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*Health Promot Pract* 2013 14: 741 originally published online 20 November 2012

DOI: 10.1177/1524839912465083

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<http://hpp.sagepub.com/content/14/5/741>

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# Reconciling Preferences and Constraints in Online Peer Support for Youth With Asthma and Allergies

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*In this article, we examine the opportunities and constraints of professionally mediated social networking in health promotion practice. Our analysis is based on the findings of a 12-week participatory study of a peer-led support intervention for youth with asthma and life-threatening allergies. The article begins with an overview of the preferences of youth, their parents, and young adults recruited as peer mentors for online features in the design of a customized support program. We then briefly explain the rationale behind our decision to design and host our intervention using a publicly available website called Ability Online in an effort to balance participants' preferences with important research obligations and safety requirements. Finally, we report on participants' level of satisfaction with the intervention as well as recommendations for health practitioners who wish to use social networking to enhance supports for youth with chronic health conditions.*

**Keywords:** social networking; asthma; allergies; social support; youth; participatory research

## ► INTRODUCTION

Fast-paced technological and creative advances in Internet-based social networking technology have fundamentally changed how people structure their social

lives (Lampe, Ellison, & Steinfield, 2008). Social networking has been widely embraced by youth as a medium for sustaining and expanding peer relationships. Simultaneously, there has been a growing interest within community-based health promotion in adopting online educational models to improve knowledge among dispersed populations with chronic conditions (Bennett & Glasgow, 2009; Boulos & Wheeler, 2007). Social media's ability to connect populations despite distances represents a distinct advantage in promoting accessibility to health promotion supports, particularly in rural or remote locations and among youth with rare conditions.

Although evaluations in the literature on professionally mediated youth health promotion supports on the Internet are scarce, consumer-driven virtual communities have become increasingly popular in a number of adult populations with chronic conditions, with far fewer including youth. Some reviews of predominantly adult-oriented online support groups have

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**Authors' Note:** The authors would like to thank the staff at the Social Support Research Program, including Jody MacDonald, Maria Tsouakalas, Christine Daum, and Edward Mackwarimba, as well as the peer mentors (Erika, David, Davida, Sarah, and Mike) who gave their time and energy to the study. We also acknowledge Allergen NCE for funding this research. Address correspondence to Jeffrey R. Masuda, Department of Environment and Geography, University of Manitoba, Room 220, Sinnott Building, Winnipeg, Manitoba, Canada R3T 2N2; e-mail: jeff\_masuda@umanitoba.ca.

## Health Promotion Practice

September 2013 Vol. 14, No. 5 741–750

DOI: 10.1177/1524839912465083

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shown positive health behavior, clinical changes, increases in knowledge, social support, and self-efficacy (Murray, Burns, See, Lai, & Nazareth, 2005; Wantland, Portillo, Holzemer, Slaughter, & McGee, 2004), whereas others demonstrate no significant effect (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004). Despite emerging evidence to support Internet use (Chan et al., 2007; Cruz-Corriea et al., 2007), asking merely if online interventions work masks what factors are effective and how to make changes to improve the intervention (Bennett & Glasgow, 2009; Wantland et al., 2004).

Important questions remain about the relative efficacy, privacy, and safety of using web-based peer networking environments for youth audiences (Acquisti & Gross, 2006), particularly amid ongoing controversies surrounding the privacy of users (McNish & El Akkad, 2010). Moreover, there is little by way of “bottom-up” approaches in the health promotion literature supporting the creation of social networking models that respond to the needs, behaviors, and preferences of youth; nor is there guidance as to the merit and feasibility of private sector social networks (e.g., Facebook) versus professionally mediated, specialized programs, designed for specific populations and support needs (for an exception, see Stewart, Barnfather, et al., 2011). Accordingly, there is a necessity for improved direction for practitioners interested in developing online health promotion programs designed to improve social support for their youth clientele.

