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Social Media to Survive and Thrive: School Librarians Describe Online Professional Learning

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Abstract

School librarians balance leadership and instruction in a fluid role that is highly influenced by education trends such as innovation, budget cuts, and distance learning. Prior research found these professionals remain relevant by learning through social media. This exploratory project inquired about the activities, motives, and barriers associated with social media learning. The questionnaire results were dissected by media type (self-published content, curated content, microblogs, discussion forums, and social networks) and by user role (Passerby, Lurker, Networker, Content Creator, and Community Leader). The results showed participants used all five media types and most frequently identified as Lurkers. Although participants most frequently engaged in passive behaviors, participants who self-identified as having active roles were associated with active behaviors. Broadly, participants agreed with motives found in the literature but disagreed with barriers. Distinctions were found when the three question sets (activities, motives, barriers) were dissected by media type and user role. The results can guide individual users as they initiate or expand their social media use and can support leaders as they develop the school librarian community.

Introduction

School librarians constantly adapt to local developments and national trends. Site needs evolve, technologies emerge, and new books are published. School librarians must stay relevant, or their positions are at risk. Within the last decade, budget cuts eliminated school librarian positions around the United States, (Kimmel and AASL 2013; Moreno 2014) and the Covid-19 pandemic has challenged education norms. Prior to the pandemic when students learned predominantly on campus, strong library programs were linked with higher standardized test scores in twenty-five studies (AASL 2014, 6). With radical shifts occurring in education, school librarians must evolve their services, re-envision their instruction, and market their programs to keep the profession germane.

School librarians use social media to share strategies in this dynamic environment (Moreillon 2016). The American Association of School Librarians' *National School Library Standards* are based on Shared Foundations that dovetail nicely with professional learning through social media. These Shared Foundations are: Inquire, Include, Collaborate, Curate, Explore, and Engage (2018). The Competencies and Alignments within the *AASL Integrated Standards*

Framework are worked into school-level strategies by individual professionals problem-solving at the point of need. Immediacy and personalization are hallmarks of "professional learning," distinct from "professional development." Traditional professional development is delivered through workshops, district meetings, and conferences, but can suffer from low workplace transfer (Tobin n.d.). Professional learning, on the other hand, is informal and driven by individuals based on professional needs and interests (Prestridge 2019). Professional learning networks provide school librarians access to a wealth of school-level strategies and tacit knowledge through anecdotes (Wenger, Trayner, and de Laat 2011). "Community of practice" is the collective view of professional learning networks, and together these two concepts provide the theoretical underpinning for this project. While professional learning occurs in face-to-face environments, social media expands opportunities for interaction through ongoing communication unconfined by time and place.

Social media platforms, such as Twitter, Pinterest, and Facebook, are well known in education research as avenues for professional learning (for example, Ardichvili, Page, and Wentling 2003; Chang, Hsu, and Lee 2015). Two gaps in the existing research will be addressed by this study: 1) the lack of research solely about school librarians, 2) the tendency of past researchers to homogenously view social media platforms and social media users.

First, school librarians are a specialized population. Professional learning in this population may be qualitatively and quantitatively different from other educators and from professionals at large. Although librarian publications advocate professional learning (for example, Jonker 2014; Moreillon 2016; Robertson 2017), the literature review located only two empirical articles targeting school librarians using social media for this purpose, and two additional studies that grouped school librarians with other social media and education leaders. The scarcity of empirical literature on school librarian use of social media was noted in a literature review of major research journals (Luo and Hostetler 2020). In the two articles solely about school librarians, each focused on a specific platform (Twitter and Yahoo Groups), using surveys and data downloads to describe community participation and conversation habits (Choi, Dukic, and Hill 2019; Moreillon 2015). The two studies that grouped school librarians with other educators and professionals were qualitative and focused on how participants used social media to enhance their professional learning networks (Krutka, Carpenter, and Trust 2017; Oddone, Hughes, and Lupton 2019; Trust, Carpenter, and Krutka 2018). This study provides greater width and detail than the existing school librarian literature.

The second research gap is treating all social media platforms and users as if they were the same. A small literature set makes distinctions by platform and user roles, but these categories are usually limited to dichotomies such as Twitter and Facebook (platforms), Lurkers and Posters (roles). When researchers do conduct leveled analyses, results show differences in variables such as motivation (Oh and Syn 2015), knowledge sharing intention (Hung, Lai, and Chou 2015), and community commitment (Yang, Li, and Huang 2017). In contrast, this study compares five media types, each encompassing multiple platforms with similar functionality: self-published content (for example, blogs), curated content (for example, Pinterest), microblogs (for example, Twitter), discussion forums (for example, AASL), and social networks (for example, Facebook). In addition, this study further differentiates by five user roles: Passerby, Lurker, Networker, Content Creator, and Community Leader. The purpose of this exploratory study was to fill research gaps by detailing how school librarians use social media for professional learning and, further, to distinguish that use by media type and user role.

Conceptual Framework

INTRODUCTION

In this study, participants completed an online questionnaire based on their individual perspectives. In addition, the conceptual framework seeks to explore how the individual fits into the larger community. In theoretical literature, the professional learning network perspective views the social learning of an individual, and the community of practice perspective views the social learning of the collective body (Wenger, Trayner, and de Laat 2011). Professional learning networks and communities of practice are two views of the same social learning system, not disparate constructs. This theoretical basis is particularly evident in user roles and learning activities, which will be explored further in later sections.

This study is framed by five concepts: media type, user role, activities, motives, and barriers. Media type and user role are the top conceptual layer, through which the second layer results (activities, motives, and barriers) were viewed. These five concepts are described below.

MEDIA TYPES

Social media platforms can be categorized by software functionality. Jan H. Kietzmann et al. (2011) proposed a framework of seven social media building blocks: presence, relationships, reputation, groups, identity, conversations, and sharing. For example, Twitter focuses on conversations between users but does not develop user identity. In contrast, LinkedIn allows users to establish their identity through profiles and publications, and further, facilitates relationships between users. However, social media users often attribute purposes to technology not intended by the creator. Viewing social media software as a set of functions allows grouping of multiple platforms into "media types" for comparison.

This project uses media types of functionally similar platforms to expand the number of platforms under consideration. One previous study employed this grouping technique, designating five media types: social networks, microblogs, discussion forums, wikis, and blogs (Osatuyi 2013). *Social networks* are used to share daily updates. *Microblogs* allow short messages that are either public or audience-targeted. Online forums, named *discussion forums* in this research, primarily host conversations. For this project, Osatuyi's two remaining media types, wikis and blogs, are grouped into *self-published content*. My own experience suggested an additional media type, *curated content*, where users collect topical resources and links. Grouping results by media type provided insight into how respondents actually use the functional building blocks irrespective of their intended use. The five media types identified for this study with representative platforms are:

- ***Self-published content*** – for example: blogs, websites, wikis, YouTube, Flikr, lesson repositories such as Teachers Pay Teachers
- ***Curated content*** – for example: Pinterest, Diigo, ScoopIt!, Symbaloo
- ***Microblogs*** – for example: Twitter, Tumblr, Yammer
- ***Discussion forums*** – for example: Edmodo communities, ALA discussion boards, AASL listserv, Reddit communities
- ***Social networks*** – for example: Facebook, LinkedIn, Google+

USER ROLES

Etienne Wenger—who coined the term "Communities of Practice" with Jean Lave—stated that position and identity in the community correlate to the type of participation, and that this position is dynamic. Wenger identified five social learning trajectories: peripheral, inbound, insider, boundary, and outbound. Peripheral members view the activities and products of inbound and insider members, but do not participate overtly. Boundary participants are members of other communities that cross borders. Outbound members are reducing their community involvement (1998).

The research reported here sought to determine if social media use varied by member trajectory. However, "user roles" was used instead of "trajectory" to better align terminology with social media participation. Vanessa P. Dennen identified five user roles in blogging communities based on Wenger's trajectories: Lurker, Passerby, Blogger, Commenter, and Character. Lurkers and Passersby are peripheral members. Bloggers and Commenters are inbound and inside members. Characters are boundary members (2014). For the research reported here, Dennen's blogging community roles were refined into five user roles generalizable to all media types, based on a participant's overarching goal.

