

Parents Caring, Sharing, and Learning Together Online: An Examination of Information Seeking and Learning Strategies Utilized in an Online Health-Related Support Group

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Social Media

Informal Learning

Facebook



The current study explored various dimensions of informal learning by members of a Facebook group made up of parents and caretakers of infants or children with Gastro Esophageal Reflux Disease (GERD). Interview and posting data were collected and analyzed using a Grounded Theory approach. Findings led to the creation of a new model of information-seeking designed to apply to online informal learning spaces that are found in social media groups. This model includes the stages of initiating, lurking, and browsing; requesting information; being guided by a highly knowledgeable member; reconciling; applying; and appraising. In contrast to previous information seeking models, this model proposes a continuous cycle with entry and exit permitted at each stage based on the learner's needs.

Introduction

Although there is a robust body of research on learning, understanding of what learning is, where it occurs, and how it functions continues as an evolving process (Livingstone, 2001). Social media sites, such as Facebook, enable individuals to gather in an informal online space to share and acquire knowledge without a formal instructor or curriculum. The purpose of this study was to qualitatively explore the informal learning experiences of members of an online social media group hosted by Facebook to gain insight on the various dimensions of informal learning in this space including, what learning strategies members used, what types of knowledge were encouraged and shared, and how community within the group was characterized and its role in the learning space. The theoretical framework of communities of practice and affinity spaces provides a foundation for the present study and is discussed in the following section.

Related Literature

Lave and Wenger's (1991) Communities of Practice (CoP) framework is helpful for understanding the social aspect of informal learning pertinent to the current study. Like COPs, online social media groups form around a common concern or passion and involve the sharing of knowledge and collaborative meaning creation. Lave and Wenger's work positions informal learning as a group process occurring between individuals in communities of practice rather than within a single individual. Through various knowledge-sharing activities, members created a community (Wenger, et al., 2002). COPs formed around a common concern or passion and were comprised of people "who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., p. 4). Members met because they found value in the interaction as they learned together by sharing information, helped each other solve problems, thought about common issues, and created tools for shared understanding.

Research on Online Communities of Practice (OCoP) has explored what motivates members to share knowledge (Lin et al., 2009) including factors such as trust, self-efficacy, expectations, (Hsu et al., 2007) and social capital (Chiu et al., 2006; Hall & Graham, 2004). Lin et al. (2009) investigated what factors determined members' knowledge-sharing behavior within workplace-related OCoPs, or professional virtual communities. They developed an integrated model to explain the associations between contextual factors, members' perceptions of knowledge-sharing, knowledge-sharing behavior, and community loyalty.

Hsu et al. (2007) examined the factors that foster or hinder knowledge-sharing behavior in OCoPs. They used a social cognitive theory-based model to investigate factors such as self-efficacy, expectations for personal influences, and trust. These researchers and others identified several fundamental social cognitive factors that influence knowledge-sharing in online groups. Participants learn as they interact. For example, participants learn through interaction which results in cognitive restructuring. Restructuring occurs by having ideas challenged by other members' differing ideas. The process leads participants to update their mental models and knowledge (Neufeld et al., 2013). Participation occurs through interaction and knowledge-sharing. Of the social cognitive factors appearing in the literature on OCoP, the factors most applicable to the current study are sense of community, interpersonal trust, self-efficacy and social awareness, and community identity.

Many popular online social media groups such as the one in this study are considered OCoPs when viewed through the COPs theoretical lens. Online social networks are formed by a group of people around a shared concern, problem, or passion. Through ongoing interactions, these groups become further established and develop tools, communications, and learning strategies. The technological tools inherent in online community spaces, such as calendars, discussion areas, and archives also help support the learning processes (Wong et al., 2011).

Though CoP theory provided a useful framework for exploring social learning within groups, the focus on in-person groups with long-term membership limits applicability when studying online social media groups. Gee (2004) introduced the affinity spaces theoretical framework to describe spaces that do not fit criteria of the COP framework.

Affinity Spaces

In 2004, Gee introduced affinity spaces. He proposed although people learn by apprenticing themselves to a community sharing practices, there are limitations to the application of the COP framework. For example, while CoP may allude to close personal ties between members, this connection may not fit all of these types of social learning settings where some groups are composed of relative strangers (i.e., the group examined by this study). Whereas the word community connotes membership by a group of people, a better paradigm may be to think of spaces where social interactions occur. This new way of classifying social forms allows for more flexibility and applicability (Gee, 2004). The idea of space is not limited to physical space but also extended to virtual spaces such as individuals playing chess via email. Gee (2004) went further to discuss a specific type of space, called affinity space, where individuals connect around a shared interest. He identified 11 features of an affinity space that apply to social media groups. More recently, Curwood et al. (2013) proposed defining features of affinity spaces including common endeavors, self-directed participation, and provision of a passionate, public audience for content.

