A trial of real-time text-based support for young people

David N. Milne   Simon Hoermann   Rafael A. Calvo

The University of Sydney
Sydney, Australia
david.milne, simon.hoermann, rafael.calvo@sydney.edu.au

ABSTRACT

In this study we introduce a chat interface to a popular online mental health platform for young people, which allows visitors to chat one-on-one with a trained moderator. Unlike most chat services of this kind, the intention here is not to provide treatment or therapy, but instead to add a human touch—a layer of helpfulness, compassion, knowledge and encouragement—to information seeking. The moderators are not trained psychologists, but they do have encyclopaedic knowledge of the resources available to young people, and extensive experience talking to them.

The chat tool was well received by both visitors and moderators. Most chats—as expected—involved sharing and discussing resources and services. The majority addressed tough topics like mental health issues or substance use, and most were with visitors who initially felt anxious or depressed. However, these visitors typically reported an improved mood at the end of the chat, and universally considered the chats worthwhile. None of the visitors were judged to be in crisis or at risk. The challenge will be to scale the system up beyond this initial trial, so that it can reach a wider audience. The paper describes some of the strategies for automation and augmentation that we will explore in the near future.

Author Keywords

mental health; wellbeing; real-time chat; one-on-one support;

ACM Classification Keywords

H4.3. Communications Applications: Computer conferencing, teleconferencing, and videoconferencing; H.5.3 Group and Organization Interfaces: Web-based interaction.

INTRODUCTION

In a 2007 Australian Survey of Mental Health and Wellbeing, more than 26.4% of people aged 16-24 reported experiencing a mental health problem in the last 12 months

[1]. This ratio was higher than in any other age group. In a 2010 survey, only 29% of people with mental health problems aged 16-34 reported using any support services, compared to 40% in older age groups [2]. Thus the high prevalence of mental health disorders among young people is compounded by a reluctance to seek help, and this is especially concerning because 75% of lifetime prevalent mental health disorders start by the age of 24 [3].

Internet-based mental health services are promising way to reach young people, because they can be accessed with minimal effort, for minimal cost, and with minimal risk of experiencing stigma or embarrassment. Burns et al. [4] found that 30.8% of young people aged 12-25 who have experienced a mental health problem have used the internet to find related information. This ratio climbs to 45.7% for those aged 18-25.

However, it may not be enough to simply make the information available online. Doing so places all responsibility on the young person to locate information and services, judge their relevance, and find the motivation to take action. That may be too much to expect, particularly from someone in the depths of a depressive episode. To do more, human-computer interaction researchers need to contribute to the design of novel mental health services [5]

In this paper, we attempt to add a human touch to online mental health. Specifically, we conduct a trial that introduces a chat widget to ReachOut.com, a popular website for young Australians facing tough times. During the trial, a small sample of visitors where able to use this widget to chat in real-time with a trained moderator. The hope is that this human touch will add an extra layer of helpfulness, compassion and persuasiveness, which will translate to an increased chance that the visitor will find valuable resources and be motivated to make good use of them.

REACHOUT AUSTRALIA

ReachOut Australia is a non-profit organisation that provides online support for young people aged between 14 and 25 years. The aim is prevention rather than treatment; to "intervene early in the onset of mental health problems in young people." [6]. Consequently it does not offer online counselling or treatment, but instead refers visitors to existing services like Headspace and BeyondBlue where appropriate.

