

ARTICLE

Engaging the Experts in Museum Computing: Seven Years of Queries on MCN-L

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Abstract MCN-L, an email listserv administered by the Museum Computer Network, is open to anyone interested in discussing information technology in museums and other cultural heritage organizations. To determine how MCN-L meets the needs of museum information professionals, this study presents an analysis of more than 6,000 emails sent to the listserv over a seven-year period (2004–2011). The results of this analysis indicate that MCN-L adds value to the online community of museum information professionals by providing an online communication channel focused on professional outreach and expert support, backed up by specific examples drawn from personal experiences. MCN-L's emphasis on personal expertise is a key characteristic that speaks to the listserv's lasting value to the museum community and has implications for researchers and practitioners as they consider the future of computer-mediated communication for all museum professionals.

INTRODUCTION

The Museum Computer Network (MCN), founded in 1967, is an international community of museum information professionals (Misunas and Urban 2010). Since 1996, MCN has operated an email listserv, MCN-L, which is open to anyone interested in discussing information technology in cultural heritage organizations (<http://www.mcn.edu/mcn-l>). As email use declines as a result of increasing interest in social media platforms such as Twitter and Facebook (Pew 2012), it is a fair question to wonder what role listservs play in supporting the needs of museum information professionals today. To explore this question, this paper presents results from an analysis of queries posted to the MCN-L listserv over a seven-year period (2004–2011). The results of this study will help researchers and practitioners better understand how listservs such as MCN-L can support museum

professionals, and how professional organizations such as MCN can meet the needs of their members through computer-mediated communication.

MCN is a non-profit organization that supports a global network of museum professionals interested in the creation and use of museum information resources and technology. MCN members share their expertise and experiences with information technology in museums through conferences, regional and topical special interest groups, websites, blogs, and other online resources. MCN's official listserv (MCN-L) is perhaps the organization's most visible form of support, and provides a valuable mechanism for museum information professionals (MCN members and non-members alike) to engage in communication about their mutual interests. Perhaps the most unique aspect of MCN-L, as compared to other listservs serving museum professionals,

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lies in its focus on how new information and communication technologies in museums have affected the evolving roles and responsibilities of museum professionals, and the changing needs and expectations of museum visitors.

Regardless of whether their job requirements have an explicit focus on technology, nearly all museum professionals rely on information and communication technologies in some form on the job (Marty 2007). Over the years, it has become relatively common for museum professionals to reach out to their colleagues for advice and support using some form of online communication, including electronic mailing lists, or listservs (Bowen, Houghton, and Bernier 2003). Listservs used by museum professionals include such museum-focused resources as MUSEUM-L (a general purpose, cross-disciplinary listserv for museum professionals), H-MUSEUM (an H-Net listserv focused on museums and museum studies), MUSEUM-ED (a listserv designed to meet the needs of the museum education community), and related resources such as ARCHIVES-L (a listserv for archives and archivists) and ARLIS-L (a listserv for art information professionals). While the relative lack of data on how these lists are used by museum professionals can make it difficult to identify their benefits for the museum community, an analysis of related research can indicate how listservs are used in other professional communities.

Research demonstrates that listservs have a lengthy history as an important means of computer-mediated communication among information professionals. During the 1990s, Wildemuth, Crenshaw, Jenniches, and Harnes studied the topics and functions of 14 library-related discussion lists (including one archives listserv), finding that the topics covered were “reasonably consistent with [each] group’s stated purpose” (1997, 152). Similarly, in a study of

MEDLIB-L, a listserv for health information professionals operated by the Medical Library Association, Schoch and Shooshan found that the top three topics covered on the list were reference questions, information on products and procedures, and discussions of professional issues—all topics of professional interest to subscribers (1997). On the other hand, studies indicate that most subscribers do not actively participate on listservs; a study of the Public Libraries, Young Adults, and Children (PUB-YAC) list, founded in 1993, for instance, learned that only seven percent of subscribers posted at all (Bar-Ilan and Assouline 1997).