Informal Learning in Social Media Sites

Heo and Lee (2013) used an activity theory framework to examine informal learning processes occurring in a blog, Naver, and a social network, Cyworld. By examining the types of division of labor within these spaces, Heo and Lee (2013) identified three dimensions of learning that occurred in social media: an acquisition process, a reflection process, and a practice-based community process. Learning as an acquisition process included learners who sought and gained information from others in a passive role. The second dimension included learners who were more active in dealing with knowledge by creating meaning and reflecting on that meaning. Learning as a practice-based community described learners who created and increased their knowledge by interacting with others. Heo and Lee concluded the third dimension of learning best utilizes the capabilities of Web 2.0 sites.

Informal Learning in OCoPs within Social Media Sites

Dissertations (Davis, 2010; Dolan, 2013; Smock, 2012) and a research article (Mak, 2013) have specifically explored online communities of practice (OCoPs) within social media. Dolan (2013) focused on the use of Facebook, LinkedIn, and Twitter in the workplace to help foster workplace learning, building engagement and COPs. Dolan shared despite not determining any statistically significant inferences, evidence “[omit] indicated that social networking sites were contributing factors in informal learning within an organization, and that they were useful in building networks and engagement among employees” (Dolan, 2013, p. iii).

Davis (2010) explored connectedness or sense of community and professional development in an OCoP within LinkedIn, and focused on the use of OCoPs for ancillary learning by workplace training and learning professionals. Davis also examined the transfer of learning from the social networking site to workplace practices and professional development and found there was a statistically significant correlation between connectedness or sense of community and learning. Connectedness explained 46% of the variance. Most interviewed self-identified as lurkers or those who seldom post messages, but admitted they observed and read messages posted by others. Davis cited legitimate peripheral participation (LPP) as a key component of OCoPs.

Mak (2013) examined how workplace socialization is achieved through Facebook status updates and used the COP theoretical lens and discourse analysis method to analyze over 60 status updates made by employees over a period of five months. He found that chitchatting in status updates helped to understand workplace norms and engage in workplace socialization.

Smock (2012) focused on the use of Flickr as a COP in a non-workplace context. His study closely aligns to explorations in the current study. Smock (2012) investigated group membership, activity, learning strategies, and how expertise is shared within Flickr. Personality traits predicted commenting and asking questions. Participants used two types of learning strategies – solitary and interactive. New members engaged in solitary learning to increase knowledge and skill, and then progressed to more interactive types of learning activities.

Ebardo et al. (2020) used netnography to examine informal learning of a Facebook group of older adults. The study resulted in three themes which included “keeping healthy, ensuring safety, and family relationships” (p. 598). Of the three themes, the most pronounced were challenges associated with members’ health. Ebardo et al. (2020) concluded given the speed at which information is disseminated in these informal learning groups, information verification should be emphasized to prevent misinformation, particularly with health-related information. The next section further discusses the use of social media to acquire health information.

Health Related Informal Learning in Social Media Sites

Social media groups, including Facebook groups, have formed around a variety of health topics including Gastro Esophageal Reflux Disease (GERD), the focus of this study. As White et al. (2021) stated, “a systematic review of data on the use of social media for public health topics in general concluded that qualitative benefits can be derived in terms of learning and education for both patients and physicians” (p. 1). They found that within 13 Facebook groups focused on antidepressant withdrawal, the main reason for participation was failed services from clinicians.

In a study on a Facebook diabetes group, Zhang et al. (2013) found interactions among members centered on exchanging information, providing emotional support, and community building. Participants included administrators, individuals with diabetes, and parents with diabetic children.

In a recent systematic review of 23 qualitative studies, Tradegold et al. (2020) found parents reported gaining a sense of community through making connections with others, building relationships, and feeling validated and reassured. According to the authors, "Parents also reported feeling better informed about their children's conditions, which helped them feel more in control in subsequent medical consultations and felt good about helping similar others by sharing their own experiences" (p. 10).

The current study qualitatively explores the informal learning experiences of members of an online social media group hosted by Facebook, specifically, the informal learning behaviors of parents or guardians of children with GERD. It is part of a larger study examining: the factors influencing activity, the existing types of knowledge, and the patterns of participation in the online social media group (Vargas Wright, 2018). Using an adapted grounded theory approach (Charmaz, 2014; Corbin & Strauss, 2008; Glaser & Strauss, 1967), data from members of a Facebook group comprised of parents and caretakers of infants or children with GERD were collected and analyzed to explore the following research question: According to participants, what learning strategies do participants use to gain knowledge in this online social media group?

Research Methods

Context

Participants included members from one online social media group hosted by Facebook of which the lead author was a member for several years. During that time, she developed relationships with the administrator and members of the group, which facilitated the recruitment of participants and provided necessary insights into the group, along with its norms and processes.

