globally, Working Locally: Using Personas to Develop Online Communication Products for International Users

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Abstract

Extending digital products and services to global markets requires a communication design approach that considers the needs of international (e.g. non-U.S.) users. The challenge becomes developing an approach that works effectively. The concept of personas, as applied in user experience design (UX), can offer an effective solution to this situation. This article examines how this idea of personas can expand communication design practices to include users from other cultures.

Introduction

Global online access has grown almost exponentially in the last decade. Now, individuals on opposite ends of the earth can exchange ideas, information, and digital materials nearly as easily as colleagues working in the same on-site office. But this ease of access cannot mitigate one key factor: culture. Just because individuals from different nations and regions can interact does not necessarily mean they will interact effectively or efficiently. Rather, cultural differences can slow, sidetrack, or even stop international online activities in unexpected and costly (in terms of time and money) ways. Yet the allure of such approaches remains as more

organizations explore using online media to internationalize operations as diverse as medical transcription, software programming, and educational instruction. Approaches that address cultural communication differences can thus help organizations interact more effectively within such contexts. The trick becomes finding a method that can facilitate communication design practices for global audiences.

One mechanism that can guide such practices is the user experience design (UX) concept of personas. The process of developing personas, however, needs to be modified to include certain information related to using online technologies in different cultural environments. By getting communication designers to consider how individuals use technology, personas can provide important insights related to culture and design expectations. This paper examines how a modified approach to persona development can help organizations create more effective communication products for international audiences. Through such an approach, design practices can become a key factor in making the world a smaller place.

The Attraction of International Online Access

The draw of international online interactions is connected to the relatively rapid proliferation of global Internet access. At the start of the 21st century, roughly 360 million people worldwide had access to the Internet. Today, that number has risen to almost 2.4 billion with important gains being made in the world's emerging economies (World Internet Usage Statistics, 2014). The number of Internet users in China, for example, grew from 210 million to just under 600 million between 2007 and 2013 (with almost 60% of the overall population not yet online), and the current number of Internet subscribers in India is estimated at some 200 million (Calamur, 2013; Sen, 2013). Internet access in Brazil is now at 88 million people (just under half of the country's total population) with the sale of mobile devices growing almost exponentially (Internet Usage Statistics for All of the Americas, 2014; Kligin, 2013). Additionally, 47% of Russians—some 67 million people—are estimated to have Internet access with online market share there poised to grow 15-20% per year for some time (Wauters, 2012;

Razumovskaya, 2013). To many organizations, this growth of online access is important for two reasons: labor arbitrage and market access.

Labor Arbitrage

Labor arbitrage involves how rates of pay for the same work can vary from nation to nation. These differences become particularly important when they involve highly specialized jobs or highly skilled employees. A US-based software programmer, for example, could earn roughly \$7,750 a month while the same programmer might earn just over \$1,600 a month in the Czech Republic and only around \$725 a month in India (Moran, 2013; Quick Facts, 2014; Average Salary for Country, 2014). These financial differences mean US-based companies will pay much less if they employ an India-based programmer remotely vs. working with an on-site programmer in the United States.

Moreover, ease of online access and the nature of modern knowledge work means physical distance need not be an impediment to tapping overseas labor forces. That is, as information and materials can be transmitted quickly and easily via digital media, physical distance need not prevent programmer in India from participating in a US-based project. The results of such international online inclusion? Perceived cost reduction for the project. This prospective savings has prompted numerous organizations to internationally outsource – or offshore – a range of tasks from medical records processing to tax preparation work to basic legal services (Trapani, 2011; Robertson, Stone, Niederwanger, Grocki & Smigh, 2005; Kane, 2014).

Market Access

Increased global connectivity also brings with it another tempting financial prospect: *market access* (i.e., direct access to individuals located in a broad range of international markets). With no physical boundaries to impede movement, organizations can now distribute a range of digital goods and services from streaming music and videos to web-based technical assistance quickly, easily, and directly to a wide range of consumers in the broader global marketplace. This situation is particularly tempting in relation to

emerging economies where interest in online transactions is growing and major earnings can be generated.