- **Passerby** – an occasional visitor without an overarching goal
- **Lurker** – a person whose goal is to follow specific sites, people, and organizations, but who does not interact often
- **Networker** – a person whose goal is to build a professional network, interacting often and exchanging information with other professionals
- **Content Creator** – a person whose goal is to share knowledge with others and to publish personally developed content
- **Community Leader** – a person whose goal is to solidify the school librarian community by creating, commenting, and brokering content for others

The first two roles are considered "passive," and the last three roles are considered "active" based on levels of engagement with a social media community. Communities will not survive without active membership. "Communities need some cultivation to ensure members get high value for their time" (Wenger and Wenger-Trayner 2015, 9). While active community members are more visible than passive members, passive membership is legitimate and valuable to members and the communities. Lurking is an accepted social media practice that involves active reading and learning (Preece 2004; Seo 2014). Jean Lave and Etienne Wenger described peripheral participation as the means by which new members become part of the community. Community members in differing roles sustain a community over time by performing different activities in the community (1991).

ACTIVITIES

The school librarian online presence is expected to exhibit the core community of practice components outlined by Wenger: mutual engagement, joint enterprise, and shared repertoire. Mutual engagement entails member relationships and interactions. Joint enterprise describes members working toward a shared goal, which is ever-changing through negotiation. Shared

repertoire is the collection of community products and is also the ability of members to recognize products that contribute to the joint enterprise (1998).

In 2015 Etienne Wenger and Beverly Wenger-Trayner suggested learning activities associated with communities of practice: for example, problem-solving, requests for information, and seeking experience. Yet, professional learning research typically does not explore an expansive activities list. Instead, researchers subordinate activities to the study's primary focus. For example, several studies explore the activity of knowledge sharing in various contexts, such as motivation for knowledge sharing (Chang, Hsu, and Lee 2015; Oh and Syn 2015; Wasko and Faraj 2005) and comparisons of knowledge sharing behaviors between Posters and Lurkers (Hung, Lai, and Chou 2015; Lai and Chen 2014). Knowledge sharing is the most commonly researched behavior, but it is only one of many learning behaviors performed by social media users. Online learning activities can be divided into active and passive behaviors depending on whether the activity leaves a digital footprint. This study explored multiple active and passive behaviors as a distinct research question.

While activities are not the primary focus in existing research, differences in activities between media types are implied in other results. Babajide Osatuyi's research into media types, as described earlier in this paper, concluded that information sharing varied across the five media types and, consequently, participant activities also varied. For example, political information was more often found in social networks than discussion boards because social network discussions involved large numbers of people over a short time, and discussion board exchanges were more focused (2013). This result implies an activity difference between social networks and discussion boards. In another study, higher education students exhibited more cognitive presence, that is, construction of meaning, in blogs than in Twitter. In Twitter, the students exhibited more social presence, that is, relationship building (Popescu and Badea 2020). The differences in presence imply performance of different activities between the two media types.

Activities may also vary depending on the user's role, but, as with media types, activity distinctions in existing research must be inferred. Vocational teachers associated specific activities (keeping up-to-date, seeking feedback from supervisors, and knowledge sharing) with a participant's career motivation, one element of which is career identity (Van Rijn, Yang, and Sanders 2013). While career identity is not synonymous with user role, the concept suggests individual differences beyond demographics. In the vocational teacher research, stronger career motivation was associated with active behaviors (seeking feedback and knowledge sharing) and weaker career motivation was associated with the passive behavior (keeping up-to-date).

In a Reddit study, researchers coded differing levels of explanations, socialization, information seeking, and resource sharing in different forums (Haythornthwaite et al. 2018). Participant activities varied with the community interests (politics, academia, and science) suggesting that even when the platform is kept constant, users exhibit different behaviors in different communities. In another message-coding study, researchers found members' user role (Community Leader, Core Member, Active Member, Peripheral Member, or Lurker) was associated with different types of discussion list posts, such as knowledge sharing and requests (Alakurt 2016). These illustrative studies foretell the potential for a defined list of passive and active behaviors that vary by media type and user role.

MOTIVES

Professional learning literature widely explores antecedent factors influencing social media use, often termed "motives" or "motivation." Defined another way, motivation is the reason for goal-

orientated behavior (Matikainen 2015). Social media users have repeatedly reported motives such as trust, commitment, community, self-efficacy, altruism, reciprocity, reputation, enjoyment, and learning need (Chang, Hsu, and Lee 2015; Lertpratchya and Carpenter 2015; Wasko and Faraj 2005; Zboralski 2009). Adding to the general list, school librarians interviewed about their participation in Twitter chats used the terms "networking" and "connection" (Moreillon 2015). Administrators, like school librarians, have few campus peers; administrators reflected that Twitter afforded the social opportunity to feel less isolated (Cho 2016). This project applied these literature-based motives to the school librarian population to explore whether the findings can be generalized.

In the vocational teacher research previously discussed in *Activities*, a second variable interacted with career motivation in the context of three learning activities (Van Rijn, Yang, and Sanders 2013). That second variable was self-construal orientation: individual, relational, and collective. Participants with an individual orientation were motivated by personal goals, detached from the social context. Participants with a relational orientation were motivated by a close relationship with a significant second person, such as a supervisor. Participants with a collective orientation sought impersonal bonds with a social category, such as a community. In the study reported here, motive items in the survey (see appendix) were written to encompass both individual and collective orientations. Relational construal items were not included in the survey because the results were not significant in the research by Monique B. van Rijn, Huadong Yang, and Karin Sanders. Specific motive items in the survey do not, however, represent only individual or collective constructs because it is difficult to isolate these two rationales (Haythornthwaite et al. 2018).

Sanghee Oh and Sue Yeon Syn compared ten common motives for general social media use, not specific to professional learning, across Facebook, Twitter, Del.icio.us, YouTube and Flikr. Oh and Syn found that all ten motives were positively associated with all five platforms, but statistically significant differences existed between platforms and also between user demographics (2015). Based on that finding, the research reported here sought to determine if motive differences also exist between media types when focused on the school librarian population, and whether motive differences Oh and Syn found with demographics may also exist between user roles.

BARRIERS

Community leaders may be interested in why members do *not* participate, so they can better support individuals. Barriers are conditions that inhibit participation. Teachers have cited lack of time and lack of technology access or skill as factors barring greater use of informal workplace learning activities (Lohman 2005). When the research reported here was begun, lack of access was expected to be a smaller barrier than in 2005 due to the proliferation of technology and the prevalence of smartphones. Therefore, a profession-specific barrier was explored in this project: firewalls. In a large-scale national survey, 88 percent of school librarians reported that social network sites were filtered in their district, and that firewalls filtered content for staff as well as students (AASL 2012). The other barriers identified by Margaret C. Lohman, lack of time and lack of technology skill, were included in this project.

Other professionals have expressed additional barriers. Employees in a multinational corporation cited fear of criticism and lack of security and confidentiality (Ardichvili, Page, and Wentling 2003). These concerns were also found among other populations, such as outreach educators (Newbury, Humphreys, and Fuess 2014). As school librarians are often tasked with leading

social media presences for their campuses, this project explored whether criticism, security, and confidentiality are barriers perceived by this specific population.

The previously listed research did not explore barriers in relation to the type of social media used, either because those researchers lumped all media together or because the researchers were using corporation-specific platforms. The results also did not explore the distinctions when user roles are considered. This research project aimed to address those gaps.

Research Questions

Based on the five media types (self-published content, curated content, microblogs, discussion forums, and social networks) and the five user roles (Passerby, Lurker, Networker, Content Creator, and Community Leader) the research questions were:

1. How do **user roles** differ by media type?
2. How do **activities** vary by media type and user role?
3. How do **motives** vary by media type and user role?
4. How do **barriers** vary by media type and user role?