In keeping with the nature of social media, the online social media group's composition and size was fluid and ever-increasing. It increased the number of members on an almost daily basis. For example, it was composed of 822 members in 2015, 2,200 in 2016, and 3,144 in 2017. An average month's worth of activity in this social network included: nine original messages and 87 comments posted per day; 71 original messages and 673 comments posted per week on the social network's wall. This study presents a snapshot of the functioning of the group during the length of the research.

The social media group was a closed group individuals can only join if approved by the group's administrators. When this study first began, the social media group's purpose, as posted on the about section of the network, was to share advice for the care of GERDlings (i.e., infants with GERD) from the true experts, their caretakers. During this study, an additional disclaimer was added to the description of the group encouraging members to always seek medical advice and guidance from a medical professional. A pinned post or posting always visible at the top of the page's feed, was also added. The post welcomed members, requested that they post an introduction of themselves, and asked them to answer 15 questions about their child's reflux condition. It advised members that other members are not medical experts and share what they have learned through personal experiences. The purpose of the group also changed to work alongside a companion website to help babies/infants/children with acid reflux or various food intolerances/allergies. New members were required to write an introductory post, allow tagging and messaging in their account settings, and not block administrators.

Participants

Group members were spread across the world with a majority coming from the United States. According to leaders, members were primarily female, white, living in the United States, with a post-high school degree. In addition to obtaining Institutional Review Board approval, the lead author received permission from the group's administrators to

recruit participants for the study from the social media group's membership. Interview participants were selected based on frequency of posting and length of group membership using a quota selection (Goetz & LeCompte, 1984) to gain a cross-section. The categories, frequency and length, were selected based on previous research on informal learning within online social media groups (Davis, 2010; Smock, 2012). The initial semi-structured interview protocol included closed and open-ended questions concerning participants' activities as members of the online social media group. The interview protocol included: questions related to demographic information including gender, highest level of education, frequency of postings, and length of membership in the social network; learning strategies used to gain knowledge; factors influencing their activity in the group; the types of knowledge shared and/or gained online; types of connections developed between and among members; and the ways members supported one another. For the purposes of the current study, particular focus is paid to the types of knowledge gained and shared among the members of the group. Although, due to length constraints, extensive interview excerpts are accessible in the larger work (Vargas Wright, 2018).

In addition to interview data, with participant permission, postings were downloaded from the Facebook group and were imported into NVivo for analysis. Due to the high level of activity and membership in the group only activity during one specific week of postings was collected for analysis. A total of 53 original threads were collected and analyzed which included 604 postings, original postings, and responses.

Data Analysis

To facilitate data analysis, NVivo was used to implement an adapted Straussian Grounded Theory methodology including theoretical sampling, constant comparison, and analytic memo-writing was used. As data were being coded and gaps identified, additional participants to contribute further evidence in various areas were selected (Glaser & Strauss, 1967). Data collection continued until saturation was achieved (Corbin & Strauss, 2008). Additionally, during axial coding, the lead author interviewed some initial participants a second time to further investigate aspects of the emerging theories. Table 1 contains a breakdown of the participants interviewed. A total of 31 interviews were conducted with 25 unique participants.

Table 1

Theoretical Sampling Participant Characteristics

Frequency of Posting	Length of Membership	Phase of GERD	Role in Group	Total
Description	n Description	n Description (n)	n Description	n n
Frequent (1 or more per day)	2 Newcomers (less than a year)	2 Beginning	2 Administrators	3
Average (a few times per week)	2 Continuing (1-2 years)	2 Middle	2	
Infrequent (a few times per month)	2 Long-term (2 years or more)	2 Post GERD	2	
Peripheral (never)	2	Recurring (2)	2	
Number of participants				N = 25
Follow-up interviews				6
Total Number of Interviews				31
Note. GERD = gastro esophageal reflux disease.				

Coding

Three stages of coding interview data occurred: open coding, axial coding, and selective coding. During open coding, the transcript text was analyzed line by line which forced a close analysis of what participants said (Gibbs, 2008). Using a Constructivist Grounded Theory method (Charmaz, 2014), gerunds, used to code and analyze, highlighted a sense of action and the conveyance that participants were active parts of a process. A code example is the core category "encouraging external knowledge" which subsumed the subcategories of "identifying related learning spaces" and

“sharing research articles created outside the group.” Then, codes were compared/contrasted and organized into provisional categories. Tables and hierarchies were used to assist in organizing codes and categories.

