

Family Matters: Control and Conflict in Online Family History Production

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ABSTRACT

Findagrave.com and Ancestry.com are sites that support the cooperative creation of public historical resources. These sites of cooperative production have attracted tens of thousands and millions of contributors respectively, yet they embrace content standards, social norms, and models of editorial control that differ radically from the well-studied exemplar of Wikipedia. In this study, we investigated how Ancestry.com and Findagrave.com support production of historical resources through analysis of message boards and interviews with participants. We found that these sites are not only places for building a historical resource, but simultaneously serve as opportunities for public memorialization and familial identity construction. Notably, we found that contributors to these websites embrace the idea of familial oversight of biographical information in order to maintain high standards of quality, and they harbor a corresponding skepticism of the open editing practices that have become a hallmark of many open collaboration projects.

Author Keywords

Peer production; crowd sourcing; socio-technical systems; family history; genealogy.

ACM Classification

H.1.2 [Models and Principals]: User/Machine Systems – Human Factors.

General Terms

Human Factors.

INTRODUCTION

A middle-aged woman lost her beloved husband 6 years ago and spent considerable time writing a biographical sketch of her husband and photographing his grave. She then uploaded these memoirs, along with some personal photos of him, to the user-contributed website Findagrave.com. Soon after, she was shocked and angered to find that an Ancestry.com subscriber had copied and

pasted the content and images to a family tree for a family that was not related to her husband. The subscriber conducted careless research and had misidentified her husband as a family member.

This true story (provided by a participant of this study) points to problems arising in the burgeoning and diverse family history research (FHR) community that is engaging in the production of family histories on the web. Millions of family history researchers (FHRs) are cooperatively building web-accessible archives filled with information and images pertaining to deceased individuals for personal use and for public consumption. Yet, we know little about how their production activities are coordinated and constrained by the different systems that support family history work.

In this paper, we explore these phenomena through the lens of two different family history production websites: Findagrave.com and Ancestry.com's family tree archive. Both the family tree archive and Findagrave.com represent the convergence of personal family history building and the creation of a public historical resource. This juxtaposition highlights the fact that online production activities can have multiple meanings. Unlike Wikipedia, where identity building and memorialization are not formally considered to be part of the encyclopedic enterprise, family history production sites exist to meet family members' wants and needs as they construct histories about their kin.

LITERATURE REVIEW

Understanding the online production of family histories involves not only understanding the practices and information behaviors of FHRs, a topic that has been addressed by researchers in library science and archival studies, but also the phenomena of virtual memorialization and the organization of peer production communities, both of which have drawn the attention of CSCW and social computing researchers. We draw on literature from these diverse disciplines to motivate our research questions and situate the phenomena we investigated.

Online Practices of Family History Researchers (FHRs)

Little is known about the socio-technical aspects of family history production in open collaboration environments. We are aware of only one study of FHRs' collaborative online production activities, which explores peer indexing projects. Peer indexing involves volunteers extracting data

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CSCW '14, February 15-19, 2014, Baltimore, Maryland, USA.

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from digitized government documents, such as census records, and uploading transcribed data to family history websites. Hansen et al. compared two different types of quality control methods—arbitration and peer review—to determine which might prove to be more efficient and provide more accurate peer indexing on FamilySearch.org [16]. They found that the peer review method took considerably less time to resolve transcriptions errors than arbitration but with slightly less accuracy.

Most research on FHRs has focused on how they share information, advice, and instructional guidance either virtually or face-to-face [7, 29, 34, 36]. These activities have been found to be the foundation of a reciprocal information sharing culture that FHRs draw upon to meet individual information needs [14, 29]. Yakel and Torres found that in face-to-face genealogy society meetings informal information sharing took the form of instructional guidance, which served as a means to bring less experienced FHRs into the family history community of practice [36]. Yakel, Fulton, and Tucker found that web-based chat rooms and forums were also important communication channels for informal information sharing among FHRs [14, 29, 34]. Using a quantitative approach, Veale studied a FHR newsgroup and found that participants got to know one another and interacted in long threads that suggest rich conversations [30]. One might imagine that such online forums provide an opportunity for the kind of community building and enculturation found to be important in face-to-face interactions. However, Willever-Farr, Zach, and Forte studied the exchanges of FHRs on a popular message board on Ancestry.com and found that the abundance of online genealogical data and the structure of technological tools available to FHRs appeared to inhibit them from providing one another with guidance on *how* to find family history data and instead encouraged them to provide family data outright with no instruction in their exchanges on the message board [33]. Instruction on how to conduct research may be critical for newbies as family history is a learned practice involving original research that requires participants to: 1) locate relevant data on deceased individuals from a sea of information scattered across virtual and brick and mortar repositories; 2) verify the relevancy of found data based on contextual or other confirmatory evidence; and 3) use that data to construct family trees and/or family history narratives [7].

Memorialization and Grieving

The literature on FHRs' information behaviors has examined online information sharing behaviors, but does not discuss online memorialization and the virtual representation of family history. There is, however, a growing corpus of literature that has explored the ways in which online spaces are used for memorialization and as a part of the grieving and mourning process.

