Satellite Meeting - Knowledge Management Section
New Directions in Knowledge Management

One voice as a beacon: Analyzing a crowd-sourced qualitative data set using a feminist approach to knowledge management.

Tiffany Coulson
NLA Group, Washington State, United States of America.
tcoulson100@gmail.com

Abstract:

World Pulse is a transnational digital community that supports women in sharing their experiences with global organizations to bring about social change. In a digital action campaign entitled "Women Weave the Web", almost 600 women from 71 countries submitted on-line journal entries proposing solutions to issues of women's digital inclusion. The entries were analysed using a social constructivist methodology based on feminist theory in a knowledge management framework. This case study explores opportunities to highlight feminist perspectives of knowledge creation in a virtual community. Qualitative data sets that emphasized local knowledge were anayzed to inform generalizable recommendations that could be used internationally. Data visualization techniques were used to speed the process of iterative analysis at various stages of knowledge creation. Because internet access is essential to the success of this kind of knowledge building endeavour on a global scale, libraries can play an important role as a portal to participation for women. Processes as well as products of the library recommendations portion of the study, along with reflections by the researcher will help inform the evaluation of virtual feminist communities for knowledge sharing through libraries.

Keywords: feminist, knowledge creation, crowdsourcing, digital

Introduction

Nearly half the world's population now uses the internet. Despite this activity, however, internet use statistics highlight gender inequality since usage rates are much higher for men than for women. In fact, the global internet user gender gap grew from 11% in 2013 to 12% in 2016. The gap is significant in the world's Least Developed Countries (LDCs) — at 31%. In 2016, the gender gap was largest in Africa (23%) and smallest in the Americas (2%)" (United Nations, 2016).

For women, the most widely marginalized internet users, access to the internet is often through community libraries which are poised to facilitate delivery through established funding, infrastructure and staffing. Especially in the Least Developed Countries around the globe, libraries may be important centers of internet access. "More than 230,000 public libraries — 73% of the world's total — are located in developing and transitioning countries" (IREX, n.d.).

Libraries have become global beacons for women's digital inclusion. Having internet access in libraries not only bridges the digital divide for many women, but can also create a virtual safe space for knowledge sharing that may not exist in their communities.

In 2014 an international digital action campaign was sponsored by World Pulse, a growing on-line network of 53,000 women in 190 countries. Called "Women Weave the Web", a solutions-based call for information on issues of digital access, digital literacy and digital empowerment resulted in almost 600 submissions by women in 71 countries and in five languages (World Pulse 2015).

The mission of World Pulse is to amplify the voices of women through advocacy partners to inform global change. Informed of topics in three quarterly phases, women within the network submitted entries with the purpose of offering their experiences in solving digital divide issues. While it is unknown how many of these international entries were submitted through internet sites at libraries, access to a women's organization built in digital space created a virtual feminist community prepared to present and discuss these solutions. The entries were analyzed by World Pulse and shared with global partners seeking new ways of approaching digital inclusion. As "sisters" in a global community, the Women Weave the Web digital action campaign created a virtual environment for women which validated members as knowledge workers in an organization working toward a common goal.

Theoretical Background

Feminist theory puts women at the center of the research process. Feminist standpoint theory in research posits that knowledge building should start through studying the experiences of oppressed women and should then be applied to activities that will bring about social change (Brooks 2007). Since women experience both the disadvantages placed upon them by society, while also understanding how to navigate within traditional power structures, they have a more complete perspective of lived experiences. As explained by Brooks, "Experiences of the oppressed, no matter how diverse, produce more accurate accounts of the social order than the accounts of the dominant group." As explained by Hiemstra & Billo, feminist theory accepts that all knowledge is partial and so there are multiple valid viewpoints (2017). Significant are the multiple social and cultural influences on the processes and products of knowledge building. "Studying cultural products through the lens of feminism means examining gender at the intersection of social forces such as race, ethnicity, sexuality, class, religion, ability etc." (Hesse-Biber 145). This intersectionality expands the process of knowledge building. In fact, the more diverse viewpoints that are offered, the more opportunities are expanded for creating new knowledge. Feminists consider interaction and polyvocality as "central to how knowledge is built" (Hesse-Biber 148).

Feminist scholars see meaning as mediated which adds a layer of intricacy to the process of knowledge creation. Not only analysis of written and oral narratives is important for knowledge creation, but an examination of the circumstances surrounding delivery of the information are paramount to understanding meaning. Not only identified artifacts of knowledge, but also artifacts that do not exist and the processes that prevent their production are of interest (Hesse-Biber 147).