Although online social support is still in its infancy, evidence for the efficacy of face-to-face peer support in youth abounds. Studies document improved asthma knowledge (Gibson, Shah, & Mamoon, 1998) and coping skills (Hampel, Rudolph, Stachow, & Petermann, 2003), fewer activity limitations and hospital visits (Magzamen, Patel, Davis, Edelstein, & Tager, 2008), improved medication adherence and fewer school absences (McGhan et al., 2003), and improved quality of life (Shah et al., 2001; Wyatt & Hauenstein, 2008). Mode, length, and content of these interventions, however, vary widely, with few, if any, being designed based on the preferences and priorities of their youth participants. Furthermore, transferability of current, face-to-face support best practices into an online mode has not yet been assessed. The few examples are limited to the provision of individual information and games as educational strategies (for recent examples, see Chan et al., 2007; Guendelman, Meade, Benson, Chen, & Samuels, 2002; Joseph et al., 2007; McPherson, Glazebrook, Forster, James, & Smyth, 2006).

In this article, we report on our development and implementation of a professionally mediated online

peer mentorship program that enrolled youth from across Canada with physician-diagnosed severe asthma and/or life-threatening allergies. The study included a participatory needs assessment and design, delivery, and outcome evaluation of a 12-week online intervention undertaken in early 2009. Specifically, our purpose was to evaluate the technological and pedagogical lessons from developing and delivering a program designed to meet the preferences and expectations of youth, their families, and their supporting health promotion practitioners. Our analysis is guided by three overlapping objectives: (a) to determine online behavior and preferences of youth seeking to interact online with other youth experiencing similar chronic conditions, (b) to describe the web-based platform of a program that attempted to meet support needs in a safe and secure online environment, and (c) to report on the participants' satisfaction with the online platform. In the discussion, we reflect on the implications of the findings for health promotion practice, specifically with regard to constraints imposed by ethical obligations in professionally mediated support interventions and the resource limitations inherent in health promotion programs offered by nonprofit organizations.

## ► METHOD AND RESULTS

### *Part 1: Design Phase Preferences Assessment*

We used a mixed-method approach comprising a quantitative survey of a convenience sample of youth ( $N = 57$ ) combined with a series of qualitative interviews of a smaller subset of these youth who volunteered to participate in the study ( $N = 28$ ), some parents ( $N = 8$ ), and older youth ( $N = 5$ ). Both instruments were designed to learn about current computer/social networking behaviors and preferences for an online peer community program. Table 1, row a, provides details of the samples, methods, and rationale for the inclusion of the three participating groups (youth, parents, and mentors).

Current online support-seeking behavior by youth participants was low. Among the 57 youth who completed the survey, enthusiasm for online support was high, with 67% reporting they would like to use the Internet to meet youth with similar conditions. That only 2% of these youth have actually done so points to a significant gap between the potential for online support amid the increasing prominence and availability of social networks.

Categorization of open-ended survey responses regarding preferences resulted in five design features for an online support program (see Table 2, column a, for a full description of design preferences). Using the survey