Consider the expansion and acceptance of online marketplaces in four of the world's most populace emerging economies:

- Brazil's online sales are expected to reach \$25 billion by 2017, and some 60% of the country's Internet users have made purchases online (Herrera, 2013; Geromel, 2013).
- Russia's online movie site Ivi.ru caters to some 30 million clients who each pay \$8.60 a month for access to the site's content (Nideov, 2014).
- India's \$16 billion online retail market almost doubled in size between 2012 and 2013 and access to online shoppers – particularly via mobile devices – should only continue to grow (India's e-commerce, 2013; Sen, 2013).
- China's online market was estimated at worth some \$190 billion in 2012, and it experienced \$4 billion in online sales in a single day (Dobbs, Chen, Orr, Manyika, Chui & Chang, 2013).

The growing middle classes in these nations and the fact that many citizens are not yet online makes the prospects for generating online earnings in these markets huge (Court & Narasimhan, 2010; Kennedy, 2012; Rohde, 2012). Add to this situation the increased use of economies of scale and micropayments, and the allure of online markets – particularly in emerging economies – becomes all the more tempting (Gotschalken, 2013; Evans, 2014; Infographic, 2014). The question now becomes what does an organization need to do to effectively tap these opportunities? The answer lies in revising approaches to communication design in order to better understand these international users.

Communication Design Considerations

In many ways, effective communication design is central to maximizing the perceived benefits associated with using online media in global contexts. This connection is related to the fact that the design of the interface becomes a central component affecting how successfully (or not) individuals can locate, make use of, and exchange information via online media (Yunker, 20003; Sun, 2012).

Add differences in cultural expectations to this mix, and the situation becomes even more complex (Ulijn & Strother, 1995; St. Amant, 2005; Langmia, 2011). In the case of labor arbitrage situations, individuals working in other nations need to be able to find essential information easily and quickly, be able to interact with overseas counterparts efficiently, and be able to provide (e.g., upload or transmit) core components readily. From a market access perspective, potential consumers/clients need to be able to locate products or information on services easily, to obtain product-related information quickly, and to ask questions/make queries and purchase items effectively. Anything that impedes such activities might mitigate the benefits of having access to individuals overseas.

In sum, it becomes an issue of usability. For both kinds of situations to be successful, the employee or the consumer in the other culture needs to be able to navigate an online interface easily and successfully (St. Amant, 2005; Sun, 2012). Interfaces that fail to facilitate such activities can markedly affect the successes of offshoring (i.e., international labor arbitrage) situations or the ability to attract and keep customer bases in other cultures (Yunker, 2003; St. Amant, 2005). Unfortunately, trying to anticipate the expectations of users from other cultures can be more complicated and involve more (and often, unexpected), variables than a communication designer might anticipate (Ulijn & Strother, 1995; Yunker, 2003; St. Amant, 2005; Sun, 2012).

The problem is that cultural groups can have different expectations of interface design. Such differences can include everything from

- What images should appear on different pages (including external links to advertising)
- Where menu bars – and other design features – should be located on a page (as well as how many entries they should contain and what those entries should be)
- How overall sights should be organized
- What language(s) should be used to convey information (Yunker, 2003; St. Amant, 2005; St. Amant, 2012; Sun, 2012)

Further complicating this situation is the fact that overseas users could be accessing these interfaces in context not anticipated by the individual who designed the interface (e.g., from a small-screen/hand-held device). In such cases, relying on secondary research can be problematic, for the “official” information one finds on given nation (e.g., official languages) might be limited or only somewhat accurate in nature. (See, for example Langmia’s (2011) criticism of the languages used for texting via mobile devices in Cameroon.)

While translation and localization can accommodate some of these factors, such processes can be time consuming and costly, and they can limit the adaptability of the organization. In essence, one can only tap a given labor pool or move into a given market as quickly as one’s translators and localizers can revise materials. Additionally, the configuration of the source (i.e., original) materials provided by the communication designer can affect the efficiency of such practices. If, for example, interfaces are built with translation and localization in mind, they can be revised relatively quickly and easily vs. interfaces developed specifically to meet the needs of users in one specific culture.

To address these issues, communication designers need a mechanism that can help them anticipate how individuals in other cultural contexts use different technologies to engage in a range of online activities. Such a mechanism, however, would need to include more than just demographic information on who these international users are (e.g., ethnicity, language use, gender, etc.). Rather, such an approach would need to anticipate the context in which the technology was being used (see van Reijsoould and de Jager, 2011) and the attitudes individuals have toward using the related technology (see, for example, St. Amant, 2012). One mechanism that accounts for all of these factors – and with a focus on design and development – is the UX concept of *personas*.