In contrast to physical memorials, virtual memorials can be modified over time by loved ones and others [17, 24] and

free bereavement from one ritual place and time (such as face-to-face funerals or physical graves) [17]. Online memorials provide the bereaved with a virtual space in which they can grieve whenever and however they wish. Virtual memorials also shift death and bereavement from the private sphere of family and local community into the public sphere of the Internet [15, 32]. These public virtual spaces allow for “a unique form of communal discourse” [4] among griever within and outside of the deceased's immediate social networks and provide a sense of community centered on mourning [2, 17, 24]. Other researchers have found that virtual memorials blur boundaries between the living and the dead and enable relationships with the deceased after death [24], which can extend bereavement and the social lives of the dead indefinitely [22].

Virtual memorials may enable details about the deceased to persist on the Internet indefinitely, creating an “immortal” identity for the deceased that is managed by others [4]. Virtual memorials, therefore, raise questions about who manages the content and potential conflicts over content decisions. On one website, MyDeathSpace.com, anyone can upload a MySpace profile of a deceased individual without the consent of family and/or friends of the deceased [25]. Ryan and Sofka found that some individuals were shocked and disturbed to find deceased family member's profiles online [25, 26]. The content of some memorial postings may be of upsetting to family, friends, and other members of the mourning community; in many instances anyone can post to virtual memorials creating more opportunities for diverse responses to death and potential conflict [32]. For example, postings that express death in religious terms may be offensive to nonbelievers [24]. Internet trolls and spam robots can also lead to unwanted and offensive content being placed on virtual memorials [23].

Managing Online Biographical Content

The difficulties of managing online biographical content have been explored by researchers of open collaboration on Wikipedia. Wikipedia is an online encyclopedia that relies on an open editing model in which anyone can contribute and edit articles on a myriad of topics, including biographies of deceased and living people. Like any Wikipedia article, biographies are expected to follow Wikipedia's established content policies, including Neutral Point of View (NPOV), Verifiability (V), and No Original Research (NOR). Biographical articles, particularly those about living people, have captured researchers' attention in part because they have necessitated a lot of policy intervention [12, 18]. In particular, “the impact on biographies of living persons (BLPs) in Wikipedia is that what used to be a tightly controlled artifact, created for a very small number of subjects, can now be created for and about anyone” [18]. Unsurprisingly, BLPs and attendant policies have created conflict among contributors. Joyce, Butler, and Pike assert that conflict arises largely through

differences in goals between and within groups on Wikipedia and that these differences are embodied in artifacts they refer to as “contentious objects” [18]. Contentious objects are elements in a social organization that serve as a common object of activity, but these activities contain elements of unrealized conflict. For the Wikipedia community, BLPs are particularly contentious objects.

Conflict over BLPs or other types of content on Wikipedia is typically resolved through various avenues that ideally involve rational discourse and consensus building. For example, “talk” pages that are separate from the encyclopedia content are spaces for contributors to discuss content changes and resolve disputes related to a specific article [31]. Additionally, a revision comment field, which is a free-form text field supplied by each contributor when submitting an edit, is available for the contributor to describe what kind of changes he/she made and why [27]. As a last resort, the Arbitration Committee can be called upon to resolve a dispute among contributors [12].

Avenues for resolving disputes are a critical feature of Wikipedia, as conflict resolution is becoming a mainstay in the development of many Wikipedia articles, whether the content encompasses BLPs or other types of content. Kittur, Suh, Pendleton, and Chi found conflict impacts activity at the article level: the number of article edits is decreasing, while the overhead (the number of edits intended for communication and policy making) is increasing for individual articles [19]. Later, Suh, Chi, Pendleton, and Kittur developed a user conflict model for Wikipedia (“Revert Graph”) based on revert activity (revisions that void previous edits) and found four social patterns of conflict. The authors observed that conflict was not always tied to a specific piece of content—disagreements among user factions often propagated from one article into others [27]. Territorialism, the expression of ownership towards an object, is another source of contention among Wikipedia contributors. Territorial behaviors, if left unchecked, may result in conflicts over ownership and hinder cooperation. In Wikipedia such territorialism is discouraged, although Thom-Santelli, Cosley and Gay found in an interview-based study that some Wikipedia editors develop the means to take “ownership” of articles by being the primary contributor to the article, being the initial content creator, being the main reviser of the content, and/or using an editing style that bolsters his/her primary contributor role [28]. Reasons for this behavior included commitment to producing quality articles that would stand up to heavy critique, rectifying vandalism, and removing erroneous information or unsupported assertions.

Research Questions

The high-level question that motivates this work is, “What are the social and technical features of open collaboration systems that support family history researchers?” Given the

peculiar juxtaposition of personal and public concerns that characterize online family history construction and the breadth of literature that highlights the contentious nature of online biographical materials, we specifically wondered:

- What tensions and conflicts arise as FHRs simultaneously engage in the personal work of constructing the story of their own families and the public construction of a historical resource?
- How do FHRs negotiate these tensions and resolve conflicts?
- How do the systems that support online production of family histories constrain and support negotiation of these tensions?