Method

INTRODUCTION

This paper presents Phase One of a three-phase research project. In 2017 Florida school librarians responded to the online questionnaire presented in the appendix of this paper. In 2018 a selection of school librarians from Phase One elaborated on their social media use in interviews (Phase Two). Phase Three will launch next year: a national online questionnaire based on findings from the Phase One survey and the Phase Two interviews. I served as a school librarian for fifteen years in United States public schools and performed numerous district roles in library media services. This experience benefits the research through grounded perspectives but also may introduce unintended biases. Biases that may have affected the wording of questions were minimized through consultation with a social media subject matter expert.

Participants were members of the Florida Association for Media in Education (FAME), the professional organization for Florida school librarians. The organization distributed the online questionnaire to the approximately 850 members, including current school librarians, retirees, district staff, media clerks, university students, and instructors of pre-service school librarians. Although 187 FAME members started the survey, an initial filtering question removed participants not currently or previously in a school librarian position, resulting in a convenience sample of *n=169,* a 23 percent response rate. The questionnaire was distributed seven times through three e-mails, one newsletter article, and three tweets.

QUESTIONNAIRE INSTRUMENT

The questionnaire was primarily a quantitative, exploratory instrument supplemented by two open-ended questions (see appendix). The instrument was developed by incorporating findings from the literature with my professional experience as a school librarian. The questionnaire was examined by a social media subject matter expert and was piloted by three school librarians.

The revised questionnaire was comprised of a demographics section followed by a multiple-selection question that asked which media types the participant uses. The media type question branched into the bulk of the questionnaire, wherein participants were provided subsequent items only for the media types they chose in the multiple-selection question. To minimize survey fatigue, participants did not receive items for media types they did not select.

The branched items aligned with the research questions about user role, activities, motives, and barriers. First, participants identified a user role for each media type based on their overarching goals. Then, participants rated statements on a six-point Likert scale: strongly disagree, disagree, somewhat disagree, somewhat agree, agree, and strongly agree. The survey concluded with two open-ended questions that sought opinions on finding high-quality content and on social media factors that participants consider but the survey did not include. Responses from these questions served to elaborate upon the quantitative results but were not primary data sources.

DATA ANALYSIS

Descriptive statistics present the quantitative results. Frequency was the analytic method for both demographic and research question data. Raw frequencies were converted to percent values for easier comparison due to the varying sample sizes within media types caused by the branching survey design.

For the first research question, which explores user roles in relation to media type, the raw frequencies were analyzed with chi square for significance prior to being converted to percentages. For the remaining research questions, the Likert item frequencies were first analyzed collectively, and then were distinguished by media type and user role. The six Likert responses were collapsed into three categories to simplify results reporting: Agree = strongly agree and agree; Moderate = somewhat agree and somewhat disagree; Disagree = disagree and strongly disagree. In the tables, histograms accompany the collective frequencies to elucidate agreement and disagreement tendencies.

Responses to the two open-ended questions were tallied by social media frequency and were then coded by the questionnaire frame (activities, motives and barriers). Concepts from open responses are presented in this report when multiple responses address the same idea. Quotes are presented throughout the results section to illustrate potential viewpoints relative to the quantitative results. Since open responses were optional in the largely quantitative questionnaire, concepts gleaned from content analysis of open responses do not constitute fully developed themes, nor do quotes indicate majority opinions.

Results

DEMOGRAPHICS

After filtering out respondents who were not school librarians (active or former), 169 usable questionnaires were completed. Participants were sufficiently represented across the years of experience ranges as seen in table 1: 36 percent reported 0–7 years of school librarian experience (n=61); 41 percent reported 8–15 years (n=70); and 22 percent reported 16 or more years (n=38). The vast majority of participants were female (n=161); only eight participants were male. The majority of participants were educated beyond a Bachelor's degree, having earned a Master's degree or higher (75 percent, n=128). Consistent with the national standards and job requirements, 98 percent of participants reported technology proficiency beyond the basic job

requirements, capable of helping others with technology issues. The majority (64 percent) further reported being very or extremely proficient with technology.

Table 1. Demographic results.

Item	Response	Questionnaire *n*=169	
		Number	Percent
Years of Experience	0–3	27	16
	4–7	34	20
	8–11	36	21
	12–15	34	21
	16–19	15	9
	20 or more	23	14
Gender	Female	161	95
	Male	8	5
Education	Bachelor's	41	24
	Master's	119	70
	Specialist	2	1
	Doctoral	3	2
	Other (pursing Doctoral, two Master's, NBPTS, Gifted)	4	2
Technology Proficiency	Novice	0	--
	Somewhat proficient	4	2
	Proficient	57	34
	Very proficient	87	52
	Extremely proficient	21	12

Note: Percent decimal places rounded to whole numbers for readability.

MEDIA TYPE AND ROLES

School librarians participated in all five social media types: self-published content, curated content, microblogs, discussion forums, and social networks (see table 2). Social networks were most widely used (70 percent, *n*=119), and discussion forums were used least (44 percent, *n=75*). Of the school librarians who used self-published content (*n*=110), 26 percent produced and published their own content (*n*=29). Only eight participants did not use any media type for professional learning. The research questions do not apply to non-users, so these eight non-using participants then exited the questionnaire. Participants selected an average of *M*=2.61 media types.

Table 2. Rates of media type and user roles.

Media Type	*n*=169		User Roles	*n*=442	
	Number	Percent		Number	Percent
Self-Published Content	110	65	Passerby	62	14
Curated Content	117	69	Lurker	176	40

Media Type	*n*=169		User Roles	*n*=442	
	Number	Percent		Number	Percent
Microblogs	100	59	Networker	122	28
Discussion Forums	75	44	Content Creator	53	12
Social Networks	119	70	Community Leader	29	7
None	8	5			

Note: Participants *n*=169 may select more than one type of social media. One role was selected for each media type, *n*=442.

In response to the first open-ended question, participants described where they go for high-quality information. In the responses (*n*=102), participants provided a mix of media types and specific platforms, which were tallied. The "high-quality" results do not parallel the multiple-selection use results presented in the previous paragraph. Most participants in the open-ended response said self-published content sites yield the highest-quality information (32 percent), whereas the overall use of this media type ranked third. One participant described her use of "Blogs: Teachers share their real classroom situations and solutions." Social networks were mentioned least frequently in content quality (11 percent), while overall use ranked this media type first. The remaining frequencies for high-quality information in descending order were: curated content (24 percent), microblogs (20 percent), discussion forums (15 percent).

Some participants responded to the open-ended question with specific platforms rather than the encompassing media types. The most-common platforms for high-quality content were (in descending order): Twitter, Pinterest, Facebook, and blogs, followed less frequently by YouTube, ALA discussion boards, Edmodo, LinkedIn, wikis, and Teachers Pay Teachers.

In the second section, participants chose a user role (Passerby, Lurker, Networker, Content Creator, or Community Leader) specific to each media type they selected; one participant could provide up to five user role responses. The total user role responses were *n*=442 (see table 2). Overall, participants most frequently identified as Lurkers, a passive role (40 percent, *n*=176), followed by Networkers, an active role (28 percent, *n*=122). Community Leader was selected least (7 percent, *n*=29), an unsurprising result since a community can sustain fewer leaders than participants.

The next analysis sought to answer the first research question: **How do roles differ by media type?** First, the raw user role and media type data were placed in a cross table of frequencies, finding significant differences from expected with chi-square, ($\chi^2(16)=48.6$, $p<.001$). Second, two sets of cross-tabulated percentage tables were created: (1) within each media type, what percent claim each role (see table 3); and (2) within each role, what percent use each media type (see table 4).

As shown in table 3, Lurkers were the most common role in all media types except microblogs, for which Networkers were most common (44 percent). As shown in table 4, Lurkers most often used self-published content sites (32 percent). Passersby most commonly visited curated sites (27 percent); Content Creators most commonly employed social networks (40 percent); and Community Leaders and Networkers most frequently used microblogs (34 and 30 percent, respectively).

Table 3. Within media type, percent of participations identifying with each role.

	Self-Published %	Curated Content %	Microblogs %	Discussion Forums %	Social Networks %
Passerby	13	16	10	25	11
Lurker	**51**	**42**	26	**43**	**34**
Networker	19	25	**44**	22	29
Content Creator	9	13	7	4	23
Community Leader	8	4	12	6	3
Rounded Total	100	100	99	100	100

Note: Underlined, bold number: highest frequency of user role within each media type. Percent values are rounded to the nearest whole ($\chi^2(16)=48.5$, $p<.001$).