**TABLE 1**  
**Methods and Rationale of Target Populations in Assessment and Evaluation Phases of the Study**

| Target Population                    | Youth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Peer Mentors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Parents                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) Assessment methods and rationale | <p><i>Paper-based survey</i> (N = 57/108 mail-outs; 53% response rate). Administered to elicit information about their present technological skills (e.g., computer and Internet use) and support needs, resources, and preferences. Questionnaires were distributed by mail to youth aged 12 to 15 years with self-reported asthma and/or life-threatening allergies recruited through study partners.</p> <p><i>Individual interviews</i> (N = 10). Elicited reasons why it might be valuable to talk with other youths and mentors about asthma and/or allergies, and about support needs that might be met online. Youth were also asked what they thought would be included as ideal components (platforms, content, group dynamics) for an online support program.</p>                                                                                                                                                                                                                                                                                                                                                      | <p><i>Group interview</i> (N = 3 respondents) and <i>individual interviews</i> (N = 2). Conducted with young adults aged 15 to 22 years who would later take the role of peer mentors in the program. These respondents discussed the main challenges they faced as young adolescents, supports they found most helpful, information and strategies for dealing with asthma and allergies they believed should be incorporated into the program, and the extent to which they felt having a peer mentor might help youth with asthma or allergies who experience challenges at home, school, and every day life.</p> | <p><i>Two group interviews</i> (N = 8 participants total). Discussion with parents of participating youth to verify computer and Internet access for potential participants and to elicit perspectives on program design, developmentally appropriate support needs, and flexibility in program content and delivery.</p> |
| (b) Evaluation methods               | <p><i>Chat text capture</i> (word count over 36 sessions: mean = 2,785 words per session, range 749-6,512 words). A few sessions were not recorded because of technical difficulties.</p> <p><i>Staff reports</i> (N = 11 reports). Research staff recorded contacts (youth, mentors, and health professionals), technical problems, and main activities/topics for each session in weekly intervention field notes.</p> <p><i>Postintervention online survey</i> (N = 11). Respondents included four low, four medium, and three high participators. Ten open-ended questions about what it was like to be part of the online support group, how it affected their life, relationships with family and friends, or reduced isolation, and what changes they would recommend.</p> <p><i>Individual telephone interviews</i> (N = 14/28; 50% response rate). Respondents included four non-participants, four who attended two or fewer sessions, five who attended three to five sessions, and two who attended seven or more sessions) were selected by amount of participation to complete individual telephone interviews.</p> | <p><i>Peer mentor log books</i>. Peer mentors completed 11 questions after each chat session about attendance, the topic, youth engagement in the support session and on the topic, and other activities (instant messaging, bulletin board, or e-mails).</p> <p><i>One group interview</i> (N = 3 respondents) and two <i>individual interviews</i> (N = 2 respondents) elicited perspectives on the overall success of the intervention.</p>                                                                                                                                                                       | Not evaluated                                                                                                                                                                                                                                                                                                             |

results as a baseline for analyzing qualitative interview data, we constructed a framework consisting of five design features that we considered an ideal social networking program. These included the following: (a) age-appropriate educational content and supportive functions (see also Stewart, Masuda, Letourneau, Anderson, & McGhan, 2011), (b) a “look and feel” that were age and

gender appropriate, (c) an intervention that would be guided by mentors in group contexts, (d) a balance between preserving confidentiality and privacy with the ability to collect individual data, and (e) a flexible pace of program delivery to accommodate busy schedules and different time zones. These categories were used as a framework to analyze qualitative interview data.

TABLE 2  
Design Preferences, Implementation, and Outcomes

| (a) Design Preference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (b) Design Implementation                                                                                                                                                                                                                                                                                                                                                                                                                               | (c) Outcome                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Purpose and content</p> <ul style="list-style-type: none"> <li>• Balance of support and education that is relevant and responsive to the specific needs that youth identified in their everyday lives</li> <li>• Components delivered in manageable concise pieces</li> <li>• Gender and age-appropriate articles about asthma and allergies, frequently asked questions by youth with asthma and allergies, and an interactive bulletin board where youth could share stories about how they manage allergies and asthma</li> <li>• Specific topics included family, holidays, school, health care, staying healthy, responsibility, relationships, social exclusion, self-esteem, the community, and the future</li> </ul> | <ul style="list-style-type: none"> <li>• Support emphasized over and above educational content in curriculum</li> <li>• Eight age-appropriate curriculum and discussion topics developed in advance of intervention based on participant preferences</li> </ul>                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Participants appreciated the supportive approach taken</li> <li>• Content perceived as appropriate, but not enough contextualization to specific circumstances because of time constraints and limitations of chat technology</li> </ul> |
| <p>2. Look and feel</p> <ul style="list-style-type: none"> <li>• Easy, fun, flashy to sustain youths' interest</li> <li>• Scenario-based discussions would allow youth to discuss and problem solve different situations that may arise in their everyday lives at home and school</li> <li>• Representative of youth "niches", including games</li> <li>• Gender- and age-appropriate look and feel that reflects diversity of experiences in high school and tailored to the specific preferences of youth who occupy different "niches" within the school environment, including the arts, athletics, and scholastics</li> </ul>                                                                                                | <ul style="list-style-type: none"> <li>• <i>Ability Online</i> website selected as designed for youth with disabilities</li> <li>• Website contains some simple graphics to enhance appearance but no "advanced" features such as video or games</li> <li>• Age- and gender-specific scenarios included in program guide</li> <li>• Youth participants provided with private e-mails of mentors and project coordinator (but not each other)</li> </ul> | <ul style="list-style-type: none"> <li>• Website met basic needs</li> <li>• <i>Ability Online</i> seen as technologically limited</li> <li>• Little opportunity to adapt website according to gender or age</li> </ul>                                                            |
| <p>3. Mentorship</p> <ul style="list-style-type: none"> <li>• Mentorship appeared to be something completely novel to in the context of youth experiences with asthma and allergies, which many cited as being a very individualized and isolating experience</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Introductory session to introduce mentors and youth prior to start of formal "curriculum"</li> </ul>                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Mentors highly regarded by youth</li> </ul>                                                                                                                                                                                              |