During the axial coding stage, categories were refined and further developed by looking at various elements considering Strauss and Corbin's (1998) dimensions such as causal conditions, phenomena, strategies, context, intervening conditions, and actions/interactions. Constant comparison continued throughout axial coding to find additional evidence or dimensions of the categories resulting in a re-organization of codes by associations to each other. During selective coding, associations between core categories and themes were examined while memos were revisited and sorted to create a storyline. The lead author returned to the field and interviewed six participants a second time to add insight. This process continued until theoretical saturation was reached.

Results

Relevant Themes

In examining the learning strategies group members (parents and caretakers of infants and children with GERD) used to gain knowledge, three core themes were identified from the data:

1. Participants engaged in distinct information-seeking behaviors in non-linear patterns.
2. Members followed a clear process of skills acquisition or steps to go from newcomer to an experienced member.
3. Members learned by applying acquired knowledge gained through participation in the group to the care of their child.

Each of these themes is discussed in detail in the following section.

Information-Seeking Behaviors

Participants engaged in distinct information-seeking behaviors in non-linear patterns. They discussed several distinct information-seeking behaviors engaged in to learn about infant or childhood GERD while participating in the group. Behaviors classified as information-seeking were: initiating; browsing; requesting information; lurking or learning vicariously; evaluating information; applying; and monitoring. Information-seeking behaviors are listed in Table 2. The information-seeking behaviors mentioned most by participants were evaluating information, initiating, requesting information, and receiving guidance through knowledge acquisition by a highly knowledgeable member.

Table 2

Types of Information-Seeking Behaviors in Interviews and Postings

Information-Seeking Behavior	No. Referenced in Interviews	No. Referenced in Postings
Evaluating information	75	79
Initiating	38	17
Requesting information	19	67
Being guided through information-seeking by a highly knowledgeable member (usually group leader)	0	68
Lurking or learning vicariously	17	1
Browsing	14	6
Applying	11	53
Monitoring	6	0
Total	180	291

Note. Total refers to the number of instances these behaviors were mentioned in interviews and postings.

The majority of participants interviewed discussed going through one or several processes of evaluation before applying information gained from the group. The evaluation process included reconciling knowledge gained from the group with members' own experiences and prior knowledge. This may have also involved asking follow-up questions of the group and comparing similar experiences with group members. Once reconciled, members decided whether to apply the information to the care of their child or not. As demonstrated by interview participant 7:

I'm part of the self-help page for [another online support group] and I find a lot of times I get concerned about some of the medical questions that people ask on the group and I have concerns about the way people who aren't in the medical field answer those questions because I feel like they're giving a lot of really bad and dangerous advice. Certainly when I'm researching stuff on the Internet and if I'm part of a Facebook page, I'm always looking to make sure that the advice there makes sense with my training and I have really been, I hate to say I have been surprised but it's been nice to see that everyone who is commenting on the page (group) and the information that's being provided seems to be good advice and sound advice. That made me more confident about using the page for advice.

A posting by interview participant 11 represented reconciling:

At that point you know if it applies to me like a particular advice or suggestion, I have to determine whether or not I feel comfortable with it myself and whether or not I feel like it would be safer or beneficial for my son. If I do, then let's say it requires me getting a probiotic or medicine I will figure out what would be the best place to get it. So, it's kind of just that process of determining whether this information applies to me and whether I feel comfortable and safe applying it to my son. Sometimes the answer is yes and sometimes the answer is no.

The second most cited process was verifying information other members shared through different methods such as: comparing with published research; verifying with medical providers(both general and specialists); verifying with a spouse or family members; verifying with information available on other sites on the Internet; and re-verifying with the group. Several members mentioned seeking out articles in peer-reviewed journals. Interview participant 1 explained:

I'm a huge Doubting Thomas, so I definitely wanted to confirm it in some other source before I actually did it, although not that I would doubt anyone, just for my own peace of mind, but absolutely. I'd see if I'd find whatever information, whether it was a peer-reviewed study or a published article.

Several members also discussed taking the information to their medical providers and obtaining their opinion on it:

I got that information from some member on the site, that she was recommended. I of course confirmed it with my pediatric GI at a subsequent visit I had with him. He said, "Oh yeah, that's definitely the right way to go, you're doing the right thing." So that was invaluable information, for sure.

The third evaluation process, seemingly a key process, was judging the trustworthiness of the individual sharing information. Members did this by evaluating the information the group member(s) shared with others including: judging the individual based on the length of their membership in the group; their own previous interactions with the individual; the type of language used in their post; the person's social media profile; what sources the person provided; and what stage of GERD the person's baby was in. Interview participant 5 explained:

Well because I'm on there frequently enough so I kind of get a feeling of who the people on there that know something about something and that you see posting frequently and that they seem educated based on their responses and you kind of get a feel for, I guess if their posting . . . and that's why I don't ever use that information to completely make a decision but you kind of glean who's a little bit more trustworthy and more educated about certain things.