While only a small percentage of listserv subscribers may be active participants, subscribing to listservs offers many benefits for information professionals. Studies of listservs used by nursing professionals (Hara and Hew 2007; 2008) and professional evaluators (Christie and Azzam 2004) found that email traffic on professional lists tends to be on topic, of interest to the community, and focused on knowledge sharing and professional development. Similarly, research examining the benefits of listservs for K12 physical educators highlighted the chance to interact with other professionals, a feeling of support and encouragement, and access to new ideas (Pennington and Graham 2002). The value of listservs for professional communication and knowledge sharing becomes especially clear when listservs are threatened. When the Society of American Archivists (SAA) announced in 2007 that it was destroying the online archives of its ARCHIVES-L list because of financial considerations and administrative issues, the resulting uproar from the ARCHIVES-L community helped demonstrate the value of the list—and its history—for archivists, and eventually convinced the SAA council to change its plans and move the archives to a new hosting organization (Cox 2011).

Research indicates that listservs have the potential to play a key role in the building of online communities for museum professionals. Bowen, Houghton, and Bernier, for instance, document how museum professionals use online tools such as discussion forums, mailing lists, and newsgroups to share information, and explore a variety of ideas and technologies that could help “develop communities of people with an interest in museums online” (2003). Similarly, Bernier and Bowen explored how museum professionals used online discussion groups (including listservs) to share information with colleagues, reporting that most individuals subscribed to listservs in order to “keep updated on museum issues and to seek professional assistance in their field of expertise” (2004, 126), and that the majority of listserv subscribers believed that the content of the messages shared online matched their professional interests (2004, 129).

Despite the success of listservs in disseminating information online, a recent pushback against email has opened the door to questions about the future of listservs as a communication medium (Jackson 2011; Johri 2011). While email is simple and flexible, it is not necessarily the best tool for online collaboration and professional networking (Dabbish and Kraut 2006; Whittaker, Bellotti, and Moody 2005). As museums seek new ways of engaging their visitors and improving internal communications, museum professionals have increasingly turned to social media (Kelly 2010; Proctor 2010; Russo et al. 2008; Russo 2011), and it is a fair question to ask whether listservs remain an effective tool for building community among museum professionals today.

The ability to reach out to an online community for advice and support is particularly important for museum information professionals as they work to meet the needs of the producers and consumers of museum information resources

(Marty 2007). Being part of an active and engaged community of individuals facing similar challenges is critical to the success of museum information professionals, and listservs such as MCN-L play an important role in developing and sustaining professional communities online. There is a clear need to examine how and why museum information professionals are using MCN-L to engage in conversations about museums and information technology. The more we know about how museum professionals use computer-mediated communication tools such as listservs to share information and solve problems, the better prepared we will be to provide online support for individuals working in isolation from their colleagues, develop tools to support the co-creation and distribution of digital knowledge, and encourage the exchange of resources required to meet information needs in museums.

METHODS

To meet this need, this study addressed the following research questions: 1). How do museum information professionals use MCN-L? 2). What needs does MCN-L fulfill for museum information professionals? To answer these questions, the researchers analyzed seven years of emails sent to MCN-L. The current MCN-L archive (<http://mcn.edu/pipermail/mcn-l/>) only goes back to May 2006, and has some occasional lapses in data, so the researchers used their own personal email archives to gather a complete list of emails posted to MCN-L between September 2004 and May 2011. To prepare these emails for data analysis, the researchers first removed duplicate posts and “out of office” messages; these messages were not analyzed. All remaining emails were then imported into a Filemaker Pro database, which tracked the date, subject, sender, and message body of each

email. Each record in the database was assigned a unique ID, and the messages were analyzed using an iterative content analysis technique.

The first step in this analysis was to sort the posts into categories that illustrated how MCN-L was being used by subscribers. This was an iterative process, where three researchers, working first separately and then together, divided the emails into broad categories using a grounded approach to classification intended to group similar emails without any preconceived notions about how the listserv was being used (Charmaz 2006). The intent was to separate questions from non-questions, while simultaneously acquiring a comprehensive overview of listserv usage. Not every email fit neatly into one category, and the researchers required several passes through the data before settling on a primary classification for each email sent to the list.