METHODS

To answer these questions, we undertook a qualitative study using multiple data sources. The primary empirical support for our analysis comes from message board/forum data and interviews with FHRs.

To begin, we selected two family history production websites to examine: Findagrave.com (Find A Grave) and Ancestry.com (Ancestry). These popular websites were chosen because of their prominence, the number of contributors involved, the historical value of the materials being archived, and the potential differences that may exist between family history production on a commercial website vs. a community-run website. To better understand how the sites support production and what kinds of technological constraints they impose on production activities, we spent months observing activity and trying out both Ancestry and Find A Grave. We also examined the sites’ terms of service and guidelines to understand the production rules. These observations raised many questions about how people perceive their activities. Did people view their work on these sites as building a public resource or as a personal project? For what audience was this often painstaking work intended? What kind of research experience do contributors bring to the sites? As these questions accumulated, we developed an interview guide to explore Ancestry and Find A Grave contributors’ experiences and perceptions of the sites.

We sought to interview individuals who had provided content on both websites, and used message boards and word-of-mouth on both Ancestry.com and Findagrave.com to recruit participants. Eight individuals agreed to be interviewed: six women and two men. Participant ages ranged widely: one in his 20s, three in their 40s, two in their 50s, and two in their 60s. All eight interviewees had contributed content to both websites and had participated on both of the sites’ message boards/forums. Interviews lasted from 40 minutes to 2.5 hours; most interviews were over an hour in length. Interviews were recorded and transcribed. The first author performed three iterations of coding to identify thematic patterns in the transcribed data using

Atlas.ti (open coding) [6]. Both authors discussed and worked with the resulting codebook to refine and further articulate the relationships among codes (axial coding) [6].

Interviews revealed that production problems were sometimes hashed out on Ancestry's message boards, Find A Grave forums, or via private messaging. Although private message exchanges are not observable, message board/forum posts are publicly available, and we collected a strategic sample of public discussion threads to further understand the dynamics of online family history production. Similar to the method used by Forte, Humphreys, and Park [11], we used the codebooks developed from interview data to inform our analysis of public message board/forum posts.

Ancestry and Find A Grave message boards are different and required different sampling strategies to assemble a corpus for analysis. Although interviewees had identified the Ancestry message boards as an important communication channel for discussing community issues and airing grievances, we knew from existing research [33] that much of the content on these boards involved help requests that are not clearly related to the production of artifacts on the site. Some interviewees, fortunately, mentioned that discussions regarding family tree production were often conducted on the "Ancestry" threads. This pointed researchers to a section of the message boards which enabled the researchers to identify specific boards that might provide additional information on production activities on the site. This yielded 5 message boards with 1,512 total posts between January 1, 2011 and March 1, 2013. Compared with Ancestry, Find A Grave forums are smaller in number, and we knew less about their composition. As a result, we initially read all 2,291 posts for the period January 1, 2013 to March 1, 2013 to get a sense of the content of the different forums. Forums that were overtly off-topic, such as discussions about politics or vintage cars were discarded, leaving 5 forums to explore. For the time period January 1, 2011 to March 1, 2013, there were 763 posts on the 5 production-oriented Find A Grave forums. We analyzed a total message board corpus of 2,275 posts.

Finally, we used the interview codebook to categorize content from all the posts, which worked well and yielded a rich set of complementary data from both intervention-based interviews and naturally-occurring online discussions. Production-oriented posts involved discussions about three topics: technical problems with the website, problems associated with use of copyrighted materials in user-contributed content, and problems with inaccurate user-contributed family histories. The posts strongly iterated the interview findings, which further strengthened our confidence in the validity of our interpretations. Content inaccuracies, technical glitches resident in studied

website infrastructures (e.g. photo upload problems), and copyright issues were mentioned by both posters and interviewees. This paper explores one of those issues— inaccuracies in user-contributed family histories—which appeared to be creating wide-spread conflict among contributors. Our future research plans include exploring the copyright issues associated with family history production.

RESEACH SETTINGS

Find A Grave and Ancestry support FHRs in different ways. Each of these sociotechnical systems are influenced by the website owners and administrators, as well as the contributors. This section will give an overview of the production systems, artifacts, and guidelines that set the stage for family history work on each site.