Members also trusted the ideas validated either by sharing the same idea or by showing support for the idea by the greatest number of members. Participant 6 stated: "You see a lot of moms coming together to share information. Especially when many moms are validating the same ideas, then it's worth spending time to listen to."

Figure 1 further breaks down the ways participants initiated their information-seeking.

Figure 1

Frequencies of interview responses and postings for information-seeking



Picture displaying the frequency of interview responses

Note. Numbers given in the figure refer to the number of instances these behaviors were mentioned in interviews and postings.

Participants discussed joining the group because they were searching for medical advice from alternative sources to doctors and specialists because they felt they were not helpful. Fifty members whose postings were analyzed sought medical advice on the group's wall as an alternate source to doctors and specialists as described by participant 11:

Parents even though they are told not to, will Google and look up their kid's symptoms and a lot of times there is that kind of mother's intuition where the doctor may say it's just this or do that and you kind of just know that there is something else going on with your child and it's not o.k. So, I think that disconnect kind of drives people to look elsewhere because a lot of times I think professionals make it seem simple or that there really is no answer or options. For some people that is just not good enough and so they go to groups like this and look for other options and look for people that will give them other options.

Members also discussed joining the group based on recommendations from other individuals or groups turned to for information. They described information-seeking and joining the group because they were seeking others with similar experiences as participant 2's posting related:

Did any of you struggle with a baby who just didn't want to eat? A friend's baby has been struggling to stay on the curve (3% weight) so she started EP so she could measure ounces. She's already milk and soy free. Her daughter just doesn't seem to have an appetite. Ideas???

In addition, members mentioned searching the Internet for learning spaces where they could obtain any additional information on GERD. Interview participant 8 explained:

Basically, first I searched on the Internet. I Googled about it. Basically, I had an elder son also. He also had reflux. But at that particular point of time, four and a half years back, back in 2010, I really didn't know that these kinds of groups existed. At that particular time, it was not very common. We used to use . . . so, at that point of time I did not know how to handle my baby because he had severe reflux. This time it is a lot easier because what really happened to me is that I searched Google and found a lot of sites that had lots of information about GERD, so I went to all those sites and then I thought this is what this new baby is having. Then I searched on Facebook because I know now everything is on Facebook there are all kinds of groups for everything on Facebook. So, I found a couple of them and joined them. After joining these groups, I have not gone back to search Google for anything because anything can be answered there.

Participants described using different methods to request information from other members of the group. Table 3 shows the different methods mentioned 37 times in interviews and 70 times in postings.

Table 3

Methods Participants Mentioned Using to Request Information

Methods for Requesting Information	Number of References in Interviews	Number of Referenced in Postings
Asking questions on the group's wall	24	52
Contacting members individually	10	1
Asking follow-up questions of group	0	6
Bumping for more information	2	5
Commenting on someone else's postings to ask questions	1	6
Total	37	70

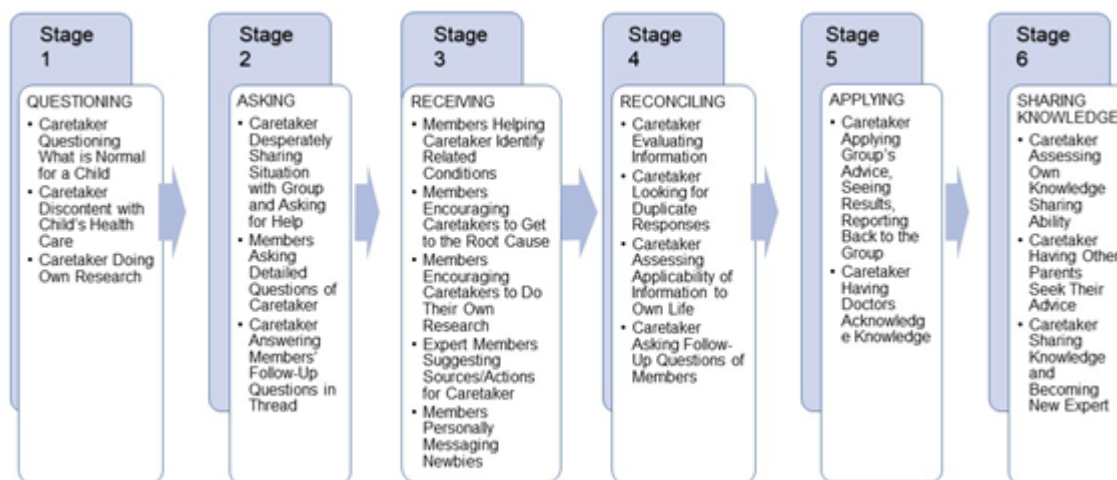
The most often mentioned and observed method for requesting information within the group was posting to the group's wall. Facebook technology made the group's wall central to the group's site. In addition, the group's rules requested all new members answer a series of questions and post an introduction to the group's wall upon joining. This mandatory introduction compelled most members to ask questions and request information through the group's wall. Another method participants used for requesting information was contacting other members individually through personal messaging technology. A third method apparent when analyzing group postings was individuals asking follow-up questions of the group once they received initial responses. Participants would obtain information, then come back, report what happened, and request more information from the group. Another method interviewed participants mentioned was bumping for information. Participants posted a comment of bumping or bumping for more information to keep the thread at the top of the feed to ensure all members would see and hopefully post more comments. A last method of requesting information was commenting on someone else's post to ask a question.