Of interest to studying knowledge shared through the World Pulse on-line network, is the idea of digital space as a mediated environment. The concept that all communication spaces are

socially constructed extends into cyberspace as well. The "alternate geography of on-line space" creates a place where only certain women have the advantage of access, understanding of technology, and literacy that allows them to communicate (Reinharz, 2011, p. 267). Because of this distinction these individuals may not always represent the collective group being studied. The need to contextualize digital communication to determine the effects of social constructs, and the way information is mediated is precisely the reason that a feminist approach is important to research in digital spaces.

Part of understanding the context of digital communication and of abating the effects of a power hierarchy in digital spaces is the use of reflexive methods by the researcher. Reflexivity is crucial in analyzing activist knowledge. "Through collaborative inquiry and reflexive knowledge building researchers deconstruct hierarchical relationships to build research useful to participants and to society" (Hesse-Biber, 2007, p. 147). Contextual understanding of on-line spaces is explained by Hand as triangulating participant observation, archival material and the knowledge framework of the organization (2014). While the three elements often intersected, or overlapped, reflective practice of these relationships during evaluation placed context in the main stream of knowledge creation. Coddington articulates the path of reflexive knowledge building by the researcher as "proceeding" or "refusing" processes as they are evaluated (2017).

Method

The concept of a knowledge producing endeavor from purposeful analysis demanded a methodology based on sound practices that would not compromise the mission statement of World Pulse. Not only the invitation of a digital space for open expression, but the idea of information crowdsourced from women at different intersections of race, ethnicity, education, nationality, religious belief and socio/economic class opened the door to the contribution of feminist methods in the process of knowledge creation.

Nonaka's SECI model of knowledge creation involves various types of transfer between tacit and explicit knowledge. In what is termed "Externalization", tacit knowledge that is experienced or understood by an individual becomes explicit knowledge that is documented and therefore transferrable to others (Desouza, 2011, p. 108). For the journal data submitted by the Women Weave the Web campaign, the tacit knowledge of women's experiences became transferrable through the process of knowledge creation. While journaling is a basic step in articulating the tacit knowledge individuals chose to share, as the analyst I assisted the transfer of experiences, ideas and values to external partners through writing actionable recommendations. Qualitative researchers articulate this tacit knowledge capture by acknowledging the ability of the researcher or analyst to become as immersed as possible in participants' experiences through attention to detail (Tracy 2010). I immersed myself in the process of data capture by becoming a member of the World Pulse community and submitting my own story regarding digital divide issues in rural America. My knowledge of the details involved in data processing informed my analysis of campaign submissions. Initial thematic coding of all entries through careful reading prepared submissions for inclusion in reports for outside organizations. Processing campaign recommendations from original entries allowed me to consider the context of each submission, looking for ties across contextual experience and using intuitive processes to create meaning from the data sets (Desouza 2011).

As noted by Raich in regard to analyzing textual data for making management decisions, "...generating knowledge goes above information processing and text mining" (2014). While the use of these processes can be informative, using pre-developed codes is said not to be knowledge generating; generating new themes and theory cannot occur without interpretation by a human agent (Raich 2014).

It is important to the knowledge creation process that the analyst returns to the data multiple times and that multiple opportunities are sought to reflect on the information found (Sinkovics 2014). Since it is not only the context of the participants, but also that of the analyst that influence the interpretation of tacit knowledge, revisiting the details of the original information becomes a reflexive exercise in understanding and applying the "…human biases, skills, and passions [that] play an important and necessary role in guiding discovery and validation…" (Desouza, 2011, p. 48).

"Technology driven abundance" has resulted in larger amounts of not only quantitative but also qualitative data. (Erwin 2013). Big Qualitative Data as defined by Erwin and Pollari refers not only to the amount of data, but the complexity of the information and speed of accumulation (2013). Further complicated by accelerated time frames often demanded for relevant analysis, Big Qualitative Data calls for software tools that can accelerate this process. A software tool called "nineteen" was used to convert coded entries, along with meta data, submitted text and links to original entries into color coded tiles. These tiles could be sorted, filtered, and stacked to allow multiple ways of organizing the data before deep analysis, a term called "data poking". (Erwin 2013) Using "nineteen" a combination of text mining and iterative visual inquiry produced
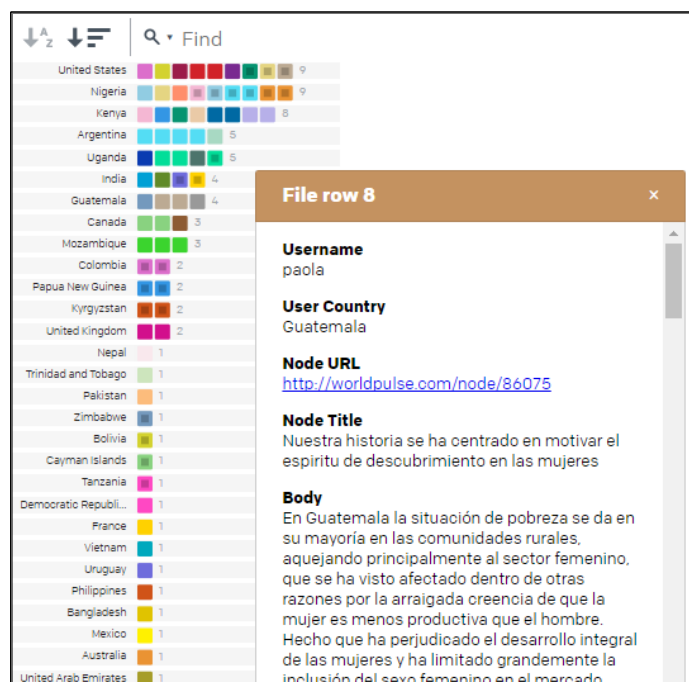