(continued)

TABLE 2 (CONTINUED)

| <i>(a) Design Preference</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>(b) Design Implementation</i>                                                                                                                                                                                                       | <i>(c) Outcome</i>                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Some youth suggested that meeting with peer mentors in person or on the telephone would be helpful</li> <li>However, other youth thought that the online communication would be sufficient and would only like to meet their mentors if a close friendship was developed during the online program</li> </ul>                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Mentors partnered with up to five youth participants</li> <li>Mentors worked together when numbers were low</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>One-on-one mentorship not practicable; multiple mentors in single session seen as most engaging</li> <li>Disagreement on best ratio of mentor/mentee</li> </ul>                                                                                                                                                                                                                |
| 4. Confidentiality/autonomy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>Sufficient privacy to make youth comfortable</li> <li>Should not compromise on safety or need for research</li> </ul>                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Outsiders could technically access chat rooms but would be immediately recognized by participants and excluded</li> </ul>                                                                       | <ul style="list-style-type: none"> <li>Participants learned each other's names and other personal information through discussion. Several became "online friends" and remained in contact after the program concluded</li> </ul>                                                                                                                                                                                      |
| 5. Flexibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>Youth are very busy with many activities and that affected scheduling</li> <li>One to two times a week frequency, with opportunity to catch up on missed sessions</li> <li>Sunday sessions, at a time that works across time zones, with mechanism to catching up on missed sessions</li> <li>No more than 5-month duration</li> <li>Individual mentors and mentees could be responsible for arranging their own meeting times to maximize participation and reduce scheduling conflicts</li> </ul> | <ul style="list-style-type: none"> <li>Because of time and resource constraints, 12 weekly Sunday sessions scheduled with ability to access chats if sessions are missed and to contribute to discussion boards at any time</li> </ul> | <ul style="list-style-type: none"> <li>Very engaging chat conversations for those who turned up to scheduled sessions</li> <li>Overall disappointment in level of participation outside of chat sessions</li> <li>Closed nature of e-mail communication made it nearly impossible to send reminders to participants during week</li> <li>All participants wanted to sustain contact following intervention</li> </ul> |

**TABLE 3**  
**Online Social Networking Relationships**

| <i>Medium</i> | <i>Synchronicity</i> | <i>Direction</i>    | <i>Security</i>       |
|---------------|----------------------|---------------------|-----------------------|
| <b>Text</b>   | <b>Synchronous</b>   | <b>One-to-one</b>   | <b>Closed/private</b> |
| Audio         | <b>Asynchronous</b>  | <b>One-to-many</b>  | Open/public           |
| Still image   |                      | <b>Many-to-many</b> |                       |
| Video         |                      |                     |                       |

NOTE: Dimensions available in the study are in boldface (e-mail = text, asynchronous, closed, one-to-one/many, private); chat = text, synchronous, closed, one-to-one/many, private; bulletin board = text, asynchronous, many-to-many, private).

## **Part 2: Intervention Design and Implementation**

Our main challenge in designing the intervention arose when considering its “ideal” structure. At the outset of the study, our team made the decision to avoid “reinventing the wheel” by creating a new website platform. From a knowledge uptake perspective, we felt that using an existing support website provided a number of advantages by promoting sustainability, ensuring access to expertise and resources, and containing necessary safety measures. Our design considerations were further influenced by limited resources, the safety and security requirements placed on us by our University ethics committee, and the need for a platform capable of documenting usage and interactions for data analysis.