Clear Process of Knowledge Acquisition

The second theme was members followed a clear process of knowledge acquisition or stages to go from newcomer to a highly knowledgeable member. Postings analyzed showed evidence of skills and knowledge acquisition. Figure 2 shows the individual stages that were part of the learning process: questioning, asking, receiving, reconciling, applying, and sharing knowledge.

Figure 2

Stages from newcomer to highly knowledgeable member as reported by study participants



Picture displaying the six stages from newcomer to highly knowledgeable member

Learning strategies included information-seeking behaviors such as initiating information-seeking, requesting information, being guided through information-seeking by a highly knowledgeable member, lurking or learning vicariously, evaluating information, and reconciling information. There was a clear process of stages of knowledge and skills acquisition or a progression from a newcomer to a highly knowledgeable member. Questioning included: the caretaker questioning what was normal for their child; the caretaker being discontent with their child's health care; and the caretaker doing their own research. Asking included: the caretaker desperately sharing their situation and asking for help from group members; members asking detailed questions of the caretaker; and the caretaker answering members' follow-up questions in the thread. Receiving included: members indicated helping the caretaker identify related conditions; encouraging the caretaker to do their own research; highly knowledgeable members suggesting sources or actions for the caretaker to take; and members personally messaging newcomers. Reconciling included: the caretaker evaluating information; the caretaker looking for duplicating responses; the caretaker assessing the applicability of the information in their own life; and the caretaker asking follow-up questions of the members. Applying included: the caretaker applying the group's advice, seeing results, and reporting back to the group; and the caretaker having doctors acknowledge their knowledge. The last step, sharing knowledge, included: the caretaker assessing their own knowledge-sharing ability; having other parents seek their advice; and the caretaker sharing knowledge and becoming a new highly knowledgeable member.

Applying Acquired Knowledge Gained Through Participation in the Group

The third theme centered on how members learned by applying acquired knowledge to the care of their GERD child. Interviews and postings showed that members of the group applied knowledge gained in the group in different ways. Table 4 shows the ways in which knowledge was applied, and how often these were referenced in interviews and in postings analyzed.

Table 4

Application of Acquired Knowledge

Applications	Number of instances referenced in interviews	Number of instances referenced in postings
Using acquired knowledge to advocate for child	33	4
Applying knowledge to care of subsequent children diagnosed with GERD	18	1
Applying knowledge by compounding medication	14	10
Generating new learning artifacts	9	3

Applications	Number of instances referenced in interviews	Number of instances referenced in postings
Applying advice and changing diet	0	8
Discerning misconceptions pediatricians and gastroenterologists have	7	3
Group experience-based knowledge informing practicing medical profession	3	0
Trying natural treatments recommended by other members	0	3
Acquiring options to design own child's treatment	1	1
Controlling direction of learning	1	0
Total	86	33

Note. GERD = gastro esophageal reflux disease.

Discussion and Implications

Schugurensky's (2000) taxonomy included three forms of informal learning: self-directed, incidental, and socialization. Based on participants' statements, aspects of all three forms of informal learning appeared evident in the online social media group explored in this study. Participants described engaging in self-directed learning activities within the group. They sought out the group and asked questions of their own accord. They posted questions in their own words on the group's wall as they needed information, and engaged in incidental learning such as gaining emotional knowledge to help them deal with changing expectations of their role as a caretaker of an infant with GERD. Participants discussed socialization, a process where they internalized skills and values from their participation in the group including learning how to question medical professionals and advocate for better medical care.

A valuable implication of this study for instructional designers trying to create and sustain successful informal learning spaces in social media is that informal learning in these spaces is highly shaped by the learner (Marsick & Volpe, 1999). As Rogoff et al. (2016) note, this is one of the distinctions of informal learning compared with formal learning, that is, the role of learner choice or direction. Participants of this study described ability to shape their own learning within the group. There were no expectations for participation, time limits imposed, or limitations on what knowledge members could seek, acquire, or share. Informal learning was unstructured, experiential, and self-selected (Carliner, 2013; Marsick & Volpe, 1999). Learning was unstructured and flexible – it could be started and stopped whenever they wanted. It was also indeterminate and represented a process of becoming (Hager, 2006). Participants described not knowing when their participation and group membership would end, and that their learning and participation in the group was a contextual process highly dependent on the needs of their child or life situation at the time. All of these features of informal learning lead to a need for a different type of design for learning-oriented social media sites.