Table 4. Within roles, percent of participants using each media type.

	Self-Published %	Curated Content %	Microblogs %	Discussion Forums %	Social Networks %	Rounded Total %
Passerby	23	**27**	13	21	16	100
Lurker	**32**	26	12	13	18	101
Networker	17	22	**30**	9	22	100
Content Creator	19	26	11	4	**40**	100
Community Leader	31	14	**34**	10	10	99

Note: Underlined, bold number: highest frequency of media type within each role. Percent values are rounded to the nearest whole number, resulting in rounded totals that do not equal 100% ($\chi^2(16)=48.5$, $p<.001$).

To further simplify patterns, the five user roles were condensed into two groups: passive (Passerby and Lurker) and active (Networker, Content Creator, Community Leader). As shown in figure 1, passive users were more likely to visit self-published content, curated content, and discussion forums than active users. Conversely, active users were more likely to use microblogs and social networks. The closest balance between passive and active users occurred in social networks, and the largest disparity was in discussion forums. Chi square analysis indicated the differences between active and passive users was significant ($\chi^2(4)=22.9$, $p<.001$).

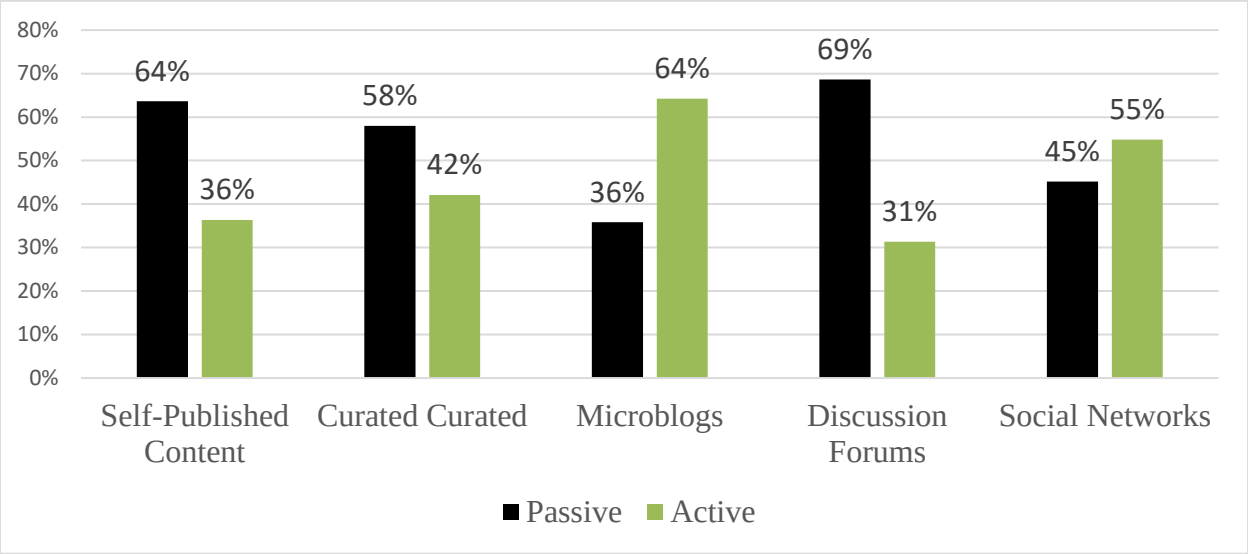

Figure 1. Percent of participants identifying as passive and active in each media type.

ACTIVITIES: COLLECTIVE, MEDIA TYPE, USER ROLE

Collective Activity Results

In the activity Likert question block, the frequency and histogram distributions for each item collectively were first determined without distinction by media type or user role (see table 5). All results trended toward agreement except the result about respondents linking to their own publications, which skewed right in the histogram (disagree=49 percent). Participants were moderate in their responses when looking for information to share (moderate=40 percent) and when posting their opinions on trending topics (moderate=44 percent). The remaining seven activities garnered agreement most frequently.

Table 5. Activity items: abbreviation, question stem, and descriptive statistics.

ACTIVITY Passive Behaviors	Question Stem	Disagree %	Moderate %	Agree %	Histogram
FollowProfessional	Follow specific professional	11	31	**59**	
WorkProblem	Look for specific information to solve a work problem	5	26	**69**	
LookInfoShare	Look for information to share in my social media posts	21	**40**	39	
SeekSupport	Look for support from others who share my tribulations (not in curated)	12	44	**45**	
LookResources	Look for leads on professional readings or Web resources (not in self-published)	6	26	**68**	

ACTIVITY Active Behaviors	Question Stem	Disagree %	Moderate %	Agree %	Histogram
NewConnect	Look for new professional connections (not in self-published)	15	41	**45**	
PostComments	Post comments to the current post	22	38	**40**	
PostResources	Post tips, resources, and links	18	33	**49**	
LinkMyPubs	Post links to my publications or posts - marketing (not in curated)	**49**	29	21	
PostOpinTrends	Post my opinions on trending topics (not in curated)	21	**44**	35	

Note: Underlined, bold number: highest frequency per activity.
Likert scale response key: Disagree (strongly disagree and disagree), Moderate (somewhat disagree and somewhat agree), Agree (agree and strongly agree).

Media Type Activity Results

Next was the examination of results to answer research question 2: **How do activities vary by media type and user role?** The results were first divided by media type (see table 6). Participants solved work problems with every media type, the only activity item with 50 percent or greater agreement in all five media types. In the open-ended responses, participants explained their search for work solutions. One participant wrote, "I like to use self-published content when I am looking for some other ideas for the content and skills I am teaching. Why reinvent the wheel when someone else has already done it for me like on Teachers Pay Teachers." About curated content a participant wrote, "Pinterest leads me to lesson plans, book reviews, technology information, trending topics, and so much more." Another participant recommended discussion forums because "I can get help or questions answered quickly." The quantitative results and open responses suggest school librarians perceive social media as an immediate source of information, a time-sensitive activity that contrasts with continuous professional learning.

Table 6. Activity distinctions: 50 percent or greater frequency.

ACTIVITY	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
n	129	95	75	47	88	52	162	115	52	28
Percent Agree *Passive Behaviors*	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
FollowProf	55		**84**	74	63		56	74	52	**82**
WorkProb	**75**	**75**	58	67	67	54	**75**	71	71	64
LookInfoShare								50	55	**57**

Support		-						**52**		50
LookResources	-	63	**72**	63	**72**		64	**83**	75	78
Percent Agree *Active Behaviors*	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
NewConnect	-		**60**					**64**	50	63
PostComments			**53**					58	57	**68**
PostResources	**93**		51	50	64			64	85	**89**
LinkMyPubs		-								
PostOpinTrends		-							59	**65**
Percent Disagree	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
LookInfoShare						**55**				
NewConnect	-					**68**				
PostComments						**57**				
PostResources						**61**				
LinkMyPubs	**54**	-		50		**79**	60			
PostOpinTrends		-				68				

Note: Blank cells: frequency less than 50 percent. Dash: item not presented. Underlined, bold number: highest frequency per activity and media type or user role.
Type key: Self=Self-Published Content; Curat=Curated Content; Micr=Microblogs; Disc=Discussion Forums; SocN=Social Networks.
Role Key: Pass=Passerby; Lurk=Lurker; Netw=Networker; Crea=Content Creator; Lead=Community Leader.

Participants agreed they look for leads on professional readings in four media types (the item was not available for self-published content). In open responses, participants emphasized microblogs for these resource connections. For example: “Often microblogs (Twitter) lead me to the self-published content (blogs).” “I usually use Twitter to post a question to my Twitter peers and go from there. Their replies might lead me to blogs or other online resources.”