An Overview of Personas

Personas are models that represent the typical – or archetypal – individual for whom communication designers create materials (Sauro, 2012; Churruca, 2013). The idea is that the more a

communication designer knows about this archetypal audience, the more effectively the designer can create communication products that meet the needs and wants of this audience (O'Connor, 2011; Putkey, 2011; Sauro, 2012). Thus, personas need to account for both who the members of that audience are (e.g., basic, demographic data) as well as how, why, and where these individuals will use a given communication design product. In this way, persona development looks at the context in which a specific group of individuals uses an item (Bustos, 2011; Smith, 2012; Sauro, 2012). This context-focused approach then allows communication designers to develop items that meet an individual's needs and wants for use in that environment.

The connection of users to context of use (and how context affects or determines use) allows personas to represent a richer understanding of a given audience than a user profile (e.g., who someone is) alone could provide (O'Connor, 2011; Bustos, 2011; Mears, 2013). It also provides key insights on the attitudes individuals may have and the behaviors that might occur at the time of day when the archetypal individual makes use of the related technology (Bustos, 2011; Sauro, 2012). In sum, personas allow one to understand how the daily schedule of certain individuals (i.e., archetypes) affects how those individuals use a given technology. In this way, personas allow communication designer to better determine the user's wants (i.e., What do I want to accomplish when I use this technology at this point in the day?) and needs (i.e., What information or design features do I need to have available to me in order to achieve what I want to do via this technology?) (Putkey, 2011; Smith, 2012; Churruca, 2013).

The kind of data needed to develop personas is complex in nature, for it should include

- Demographic data (who someone is)
- Contextual data (where someone is when they are using the technology)
- Behavioral data (what the person is doing when using the technology)
- Attitudinal data (how does the person feel about/what is her or his attitude toward the technology being used)

To glean such information, communication designers should employ a mixed methods approach designed to include the following approaches to data collection:

- *Surveys*: Used to collect basic demographic information on the audience for which materials are being designed and determine attitudes toward the technology (and the related task individuals wish to accomplish by using it)
- *Ethnographies*: Observations of how members of the intended audience make use of this technology – as well as where and when it is used – during the course of their daily lives
- *Interviews and/or Focus Groups*: Done to determine why the members of an audience engage in certain behaviors and answer questions such as
 - Why did they make use of the technology at that time?
 - Why/for what purpose were they using the technology?
 - What factors affected how they used the technology?
 - What attitudes did they/do they have about using the technology? (Bustos, 2011; O'Connor, 2011; Putkey, 2011; Sauro, 2012)

Through collecting such information, communication designers can build a more complete picture of the specific audience for which they wish to develop materials. In fact, in an attempt to make such a personal/archetypal audience member seem more real, many individuals also create a picture of the persona, so they can better conceptualize who that “archetypal individual” is (Sauro, 2012; Mears, 2013).

The personas that emerge from such research can be used in a number of ways during the design process:

- They can serve as a guide for the initial phase of the design process. That is, communication designers can begin by creating initial materials (e.g., wireframes or prototypes) according to the wants and the needs of the related persona (Bustos, 2011; Smith, 2012; Sauro, 2012; Mears, 2013).

- They can help members of a design team (or an overall project team) stay on task/focus during the design process by serving as a reference point for guiding activities (Bustos, 2011; Putkey, 2011; Sauro, 2012). They can, for example, help address questions such as “Should we do X?” with “Let’s review the persona to see if X is something that the archetypal person would want and need when using this item.”
- They can provide a review mechanism communication designers can use to do regular – and also final – tests of the materials they create (Bustos, 2011; Smith, 2012; Sauro, 2012; Mears, 2013). In such cases, the question guiding the review process would be “Will the members of the group represented by this persona be able to achieve what they wish to do when using the current design in the context where and when they would use it?”

Thus, while time consuming and often expensive to create, personas can contribute greatly to the development and eventual usability of a communication design product. Such factors are acutely important in developing an understanding of the contextual factors that can affect how individuals in other cultures use communication products.