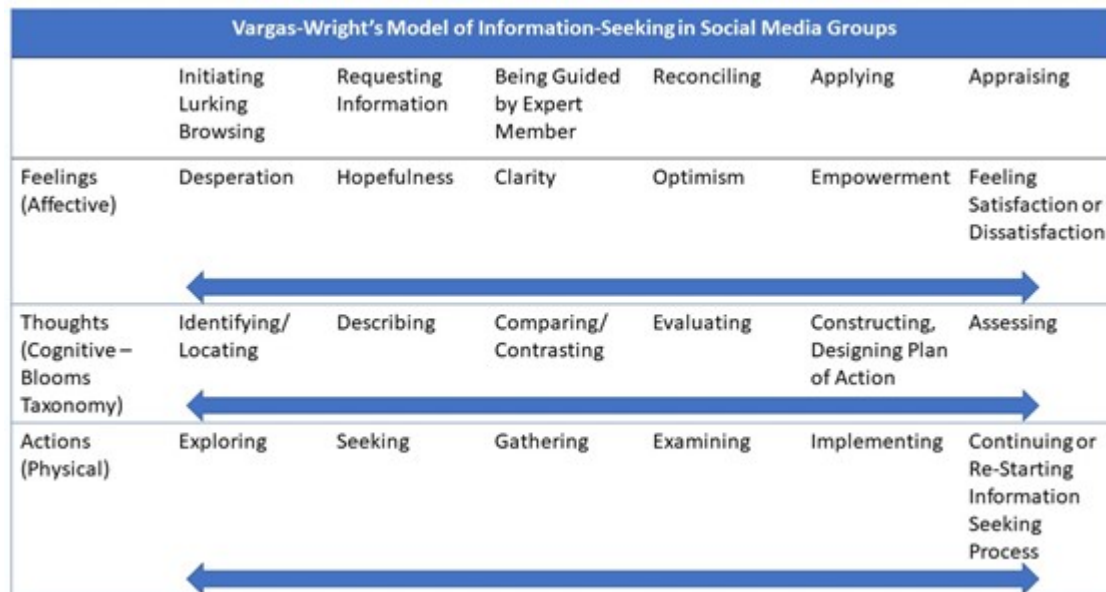
Information-Seeking Behavior

Researchers have developed models for better understanding information-seeking processes. One of the most cited is that of Carol Kuhlthau (1991b) who developed the Information Search Process (ISP) which includes a six-stage model that incorporates three dimensions of information-seeking behavior: affective (feelings), cognitive (thoughts), and the physical (action) and involves the stages of initiation, selection, exploration, formulation, collection, presentation, and assessment.

However, a new model is needed to better understand information-seeking behavior when initiated by the information-seeker to solve a real-life problem they are experiencing and invested in versus an imposed need. Kuhlthau's (1991a) model was created in the 1990s and much has changed regarding the use of online spaces to find information. Figure 3 depicts a new information-seeking model that best describes the information-seeking behaviors of participants, including their feelings, thoughts, and actions at each of the six stages (Vargas Wright, 2018).

Figure 3

Model of Information-Seeking in Social Media Groups



Picture showing a Model of Information-Seeking in Social Media Groups

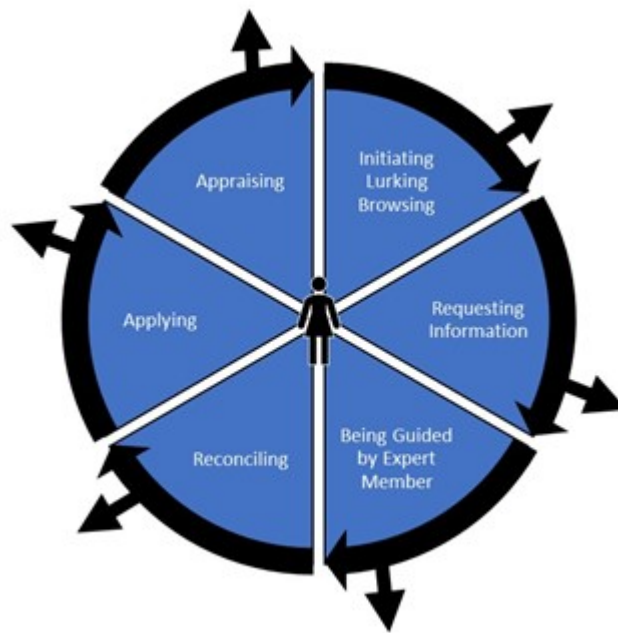
It is depicted in a similar fashion to Kuhlthau's (1991b) model to facilitate comparison. The identified stages were initiating, lurking, and browsing; requesting information; being guided by a highly knowledgeable member; reconciling; applying; and appraising. For the first stage of initiating, lurking, and browsing, feelings were desperation, thoughts were identifying/locating, and actions were exploring. For the stage of requesting information, feelings were hopefulness, thoughts were describing, and actions were focused information-seeking. For the third stage or being guided by a highly knowledgeable member, the feelings were clarity, thoughts were comparing/contrasting, and actions were gathering/sorting. For the reconciling stage, feelings were optimism, thoughts were evaluating, and actions were examining. For the applying stage, feelings were empowerment, thoughts were constructing and designing a plan of action, and actions were implementing. For the appraising stage, feelings were satisfaction or dissatisfaction, thoughts were assessing, and actions were continuing or re-starting the information-seeking process.