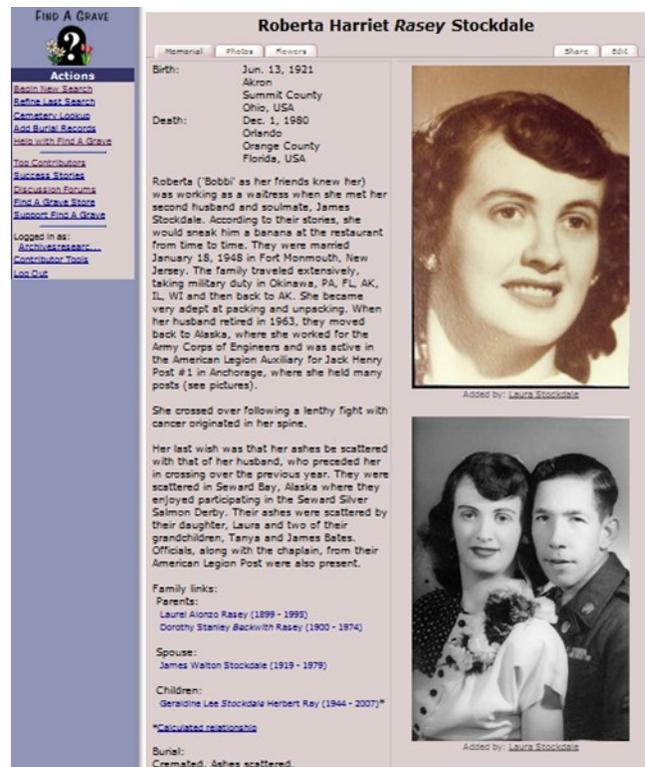


Figure 1: Find A Grave memorial.

Findagrave.com

On Find A Grave, tens of thousands of contributors have uploaded artifacts related to deceased individuals. Each entry for a deceased person is called a memorial and typically includes a biographical sketch of the deceased,



Figure 2: Ancestry.com family tree

images of the grave marker, and sometimes images of the deceased. In addition, any registered user can upload virtual memorial tokens (e.g. virtual flowers) to the memorial. Submitters retain editorial control of memorials they create. In the case of famous persons and Medal of Honor recipients, the site itself retains editorial control. Find A Grave is free to use and all of its content is freely accessible. There is no licensing requirement for submitted content beyond the requirement that it not infringe on intellectual property laws of any country.

The Find A Grave website is maintained by its founder, Jim Tipton, who first developed the website as a place for contributors to provide content about famous persons' graves [9]. Over time, interviewees stated that the site has become more family-history oriented, as more and more FHRs have added content to the site. Features such as the ability to hyperlink memorials to the memorials of related individuals have been added to meet the needs of FHRs. The Find A Grave website is currently administered by Tipton and six additional volunteers who, together, manage conflicts among contributors and resolve other problems and technical issues. The site also features discussion forums for socializing and help seeking.

Ancestry.com

Ancestry is a comparatively large site owned by a private equity firm and for a subscription fee provides online access to records and family tree production tools. In 2012, Ancestry reported over 2 million paid subscribers [1]. Through arrangements with archival repositories in both the US and Europe, Ancestry has digitized, indexed, and

transcribed records and made them available to subscribers through online databases. In addition to providing access to records and transcribed data, Ancestry's family tree production tools enable subscribers to enter basic information about deceased individuals and record their relationships to others. Documents, images, and videos can be uploaded and linked to individuals represented in the tree. To build family trees on the website, subscribers can search Ancestry's databases for deceased individuals by name, date, and other variables and then populate their family trees with the found information and images. Ancestry also provides a hint feature: once a contributor creates a portion of a family tree, the website will generate "hints" that appear as shaking leaves. These hints are automatically generated and may lead to relevant transcribed data or digitized records, such as census records, military records, and other user-contributed family trees. Ancestry encourages contributors to make their trees publicly viewable (to Ancestry subscribers) and to connect individuals represented in their family trees to related individuals in others' trees. These links have the potential to transform isolated family tree building projects into contributions to an extensive public resource—a world-wide kinship graph.

Contributors, however, have control over whether to make their tree public or private and whether to allow their trees to be connected to others. Other features of Ancestry include free, public message boards, and a private messaging function for users with accounts. Message boards are moderated by volunteer administrators.

FINDINGS

Through interviews and analysis of contributor posts three themes were uncovered: representation of family; conflict between experienced, meticulous researchers and careless researchers; and awareness of family history production as a public resource and the need for accuracy.

Family Matters: The Representation of Kin

All of the interviewees, as well as many Find A Grave and Ancestry forum/message board participants, spoke or wrote of the importance of controlling the content of their own family information on FHR websites. They referred to two concerns:

- the public portrayal of family members, and
- the accuracy of content about relatives.

How relatives are remembered was a primary concern of family history contributors. Family trees and Find A Grave entries were viewed as means of memorializing and presenting information about the deceased for future generations. Thus, deceased relatives' identities were at stake in the creation of virtual memorials or family trees, as one interviewee explained:

“So my family, we have two Frank Greeleys and I posted a picture of one online. On Find A Grave. Well, I see it on Ancestry that that picture is attributed to both of the Frank Greeleys. And it's anymore, people just grab the wrong picture and upload the wrong person and then they never go back and check and so I think that's another thing that we're running into. That people just aren't checking and not realizing that just because you have a picture of someone with this name, it doesn't mean that it's definitely this person. You have to look and be like, well, there's two of them. So obviously you have to look at both. So which one could it be?...Future generations are going to be like, I found five different family trees and they're all different and which one is correct?”