Considering Culture and Persona Development

Gathering the data needed to develop effective personas in one’s own culture can be a difficult task in and of itself. When expanded to try to create a persona of an audience in a different culture, the process can become even more daunting. For example, in terms of collecting survey data, aspects of language and translation can affect how questions are worded (if translated) or interpreted/perceived (if not), which can skew results. Similarly, when using online media to collect such data, different legal regulations can affect what kinds of information a communication designer can collect on individuals (St. Amant & Rife, 2014; Kraglund-Gauthier & Young, 2014). The EU’s Data Protection Directive, for example, greatly affects how information on topics such as race, ethnicity, or gender can be legally collected and transmitted via online media (Directive 95/46/EC, 1995; EU Data Protection Directive, 2014).

In other cases – such as ethnographic research – the question becomes one of access (i.e., can one get access to the group represented by the persona) and interpretation (i.e., does one know what to look for/identify, and recognize when a practice common in one's own culture is enacted within the context of a different culture). For example, the role of who in a group performs a given function and who initiated the function (i.e., who wants and needs the action to be performed vs. who is actually performing the action) can vary from culture to culture – particularly when individuals know they are being observed or are acting in a public setting (Ulijn & St. Amant, 2000). And in the case of interviews or focus groups done as a follow up to ethnographic research, who may or may not respond, how the individual responds, and the intended vs. perceived interpretation of the response can also vary along cultural lines (Ulijn & Strother, 1995; Ulijn & St. Amant, 2000). For these reasons, communication designers can benefit from mechanisms that help them account for factors that can affect the context of use and patterns of use related to different cultures.

Unfortunately, there is no magic solution to this situation. However, a framework that identifies aspects affecting the context of use in other cultures/other national settings can help one develop personas when creating materials for members of other cultures. One mechanism that can address such factors is the map presented in Figure 1.

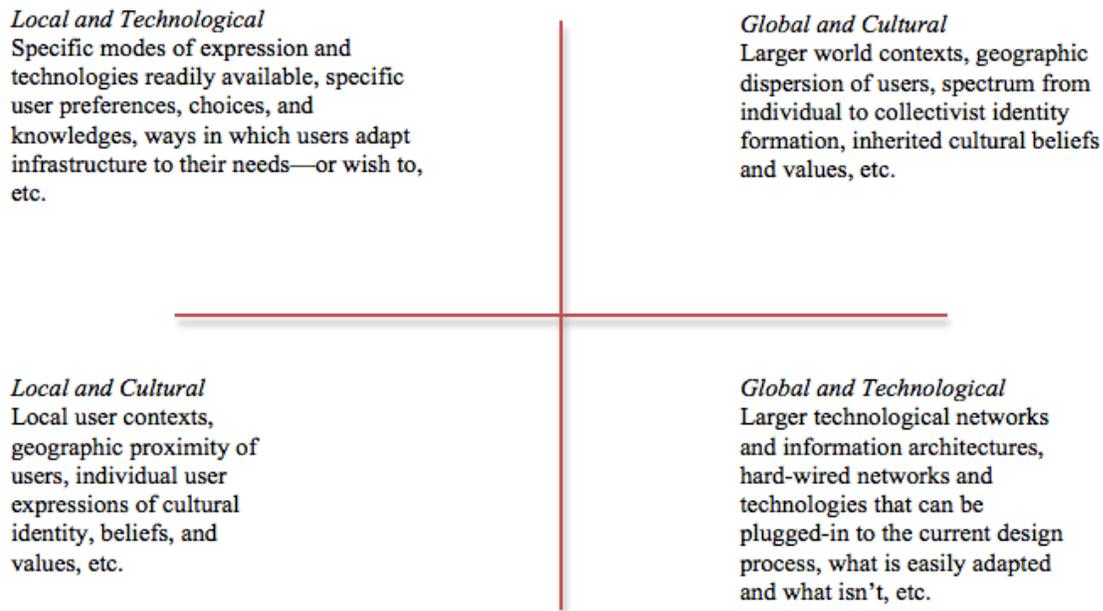


Figure 1: A map of the four contextual areas/factors communication designers need to consider when developing personas of users who are located in other cultures.

The quadrants of this map identify four key contextual aspects/factors that can affect use in different cultural settings. This map can thus allow communication designers to create personas based on contextual aspects associated with using technology products in international settings.

What follows is a guide for using this map when designing communication products for users from other cultures.

- **Local and Technological**—In addressing this quadrant, communication designers would need to ask questions like
 - What technologies are readily available to specific users?
 - How often do individuals use specific technologies?
 - When are these technologies used, and how are they used based on local conditions such as
 - Physical environment?
 - Access conditions?