With these considerations in mind, we chose to build our program around an existing social networking platform called *Ability Online*: a website created at Toronto’s Hospital for Sick Children in 1991 whose purpose is to provide a safe Internet environment where all children, including those with illness or disability, could meet other children and to thus reduce the isolation of chronic disease. In *Ability Online*, participants have access to a secure website with chat rooms, bulletin boards, and a simplified e-mail tool, adequately representing the abilities of social networking currently available (Table 3). Notably, the sophistication level of these functions during the intervention was already considerably behind major social networking websites with which most youth were familiar. In regard to safety, the security features of *Ability Online* (Table 4) met our ethical requirements without significantly compromising privacy preferences. A summary of the final intervention design is shown in Table 2, column b.

**TABLE 4**  
**Security Features of *Ability Online***

- Members can only register using real names and contact information; identification is verified prior to site access
- Public online messages are consistently monitored by trained volunteers for appropriateness
- There is zero tolerance for bullying behavior
- There are age-restricted areas, so youth can feel comfortable hanging out with people their own age
- The site is secured with encrypted log-ins, as well as the latest SPAM and language filters
- All staff and volunteers are police screened
- No chat access or external e-mail for members younger than 16 years

All 57 youth who participated in the Phase 1 needs assessment were invited to participate in the online intervention. Additional participants were recruited using the same methods as the needs assessment survey. To be considered for participation, youth were required to be between 12 and 15 years of age and have physician-diagnosed asthma and/or severe life-threatening allergies. Youth and their parents’ were provided study information and consent forms. All families reported having Internet access and a suitable computer. Participants were provided with an electronic copy of an intervention handbook, a calendar of weekly scheduled chat discussion topics, and written guidelines for *Ability Online*. Chat sessions on preselected topics were scheduled for Sunday evenings during times that youth could participate in small group discussions facilitated by peer mentors. Five health promotion professionals were available to peer mentor youth online and off-line to ensure safety and provide consultation on questions or problems. Weekly sessions were monitored by research staff who provided troubleshooting support and ensured that all relevant data were captured. Mentors encouraged youth to use the message boards or to e-mail the research staff a “tip of the week” or additional suggestions or to talk about difficulty they experienced during the session. Youths, mentors, and health professionals could post and read messages on the bulletin board or send private e-mail or messages at any time. Peer mentors were asked to engage youth participants with an internal e-mail message system and reply to any mentees’ e-mails or message board posts within the website. Only the project manager was allowed to phone or e-mail youth participants. Over the

3-month duration of the intervention, a total of 5 youth participated in more than five sessions (high participators), 8 in three to four sessions (moderate participators), and 8 participated in less than two sessions (rare participators). Seven of the 28 youth originally recruited did not participate at all.

### **Part 3: Postintervention Evaluation**

To determine the overall efficacy of the intervention, participants' perspectives were elicited from six qualitative sources obtained during and after the 12-week program (see Table 1, row b, for evaluation methods involving youth and mentors). Interviews were transcribed verbatim and entered into a qualitative data management software package for analysis. Here we report on relevant components of the evaluation along the eight themes identified in the assessment phase. Table 2, column c, provides a summary of participants' evaluation of the intervention.

*Purpose and content.* For a core group of youth, the online support group quickly became a safe place to share experiences about asthma and allergies. One mentor said that "by far the main impact was that they are not alone" (mentor exit interview, March 22), but youth (14/19; 73.68%) overwhelming agreed that the main impact came from talking with other youth with asthma and allergies in an open and supportive atmosphere:

It was a really neat experience . . . cuz you don't normally have that many people that like have the same allergies as you or have allergies like you and they kind of know. They experience the same things at school and stuff and how you kind of have a lot in common with them and it was kind of neat to kind of get to have friendships going there too. It kind of told me that they had a little more confidence and that's there's more people like this so you shouldn't feel bad about yourself.

Critiquing program content and delivery, six youth participants believed the group drifted off-topic, four thought topics were too general for their needs, and three felt left out. Youth confirmed that very specific information on their individual needs was more helpful than generalized educational content as several participants and mentors expressed concern about their ability to address immediate personal needs. One youth reported, "I found the group didn't focus a lot on asthma. It might be good for teens who have just found out they are allergic to something" (#126).