This focus on early intervention is working well; about 1 in 3 young people in Australia are aware of the site [7], and it
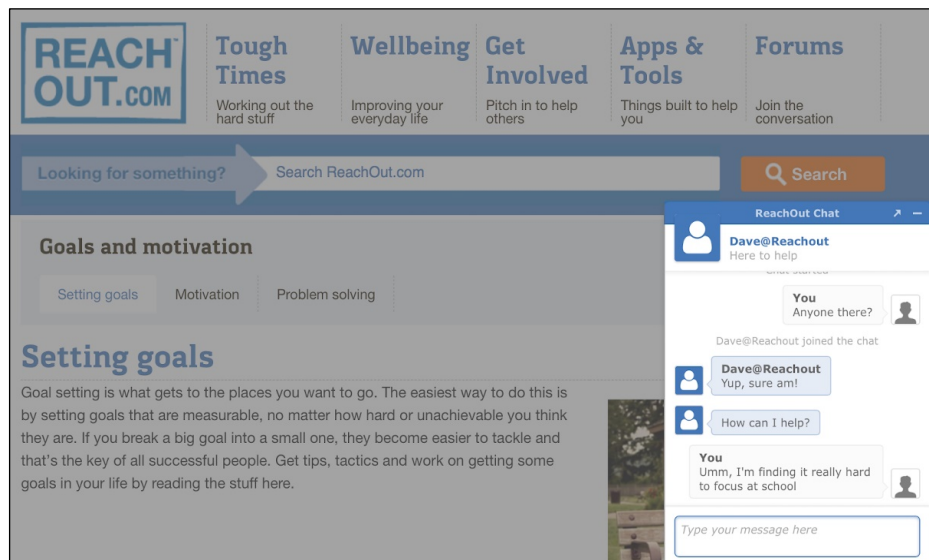
Figure 1: The ReachOut website, and the trialled chat widget

received about 1.8 million visitors in 2014 [8]. In a survey conducted in 2013, approximately 77% of visitors reported experiencing high or very high levels of psychological distress, which indicates that the site is reaching people in need [6]. 46% of these distressed visitors reported feeling more likely to access (for the first time) professional support after their visit.

Real-time chat is an entirely new form of service for ReachOut. Online chat has already been used extensively for online mental health (Dowling and Rickwood [9] provide a recent review), but in almost all cases the intention is to provide therapy. The person at the other end is typically a psychologist or counselor. This paper is a trial of something more lightweight, and more in-line with ReachOut's aims for prevention rather than treatment. The moderators we made available are not psychologists, but they do have extensive knowledge of the information and services that are available to young people, and have had experience in talking to young people via ReachOut's forums. They are not expected to offer therapy, but instead to act as a "concierge" of sorts, whose primary role is to offer understanding, personal encouragement, and careful, tailored referral to the appropriate resources.

METHOD
The chat widget shown in Figure 1 was introduced to ReachOut.com intermittently between November 2014 and August 2015. The widget was only shown to visitors when a moderator had signed in and activated it. It filtered by IP to hide itself from visitors not located within Australia, and by URL to hide itself from visitors who were browsing content related to suicide, self-harm or similar topics where the visitor would be better off using ReachOut's existing emergency services, which are already prominent on the site. The remaining visitors were randomly sampled so that

the widget was only shown to only a few visitors at any one time, to avoid overloading the moderators.

In total, 84 different visitors used the widget to chat with a moderator. Contrary to Figure 1 (where the conversation is simulated), every conversation began with a scripted segment in which the moderator performed any necessary screening, explained the purpose of the study, and sought informed consent.

21 (25%) of visitors were quickly judged by the moderator to be *trolls* who had no intention of having a useful conversation, and for whom the moderator could not conduct the initial screening and consent. A further 18 (21%) were either younger than 14 or older than 25, and were also excluded after redirecting them to a more age-appropriate service.

The 45 remaining eligible visitors were given an information sheet about the study, and asked if they consented to it. Those that did not were still able to have a conversation with the moderator, but the conversation was not recorded, and they were not asked to provide feedback.

One final method by which visitors might be excluded from the study is if the moderator judged them to be in crisis or in imminent risk of harming themselves or others. Scripts were provided to assist the moderator in finding them the right help, but fortunately these were never invoked.

RESULTS
In this section we analyze the 29 conversations that were recorded with eligible, consenting visitors. The data available for analysis includes the full chat transcripts, the click-through logs of any links shared within them, and surveys completed separately by both the visitor and moderator.
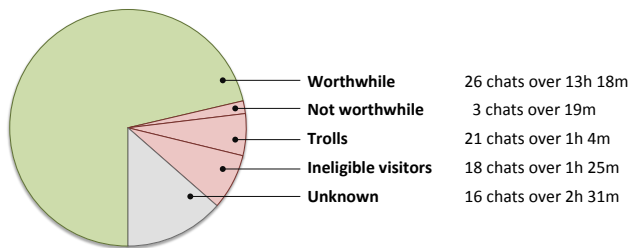
Figure 2: Time spent across all conversations

Worthwhile	26 chats over 13h 18m
Not worthwhile	3 chats over 19m
Trolls	21 chats over 1h 4m
Ineligible visitors	18 chats over 1h 25m
Unknown	16 chats over 2h 31m

Figure 3: Time spent on worthwhile conversations

Screening and consent	1h 51m
Searching for resources	1h 44m
Other discussion	2h 14m
Idle	7h 28m

Opinions of value

At the end of each conversation, the moderator was asked whether they felt the chat was a good use of their time. 26 (or 90%) were worthwhile from the moderators' point of view. The 3 remaining conversations were with people who left early or didn't have anything specific to talk about.