- How do specific users navigate certain infrastructures when using technology?
- How have specific users learned to make use of particular technologies? What limitations does this learning process impose on how those individuals use technologies?
- **Global and Cultural**—In addressing this quadrant, communication designers would need to ask questions like
 - What large-scale aspects of culture (e.g., economies, institutions, and dominant norms) are most important to communication design?
 - Where do users lie on a spectrum from collectivist to individualist identities?¹
 - What values are most important to users, and where do these values come from (e.g., cultural cross-pollination, customs, histories of particular communities, etc.)?
 - How heterogeneous are users? What factors differentiate them?
 - How geographically dispersed are users?
- **Local and Cultural**—In addressing this quadrant, communication designers would need to ask questions like
 - What local customs, belief systems, and values are important to specific users?
 - How do specific users identify or de-identify with specific cultural norms?
 - How do specific users learn to value or de-value specific cultural norms?
 - How homogeneous are users? What is comparable among them?

¹ The more collectivistic a culture is, the more likely it is to value and advocate what is good for the group over that which is good for the individual. The more individualistic, a culture is, the more likely its members are to focus on what is good for the individual over that which is good for the group (Hofstede, 2007).

- How geographically proximal are users to one another?
- **Global and Technological**—In addressing this quadrant, communication designers would need to ask questions like
 - What technologies are readily available to users in a given region?
 - How reliable and how used are such technologies by the intended audience?
 - When are such technologies used and how are they used based on:
 - Political conditions
 - Economic conditions
 - How do aspects of infrastructure affect when and how such technologies are used?
 - How do individuals in this culture learn to make use of the technologies available to them?
 - What limitations does this learning process impose on uses of technologies?

By using the map in Figure 1 to ask such quadrant-specific questions, communication designers can better address a range of contextual factors affecting how technologies are used by different cultures. In so doing, they can create more effective personas for users in other cultures.

This map-based approach to research combines ideas and methods from UX (e.g., persona development, prototyping, and field studies) with concepts from intercultural communication (e.g., dimensional theories designed to compare cultures across common aspects found in all cultures). In so doing, it expands the persona development process to account for aspects that affect technology use in different cultural contexts. This approach thus provides a method for better understanding local users operating within the context of different regions of the world. And the insights gained from it can help individuals better adapt communication and design practices to such contexts. The challenge becomes using

this map-based approach to develop personas of individuals who use technologies in different cultural contexts.

An Example of Developing a Persona of an International User

This section overviews an example of a persona developed while one of the authors (Guiseppe) was teaching a hybrid class populated mostly by Chinese nationals studying at an American University in the US. As a hybrid class, the course necessarily involved the use of a wide variety of information communication technologies (ICTs), an element that the Chinese students were unaware of when enrolling in the class.

Based on face-to-face interactions with his users, Guiseppe redesigned the ICTs for the course to account for the cultural context from which non-US students came. This work started when Guiseppe began to think of particular members of the class as representatives of user groups (i.e., archetypes), such as Qi, a busy international student enrolled in several accelerated summer courses (Figure 2).



Figure 2: Initial representative personal image created using the map in Figure 1. Qi, the busy international student enrolled in several accelerated summer courses, version1 (Image available via a Creative Commons license: <http://bit.ly/1tFSEOb>)

The map factors that needed to be considered in developing this persona of a user from another culture include

- Cultural issues:
 - Truly valued and wanted to learn digital technologies
 - Unafraid of trying them out
 - From a Chinese province that had successfully blocked access to most social media platforms
- Technological issues:
 - Very proficient in Standard Edited American English (SEAE)
 - Also proficient in several digital technologies (e.g. QQ, HTML, etc.)
 - Preferred to communicate in SEAE in school settings
- Global issues:
 - Accustomed to dealing with multiple digital platforms at once
 - Multi-tasker
- Local issues:
 - Very outspoken student in class
 - Seemed trusted by other students
 - Was often the first to present problems others were having
 - Taking multiple accelerated classes at once

By mapping this persona via cultural, technological, global, and local factors, Guiseppe was better able to consider the learning needs of users as represented by this persona. It wasn't that the persona of Qi, the individual, was the only user being considered. Rather, the initial persona shown here represents patterns in the experiences of certain student-users with which Guiseppe was working. For instance, the actual student named Qi who Guiseppe encountered never said anything about not having access to the Internet. Instead, this pattern arose amongst other users and thus

became a significant factor to consider within the cultural context of the class.