The second step in data analysis was to sort the posts identified as questions into their own categories representing the types of questions asked by the MCN-L community. This was also an iterative process, with three researchers conducting multiple passes through the data to ensure satisfactory inter-rater reliability. The researchers allowed a classification scheme to emerge naturally from the data, through a process of coding and memoing designed to identify commonalities among the responses (Strauss and Corbin 1998). The purpose of this analysis was to categorize questions not by their content or subject, but by the types of questions asked, thereby providing the researchers with a more useful mechanism for understanding what needs MCN-L was meeting for subscribers. Specific subjects, such as software or hardware systems, tend to vary from year to year, and a classification scheme based on a range of topics would not be as helpful for understanding how the listserv is used independent of the technology of the day.

For example, consider the following four hypothetical questions: 1). What metadata standards are available for cataloging oral histories? 2). How do I implement Categories for the Description of Works of Art (CDWA) at my museum? 3). What were your experiences integrating the Art and Architecture Thesaurus (AAT) into your museum's collections management system? 4). What do you all think about Cataloguing Cultural Objects (CCO)?

On one level, these are all questions about metadata, and could easily have been coded as such; for this analysis, however, they represent very different types of questions, and would have been coded in other ways. The first two questions are relatively factual: one asking for specific solutions to a problem, and the other asking for guidance in a process. The second two questions are more opinion-based: one asking for personal experiences, and the other asking for general feedback about a topic. This approach to analyzing question types was not a simple process, especially since many questions could easily fit into more than one category. Factual questions (such as "What collections management system does your museum use?") could easily turn into questions about opinion ("and why do you think it's the best?") within a single email. It took several passes through the data for the researchers to determine the primary emphasis of each question. The results of this analysis are detailed in the following section, along with examples of the types of questions posed to the list by MCN-L subscribers. (Sample questions may have been edited to preserve the anonymity of senders).

FINDINGS

Between September 2004 and May 2011, MCN-L subscribers sent 6,106 emails to the listserv (not counting duplicate posts or "out of

office” messages), at a rate that increased over the seven years of the study, peaking at more than 100 emails per month in 2009 (table 1). These numbers indicate that the MCN-L listserv continues to be seen as an important means of communication for museum information professionals, even as online communication for many organizations shifts to social media platforms. As of 2011, there were approximately 2,200 subscribers to the list, receiving, on average, three messages per day. It is common for the vast majority of subscribers to “lurk” on the list; the 6,106 emails evaluated as part of this study were sent from 231 unique email addresses, implying that only about 10 percent of MCN-L subscribers are active participants. While it is likely the actual percentage is higher than 10 percent—historical data about the number of subscribers was not available, but there were almost certainly fewer subscribers in the past than there are today—these figures are similar to previous research findings that nearly 70 percent of listserv subscribers do not post to the list at all, and less than 20 percent are repeat posters (Christie and Azzam 2004).

What types of emails are sent to MCN-L?

Qualitative analysis of the emails sent during this time period resulted in four basic cate-

Table 1.
MCN-L emails over time.

Year	Emails	Emails/Month (avg.)
2004 (Sept-Dec only)	175	44
2005	669	56
2006	716	60
2007	791	66
2008	1008	84
2009	1278	107
2010	1138	95
2011 (Jan-May only)	331	66
Total	6106	72

gories of email type: questions, responses, announcements, and discussions (table 2). Out of 6,106 emails, 795 (13.0 percent) were coded as *questions*, which meant the sender asked a specific question that they expected a member of the MCN-L community to answer, and 2,603 (42.6 percent) of the emails were coded as *responses*, which meant the sender was attempting to answer a specific question that had been posed to the list. The breakdown between questions and responses was not always straightforward—the answer to one question, for instance, might prompt additional questions, and it took several iterations for the researchers to determine whether derivative questions deserved to be coded as responses or as unique questions. On average, there were 3.3 responses per question, ranging from a minimum of zero to a maximum of 28 responses per question.