The current study's findings about the information-seeking behavior of individuals within an online social media group suggest participants highlighted the sense of belonging in a community as a factor in their continued membership, participation, and knowledge-sharing in the group. Thus, the design of these spaces should consider the needs of social learning and guided discovery. New members need to be guided as they learn group processes and negotiate knowledge acquisition and sharing. Group leaders should have a visible presence that allows participants to experience a focused, safe space to share personal information and seek knowledge.

In addition, each stage of the information-seeking process is not always engaged in sequentially. In fact, many participants engaged in multiple behaviors simultaneously while delving into deeper levels of knowledge acquisition. For example, one participant would apply information while requesting information or would be reconciling the information already gathered while initiating a new search on a related topic. Therefore, the model is best illustrated by Figure 4, which intentionally depicts the information-seeking process as a continuous cycle, with the individual central to deciding which stages to engage in and when (Vargas Wright, 2018).

Figure 4

Information-Seeking in Online Social Media Groups Directional Model



A picture showing the directional model for information-seeking in online social media

The individual's role as both the learner and the one who directs information-seeking and the knowledge acquisition process speaks to the flexibility and non-linear information-seeking afforded by new informal learning spaces, such as social media. Although the model is depicted as a cycle, there are exit/entry points at each stage. As the interviews and postings analyzed illustrated, in social media spaces and other newer informal learning spaces, individuals can exit at any point and re-enter at any point in the cycle. Learners are in control of their learning paths and can engage in different behaviors whenever needed.

One of the applied implications for this model involves medical providers, traditionally viewed as health authority and screener of medical information (Iverson et al., 2008). Throughout the study, there was a common thread that participants were seeking additional information beyond that offered by their doctors. There was a general sense that doctors were not adequately listening to participants or did not have enough familiarity with the challenges of infant GERD and the day-to-day care of infants with GERD. Many felt medical providers would be better informed in joining groups like the one this study explored to learn what needs caretakers had and how to best help them. Informal learning spaces, such as the one described, may be discounted for the important resource they provide. Medical providers may wish to consider and explore the ways online groups facilitate communication with patients to improve or close the distance between them and patients. Given time constraints and the desire of patients to proactively investigate on their own, Iverson et al. (2008) suggested doctors encourage patient questions and health information searching because they increase patient compliance and lead to better health outcomes. Participating in online groups that center the experience of the learner may be one way to help those who need both reliable medical information and much needed encouragement and support.

Limitations of the Study

A limitation of the study is focusing on a group of people in a space interacting around a particular topic in one moment in time. Generalizability is not possible; however, the study does add to the small body of research focused on informal learning in online social media spaces (Davis, 2010; Dolan, 2013; Mak, 2013; Smock, 2012). A second limitation of this study is inability to interview members who had left the group, as their information was deleted from the social media group. Hence, they could not be recruited for participation. Their experiences with the group and what caused them to leave are missing from the study. It should also be noted, the lead author was a participant observer and a member of the group. This could have led to certain assumptions; however, as discussed in the methods section, triangulation, member-checking, analytical memos were used to mitigate this risk.

Future Research

This study adds to the body of work on information-seeking in online spaces, but more needs to be examined on information-seeking in social media. Although some researchers such as Asghar (2015) have developed scales to evaluate information-seeking in Facebook in general, there is still much research to be conducted on information-seeking within specific Facebook groups. More studies need to be conducted regarding the validity and reliability of information gained online, particularly when it comes to health outcomes, along with the effects of seeking emotional support for a health issue online through Facebook or other social media groups (Oh et al., 2013).

Using Grounded Theory, the current study explored the learning experiences of members of an online informal learning community space. It contributes to a better understanding of online informal learning spaces in social media when focusing on information-seeking behaviors. The study resulted in a proposed framework for exploring information-seeking in online social media groups. Findings suggest online spaces provide an important space for informal learning and a viable avenue for the transferring of experience-based knowledge.

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