From this perspective, personas are perhaps best thought of as subject positions or as rhetorical frameworks by which to interpret cultural groups of users (Foucault, 1982). In this way, personas can help communication designers better understand international users and their diverse needs. And like users, personas are thus dynamic entities—elements that change over time as the technological systems humans use change. They are representations of cultural aspects that become important during interactions between these cultures and the technological systems that individual users employ.

In the case of Giuseppe's class, he came to understand the persona Qi as very different during the regular ebb and flow of the course. Though the afore-mentioned elements of this persona remained true, new elements also arose. Giuseppe then mapped—per Figure 1—these elements to create a modified persona for this group of international users. This final persona, based on increased data gleaned from interactions with members of the related user group, reflected the following factors:



Figure 3: Example of Final Version of Persona Based on Map in Figure 1 (Image available via a Creative Commons license: <http://bit.ly/1tFSEOb>) Qi, the team leader, version X.

- Cultural issues:
 - Was an early adopter of all technologies introduced
 - Very critical of attempts to block citizen access to technology
- Technological issues:
 - Introduced QQ as a way for student teams in the class to collaborate in a bi-lingual and networked space
- Global issues:
 - Helpful with improving overall class workflow
- Local issues:
 - Became a kind of student representative for technological and linguistic issues his peers were having

Again, it is important to develop personas as rhetorical frameworks employed to understand users from other cultures. In this way, the cultural, technological, global, and local elements Qi displayed became a central factor Guiseppe used to understand and to address how students from other cultures perceived and made use of technologies in his hybrid class. It was thus important for Guiseppe to adapt the ICTs central to the course to these elements of user culture in order to facilitate learning with certain students.

Implications: We Need International User Cultures

As organizations attempt to leverage online media within a global marketplace, they will fail if they do not take other cultures, and their attendant users, into account in meaningful ways. Through a modified approach to persona development – as guided by the map presented earlier in this article – communication designers can incorporate international users into the design of digital products and services in new and innovative ways. This move is essential if we wish to build a participatory web that is intelligible and accessible to international users.

One of the key points we, the authors, would like to emphasize in closing is that *the use of technology is always embedded within a cultural context*. As we have noted, the same technology is often perceived in a variety of ways depending on the cultural context in which individuals access and use it. This is why an understanding of cultural, technological, global, and local contexts is essential to persona development and thus to the design of online media products that are useful and usable to international users.

Finally, though we presented persona development as one process for making online communication technologies useful and usable for international users, it is certainly not the only one. Any communication or design methodology can be paired with an attention to cultural, technological, global, and local contexts in order to create culture-sensitive technologies and communication situations. Such a move is imperative if communication designers are to truly serve the needs of an increasingly digitally-mediated and global society.

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Book reviews

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The Digital Rights Movement: The Role of Technology in Subverting Digital Copyright by Hector Postigo. The MIT Press, 2012. ISBN#: 978-0-262-01795-4

While global citizens have been long aware of ways new technology has been affecting “culture writ large” (9) through interactions online, through observing or experimenting with various types of digital civil disobedience, and through pop culture pieces like the films *Hackers* and *The Net*, many still feel relatively unaffected by these technologies in real life (IRL). Hector Postigo's *The Digital Rights Movement: The Role of Technology in Subverting Digital Copyright* (2012) provides a broader historical context, showing how key actors in the technological sphere have shaped the experiences of a generation and how global citizens can use digital tools and networks in concert with human networks to foster “a culture that is participatory” (9). Postigo addresses how philosophies, uses, and effects of open source and open access technologies and supporters have shaped public perception about ethical use and design. He also explores how both regulation and response frame user agency and experience.

In *The Digital Rights Movement* (2012), Postigo claims that “activists, intellectuals, and organizations in the movement call for a culture that is participatory... (requiring the ideological, legal, and technical affordance to realize such a culture); and the means for achieving this culture are, as one would expect, institutional and extrainstitutional” (7). He argues for users to learn from key actors in the digital rights movement who used networked rhetorical strategies to frame public perception of digital rights. Specifically, activists have converted what could have been a brief moment in the continued history of oppressive forces into a movement. Postigo opens the text by describing one particular historical

moment: the subversive technological philosophy that drove the cracking of DVD player encryptions (3). He then quickly transitions to describing the purpose and organization of the book. He describes historical, legal, and technological contexts in Part I, illustrating how stakeholders worked (and did not work) together to adapt existing copyright regulations designed for print to address emerging digital technologies.