Figure 1: Analysis software "nineteen" - Data aggregated by author and country of origin as well as a pop-up box linking to the original entry and text.

emergent themes, cross contextual analysis and discovery of thematic connections that resulted in recommendations representing the needs of women as well as organizational partners. At all times in the analysis, the original entries were referenced to ground the research process in the voices of women (Coulson 2014). The final recommendations also contained quotes and links to submitted entries to reduce the influence of power hierarchies in the form of the researcher, the organization and outside stakeholders.

Discussion

The goal of the Women Weave the Web campaign was met through two areas of focus in the research. One was to give women a forum for sharing solutions to issues of digital access, digital literacy and digital empowerment in their communities. The other was to provide global partners with information surrounding women's digital inclusion so they could implement

actionable recommendations. Findings confirm the theoretical need to use feminist methods for research in digital spaces designed to produce knowledge building outcomes. (All references below are the internet names of the women who submitted entries. The original submissions can be found at worldpulse.com/www.)

1. **Making women central to analysis across contexts** – Understanding the marginalized position of women contributed to identifying issues of digital inclusion. But it was the ability of women to succeed in situations outside their power that informed recommendations for action built from their shared experiences. Even when filtering content for information regarding libraries, one of the over-arching themes of the campaign became awareness of technology mediated violence against women, and using technology to combat violence against women. When this topic was presented by World Pulse as one of the top five recommendations at the Internet Governance Forum in Istanbul, the first comment taken after the presentation was from a female attendee who said she was encouraged to hear violence against women addressed for the first time as a major factor in women's digital inclusion.

2. **Reflexive evaluation** of how digital space is mediated produced recommendations not specifically addressed by contributors. A contribution by a librarian in Guatemala detailed the use of their new technology center and the importance of that access to remote areas. However, in her description she spoke of how her first computer class was attended only by women who could not read. She taught women their letters on the keyboard, they eventually learned to search videos of craft making, and 2 years later some had started their own businesses (paola). Searching for "illiterate" and "letters" revealed 6 related entries across the world and led to a recommendation to use computers to teach literacy even though the women inspiring the solutions were unheard and this was not originally a direct recommendation by contributors.

3. **Internet as a safe space for women** – Safety through anonymity and freedom of expression on-line were cited by many women as primary reasons for accessing the internet in political, religious, cultural and other personal contexts. However, of greater concern were issues of internet safety since compromised privacy, identity theft, and other forms of harassment were seen as a threat to women. While libraries were primarily mentioned in the context of making internet use affordable, the value of librarians as knowledge workers that could monitor internet use and guide neophyte users in their search for safe content was also of importance. Libraries were also seen as physically safe spaces, although women noted the need in some cultures for separate library use for women (Raisa Ashraf; Nilanjana Sanyal; busayo).

4. **Importance of access to original text** – Without constantly revisiting the original submissions from women, much of the important uncoded content that provided context for knowledge building would have been lost. Access to original language was important to understanding an untranslated French acronym "cad" which read in context was clearly texting language and helped build a recommendation regarding internet languages (KASONGO LUBULA). Visual images, links to video, web sites and photographs were an important supplement to a story from Columbia from a librarian who recruited hearing impaired individuals to teach technology classes and now serves diverse disabled patrons in ICT training (andrea.rojas). Access to the original text in both cases highlighted issues that made major contributions to partner recommendations.