The visitors' opinions were similarly positive, with 18 (62%) stating that the conversation was worthwhile, and only one visitor stating it was not. This dissatisfied visitor was a student looking for help with a school assignment; a category of visitors that moderators have chosen not to invest much time in. The remaining 10 visitors (34%) did not complete the survey.

Visitor demographics and dispositions

The screening process ensured that every visitor was an Australian aged between 14 and 25. The average age was 17 years. Further demographics are available for the 19 visitors who additionally completed the post-chat questionnaire. Of these, a slight majority (58%) were female, and 42% were existing members of the ReachOut forums.

When asked to reflect back on their mood when they first began chatting, 31% of visitors stated they were *fine/content*, 26% were *sad/depressed*, and another 26% were *anxious/worried*. None reported feeling *angry/annoyed*. When the 10 initially *sad* or *anxious* visitors were asked if their mood had changed as a result of the chat, 7 reported feeling better, 2 were unchanged, and 1 felt worse. This last visitor engaged in a long, drawn-out conversation about depression and social anxiety, so this low mood likely has more to do with the difficult subject matter than with quality of service. The visitor still considered the overall chat worthwhile (as did all others who completed the survey).

The moderator was separately asked to diagnose the distress level of the 26 chats that they felt were worthwhile. 8 visitors (31%) exhibited no signs of distress, 17 (65%) were mildly distressed, and one was extremely distressed. No visitor appeared to be in crisis or in imminent risk of serious harm.

Topics of discussion

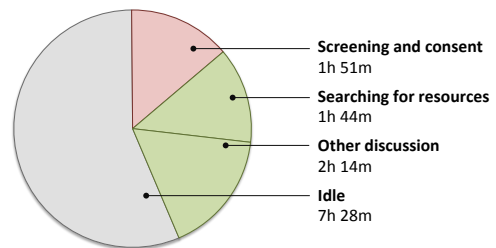At the end of each worthwhile conversation, the moderator was asked to code the topics discussed against ReachOut's existing category structure (the first level of which is visible along the top of Figure 1).

21 conversations (72%) involved *tough times*, and of these 10 (48%) discussed mental health concerns, 5 (24%) discussed alcohol or other substances, and 4 (19%) involved getting help.

12 conversations (41%) involved *wellbeing*, or strategies for improving various aspects of everyday life. These conversations were fairly evenly spread between various subtopics such as improving school life, intimate relationships or defining personal identity.

Resource recommendation and usage

Recall that the main intention for this service was for the moderator to act as an information "concierge", by offering tailored referral to the appropriate resources. Consequently the links shared within these conversations are of particular interest. In this study every link was wrapped in a shortened URL, so that the system could record if and when the visitor clicked them.

Every chat included links related to the study (i.e. to a participant information sheet, fact sheet and post chat survey), and most included an invitation to join the forum at the conclusion of the chat. Excluding these general links leaves 25 conversations (or 86%) that included at least one link (and an average of 2.5) to resources that the moderator had judged relevant to the users' needs. In total, 65 of these tailored links were shared, and 45 (73%) were clicked.

We can estimate the time required by moderators to locate a resource by measuring the interval between the message containing the link and the moderator's preceding message. The average interval across the 47 tailored links that were preceded by a message (rather than another link) was 1 minute 36 seconds. This time is likely inflated slightly by the need for moderators to use the url-shortening tool.

Conversation time

Figure 2 provides an overview of where moderators' time was spent. The majority (71%) was spent on conversations that the moderator felt was worthwhile, and only a very small amount (2%) spent on the non-worthwhile conversations. The remaining time was spent screening out trolls (6%) and ineligible visitors (8%), or with people who chose not to participate in the study (14%).