Postigo explains how Jenkins' concept of participatory culture and the digital rights movement's understanding of culture as participatory are "subtly different... To understand the relationship..., one might think of participatory culture as one of the means by which culture writ large may become participatory (other means might be legal or technological, formalized into the workings of society by institutions)" (9). In Part II, he weaves case studies into a tapestry that clearly illustrates how key actors shaped a civil rights movement as a response to poor regulation and software design. He seeks to clarify for readers how and why people can and must shape the digital landscape to foster a more participatory culture.

His strategic use of first-person adds power to his narrative and demonstrates his attention to the users of his text. He writes using historical narrative style but hacks the traditional style by using first person, rarely but effectively, to describe his own role in the historic moments that shaped the movement and to draw readers into his community. The first time he speaks through the text himself seems particularly strategic for achieving this purpose: "The analysis [in this book] points to a coordinated movement that seeks to ensure a culture of participation in media products: what I call the 'digital rights movement'" (4). Through this subtle self-introduction, he stakes his claim as a key member of the movement and sets up later uses of "we" in the text by framing culture as participatory, thus opening the door to include all readers as members of the movement and of a culture of participation in which global citizens have both rights and responsibilities. Postigo concludes the introduction by naming and describing the four themes he explores: "The Meaning of Fair Use and Related Legal Concepts" (9-10), "Technology as Enforcement" (10-12),

“Responding to Technology – Resistance through Technology” (12-13), and “User Agency and Technology” (13-14).

He does not, however, organize the text thematically. Instead, he chunks his historical analysis into two parts, analyzing first the development and design of legislation and second a set of relevant case studies that shaped “digital rights activism as it emerged in the late 1990s and early 2000s” (4). Postigo allots double the text space and number of chapters to analyzing the case studies, making the parts seem unnecessarily uneven. Chapters 4-7 focus on single case studies, while in Chapter 8 he explores a series of case studies designed to reveal the “Structure and Tactics of the Digital Rights Movement” (153-173).

His summary in Chapter 9 further clarifies how the cases define the movement and demonstrates why citizens must critically explore and expose “ways in which technology... attempts to structure not only the user's experience with cultural goods, but also his or her views on that experience” (177) and why it is increasingly “important to seize that very same technology for the opportunities it may afford us to become participants in the making of cultural goods” (178). Postigo's ending paragraph is a clear call to action to join him in exploring ways that issues in technology and legislation affect cultural development. Neither the issues of chapter/part distribution nor the dry, legalistic tone that occasionally slows the narrative significantly diminish the effectiveness of Postigo's work. The overall effect of the tapestry he weaves and the strategic choice of examples readers can identify with will motivate critical audience to consider participating as the technological and cultural landscapes continue to shift.

Because Postigo draws readers into his community subtly throughout the text and because new battles, including debates on net neutrality and access to bandwidth, are currently raging in the fight for digital rights, this historical analysis is accessible to a broad range of audiences. The text would be particularly valuable in introductory undergraduate courses across disciplines that address rights and responsibilities of citizenship. It would also be appropriate for advanced undergraduates or graduate students, as well as for scholars, professionals, and activists seeking to better understand the context surrounding the development of digital culture.

Book reviews

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Morse, T.A. (2014). *Signs and wonders: Religious rhetoric and the preservation of sign language*. Washington, DC: Gallaudet University Press.

Through digital communication tools such as signed video blogs on YouTube, deaf and hard of hearing individuals are able to access information and connect with deaf and mainstream audiences on a broader scale than ever before. The National Association of the Deaf (NAD) prominently engages in online activism and political lobbying to ensure access to captioning, videophones, and cultural practices. These rhetorical actions promote the value of deaf identity and the community's system of communication—sign language. Contemporary online activism by deaf organizations and individuals continues a rich tradition of rhetorical moves by deaf individuals who have advocated for the significance of sign language in the community. In *Signs and Wonders: Religious Rhetoric and the Preservation of Sign Language*, Tracy Ann Morse traces how individuals and advocates for the deaf throughout American history have used religious rhetoric—or spiritual arguments and motifs—to argue for the preservation and appreciation of their cultural language.