5. **Need for new methods of evaluation to meet both the needs of participants and the needs of the organization.** The large amount of qualitative data, quickly accumulated, made it necessary to investigate new methods of evaluating information for building knowledge. Predetermined codes only addressed the needs of the organization and global partners. The use of data visualization made it possible to evaluate large quantities of qualitative data to produce new knowledge (Nineteen 2016). For example, women in China, Bahrain and India wrote in separately as advocates for marginalized LGBTQ communities (smjaney; Esra'a Al Shafei; deepagupta). But there was no request for information about this topic and it was not included in closed coding. It was necessary to quickly filter, view and compare knowledge artifacts across contexts to determine if these entries should be added as emergent recommendations.

While the findings produced results which reflect the ideals of feminist theory, important distinctions between traditional knowledge management views, and purely feminist perspectives stand out.

Grossman and McCarthy provide a useful knowledge management perspective of how qualitative data can inform organizational practices (2005). But their description separates the data from the originator and the processes from which it was produced. In the case of Women Weave the Web, the "data" being analyzed was considered an extension of personal experience and was valued alongside the originators and processes from which it was produced.

Unlike the experiences of feminist researchers Morrow, Hawkins and Kern in which the researcher is the final mediator in determining relevant knowledge and how it contributes to knowledge production, the World Pulse case study positions the researcher as a mediator between the knowledge artifacts of the participants and the organization (2015). As that researcher, I adopted a stewardship which challenged the hierarchical power of the organization's immediate information demands as secondary to the process of knowledge building to meet the needs of participants, the organization and its partners in creating knowledge to build social change.

Choudry and Kapoor acknowledge the creation of knowledge during engagement with social justice movements by participants as well as the tendency for participant experiences to be overwritten by organizational priorities. They call upon professional leaders in organizations as well as academics to acknowledge the value of informal knowledge being created by individual experience rather than valuing it only after it has served formal needs (2010). Their perspective was shared in theory by the methods used to produce findings through the Women Weave the Web digital action campaign.

Study Limitations

As stories were shared by community members, it became apparent that many of the women were "speaking" on behalf of others rather than from their own authentic experiences. Even with a conscious effort on my part as the researcher to adopt reflexive practices, I had no way of knowing if the contributor had reflected at all about their own positionality in regard to others. In some ways this may have affected the way I interpreted the data, coding based on the shared story without regards to how far removed the contributor was from the situation.

Dempsey's idea that "Organization accountability to stakeholders introduces a tyranny of accountability" was an apparent limitation to knowledge production from the beginning of the campaign (2007). The need to share recommendations for action was the driving force of the campaign, so wording of recommendations had to be crafted to speak specifically to the needs of various global partners. Marketing of the outcomes was also of importance to the

organization which sometimes conflicted with a methodology which focused on counter hegemonic reporting. For example, requests for data summaries needed for an infographic poster had to be refused because they would have misrepresented metadata. Total numbers of entries on a particular topic, and summaries of topics from different countries were not used to determine the content of recommendations. Using this kind of data aggregation would have been misleading to participants, and partner organizations.

Another study limitation stemmed from the ideal of collaboration between contributors and researcher as an important consideration in building knowledge based on feminist principles (Given 2003). Previous consultants studying World Pulse efforts to include community members in decision making have noted that when time became constrained, collaboration lessened (Linabary 2015). During Women Weave the Web, the limitations of the quickly growing qualitative data set as well as continual additions to needed recommendations meant additional predetermined themes, reevaluation of submitted data and study of emergent themes in very short time frames. With almost 60 themes and subthemes by the end of the campaign, continuous collaboration quickly became impossible to include as part of the methodology.

Suggested Areas for Further Research

The addition of pictures, interviews, presentations at conferences proceedings and other media would add additional depth to written entries. These items as well as web sites, blogs, and links to video content were often included with campaign submissions yet were largely absent from the knowledge creation process. Consideration of diverse media and digital resources would greatly increase the size and complexity of World Pulse data sets but would be interesting resources to include as a complement to contextualizing written entries.

Along with considerations of multimedia analysis, perhaps the most widely recognized usage of qualitative data for informing knowledge creation for innovation, are interactions that take place in on-line discussions (Sinkovics 2014). During the Women Weave the Web campaign, only World Pulse journals were analyzed, but each entry was also available to community members for discussion and commentary. These discussion threads are another potential source of important knowledge creation material that is provided by the World Pulse community in their collective effort to magnify women's voices for global impact, and accelerate positive change in the challenges facing women world-wide.

Conclusion

As members of a growing on-line network, the Women Weave the Web campaign allowed women to share their individual experiences and contribute solutions to issues of digital inclusion that would create pathways for social change. The need to inform global activists, while preserving the distinct nature of written contributions, called for a methodology that highlighted feminist theory in knowledge management practices. The theoretical goals of the sponsoring organization, World Pulse, along with reflexive analysis by the researcher created unique sets of recommendations that serve as a model for building new knowledge among virtual feminist communities.

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