Contributors' heightened sense of the role virtual family histories will play in the collective memory of their family's past influenced their thinking about editorial control. They want to create and control their family stories for their own families, but many also want to add content to the websites about non family members for use by non-related researchers. This raises the question of how does one build policies, norms, and permissions on a collaborative platform that respects the existential need of families to control the representation of kin, as well as supporting the production of a historical resources for broader publics?

We found that Ancestry and Find A Grave take similar approaches but with one significant difference. Both are premised, in part, on the idea that people will generate

content about their own families. Ancestry.com does not provide community guidelines that address an individual's right to control content about his/her own family; however, guidelines and even site infrastructure generally assume that contributors are creating family trees for their own families and should have the right to retain editorial control of the family trees they created. Contributors can invite specific individuals (presumably family members) to collaborate on a family free, but cannot make a tree editable by the public. The only other opportunities for cooperative production are linking trees with other contributors' trees (if the other contributors approve) or offering suggestions (such as corrections) or other information to other contributors by way of messaging.

Find A Grave takes a slightly different approach. The website provides opportunities for joint construction of content by family and non-family contributors. On the site, any registered user can create a memorial for a deceased person, as long as one does not already exist for that individual. The original creator of the memorial retains editorial control of biographical information in the memorial, but any registered contributor can upload photographs to the memorial, as well as virtual memorial tokens (such as virtual flowers). This hybrid approach to editorial control (keeping images of graves or memorial tokens and textual authorship separate) facilitates cooperation among family and non-family contributors, and supports the development of Find A Grave as a public resource. The editorial structure of the site, for example, allows non-family members to provide grave images for other contributors' memorials thereby creating richer and more complete memorials. One forum poster attested to the importance of this hybrid approach:

“...I also have to say that I love the way that Find a Grave works. If I make a memorial for a relative who is buried hundreds of miles away and if I make a request for a photo of the headstone, some wonderful volunteer will go out and take a picture for me and post it to the memorial, FOR FREE. Very little else in my world today comes close to this concept.”

When it comes to biographical content of memorials, however, Find A Grave production guidelines explicitly favor family control. According to the Find A Grave's "Family First" policy, a direct relative within four generations (siblings, parents, grandparents, and great-grandparents) has the editorial rights to a related family member's biographical content (“the memorial”) if the original contributor is not a direct family member. If the original contributor refuses to transfer the memorial, direct relatives can take up their case with volunteer administrators, who serve as community mediators. Similarly, a Find A Grave guideline states that if a family member does not want their relative memorialized on the site (in the instance that a nonrelated person created the

memorial), original contributors are expected to take the memorials down; when a memorial “owner” dies the website states that the “management of your memorials may be passed on to the family members of the memorials that you have created” [10].

Echoing the Ancestry and Find A Grave production rules and guidelines, interviewees and posters voiced support for familial ownership or restricted editorial control of memorials and family trees. One might expect that the desire to control potentially negative content about family members was a key motivating factor in FHR’s desire for restricted editorial controls. In fact, interviewees never mentioned this and few message board posts addressed this issue. The more prominent concern was accuracy of biographical information, not whether the content was flattering. Contributors feared that if anyone could modify content about their family members, lots of inaccurate information might be added. Inaccurate information was tantamount to besmirching their relatives’ reputation, as one Ancestry message board poster declared:

“People that play fast and loose with facts when they simply collect names on their trees are creating problems for those people that care about truth in their family histories. It’s also disrespectful to the ancestors and the lives they led to deliberately disregard facts. Even if the lives they led were less than ‘admirable’.”

“Getting the facts right” about one ancestors for current and future generations appeared to be a key motivating factor for contributing and controlling content.

A Battle Over Accuracy: The Clash Between Careful Researchers and “Clickologists”

Fears of inexperienced FHRs polluting others’ family trees or memorials with inaccurate information contributed to the study participants’ strong desire to control content on their family trees and memorials. Most interviewees saw themselves as serious, experienced FHRs. Many posters on the message boards and forums we examined touted their experience level and their careful and thorough research practices in discussions. These vocal, central members of the FHR community stress the importance of careful research and the collection of evidence to back up historical claims about family members. Since the majority of records or documents about deceased individuals are not digitized, collecting evidence often entails traveling to brick and mortar archives and graveyards. Many experienced FHRs have developed artifactual literacy (the ability to analyze and interpret primary documents), subject knowledge (such as knowledge of the history of a geographical region), as well as “archival intelligence” or knowledge of archival principles and practices [7, 35]. These literacies enable FHRs to triangulate data from various sources to ensure that found information is relevant to their ancestors.

The FHRs we studied prided themselves on these skills; however, they also frequently lamented FHRs who were careless in their research practices and who cared more about increasing the size of their family trees or the number of memorials they contributed than about accuracy. In fact, Ancestry was seen as a provocateur of poor quality family histories on the web. Many asserted that Ancestry had so lowered the bar for entry into family history construction that people were creating content without really knowing how to properly conduct family history research. Contributors referred to such FHRs as “clickologists” and “half researchers” as they populated their trees and memorials without attempting to verify that the information was actually about their relatives. Many asserted that Ancestry had encouraged “clickologist” behavior by suggesting that a subscription would allow people to create an accurate family tree in a weekend with the tools and data on the site.