*Look and feel.* Participants were not impressed with the look and feel of the website. One mentor was particularly blunt, saying, "The site doesn't look like a lot of fun, it's very old." In regard to the chat room (the most used feature of the intervention), mentors believed its simplistic format, coupled with the inability to "see" body language, meant that it took longer to get to know participants and their needs. In the exit interviews, mentors said they needed time get used to the chat technology to follow conversations: "it was confusing because of the chat technology . . . lines would get jumbled." It was very difficult for mentors to engage youth if there were less than three youths in a chat.

*Mentorship.* All youth reported satisfaction with the mentorship received during the intervention. Additionally, mentors discussed feeling affirmed by their perceived positive impacts on youth. When attendance was low, consolidating chat sessions worked well, especially when there was more than one mentor in each chat session. Mentors could initiate discussions more easily, ask more probing questions, and keep track of the discussion more effectively. One mentor noted, "There was more for mentees to build/try to relate to [when there were two mentors in chat]." With multiple, interacting mentors, youth seemed more involved, and discussions were more meaningful. Each mentor would point out how their experiences were different from each other, which encouraged youth to share their own experiences in the light of the mentors'. Whereas some youth thought groups under four members would be too small, two youth thought the group size was too large, suggesting there be a much more intimate ratio between mentors and mentees:

I think they should have made the channels that each group was in . . . like two teens and one mentor. Cuz it would have been easier to talk to each other. Like there's like seven people in one and then one or two people being left out of the conversation.

Most participants agreed that going straight into chat, without having initially "met" each other, made it difficult to establish meaningful relationships where youth would feel comfortable disclosing personal information or experiences to mentors.

*Confidentiality/autonomy.* For some youth, the relative anonymity from their "real" peer relationships allowed them discuss potentially embarrassing or emotionally distressing topics. One participant preferred to share stories without being "seen": "I liked it online like you can really, you can bring up a lot of subjects.

It's easier to bring up things when you're not looking at the person" (#129). Obligations under our university research ethics protocol meant that the *Ability Online* e-mail must be kept separate from any e-mail and chat tools that youth could be connected to outside of the program. This closed structure proved to be a hindrance on participation as, most youth did not log in to their *Ability Online* e-mail outside of the scheduled program times. Mentors expressed frustration with not being allowed to contact participants outside of the *Ability Online* website, feeling that their ability to provide timely support, or send reminders or encouragements for youth to attend, was constrained.

*Flexibility.* Despite constrained by chatting only during scheduled times, youth seemed pleased to meet others facing similar problems and made the most of each session. Often, Sunday sessions would extend well beyond the scheduled 60 minutes. Youth also appreciated the structure built into the chat sessions, feeling that it was better than a completely unstructured chat environment found in a public chat room. One youth participant commented,

The chats were kind of cool because it was instant. You get it right away. They were good topics, they were all pretty relevant for like kind of my age, like I'm 15. Because I know lots of magazines for parents of kids with allergies are more like, 'your kid is six and starting school' and all that so it's not very helpful for people who are older.

Scheduled chat sessions also worked well for mentors, who felt that the structure allowed them to engage youth in a nonimposing way. Opening discussions with questions allowed mentors to provide a blend of practical information along with specific management strategies. For example, in a chat about families, a mentor asked, "Out of mother, father, brother, sister, grandparents, who do you guys trust most with making your food?" The participants laughed together as they shared stories about the importance of their mothers in their lives:

#138: mom

#138: lol yupp

#112: I'd trust my mom or dad the same, but I'd prefer to eat that which my mom has cooked.

Mentor: any guesses why??? haha

#112: and the idea of me cooking is just absurd so . . .

#143: whys that

Mentor: why you trust your mom the most . . . I think it's the whole motherly instincts . . .

#138: cuz she can cook and everything and then there my dad who just doesn't know what he doing lol

Although scheduled sessions were appreciated, all but one youth interviewed said that being busy with other activities—sports, homework, or friends—interfered with regular online attendance. One participant stressed multiple aspects of her everyday life that it difficult to attend regularly:

I have a job that I work quite a bit after school and on weekends, and with school work and being involved a lot in different stuff, so even if [the program itself] is not too much time-consuming, but everything else being time-consuming so I had a little trouble that way getting on, being able to do it at nights.

One mentor, feeling overwhelmed by people entering and leaving the chat room, while trying to answer questions at the same time, suggested that everyone could log into the main chat and have the project manager direct them to a smaller group. Another suggested dividing the group into two different nights to possibly reduce the stress of having too many people in the chat, as well as giving youth a choice of participation times.