There were 2,619 (42.9 percent) emails coded as *announcements*, which included such items as conference announcements, news items, project solicitations (RFQs, for instance), research studies (such as online surveys), and job openings. While a detailed breakdown of these announcements was not performed, the wide variety and large number of these announcements indicates that MCN-L plays a valuable role in disseminating information to the museum information professional community. Occasionally, an announcement would stimulate a brief discussion on the topic of the announcements, and these were coded as *discussions*; 89 of the emails (1.5 percent) fell into this category.

Table 2.
MCN-L emails by type (n = 6106).

Type	Number	%
Questions	795	13.0%
Responses	2603	42.6%
Announcements	2619	42.9%
Discussions	89	1.5%

MCN-L posts, therefore, can be divided into two broad activity categories, approximately equal in size: 1) asking and answering questions; and 2) posting announcements, which are occasionally discussed on the list.

What types of questions are asked on MCN-L?

Qualitative analysis of the 795 questions resulted in five types of categories in three broad groups. The first group focused on questions that were intended to meet specific needs; 227 (28.6 percent) of the queries fell into this group. These posts were divided into two basic types: Type 1a (What is the solution to my problem?) and Type 1b (How do I accomplish a particular goal?)

Type 1a questions focused on identifying the solution to a particular problem, and were coded as “Needs/What” questions. In these queries, the sender was able to articulate a particular problem, but did not know *what* to do in order to solve it. These questions represented situations where the inquirers knew what their needs were, but not what to do to meet those needs.

People asking Type 1a questions were typically looking for specific recommendations to accomplish specific tasks: I need a tool to export metadata, I need a donor database, I need tour scheduling software, I need high quality headphones, etc. Type 1a questions also included requests for individuals, vendors, or consultants with specific expertise (I need someone who can speak on this topic, I need a design firm, I need an iOS developer, etc.), as well as requests for citations, references, and online resources (I need a general introduction to digitization strategies, I need a sample online exhibit with certain features, etc.)

The primary distinction between Type 1a questions and other question types was that

Type 1a questions were characterized by someone asking, “I need something that does this...” and expecting objective answers in return; questions asking for subjective opinions or personal experiences were categorized differently. Thus, “I need an article on this topic” or “I’m looking for software to accomplish this task” would be Type 1a questions, but “What did you think about this article?” or “What were your experiences with this software?” would not.

There were 180 (22.6 percent) questions classified as Type 1a, which included such queries as:

One of our curators asked about software that a curator could use to help layout permanent gallery rotations. Does anyone use, or are aware of, software suitable for a computer proficient curator to use for this purpose?

We are thinking about asking our visitors for their zip code when they enter our museum.... I’m curious if there is a type of “zip code stats” type of program or website, that allows you to import a text file (.csv or other), and then analyzes the zip codes and shows you graphs / maps / lists of where your visitors come from. Does anyone know of something like this?

Does anyone have a wide-format (at least 11x17”) scanner that you like and could recommend? We need something that can do slides & transparencies too, and hope to keep it under \$2000, but would love to be able to scan something at a quality high enough we could give it to printers.

Can anyone recommend a controlled language / metadata vocabulary resource that would be suitable for a small historic house museum (18th-century New England, if it matters)?

Has anybody collected a list of social media guidelines / terms of service / rules to which the public has to agree prior to using social media elements on museum websites?

Type 1b questions focused on figuring out how to implement a particular solution to a given problem, and were coded as “Needs/How” questions. As opposed to Type 1a questions, Type 1b questions reflected situations where the inquirer knew what they needed (or wanted) to do, but did not know *how* they were supposed to do it.

People asking Type 1b questions were typically running into problems while working on a task, usually involving a particular piece of software: How do I configure MediaWiki? How do I stream audio in Second Life? How do I use Japanese fonts? How do I automate data entry? How do I create files in this format? How do I assess for usability? How do I digitize microfilm? And so on.

The primary distinction between Type 1b questions and other question types was that Type 1b questions were specifically focused on learning the mechanics of how to do something, or finding out the best way to do something, as objectively as possible. Thus, “How do I install this system?” or “How do I build a database?” would be Type 1b questions, but “What problems did you encounter when installing this system?” or “What books do you recommend about database design?” would not.