Following specific professionals or forums was another activity with high agreement, except for curated content. In open responses, following others was most often mentioned for Twitter. “Microblogs, specifically Twitter, because I follow a lot of librarians on there, and it’s quick and easy to see who I want to see and get information.” “I use Twitter to stay connected to professional groups as this seems to be where I find the most up-to-date information.” For curated content, following professionals was not a frequent agreement, which contrasts with the

strong agreement about focusing on immediate work problems in that media type. This juxtaposition suggests participants searched curated sites for a specific purpose but seldom follow content creators within the site.

The three items discussed above—work solutions, looking for resources, and following professionals—are passive behaviors that do not leave a digital footprint. One active item also garnered high agreement: posting resources, by which users contribute tips, resources, and links to the shared repertoire. Participants post resources in self-published content sites most, evidenced by the highest agree scores (93 percent). Conversely, they post resources least in curated content sites (agree=38 percent). One participant explained her reasoning: "I used to maintain several Pinterest boards for media specialists, and for teachers of various subjects and grade levels. I discovered they were not being used, because others already existed that were specialized."

For microblogs, school librarians participated in two activities they did not cite in other media types: 1) posting comments to the current post, and 2) looking for new professional connections. Both behaviors are active and align with the Networker role definition. Within microblogs, most users identified as Networkers (44 percent, see table 3). When viewed by role (table 4), both Networkers and Community Leaders used microblogs more frequently than other media types, but because school librarians more frequently identified as Networkers (n=122) than Leaders (n=29), they represented a larger portion of total microblog users.

Only one activity received greater than 50 percent disagreement when viewed by media type: posting links to the respondents' own publications or posts (see bottom of table 6). This disagreement occurred in self-published content and discussion forums. This non-uniform result suggests that school librarians are more likely to use the microblogs and social networks for self-promotion. The presence of media type distinctions leads to the second part of the research question about how activities vary by user role.

User Role Activity Results

When viewing activities by user role, the passive roles—Passerby and Lurker—agreed with fewer items than active roles—Networker, Content Creator, and Community Leader (see table 6). Passersby, who agreed with only one activity, most frequently used social media for a specific work purpose (54 percent). This finding suggests Passersby see social media as an information source but visit largely for a defined need. Lurkers also frequently reported visiting to solve work problems (75 percent); however, Lurkers also said they follow professionals (56 percent) and look for professional readings (64 percent). With a wider range of activities, Lurkers are more embedded in the community and have greater access to the shared repertoire.

Active roles—Networker, Content Creator, and Community Leader—agreed with almost every activity, showing a broad range of social media behaviors. Networkers most frequently agree they look for resources (83 percent), a passive behavior. Content Creators (85 percent) and Community Leaders (89 percent), on the other hand, most frequently agreed they post resources, suggesting these two roles most actively contribute to the shared repertoire.

Participants in passive roles marked activities with higher disagreement than participants in active roles. Passersby disagreed with six of the ten activities, including all five active behaviors. Lurkers, on the other hand, disagreed only that they link to their personal publications (60 percent). This finding is unsurprising because they tend to not post, much less market those posts. Lurkers reported moderate opinions with the four remaining active behaviors, suggesting

they engage the community occasionally. The active roles did not register majority disagreement for any activity items. Motives may provide insight into why school librarians perform differing activities.

MOTIVES: COLLECTIVE, MEDIA TYPE, USER ROLE

Collective Motive Results

In the second Likert question block, participants responded to the antecedent factors, or "motives," for their social media use. As with the activity question block, frequencies and histograms were first produced for items collectively (see table 7). The majority of participants agreed with all motives except three: feeling isolated at work, improving employability, and establishing themselves as experts. These three motives elicited majority moderate opinions, yet only isolation is skewed right in the histogram, indicating more disagreement. Five motives elicited stronger agreement, evidenced by skewing left on their histograms: learning new things, work needs, current trends, contact with best educators, and community commitment. These five motives are a mix of individual and community motives. Realizing broad agreement regarding ten of the eleven motives, my next task was to seek distinctions by media type and user role.

Table 7. Motive items: abbreviation, question stem, and descriptive statistics.

MOTIVE Abbreviation used in table 8	Question Stem	Disagree %	Moderate %	Agree %	Histogram
Learn	Because I like learning new things	1	9	**90**	
WorkNeed	Because I have a specific need at work	5	22	**73**	
Trends	Because I want to stay abreast of current trends	1	13	**85**	
BestEducators	Because I want to be in contact with the world's best educators	4	35	**61**	
Isolation	Because I feel isolated at work	41	**45**	14	
Community	Because I have a strong commitment to the school librarian community	2	23	**75**	
OrgDistSch	Because online professional learning is advocated by my organization, district, or school	12	41	**48**	
ProfNetwork	To build my professional network	10	38	**52**	
ShareKnowledge	To share my knowledge with others	16	41	**43**	
Employability	To improve my employability	24	**43**	33	

Expert	To establish myself as an expert	20	**48**	32	

Note: Underlined, bold number: highest frequency per motive.
Likert scale response key: Disagree (strongly disagree and disagree), Moderate (somewhat disagree and somewhat agree), Agree (agree and strongly agree).

Media Type Motive Results

Research question 3 asks: **How do motives vary by media type and user role?** The first step in answering this question was parsing the motive frequencies by media type (see table 8). Participants in all media types reported being most motivated because they like learning new things. Four other motives received agreement across all media types: solving a work need, staying current with trends, being in contact with best educators, and community commitment.

Table 8. Motive distinctions: 50 percent or greater frequency.

MOTIVES	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
n	103	96	77	51	88	53	167	113	74	28
Percent Agree	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
Learn	**90**	**90**	87	**90**	**90**	**96**	95	91	89	**96**
WorkNeed	76	**84**	64	80	61	**83**	81	72	70	71
Trends	**88**	82	87	82	84	85	92	89	89	**96**
BestEducators	67	53	**69**	64	53		62	74	62	**89**
Isolation										
Community	78	68	**83**	76	71		78	81	77	**96**
OrgDistSch	50		**52**	50		**83**	78	55		79
ProfNetwork			**73**	54	51			81	51	**82**
ShareKnowledge			**51**					57	68	**89**
Employability										
Expert										**54**
Percent Disagree	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
Employability						**53**				

Note: Blank cells: frequency less than 50 percent. Underlined, bold number: highest frequency per motive and media type or user role.
Media type key: Self=Self-Published Content; Curat=Curated Content; Micr=Microblogs; Disc=Discussion Forums; SocN=Social Networks.
User role key: Pass=Passerby; Lurk=Lurker; Netw=Networker; Crea=Content Creator; Lead=Community Leader.
Motive abbreviations are in table 7.

When answering the first open-response question, participants explained why they visit particular media types for high-quality content, and many of those comments aligned with the five high-agreement motives. Comments describing individual-oriented motivations—learning, work needs, and current trends—elaborated on the quality of the site's content. For example, a participant recommended self-published content for high-quality information "because I can verify the reliability of the work by previous posts and comments." Participants tied curated content, Pinterest in particular, with specific work needs. For example, "Pinterest is my go-to to find lesson ideas and book challenges, etc." Participants associated microblog content with timeliness and topical breadth. For example, one wrote, "Twitter because it is the most current and broad reaching." Finally, participants associated discussion forum content with reputable hosting organizations, such as AASL and conferences.

Participants related community-oriented motives—contact with the best educators and community commitment—with network quality. Participants wrote about network size, the potential audience reach, and the number of professionals they follow. Community responses most often referenced microblogs and social networks. For example, one respondent wrote, "Microblogs – It's easy to quickly browse a range of respected professionals to target specific topics."

Three motives did not cross the 50 percent agreement threshold in all five media types. This lack of uniformity among motives provides insight into why participants chose different media types. For example, "organization, district, and school advocacy" was reported to motivate participation in self-published content, microblogs, and discussion forums, while responses for this motive were moderate for curated content and social networks. One participant explained the external motivation: "I tend to use self-published content [for high-quality information]; it is usually because someone else has directed me there based on a conversation we have had." This mixed result raises two possibilities: 1) organizations may advocate use of the former three media types, or 2) internal motivation may be greater in the latter two media types.