## ► DISCUSSION AND CONCLUSION

This study developed and evaluated an online peer mentorship program for youth with asthma and allergies. Although the level of participation in the chat sessions was less than hoped for, the rates are similar to other computer-mediated support interventions (for a review, see Bennett & Glasgow, 2009; Eysenbach, 2005). However, according to almost all health professional participants, the value of this study is that it proved adept in engaging an age-group that is notoriously difficult to reach. One professional anecdotally commented that attendance at even one educational session should be seen as a success. Low participators may still derive benefits from reading others posts or knowing that the group is there (Bennett & Glasgow, 2009; Couper, Petychev, Strecher, Rothert, & Anderson, 2007). Indeed three participants, who attended the weekly chat sessions infrequently, enjoyed reading other youth's stories and messages on the bulletin board.

Perhaps the main success of our study was its positive reception by all participants who appreciated the opportunity to connect with youth from across Canada—something never previously done. The intervention was safe, convenient, accessible with the minimum of a dial-up Internet connection, and free because of the charitable status of the *Ability Online* network. From a research perspective, the *Ability Online* platform allowed us to easily monitor and capture (in text form) all of the content during the intervention without compromising security. The availability of research staff and health care professionals as “backups” to peer mentors, as well as content monitoring services from *Ability Online*, represents a far superior environment to anything that might be available to youth through unstructured or informal networks found elsewhere on the Internet.

Our reliance, however on *Ability Online*'s dated platform, not specifically designed for a structured, professionally mediated intervention and operating in light of large-scale/budget networks such as Facebook, was a significant barrier to effective support delivery. Despite platform barriers, we believe that our study has been successful in identifying several key “best practices” in meeting youth support preferences and needs within an online environment. All participants found the 12-week program to be highly valuable, with a majority of participants reporting in the postintervention survey that they would tell others about it. Those youth living in rural locations ( $N = 6$ ) thought the program was an ideal way to obtain the information and support that they perceived to be more readily available to those living in cities. In the area of technology, participants recommended several specific improvements to existing social networking websites, including more fully featured chat tools, photos, conference messaging, external links, and games. Although these recommendations were anticipated given that many were identified at the assessment stage (but excluded because of technical and resource limitations), we have found that success was not dependent on cutting-edge web infrastructure but rather on the creation of *relationships*, particularly with older youth mentors who had “been there” and willing to share their experiences with asthma and allergies. In this sense, our intervention is the first of its known kind for this notoriously difficult population to engage. In sum, online peer mentorship and relationship building seems especially important for this population, particularly for geographically dispersed and isolated youth with asthma and allergies, who may have limited contact with others facing similar conditions as their own.