There were 47 (5.9 percent) questions classified as Type 1b, which included such queries as:

We have a number of videotapes that we have decided not to retain in our collection. They don't contain sensitive material, so I don't necessarily need to destroy them, but I don't want to add them a landfill if I can avoid it. Any suggestions for how to properly dispose of—or recycle—these will be appreciated.

We have Patron's Edge and would love to know how to use it to collect zipcodes. Can anyone advise?

I'm wondering if Embark or Gallery Systems has any way to export data as an XML feed. Does anyone know if this is possible?

I can't figure out how to share a YouTube video on [my museum's] Facebook page feed, instead it posts to my wall. YouTube Box should let me do it but it does not work. Has anyone figured out this problem?

I have created scaled maquettes of paintings in Photoshop by simply resizing the image, but we're planning for an exhibition featuring very small and/or 3D objects. Can anyone offer insights about how to go about creating maquettes of objects that are not 2D square/rectangular?

The second group of questions focused on reaching out to the MCN-L community to obtain expert advice, both generic and specific; 475 (59.7 percent) of the queries fell into this category. These posts were divided into two basic types: Type 2a (What are your personal experiences with this situation?) and Type 2b (What is your general opinion about this topic?).

Type 2a questions focused on learning about someone else's personal expertise with a given topic, and were coded as “Experts/Personal” questions. In these queries, the inquirer was actively seeking to determine what they can learn from what someone else has already done. These questions tended to ask for specific forms of expert support based on personal experiences. While the answers may shed light on general opinions, the inquirer's goal was to acquire specific knowledge about what others on the list have discovered about a topic.

People asking Type 2a questions were typically asking others to “share your experiences” with a particular system, or “share your institution's policy” on a particular topic: What have your experiences been with this type of camera?

What are your experiences using Google maps? Does anyone have sample copyright release forms they can share? What are your experiences with touch screens? What has your experience with Yahoo Store been like? What have you learned about making Web apps? What problems have you had using Drupal? What are your policies for Skype at work? and so on.

The primary distinction between Type 2a questions and other question types was that Type 2a questions were specifically focused on asking for “first-hand experiences,” “hands-on tales,” or “lessons learned.” Type 2a questions asked for personal, specific, and frequently practical experiences, where the key thing is learning from what others have accomplished. Thus, “What are your experiences using Drupal as a CMS?” or “What is your museum’s social networking policy?” would be Type 2a questions, while “What do you think about Drupal vs. WordPress?” or “Can anyone point me to a list of social media guidelines?” would not.

There were 298 (37.5 percent) questions classified as Type 2a, which included such queries as:

Is anyone using Artifax events management software? We are looking into it and would love to hear back if anyone has had first-hand experience, good or bad, on or off the list.

I am putting together social networking guidelines for employees at our museum. Does your institution have a policy? Please share links and key ideas, if you can. Thanks!

Has anyone implemented the use of sharing tools on individual item pages within their museum’s online collections? I want to request a bunch of share links to del.icio.us, Zotero, Facebook, Twitter, Digg, and Reddit and I think there are some tools to help do this (code easily embedded into the page), but I don’t recall the names of them right now. Has anyone had

any experience with doing this and can provide some advice? Any other sites I should be able to share on?

We are looking into renovations of our information desk and want to explore the possibility of using electronic signs for visitor information, tours, lectures, etc. We have grand plans that include creating a sign that will require multiple monitors and we would eventually like this information to be available in multiple locations.... I would be interested in anyone’s experience in developing this type of system.

[We] recently updated our photography policy to allow visitor to take pictures in the collection galleries for personal use. This is a big shift for us and a good one, to acknowledge that sharing images through social networking is an integral part of the visitor experience. I know many museums have gone through similar changes recently. If you have, can you contact me? I’d like to know more about your experience.

Type 2b questions focused on obtaining the general pulse of the MCN-L community, and were coded as “Experts/General” questions. As opposed to Type 2a questions, Type 2b questions sought to determine the community’s overall opinion of a topic—where do *they* think a topic is going? Do *they* consider this topic important? While the inquirer would not be unhappy to learn specific examples, the desire was to obtain general opinions instead of personal experiences.