Another motive with mixed results was "building a professional network," to which participants agreed in microblogs, discussion forums, and social networks, but which was associated with moderate responses for self-published content and curated content. Of the three media types registering agreement, participants most frequently agreed with networking in microblogs (73 percent). This result aligned with the high prevalence of the Networker role (44 percent) for microblogs (see table 3) and the new connections activity (60 percent) unique to microblogs (see table 6), discussed previously. In a unique motive, the intent to share knowledge was reported most frequently for microblogs (51 percent).

User Role Motive Results

The general consensus for motive across media types leads to the examination of results in the context of the second part of the research question: determining whether motives differ by user

role. Within user roles, the pattern of consensus continued, but not as uniformly as when the responses were grouped by media type. As shown in table 8, three of the five motives with universal agreement for media type continued to have universal agreement across user roles: learning, work needs, and current trends. However, a mixture of participants agreed with the remaining six motives in some user roles and not in others.

First considering the passive roles, Passersby agreed with four of the eleven motives, adding "organization, district, and school advocacy" to the universal three (83 percent). Lurkers additionally reported being motivated by contact with the best educators and by community commitment. However, Lurkers were not strongly motivated by building a professional network or by the desire to share their knowledge, which were present in the results for respondents in active roles.

In the active roles, Community Leaders agreed with the most motives, all items except isolation and employability. Other motives were similar across the active roles with two exceptions. Content Creators were not strongly motivated by organization advocacy of social media use, suggesting they are internally inspired to participate. Also, only Community Leaders agreed they participate to establish themselves as experts. This reputation item may be tied to Community Leaders' heightened community awareness. They also reported highest agreement in other community-oriented motives such as: community commitment (96 percent), sharing knowledge (89 percent), and networking (82 percent).

Finally, although no motives received at least 50 percent disagreement for the media types, Passersby registered one disagreement when the results were viewed by user role. Respondents who reported themselves as being a Passersby disagreed with the idea that participation is tied to employability (53 percent). The general lack of disagreement suggests that all motives, including isolation, employability, and expert recognition (all of which fell under the 50 percent frequency threshold), factor into some participants' use of social media. This finding leads into the final consideration: barriers that prevent further use.

BARRIERS: COLLECTIVE, MEDIA TYPE, USER ROLE

Collective Barrier Results

The last Likert question block in the survey proposed barriers that could inhibit greater participation in social media for professional learning (see table 9). Contrasting with the activity and motive results, school librarians collectively disagreed with every item except "I do not have time" (agree=61 percent). Participants most strongly disagreed they lacked technology knowledge (disagree=76 percent), consistent with the demographic results in which 98 percent identified as proficient or better with technology (see table 1). One histogram, however, was bimodal. Overload registered both agrees and disagrees. These two acknowledged barriers—time and overload—were also voiced in the open responses. One participant described the "constant balancing act" of maintaining multiple social media platforms. Another stated, "No time... it always falls by the wayside when I get back to school."

Table 9. Barrier items: abbreviation, question stem, and descriptive statistics.

Abbreviation used in table 10	Question Stem	Disagree %	Moderate %	Agree %	Histogram
Time	I do not have the time	13	26	**61**	
Motivation	I am not motivated	**55**	37	8	
Criticism	I fear criticism	**71**	28	1	
Security	I am concerned about security	**66**	28	7	
Confidentiality	I am concerned about confidentiality	**60**	32	8	
TechKnowledge	I lack the technological knowledge	**76**	23	1	
Overload	I expect information overload	44	**45**	11	
NoNeed	I do not have a need	**57**	35	8	
Confrontation	I fear my posts will be viewed as confrontational	**74**	24	2	
Firewall	The district firewalls my favorite sites on campus	**49**	34	17	
NotRequired	It is not required	**58**	33	9	
NoReaders	I don't think people will read or respond to my posts	**60**	36	4	

Likert scale response key: Disagree (strongly disagree and disagree), Moderate (somewhat disagree and somewhat agree), Agree (agree and strongly agree).
Underlined, bold number: highest frequency per barrier.

Media Type Barrier Results

The final research question asks: **How do barriers vary by media type and user role?** Beginning with media type, time was universally the most frequent barrier (see table 10). School librarians agreed with this statement most frequently in self-published content (70 percent), likely due to the greater burden of creating and reading longer publications. No other barrier reached the 50 percent threshold for agreement. Discussion therefore will focus on the two barriers about which participants expressed moderate opinions: information overload and firewalls.

Participants were moderately concerned about information overload in all media types except social networks (disagree=50 percent). Several participants explained one reason for this social

network exception: they combine personal and professional visits to these social media sites. As expressed by one participant, “Since retirement, I mostly use Facebook and Twitter because they are convenient, and I already use them for personal reasons.” In the other barrier with moderate results, firewalls created greater concern in curated content and microblogs, expressed in these two comments: “I do not use social media at work. One, there is no time; two everything is blocked.” “I cannot ask questions easily, or it is prohibited by my district policies.”

Table 10. Barrier distinctions: 50 percent or greater frequency.

BARRIERS	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
n	102	96	77	51	88	52	166	115	52	28
Percent Agree	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
Time	**70**	64	53	63	53	**82**	64	51	58	56
Percent Disagree	Self	Curat	Micr	Disc	SocN	Pass	Lurk	Netw	Crea	Lead
Time										
Motivation	55	**57**	54	56	56		52	**68**	62	65
Criticism	70	**79**	72	64	71	**82**	75	72	72	71
Security	62	69	69	**72**	64	**80**	68	66	70	
Confidentiality	58	64	62	**68**	57	**76**	62	60	66	
TechKnowledge	71	79	76	72	**84**	**90**	74	79	81	83
Overload					**50**					
NoNeed	54	**60**	59	54	59	58	54	65	**66**	63
Confrontation	72	**79**	73	76	77	**92**	69	78	82	76
Firewall	50			50	**53**	**64**		50	57	
NotRequired	61	**65**	53	52	56	58	60	**63**	51	56
NoReaders	53	66	55	54	**67**	**80**	54	63	64	69

Note: Blank cells: frequency less than 50 percent.
Underlined, bold number: highest frequency per barrier and media type or user role.
Media type key: Self=Self-Published Content; Curat=Curated Content; Micr=Microblogs; Disc=Discussion Forums; SocN=Social Networks.
User role key: Pass=Passerby; Lurk=Lurker; Netw=Networker; Crea=Content Creator; Lead=Community Leader.
Barrier abbreviations are in table 9.

In the open responses, participants described an interaction between media types through which use of one platform created a barrier for another platform. For example, one respondent wrote, "Currently my use of Twitter exceeds my use of Facebook as far as connecting with librarians and teachers on current trends. Facebook is more for family and community interests." This sentiment (Twitter: professional, Facebook: personal) was echoed by other commenters. Similarly, school librarians often stayed with familiar platforms with existing professional networks, to the exclusion of other platforms: "I am already established in certain social media and do not have connections in others."

User Role Barrier Results

Viewed by user role, the barriers common for media types continued to be concerns. Time was still the only barrier reaching 50 percent agreement. Passersby more frequently agreed with this statement (82 percent) than other user roles. Overload was a moderate concern for all user roles, and firewalls were a moderate concern for Lurkers and Community Leaders. However, a few barrier distinctions were present in the user role analysis that were not present in the media type analysis. Passersby moderately agreed they lack motivation. Community Leaders returned the most moderate responses, expressing notable concern about security and confidentiality. This increased concern may be due to enhanced awareness aligned with their influential role.

Discussion and Conclusions

RELATION TO AASL NATIONAL STANDARDS

The school librarian community is actively connected through social media. Of the qualifying participants, 95 percent used social media for professional learning, often using multiple media types, assuming various user roles, and performing a variety of activities. Reported activities (see tables 4 and 5) align with the six Shared Foundations in AASL's *National School Library Standards* (2018).

- **Inquire** and **Explore**: School librarians use social media for both point-of-need information (69 percent) and for continuous professional learning (68 percent).
- **Include** and **Engage**: School librarians actively build their professional networks (45 percent) and post comments (40 percent).
- **Collaborate** and **Curate**: School librarians seek support from the school librarian community (45 percent) and broker resources (49 percent), including their own self-published content (26 percent).