## REFERENCES

- Acquisti, A., & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the Facebook. In G. Danezis & P. Golle (Eds.), *Lecture Notes in Computer Science: Vol. 4258. Privacy Enhancing Technologies* (pp. 36-58). Berlin, Germany: Springer.
- Bennett, G. G., & Glasgow, R. E. (2009). The delivery of public health interventions via the internet: actualizing their potential. *Annual Review of Public Health, 30*, 273-292.
- Boulos, M. N. K., & Wheeler, S. (2007). The emerging Web 2.0 social software: An enabling suite of sociable technologies in health and health care education. *Health Information and Libraries Journal, 24*, 2-23.
- Castells, M. (2010). *The rise of the network society* (2nd ed.). Oxford, England: Wiley-Blackwell.
- Chan, D. S., Callahan, C. W., Hatch-Pigott, V. B., Lawless, A., Proffitt, H. L., Manning, N. E., & Malone, F. J. (2007). Internet-based home monitoring and education of children with asthma is comparable to ideal office-based care: Results of a 1-year asthma in-home monitoring trial. *Pediatrics, 119*, 569-578.
- Couper, M. P., Petychev, A., Strecher, V. J., Rothert, K., & Anderson, J. (2007). Following up on non-respondents to an online weight management intervention: Randomized trial comparing mail versus telephone. *Journal of Medical Internet Research, 9*(2), e16.
- Cruz-Correia, R., Fonseca, J., Lima, L., Araujo, L., Delgado, L., Castel-Banco, M. G., & Costa-Pereira, A. (2007). Web-based or paper-based self-management tools for asthma—patients' opinions and quality of data in a randomized crossover study. *Studies in Health, Technology and Information, 127*, 178-189.
- Eysenbach, G. (2005). The law of attrition. *Journal of Medical Internet Research, 7*, e11.
- Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., & Stern, A. (2004). Health related virtual communities and electronic support groups: Systematic review of the effects of online peer-to-peer interactions. *British Medical Journal, 328*, 1166.
- Gibson, P. G., Shah, S., & Mamoon, H. A. (1998). Peer-led asthma education for adolescents: Impact evaluation. *Journal of Adolescent Health, 22*, 66-72.
- Guendelman, S., Meade, K., Benson, M., Chen, Y. Q., & Samuels, S. (2002). Improving asthma outcomes and self-management behaviours of inner city children: A randomized controlled trial of the Health Buddy interactive device and an asthma diary. *Archives of Pediatrics & Adolescent Medicine, 156*, 114-120.
- Hampel, P., Rudolph, H., Stachow, R., & Petermann, F. (2003). Multimodal patient education program with stress management for childhood and adolescent asthma. *Patient Education and Counseling, 49*, 59-66.
- Joseph, C. L. M., Peterson, E., Havstad, S., Johnson, C. C., Hoerauf, S., Stringer, S., & Strecher, V. (2007). A web-based, tailored asthma management program for urban African-American high school students. *American Journal of Respiratory and Critical Care Medicine, 175*, 888-895.
- Lampe, C., Ellison, N. B., & Steinfield, C. (2008). Changes in use and perception of Facebook. In *Proceedings of the 2008 conference on computer supported cooperative work* (pp. 721-730). New York, NY: Association for Computing Machinery.

- Magzamen, S., Patel, B., Davis, A., Edelstein, J., & Tager, I. B. (2008). Kickin' asthma: School-based asthma education in an urban community. *Journal of School Health, 78*, 655-665.
- McGhan, S. L., Wong, E., Jhangri, G. S., Wells, H. M., Michaelchuk, D. R., Boechler, V. L., & Hessel, P. A. (2003). Evaluation of an education program for elementary school children with asthma. *Journal of Asthma, 40*, 523-533.
- McNish, J., & El Akkad, O. (2010, April 23). Facebook users risk blackmail, privacy czar warns. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/technology/facebook-users-risk-blackmail-privacy-czar-warns/article1545444>
- McPherson, A., Glazebrook, C., Forster, D., James, C., & Smyth, A. (2006). A randomized, controlled trial of an interactive educational computer package for children with asthma. *Pediatrics, 117*, 1046-1054.
- Murray, E., Burns, J., See, T. S., Lai, R., & Nazareth, I. (2005). Interactive health communications applications for people with chronic disease. *Cochrane Database of Systematic Reviews*, (4), CD004274.
- Shah, S., Peat, J., Mazurski, E., Wang, H., Doungkamol, S., Bruce, C., & Gibson, P. G. (2001). Effect of peer led programme for asthma education in adolescents: Cluster randomized controlled trial. *British Medical Journal, 322*, 583-587.
- Stewart, M., Barnfather, A., Magill-Evans, J., Ray, L., Letourneau, N., & Erickson, D. (2011). Brief report: An online support intervention: Perceptions of adolescents with physical disabilities. *Journal of Adolescence, 34*, 795-800.
- Stewart, M., Masuda, J. R., Letourneau, N., Anderson, S., & McGhan, S. L. (2011). "I want to meet other kids like me": Support needs of children with asthma and allergies. *Issues in Comprehensive Pediatric Nursing, 34*, 62-78.
- Wantland, D. J., Portillo, D. J., Holzemer, W. L., Slaughter, R., & McGee, E. M. (2004). The effectiveness of web-based vs. non-web-based interventions: A meta-analysis of behavior change outcomes. *Journal of Medical Internet Research, 6*(4), e40.
- Wyatt, T. H., & Hauenstein, E. J. (2008). Pilot testing Okay With Asthma™: An online asthma intervention for school-age children. *Journal of School Nursing, 24*, 145-150.