Automation also played an insidious role. Some complained that inexperienced researchers mindlessly accept Ancestry hints—the little shaking leaves (“poison ivy” or “poison leaves” as two interviewees described them) offered by the sites’ automatic search feature—without verifying the data, leading to family trees full of erroneous information or “genealojunk.” According to many FHRs, Ancestry’s algorithms that identify potential kinship links do a poor job at triangulating data from different documents and data points, leading to many false positives. Yet, inexperienced FHRs still click on them and populate their trees with the incorrect data. This has created a domino effect as erroneous information propagates from tree to tree. An Ancestry message board poster commented on the problem:

“Most of the trees on Ancestry are rubbish anyway - at least the hundreds of trees claiming to have relatives of mine on them. Proper family history research requires that you locate and examine the sources of every entry yourself. Just grabbing junk lists of names from Ancestry is another game altogether. To be certain that you have the correct ancestors you MUST see the BMD certs and the Parish Records (or DEFINITE images of them) YOURSELF.”

An interviewee similarly opined:

“Well sometimes those little leaves are poison ivy. And people will ask us to trees that are no true facts. Like my husband, after I tried to get some people to make some corrections I just went ahead and made my tree private...My husband is a direct descendant from a woman who had a child and he was born in the 1830’s and she never married. She never had any more children...but people keep wanting to marry her off and have her with two or three other children and I email them and I say look, Nancy never had any other children. She never married. Your

information isn't correct. But it's still perpetrating a falsehood. So that's the only reason I went private but most anybody who asks me, I give them access or I give them what they want to know."

On Find A Grave, contributors also indicated concern about "half researchers" and "half-fast researchers" adding or editing content on their family's memorials. Negative experiences with careless researchers appeared to be a strong motivating factor for the studied contributors to maintain control of their own family trees or memorials. These experiences beget skepticism of radically open editing policies and colored our interviewees views of sharing content and working collaboratively with others to build family history content for the wider public.

Family History as Public Resource: Conflicted Views of Sharing and Editorial Control

All interviewees described a similar trajectory from researching their own families and sharing family history content on FHR-oriented websites to conducting research about non-family members. Contributors moved from meeting an immediate personal information need to attempting to meet the potential needs of future researchers. Among interviewees who described contributions to Find A Grave, it was evident that they viewed the site as a historical resource for the public and not only a resting place for their own family history. For example, interviewees described visiting graveyards that were geographically close to them in order to collect and share information about non-related individuals buried there. Others described collecting information on deceased individuals at local archives and adding this information to Find A Grave because others may need that information. One interviewee who had been contributing content pertaining to non-related individuals to Find A Grave for over four years described her motivations for contributing:

"What's important to me is I get a kick out of somebody's page (memorial) and seeing who their parents were and who their children were. And it hurts me that I can't make it totally complete...So if I can look for it, and I can find it, I'm going to put it up there. And if I don't know, I've even had times when I've been looking for newspapers in the obituaries and stuff. And if I see something that's really interesting, I'll just grab that one and put it up too..."

To build Find A Grave as a public resource coordination among volunteers was frequently needed. Often coordination occurred at the local level, as one interviewee recalled:

"There are a couple people here in town, I know if a request comes through for Central Cemetery I just delete it because there's two people who

have that market cornered... it's a waste of my time to go over there because I know these people know where all these sections are and they know exactly where to go so I can save my efforts for something like St. Mary's Chapel."

Coordination also took place virtually among contributors who were not co-located. Many interviewees spoke of meeting other contributors on one of the Find A Grave forums, and deciding to partner with them to create memorials. For example, one interview described her relationship with an older woman who enjoyed finding facts about deceased individuals but could not take grave photos. She decided to partner with her: she would take grave photos and her volunteer partner would develop the biographical information. Other contributor efforts were responsive to specific needs of other contributors. All the interviewees had responded to requests for grave photographs on Find A Grave's request thread, and uploaded the requested grave images to memorials.

Contributors were not only concerned about the accuracy of their own family histories, many also expressed concern about Find A Grave's overall accuracy and completeness as a public resource. Despite the general agreement with familial oversight of content, concern for the site as a public resource evoked frustration with restricted editorial controls. Interviewees and forum posters were frustrated that poorly researched memorials could not be corrected unless the owner decided to edit the memorial based on their suggested corrections. If the owner of the memorial did not respond to suggested corrections, their only recourse was to bring the problem to one of the site's six administrators or the site owner in hopes they could mediate a solution. The following Find A Grave forum poster described this frustration:

"Unresponsive contributors...I am in the same spot with a contributor who has never responded to my suggestions. Everyone has a story about this. I could wait forever for a response but it will not be forthcoming. That alone causes more work for both us and admin."