"As school librarians develop their competencies within the areas of Think, Create, Share, and Grow, a climate of intentional, innovative and engaging learning is the result" (AASL 2018, 43). This alignment between the study findings and the Shared Foundations shows school librarians seek to improve their services and instruction for student growth through social media.

RELATION TO COMMUNITIES OF PRACTICE AND PROFESSIONAL LEARNING NETWORKS

The activities meeting the Competencies articulated in the AASL Standards also evidence a robust and relevant community of practice (Wenger 1998). Mutual engagement is confirmed through interactive behaviors such as following specific professionals, looking for new connections, seeking support, and posting comments. Open responses described mutual engagement as discussions, posting questions, and keeping in contact with peers. Joint enterprise is confirmed through activities such as posting resources and opinions, and in comments such as "how well it worked after it was tried by someone like me." Shared repertoire is evident through activities such as looking for information to solve a work problem and looking for leads on professional readings. Further, school librarians broker this shared repertoire through their professional learning networks. Open responses described the melding of professional networks with the community of practice in comments such as, "I use Pinterest as a resource for ideas related to instructional needs, professional groups, and community outreach."

The study's five user roles based on Wenger's community trajectories (1998) and Dennen's (2014) blogging community roles were present in all five media types. Dennen (2014) associated user roles with varying participation. In this research, respondents who reported enacting active user roles—Networker, Content Creator, Community Leader—unsurprisingly agreed with the greatest number of active behaviors. Participants reporting passive roles—Passerby, Lurker—did not agree with any active behaviors above the 50 percent threshold. Overall, participants reporting different user roles engaged in different activities, attributed different motives to their use of social media, and experienced different barriers to its use for professional learning. These differences exemplify the fundamental premise of professional learning networks: personalization and individual need (Prestridge 2019).

RELATION TO LITERATURE THAT INFORMED QUESTIONNAIRE DEVELOPMENT

Activities

The activity results are most strongly related to the AASL Standards and the community of practice theory and were presented in the previous two sections. One final activity observation deserves note. This project is unique in its direct questioning about both passive and active behaviors—questioning not found in previous research. Previous research often used content analysis on message posts. In this study, participants were most likely to engage in passive activities that would not leave a digital footprint to be analyzed. The activity results presented in this study represent a more-complete picture of professional learning behaviors.

Motives

Of the many motives listed in the literature, participants in this study universally agreed with learning enjoyment, work need, and community commitment (Chang, Hsu, and Lee 2015; Lertpratchya and Carpenter 2015; Oh and Syn 2015; Wasko and Faraj 2005; Zboralski 2009). Three additional motives received agreement for some media types but not others, and six items received agreement for some roles and not others (see table 7). These dissections show participants distinguished their motives depending on the media type and user role. Altruism, worded "share my knowledge with others," is a common motive found in the literature that was not universally represented in this study. Participants agreed with altruism in microblogs and when assuming the three active user roles, but otherwise, they recorded moderate opinions about

the motive of sharing. In addition, participants did not agree with the literature on reputation, expressed as "establishing themselves as an expert." Only Community Leaders expressed agreement with this motive. A closely related reputation motive also did not receive wide agreement: using social media to improve employability. Unlike the expert motive, this reputation item did not reach 50 percent agreement in any role. These two findings in conjunction suggest Community Leaders seek peer recognition on social media but do not see this status transfer to future opportunities. Pre-service librarians, excluded from this study, may express different results.

Like the school librarians in Moreillon's 2015 Twitter chat study, some participants sought to build their professional network. However, this motive could not be generalized. Participants agreed with network-building only for microblogs, discussion forums, and social networks, and only when identifying with the three active user roles. The final motive identified in the literature, community commitment, was more universally confirmed. Participants registered agreement for all media types and four user roles, Passersby being the exception.

School librarians disagreed with or had moderate opinions on another motive from the literature: because they feel isolated at work. This motive was identified by administrators who also lack positional peers on campus (Cho 2016). One reason for this discrepancy may be that school librarians are tasked with teacher collaboration, resulting in instructional and social conversations that reduce or eliminate the feeling of isolation. Another reason may be that school librarians are bureaucratically level with classroom teachers and have student-related responsibilities, whereas administrators are higher in the organization chart and have managerial responsibilities. A final reason the findings do not match may be the item was poorly written, failing to capture the social nuance of isolation.

Barriers

Overall, participants disagreed with the barriers established in the literature, with a few exceptions. Firewalls, a more-specific phrasing of Lohman's "lack of technology access" (2005), were a moderate barrier in curated content and microblogs, and for Lurkers and Community Leaders (see table 9). In context of the 2012 AASL report that 88 percent of school librarians report social network sites are filtered for staff as well as students, the mixed finding for firewalls could suggest that select sites are filtered at greater rates than others, or that school librarians find workarounds such as data access on smartphones, avoiding the school internet network. For Lurkers, firewalls could inhibit participation, particularly if they resort to smartphone access with smaller screens and more cumbersome typing. Concerns about criticism, security, and confidentiality found in two studies (Ardichvili, Page, and Wentling 2003; Newbury, Humphreys, and Fuess 2014) were moderately expressed by Community Leaders, but for no other role. The unique barrier results for Community Leaders may suggest that they assume greater ownership for the health and perseverance of the community and, therefore, register more concerns.

MICROBLOGS

Microblogs deserve special attention because the quantitative results often differed from the other media types. First, microblogs attracted Networkers and Community Leaders; Lurkers were most prevalent for the other media types. Unlike activities in other media types, participants in microblogs were most likely to seek new connections and to post comments. Finally, participants were more motivated by sharing their knowledge in microblogs.

Three of Kietzmann et al.'s (2016) building blocks were supported by the microblog results: conversations, sharing, and relationships. In open responses, participants wrote of Twitter exclusively, so the Twitter analysis by Kietzmann et al. is referenced here. According to their social media building block framework, conversations are the key function of Twitter. In the research reported here, the two unique activities reaching high agreement for microblogs—seeking new connections and posting comments—and the one unique microblog motive—sharing knowledge—suggest that Twitter remains a vital conversation platform for the school librarian community. The sharing component is evident in participants' responses to open-ended questions in which they remarked that Twitter leads readers to outside professional sites, often self-published content. Sharing is also supported by 72 percent agreement with the activity "looking for professional resources." Finally, the relationship component is evident when users follow professionals (84 percent) and are motivated to build their own networks (73 percent). These microblog results mirror Moreillon's findings that "connection" is a key benefit that school librarians associate with Twitter (2015). One building block associated with Twitter did not receive agreement in the results: reputation. Twitter reputation is evident in the number of followers a Twitter user has and in the number of retweets a post receives. However, looking for new information to share and establishing an expert reputation did not garner strong agreement in microblogs. This finding suggests school librarians do not exploit Twitter's functional potential for reputation, although their rationale cannot be inferred through quantitative data alone.

IMPLICATIONS

The results suggest actions for school librarians and guidelines for community leaders. For sake of discussion, these implications aim to increase participation in use of social media for professional learning. However, active participation is not inherently preferable to peripheral participation (Lave and Wenger 1991), nor is more participation inevitable (Dennen 2014). Still, increased participation may be a desired outcome. Increased participation may include more online community members, more activities and active behaviors, larger professional networks, and improved community reputation.

New social media users should start with familiar platforms such as Twitter, Facebook, and Pinterest, the most popular platforms mentioned in open responses. Pinterest in particular is a low-risk environment to enter the school librarian community because Lurkers are common and passive behaviors are the norm. In addition, comments suggest Pinterest may be saturated with timeless topics of interest to librarians. Therefore, the vast collection is easily accessible without the need to create new content. As passive members start to curate their own content, they should focus on niche topics or emerging trends not yet saturating the shared repertoire, such as newly published books and 3-D printing projects, as viewers are more likely to be attracted to less-traditional collections.

The next set of implications applies to passive users expanding their social media participation. Passersby in this study agreed with one activity: finding information to solve a work problem. They could expand their community exposure by following others, an activity commonly reported by the other four roles. Lurkers might look for information to share in their own posts or might start leaving comments. These two activities are lower risk than producing content and are common in active users.