Morse defines rhetoric “as the use of language—oral or signed—to influence the thoughts and behaviors of individuals or groups” (4). Her examination of religious rhetoric in the deaf community situates her scholarship at the intersections of deafness, religion, and rhetoric. While this book is singular in its focus, various aspects and implications would be beneficial to audiences from different fields of interest. Naturally, those involved in deaf studies and communication—as well as scholars concerned with the history of religious rhetoric—would appreciate this text's discussion of how deaf culture has used religion to instill faith in its

own value. On a broader scale, Morse's text provides rhetoric and communication teachers and scholars with a unique study of how individuals in a community design rhetorical moves (both religious and non-religious) to recognize their members' shared identity and promote a sense of community.

Morse opens *Signs and Wonders* with a beneficial explanation of deaf culture. She begins this explanation with the premise "that religion has provided the deaf community with a powerful language to convey its authority in its struggles to preserve sign language" (4). She then goes on to explain the presence of religious rhetoric in deaf culture for readers who may be unfamiliar with deaf studies, religion, and/or rhetoric. Even deaf readers might be pleased to discover new facets of their own cultural history not covered in other texts.

The first chapter recounts the religious faith of those who founded and led the first schools for the deaf in America in the early nineteenth century. Morse contends that Thomas Hopkins Gallaudet, a renowned figure in deaf culture, used religious rhetoric that "lent power to the view that the emerging deaf community...deserved an opportunity to be educated through sign language in order to know God" (31). She identifies religious rhetoric—including biblical references and metaphors—in speeches in which Gallaudet appealed to audiences of faith to support deaf schools. The first chapter as a whole serves as an accessible primer on religious influences on a community and on rhetorical moves communities might employ.

In the second chapter, Morse emphasizes the prevalent influence of Protestant ideology in deaf educators' pedagogies and arguments for the use of sign language. She underscores their belief that "sign language use and advocacy are intertwined with the Protestant perspective that sign language is a gift from God" (55). She situates the conflict between the oral method and the manual (or sign language) method of deaf education within the context of late nineteenth-century American scientific advancement. Readers may be intrigued by the cultural opposition between the Protestant theology motivating the arguments for sign language and the evolutionary theories driving the arguments for the oral method.

The third chapter explores the role of deaf school chapels and churches in preserving sign language and establishing a growing deaf community throughout the nineteenth and twentieth centuries. Morse succeeds in demonstrating that deaf “ministers’ religious rhetoric was effective only when delivered in sign language” (67-68). In sign language, facial expression, body language, and body positions are essential in delivering the message and conveying meaning and emotions. Morse’s extended rhetorical analysis clarifies the value placed by early deaf educators on sign language as a means of connecting deaf individuals to their spirituality. As she claims, deaf leaders empowered by their “sense of morality and loyalty to their cultural values, particularly the use of sign language” (84) would be the driving force behind deaf activism in the twentieth and twenty-first centuries.

Morse’s examination reaches its most striking moment when discussing advocacy in the contemporary deaf community in the fourth chapter. She highlights two examples of deaf activism that incorporated religious rhetoric to appeal to both deaf and hearing audiences. She first discusses the moving picture campaign that the NAD created in the 1910s with the aim of preserving sign language on film and promoting a moral deaf identity to mainstream audiences. Through descriptions of distinctive moments in the films, she shows how these signed films used religious motifs and arguments to assert the value of sign language. Morse then discusses Deaf West Theatre’s 2004-2005 musical featuring deaf and hearing actors and characters, *Big River: The Adventures of Huckleberry Finn*. She carefully traces the narrative and indicates the rhetorical strategies used through the musical—such as its prominent use of sign language and religious themes—to inspire mainstream audiences. The connection between the two productions is powerful: deaf activists celebrate the value of their community and language through spiritual messages in mainstream media that appeal to various audiences.

As Morse points out, hearing individuals are often moved by watching sign language performances that celebrate the movement and positions of the body in conveying meaning. Her rhetorical analysis may inspire rhetoric scholars to consider how identity influences the way we communicate and the ways we design

information. How can we best design information in a way that appeals to audience members with various identities and that promotes a sense of community? How can instructors use the body and online technologies to design for accessibility in a way that allows us to connect with all students, both deaf and hearing? Morse's book challenges us to redesign the ways in which we convey messages to any community, and to rethink the ways our messages are interpreted by community members.