Interviewees and forum posters alike suggested that the Find A Grave administrators were overwhelmed with the number of complaints they receive and the number of requests for revisions and memorial ownership transfers. We repeatedly observed frustration with the long lag times between posting a concern or problem on one of the website forums and administrators resolving the problem.

Administrators are not only responsible for addressing errant inaccuracies here or there brought to their attention by other contributors, but also are responsible for resolving problems with slews of "bogus" memorials generated either by contributors who wanted their relatives represented on Find a Grave but did not locate correct burial information, or by contributors who wanted a high number of

contributions without doing the necessary work. One interviewee described such an occurrence when two contributors decided to boost the number of memorials on the site:

“There are certainly some problems with it being as big as Find A Grave is. They just hit their, oh, a big number, a big nice round one with lots of zeros behind it. Apparently, two people were actually fighting over who would get there, and they were entering bogus memorials to get there. And I don’t know what the number is, but that magic number with all the zeros is now gone, because somebody pointed out in the forums that they were doing this, entering bogus memorials, and they removed it.”

The same interviewee similarly described the fabrication of an entire graveyard full of deceased relatives:

“There’s people who play with the numbers, and they play with getting their genealogy up there whether they know where people were buried or not. There was a lady who put in all the relatives, whether she knew where they were buried or not, which is a big no-no. And it’s just like, she put in people so that there is a whole cemetery out there... something like Smith’s cemetery...But there is 500 burials in there, it’s like, really? I started looking at it and 99% of them all died in 1880, 1870, 1900 – on the census years. She was creating people from the census records and burying them in that cemetery.”

The interviewee described her dismay that these bogus memorials were never taken down, because while they appeared incorrect, the administrators could not prove they were incorrect without visiting the cemetery, which was not feasible.

Frustrations with inaccuracies generated by other contributors and unresponsive contributors did not stop most of the interviewees from continuing to contribute content, but it did cause them to avoid contributors with whom they had problematic experiences. A few participants reported that frustration with problem contributors led them to stop offering any corrections. As one interviewee stated, “Now, you go do your thing and I’ll do my thing, because I have run into so much that it’s like you know you can’t convince some people that they are wrong.” Another interviewee described how she maintains content on Find A Grave for another contributor who was tired of dealing with contentious exchanges between contributors:

“She would gather all the information together, send me a spreadsheet. I would put the spreadsheet online, and that way she doesn't have to deal with all of the communication from various people. So my name is on it, but I really haven't done any work. She just didn't want to have to deal with some of the other people...So

there's a lot of fighting. And along with it have come people who have decided that rules don't apply. And it's their family. I call them the but, but people. But, but, but it's my family. I can do what I want with them. So I know there are a lot of people who have stepped away. Old-timers.”

Problems with inaccuracies and conflict between contributors may be even more of a stumbling block for cooperative production on Ancestry. Problems with inaccuracies led all but one of the interviewees and many of the studied posters on Ancestry’s message boards to make their family trees “private” or not allow others to connect to their trees. By not making their trees public and not allowing connections, they made a choice to not share their family histories with other Ancestry subscribers and to limit their cooperative production activities. This choice was the result of their concern that information and images from their carefully researched family trees was being lifted without their permission and placed on family trees that were for families that were not related, because the tree builder did not conduct careful research. As one forum poster on Find A Grave concluded:

“Half-fast researchers are what poison Ancestry.com trees...I warn new researchers to RUN from those, and do their own primary research. Those sources are a thousand times more accessible than they were when I started, but sometimes you have to get off the couch and do the legwork yourself. The point-and-click researchers who think info needs to come to them are the same ones who think others are 'meanies' when actual re-search-ers do re-search and then don't share everything freely. Screw your time, effort, gas, injuries, bug bites, sun burns.”

An Ancestry poster described his decision to no longer allow others to view or connect to his family trees:

“Two so called members of Ancestry have latched themselves on to my great great grandparents James Cassidy and Ann Mooney but they have latched on to the wrong James and Ann. No proper research or cross referencing done whatsoever. NO REDRESS WHATSOEVER HOW CAN ANCESTRY HAVE ANY CREDIBILITY IF THEY ALLOW THIS TO CARRY ON? It's a money making machine with no desire to make this a serious family history research site and that is very sad. So be warned. For research purposes they are absolutely wonderful. For showcasing your work or sharing your data a total unmitigated disaster, especially ANCESTRY. If you do upload your family tree KEEP IT PRIVATE! Invitation only!”

Poor research practices and inaccuracies appear to be hindering cooperative work on both Ancestry and Find A Grave.

DISCUSSION

Websites for family history production attract millions of contributors. It is unclear, however, whether a large number of participants is sufficient to sustain the long-term cooperative production of an accurate family history resource for current and future generations. The need to not only attract participants, but enculturate them into the practices of a community has been recognized as a primary challenge for open collaboration systems [13]. This often entails interactions among more and less experienced contributors; however, we observed that at times conflict over accuracy has pitted experienced, careful researchers against less experienced researchers who are viewed as careless. Thus, the very individuals who could be mentoring and teaching newcomers about good research practices are angry and lose patience with the restrictions and editorial controls on both Ancestry and Find A Grave. Many committed contributors want the content to be accurate but must rely on others to address inaccuracies and have few avenues to teach newly minted contributors good research practices.