If school librarians wish to engage other members or want to build their own networks, microblogs (for example, Twitter) and social networks (for example, Facebook) are preferred

media types. More-active school librarians visit these media types, resulting in high engagement (posting comments) and following. If professionals are new to social networks and microblogs, a defined audience may be more comfortable than the vast school librarian community. Facebook Groups and Twitter chats narrow the audience and may potentially reduce time and information overload barriers.

Taking advantage of social media to locate professional readings is common in all five media types. School librarians often look for resources in microblogs. Yet, participants most frequently post their own resources in self-published content sites and social networks. Therefore, active users should broker content between these media types.

"Posting links to their own content" is moderately cited by active users and is an opportunity for expansion of participation. This marketing technique may increase viewers and community interactions. Content Creators in particular agreed they post comments and resources, but then do not agree they market those resources. They could increase their community integration by integrating marketing links in their posts. It should be noted that lack of readers is not a major barrier for Content Creators.

Finally, Community Leaders agreed with activities most frequently, so increased participation should focus on community facilitation. Leaders should capitalize on motives and reduce barriers to encourage active participation from other members. Participants expressed a strong receptivity to new ideas and a commitment to the school librarian community. This collective orientation suggests that Community Leader encouragement may move school librarians toward actively posting resources. Contributions to the shared repertoire help members of the school librarian community effectively deal with work problems. Organizations, schools, and districts should promote social media for professional learning; their influence motivates school librarians in four user roles. This influence is perhaps most notable for librarians who identify as a social media Passerby because 83 percent of these respondents agree that organizations' advocacy for professional learning motivates them.

While some barriers are internal, external barriers can be addressed by Community Leaders and educational systems at large. As social media is indeed a valuable learning resource for a fast-changing profession, barriers should be reduced. The greatest barrier, time, may be lowered if schools and districts accept learning through social media as professional development time. Policymakers should review their social media regulations to ensure that firewalls do not inhibit professional learning. Community Leaders can advocate for these educational system changes on members' behalf.

LIMITATIONS

Like many online questionnaires, this study used a convenience sample. The FAME population consisted of 850 members; 187 started the survey, and 169 met the sample criteria, active or former school librarians. An ideal sample size for 850 members at 95 percent confidence level and a 6 percent margin of error is 206 participants. A larger sample would reduce the margin of error. In addition, a larger sample would increase the response frequencies when the items are divided by media type and user role.

School librarians who use social media for professional learning may have been more likely to respond to this questionnaire than school librarians who do not. Further, enthusiasm for social media may have influenced participation. Eight participants indicated they did not use social media for professional learning at all, and they did not continue the remainder of the survey.

Their responses, particularly in the barriers section, may have provided valuable results. Thus, natural participant preferences and the lack of non-user data may have biased the sample toward enthusiastic social media participants.

In a final limitation, a survey construction choice created comparison issues. Activity items were not identical across the media types. The identical and the nearly identical items are presented in this article, but unique activity items did not allow comparisons across media types. Also, some activity items were presented only to self-publishers who host their own content, not to general users of self-published content.

Conclusion

This study demonstrates that school librarians participate in a vibrant online community that has been insufficiently studied in the past. The leveled analysis by media type and user role adds nuance to the existing professional learning literature in other populations. The results from this research begin to fill these research gaps, but a larger sample size over a greater geographic area would improve the results. My next steps are to revise the questionnaire based on these results and the Phase 2 interview findings, and then to launch the Phase 3 questionnaire through national organizations.

School librarians' legacy of 21st-century innovation, supported by AASL and community knowledge-sharing, provides hope for the profession's survival in an evolving educational system. Based on behaviors and preferences revealed in this project, school librarians can make sophisticated social media decisions to remain relevant. National organizations and local associations can use the results to target messages in the most useful platform and to further support community development.

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Appendix: Questionnaire: School Librarian Use of Social Media for Professional Learning

Filter Question

What position do you hold?

- School librarian
- Manager or specialist WITH school librarian experience
- Manager or specialist WITHOUT school librarian experience
- Media Clerk
- Former school librarian in another position (e.g., university professor, classroom teacher, consultant, retired)
- Other: Please specify

Demographics

1. How many years have you served as a school librarian and in related positions (e.g., department manager, specialist, professor, consultant)? Please exclude years not directly related to the school librarian position (e.g., classroom teacher, textbook consultant).
    - 0–3
    - 4–7
    - 8–11
    - 12–15
    - 16–19
    - 20 or more
2. Gender
    - Male
    - Female
3. Describe your overall technology proficiency.
    - Novice – I can perform basic Internet searches and word processing; I frequently seek help for professional technology.
    - Somewhat proficient – I can perform the required desktop and online tasks for my position, although I sometimes need help.
    - Proficient – I am capable in various desktop publishing and online programs, beyond the basic requirements of my job. I help others with technology issues.
    - Very proficient – I am fluent in a wide range of desktop and online programs. I frequently try new programs in new situations. I am considered a technology leader for instructional applications.

- Extremely proficient – I am skilled in "behind the scenes" technology, such as programming, web design, and network maintenance. I am also a leader in desktop and online technology applications for schools.

4. Highest level of education attained:
   - Bachelor's Degree
   - Master's Degree
   - Specialist Degree
   - Doctoral Degree
   - Other: Please specify

Routing Question

Which social media have you used to inform your professional practice?

- Self-Published Content (e.g., blogs, wikis, websites, YouTube, Flikr, Teachers Pay Teachers)
- Curated Content (e.g., Pinterest, Diigo, Scoop It, Symbaloo)
- Microblogs (e.g., Twitter, Tumblr, Yammer)
- Discussion Forums (e.g., Edmodo communities, ALA discussion boards, Reddit communities)
- Social Networks (e.g., Facebook, LinkedIn, Google+)

Role Question

Phrasing varied slightly for each media type

Which role is your primary focus when you engage in microblogs?

- Passerby – You view microblog posts occasionally, but you do not have an overarching goal.
- Lurker – Your primary goal is to follow specific sites/professionals and read posts regularly, but you do not generally leave comments. (Lurking is an accepted social media practice and is not creepy).
- Networker – Your primary goal is to build your professional network. You frequently look for new connections and attribute specific people.
- Content Creator – Your primary goal is to share your knowledge with others by posting unique information.
- Community Leader – Your primary goal is to solidify the school librarian community. You likely post and repost frequently; you may frequently participate in Twitter chats and hashtag conversations.

Activity Question Block

Phrasing varied slightly for each media type. Only activity items common across media types are listed below. The questionnaire also included activities specific to a particular type that are not used in the study's data analysis and are not included in activity items listed below.

Likert scale responses:

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

When I visit (self-created content, curated content, microblogs, discussion forums, social networks) I...

1. Follow specific professionals
2. Look for specific information to solve a work problem
3. Look for information to share in my social media posts
4. Post comments to the current post
5. Post tips, resources, and links
6. Look for support from others who share my tribulations
7. Look for leads on professional readings or web resources
8. Look for new professional connections
9. Post links to my publications or posts (marketing)
10. Post my opinions on trending topics

Motive Question Block

Phrasing identical in all media types

Likert scale responses:

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

I participate in microblogs...

1. Because I like learning new things
2. Because I have a specific need at work
3. Because I want to stay abreast of current trends
4. Because I want to be in contact with the world's best educators
5. Because I feel isolated at work
6. Because I have a strong commitment to the school librarian community
7. To build my professional network
8. To share my knowledge with others
9. To improve my employability
10. To establish myself as an expert

Barrier Question Block

Phrasing identical in all media types

Likert scale responses:

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

I do not participate more in microblogs because...

1. I do not have the time
2. I am not motivated
3. I fear criticism
4. I am concerned about security
5. I am concerned about confidentiality
6. I lack the technological knowledge
7. I expect information overload
8. I fear my posts will be viewed as confrontational
9. The district firewall blocks my favorite sites on campus
10. It is not required
11. I don't think people will read or respond to my posts

Open Response Questions

1. When you need to find high-quality information, which social medium do you use most and why?
2. What social media factors do you consider that were not included in the survey?

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