People asking Type 2b questions were typically focused on discovering the overall consensus of the MCN community on a given topic, with an emphasis on opinions, comments, and suggestions: Is JPEG2000 any good? Should I use Drupal or Wordpress? Should I put lots of low-quality images on our website? Why would a visitor ask for my Tax ID number? What master’s degree should I get? Any thoughts about

using EAD in museums? What do you think about podcasting? Type 2b questions also included requests to “ping” the community with general questions: Is anyone using dSpace? What about Ning? Is your museum using RFID? Does anyone know what’s happened to AMICO? Who is using AAT? What about LCSH? Any thoughts about how Luna processes images? Mac or PC?

The primary distinction between Type 2b questions and other question types was that Type 2b questions were specifically asking for “words of wisdom” or seeking the “collective wisdom of the group.” Type 2b questions were more focused on what the group thought about the question, rather than personal examples from individual museums. Thus, “Where do you think webmasters should reside in museums?” or “What do you think should be included in this job description?” would be Type 2b questions, while “Where is your webmaster located in your museum?” or “Can you point me to a repository of job descriptions?” would not.

There were 177 (22.3 percent) questions classified as Type 2b, which included such queries as:

I was wondering if any of the museums have used the online exhibit program Omeka and what are your thoughts? We are a medium-sized museum looking to do more exhibitions online and have heard of this new program.

I’d like to throw out a quick query to the list about JPEG2000. Although there is mounting support of the format as a preservation standard, in terms of access it appears that it is still not widely supported in consumer applications and viewing applications such as browsers. Does anyone see this changing?

I was wondering to what extent EAD is used by museums to describe their own collections.... If anyone on this list can offer

their insights into EAD in museums, I would appreciate it.

I was wondering whether anybody has done any recent comparison between Drupal and WordPress (especially WordPress MU) as a website CMS.... Any and all opinions, pro and con, about either Drupal or WordPress MU (or both) would be most appreciated!

Do you think that different types of museums (art, history, science, etc.) have different approaches for leveraging social media?

The final group of questions represented miscellaneous questions that were primarily administrative in nature, and were coded as Type 3 (Other). These questions were usually about the functioning of the listserv or the operation of MCN as an organization, as opposed to specific questions about museums and information technology. Technical questions about subscribing to (or unsubscribing from) the list, along with logistical questions about MCN’s annual conference, were also coded with this category.

There were 93 (11.7 percent) questions classified as Type 3, which included such queries as:

Does anyone know how far the Minneapolis Airport is from the Hilton conference site?

I have not received the daily digest for over a week. Have there been no messages posted?

I’m looking for someone willing to share a room at the conference hotel. I already have reservations for [dates].

I usually get my MCN renewal notices by early June, but have not received it yet. As our fiscal year ends June 30 I am wondering if renewals are late or mine got lost in transit.

Is there a way to search the archive of the MCN listserv? I hate to trouble people with something that might have been discussed before.

Table 3.
MCN-L queries by type (n = 795).

Type	Number	%
Type 1a (Needs/What)	180	22.6%
Type 1b (Needs/How)	47	5.9%
Type 2a (Experts/Personal)	298	37.5%
Type 2b (Experts/General)	177	22.3%
Type 3 (Other)	93	11.7%

According to this analysis (table 3), the majority of the queries posted to MCN-L represent questions designed to “tap the experts,” some looking for general observations, but most seeking to learn from the specific personal experiences of others. Less than half of the queries focused on meeting specific needs, and these questions were primarily concerned with finding the solution to a given problem, rather than learning how to accomplish a particular task.

DISCUSSION

These findings show that MCN-L is meeting the needs of an online community of museum professionals through professional outreach and expert support. MCN-L subscribers do not view the list primarily as a how-to guide or step-by-step resource, but as a way of reaching and connecting with experts. The most common questions are not “How do I do this” or “What product should I purchase,” but “I’m trying to do something, and you have probably done this already, and I want to learn from your past experiences.” Having a strong focus on providing specific examples about personal experiences can be a powerful incentive when reaching out to a community of museum professionals online, and MCN-L’s emphasis on personal expertise is a key characteristic that speaks to its lasting value to the museum community.