We have noted that the culture of the FHR community stresses the importance of helping others with their family history research [14, 33], and in face-to-face environments this often takes the form of informal instruction [36]. In a virtual environment with information about deceased persons at the researchers' finger tips, "help" often takes the form of sharing data instead of providing instruction [33]. Our findings suggest that less experienced contributors may need instruction on good research practices in order for them to be able to create quality content online. This raises a broader question -- what is the most appropriate model for online FHR communities to bring newcomers into the community of practice?

There is a wealth of work on the socio-technical features of Wikipedia that support new participants. These range from technical features of the wiki permissions system that allow newcomers to start contributing in small ways, enabling them to "learn the ropes" through *legitimate peripheral participation* [3], to social interventions like welcome messages, and offers of assistance [5] to extensive education efforts like the Teahouse [21], which provides a nurturing social space for newcomers and efforts to train college students to contribute [8].

These approaches, however, rely on open editing systems. In contrast, we found that *familial oversight* is an important feature of sites that support family history production. Yet these restrictions raise the bar for participation and reduce the opportunities for low-risk peripheral participation that could ease new contributors into the creation of biographical content. For example, on Ancestry.com, one

must create a family tree in order to make an original contribution and populate it with all the requisite information. One obvious solution is to allow families to choose whether they want to open their family tree or memorial for editing, thus creating some opportunities for newbies to make small edits. We found, however, that experienced FHRs are resistant to open editing, and may not welcome this possible solution.

Ancestry has attempted to solve the newbie problem by automating some of the family tree-building process, thus lowering the bar for newcomers. Yet, we learned that this approach has not proved effective for enculturating newcomers, who tend to rely on a recommendation engine to identify family links without understanding how to verify the quality of recommendations. Instead of encouraging newcomers to learn how to construct family histories and conduct research, this approach has led to family trees and memorials littered with incorrect information and a general distrust of automated tools among experienced FHRs.

Other possible solutions may alleviate or lessen problems with content inaccuracies on Ancestry and Find A Grave. First, we suggest that both websites include a tagging feature that enables contributors to indicate that specific information included on their memorials or family trees is not yet verified. Interviewees mentioned that they often collected data and placed it on memorials or family trees before fully verifying the data. Only later did they find corroborating information sources or deleted the data when further research suggested the data was incorrect. To help newcomers or any contributor struggling with confirming the accuracy of found data, an additional tagging feature would enable contributors to indicate to others that they needed help finding confirmatory evidence for specific found data. Such a tagging feature may encourage cooperation among content contributors and increase awareness of the importance of finding confirmatory evidence to support the relevancy of found data. However this tagging function does not fully address the problem of newcomers learning the craft of genealogical research.

As was found in a previous study of Ancestry message boards, unstructured discussion spaces do not necessarily facilitate the exchange of instructional guidance. Yet, research on FHRs in face-to-face contexts suggests that many experienced practitioners are committed to helping newcomers learn the craft. We also found that the interviewees wanted to help others but were frustrated with online spaces that did not provide good opportunities for learning to take place before contributors were producing content. Given the willingness of many FHRs to help others learn the craft, it makes sense to provide virtual spaces to better facilitate learning that are more robust than typical message boards. The FHR environment—full of people who want to learn how to find good information as well as experts who want to help—make it a rich context for experimentation with online learning.

We suggest that family history “learning spaces” should support both synchronous and asynchronous interactions between experienced FHRs and newcomers. These learning spaces could include resources, such as learning modules and video tutorials, to which experienced FHRs could direct newcomers, as well as “practice” spaces in which newcomers could work with experienced FHRs to build memorials or family trees. Such learning spaces may be a means of bringing newcomers into the family history community of practice and ultimately may help improve problems with content inaccuracies on the sites. Our future research plans include exploring the potential of community learning spaces for improving the quality of user-contributed family history content.

LIMITATIONS

The opinions and perceptions of interviewees and studied forum/message board posters may not be representative of the many potentially diverse opinions of Find A Grave and Ancestry contributors, such as those of novices. It is also impossible to tease out whether system design on the two sites, particularly the inclusion of restricted editing controls, has influenced contributors’ bias against open editing systems for family history production.

CONCLUSION

High quality family history content requires that contributors are well versed in locating information from a number of sources and triangulating that information to ensure that found information is correct. Without such expertise, content can be inaccurate and result in the misrepresentation of the deceased. In other virtual production communities, good research practices are also needed to create accurate content. As a result, it is important that we develop socio-technical systems that will help new contributors learn good research practices. This paper proposes some possible solutions, but more research is needed to fully address this challenge.

ACKNOWLEDGEMENTS

We would like to thank Katherine McCain for bringing Find A Grave to our attention and for her insights about family history production. This work is supported by the National Science Foundation, CISE IIS-1253302.

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