Figure 3 focuses on the conversations that moderators felt were worthwhile. An average worthwhile conversation took 30 minutes, and involved 32 messages from the moderator and 24 from the visitor. The longest conversation ran for 1 hour 27 minutes, and involved 86 moderator messages and 69 visitor messages.

Moderators spend a large portion (56%) of every worthwhile conversation waiting for the visitor respond to a message they have sent. This large amount of idle time suggests that moderators could reasonably be expected to handle two or even three conversations simultaneously. Another 14% (or an average of four minutes per conversation) was spent going through the necessary yet tedious process of screening and informed consent. In this trial moderators preformed the process manually, but it could reasonably be automated. We estimate (based on the link analysis described previously) that another 13% (or an average of 4 minutes per conversation) was spent searching for relevant resources to share. The final 17% was spent empathizing with and understanding the visitor, or discussing the resources shared.

Based on these times, we can make a few assumptions to estimate how much time this service would require if it were scaled up and offered to all visitors at ReachOut. Assume first that screening and informed consent were automated. Assume also that trolls and other non-worthwhile conversations required negligible time, because they could be dismissed with an automated (yet friendly) "goodbye" script, invoked with a single click. Finally, also assume that all idle time is removed by allowing moderators to switch between multiple conversations. This leaves only the green portion of Figure 3, or an average of 9 minutes of moderator time invested per conversation.

ReachOut's busiest hour in 2015 involved ~800 Australian visitors. If we assume that 10% (a rough estimate) of visitors engage with the chat widget, and that 31% (based on the trial) make it through screening and begin a worthwhile conversation, then this adds up to 3h 46m hours of moderator time. In other words, four moderators online at once could handle peak ReachOut traffic.

CONCLUSIONS AND FUTURE WORK
This paper has described a small trial that integrated a chat widget to ReachOut Australia. Both the visitors and the moderators they talked to considered most of these chats to be worthwhile. The main exceptions were ineligible visitors and trolls, who could be screened out in future with automated "welcome" and "goodbye" scripts.

Most chats were informational in nature, and were typically focused around sharing and discussing resources and services. The majority of conversations involved confronting topics like mental health issues or substance use, and most were with visitors who initially felt anxious or depressed. These visitors typically reported an improved mood at the end of the chat, and universally considered the chats worthwhile. None of the visitors were judged to be in crisis or at risk. Based on the observed times and a few assumptions, we estimate that the chat service could successfully be scaled up and run by four moderators working simultaneously at peak times.

We are currently working with ReachOut to run larger trials of the chat tool. These future trials will investigate the acceptability of automated scripts for screening, consent, dismissal of trolls, and other repetitive tasks. We will also gather a large corpus of conversations that will be useful for exploring more sophisticated approaches to saving moderators' time, such as automatically suggesting and completing messages when the conversation is similar to other previous conversations, or automatically recommending relevant resources. The broad aim of the research is to improve moderators' efficiency and allow them to reach as many young people as possible, without sacrificing the human touch.

REFERENCES
[1] Australian Bureau of Statistics. (2008) National Survey of Mental Health and Wellbeing, 2007.

[2] Australian Bureau of Statistics. (2010). Year Book Australia 1301

[3] Kessler R.C, Berglund, P., Demler, O., Jin, R., Merikangas, K.R., and Walters, E.E. (2005). Lifetime prevalence and age-of-onset distributions of dsm-iv disorders in the national comorbidity survey replication. Archives of General Psychiatry 62(6)

[4] Burns, J.M, Davenport, T.A., Durkin, L.A, Luscombe, G.M., and Hickie, I.B. (2010) The internet as a setting for mental health service utilisation by young people. Medical Journal of Australia 192(11)

[5] Calvo, R.A, Dinakar, K., Picard, R. and Maes, P. (2016) Computing in Mental Health. In Extended Abstracts on Human Factors in Computing Systems.

[6] Metcalf, A. and Blake, V. (2014) 2013 ReachOut.com Annual User Survey Results.

[7] Burns, J.M, Morey, C., Lagelée, A., Mackenzie, A. and Nicholas, J. (2007) Reach Out! Innovation in service delivery. Medical Journal of Australia 187(7)

[8] ReachOut (2014) Annual Report 2013-2014.

[9] Dowling, M. and Rickwood, D. (2013) Online counseling and therapy for mental health problems: A systematic review of individual synchronous interventions using chat. Journal of Technology in Human Services 31(1).