Implications for Practice

Practitioners interested in the future of communication technologies for museum professionals will be able to use the results of this study to guide the development of new systems and communication platforms. The results indicate that museum information professionals do not need information about how to install Web servers or what scanners they should purchase as much as they need a way to build a community network that reliably connects people according to skills and expertise. In a world where factual information is only a Google search away, the true value of MCN-L lies not in its ability to answer questions, but in its ability to provide guidance and support, mentor emerging professionals, and build a professional community. MCN-L is one place where museum information professionals can reliably go to discover who the experts are, how to connect with them, and learn from their experiences. The prevalence of personal connections in online communication provides an added value to MCN-L subscribers.

As information and communication technologies to support professional communities evolve in response to new social media tools, listservs may find themselves replaced by a different kind of online community resource—a collaborative resource or knowledge aggregator, perhaps, that follows topics of interest to a community, and makes it possible to quickly and easily search different conversations about any given topic over time. Johri documents how replacing email with social networking tools can improve productivity (2011). It is easy to see how listservs such as MCN-L could easily follow suit. (See Bowen et al, 2003 for similar ideas about how online discussion forums might adapt to new technologies). It is important to remember, however, that listservs are less about

the medium than the message. MCN-L is not an impersonal knowledge resource, but a vibrant network of individuals dedicated to providing access to expertise backed up by personal experiences. Additional research into the ability of listservs to build community and disseminate expert knowledge can help provide practical suggestions about building new online resources for museum professionals in the future.

Implications for Research

Researchers interested in how museum professionals build online communities will be able to use the results of this study to guide future explorations into how museum information professionals collaborate and share expertise. While this study specifically focused on the types of questions posted to MCN-L, future research on question topics could provide information about how the interests of museum information professionals have shifted over time. Are there topics that recur regularly? When questions recur, are they answered the same way or by the same people? Can different types of listserv members be identified based on the questions they ask, the questions they answer, or their interactions with other listserv members? Answering these questions could help improve our understanding of how MCN-L is used by its members, and shed light on the future of online social interaction among museum professionals.

MCN-L's continued use by museum professionals demonstrates its ability to add value in terms of building a sustainable online community providing outreach and expertise. (See Hew and Hara 2008 for similar results when using a listserv to build community among nursing practitioners). Nevertheless, the inherent drawbacks of using listservs for professional networking and online collaboration (including,

for instance, the lack of a searchable archive) can present difficulties, especially for emerging professionals at the start of their careers. (See Dabish and Kraut 2006 on email overload and its impact on professionals on the job). Improving our understanding of the strengths and weaknesses of different information and communication technologies, and their relative abilities to support online communities, could help create complementary technologies that could make listservs more useful for museum professionals as their needs change and their skills develop throughout their careers. Future research will help improve our understanding of how to complement the interpersonal interactions that already take place on MCN-L, while continuing to support the listserv's ability to build community and meet information needs.

CONCLUSIONS

As museum professionals increasingly turn to online communication forums to seek advice and answers to questions, it is important to study the role of listservs such as MCN-L in providing access to expertise. Despite the growth of social media tools for interpersonal communication online, MCN-L remains a viable and popular method for community building, professional development, and meeting needs for museum information professionals. The research presented here demonstrates that MCN-L is a true online community, whose subscribers are not seeking impersonal answers devoid of context, but expert advice wrapped up with personal experiences. In the long run, the particular form an online community takes (whether a listserv, a Facebook page, or something completely different) is less important than understanding the community's needs and the ability of the underlying technical infrastructure to support the development

and sustainability of distributed communities devoted to the dissemination of expert knowledge. As museum researchers and practitioners identify and assess new ways of promoting computer-mediated communication for museum professionals, they would do well to consider MCN-L as a model for communicating expertise among an online community of museum professionals. **END**

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