Chapter 13
Artificial Intelligence in Mental Health:
The Novel Use of Chatbots to Support Trainee Counsellors and Recovering Addicts

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ABSTRACT

Chatbots are programmed conversational agents that emulate communication systematically using natural language processing. They can be programmed to assume a range of roles where regular human interaction occurs. Within mental health services, they are not as well represented as in other areas of healthcare, with research suggesting that uptake has been hindered by concerns over the accuracy of the information they provide, undeveloped technology, lack of adherence to an ethical framework, and the unconvincing portrayal of human authenticity. Technological improvements have addressed some of these concerns, and as the resultant solution choice increases, the potential for chatbots within mental health is receiving greater attention. In this chapter, two novel uses for chatbots are showcased. Foxbot, a recovery friend, accessible at the point of need to help mitigate some of the common risk factors to sustaining addiction recovery; and ERIC, a counselling client who allows trainee counsellors to practise their counselling skills without having to enlist an actual client.

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INTRODUCTION

In 1956, artificial intelligence (AI), as a scientific concept was first studied. It was the subject of a progressive research project, speculating that all facets of learning and intelligence, could in theory be described with the precision necessary for a machine to simulate them (McCarthy, Minsky, Rochester & Shannon, 1955). The foresight within the study was remarkably accurate, into what AI would become over five decades later. This was an extraordinary result considering computing technology was in its infancy (Carlson, Burgess, Miller, & Bauer, 2012), and the human capacity to program such envisioned technology was entirely hypothetical (McCarthy, Minsky, Rochester & Shannon, 1955). In deference to this, this chapter looks at two innovative and diverse uses of AI, with the aim of disseminating new and ingenious ways of applying today's AI technology, to support mental health education and services.

Background

Chatbots form a distinct branch of AI which includes the familiar conversational agents seen on websites and messenger platforms, as well as the market leading virtual assistants such as Apple Siri, Amazon Alexa, Google assistant and Microsoft Cortana. They have undergone rapid technological advancement in recent years, primarily driven by investment from big technology companies, and demonstrated in the proliferation of chatbot devices in the home, integration with smartphone and smartwatch user interfaces, and the changing nature of website interaction (Patel, 2021; Insider Intelligence, 2021).

Chatbots are programmed conversational agents that emulate communication systematically, using natural language processing (Adamopoulou & Moussiades, 2020). Natural language processing takes a normal language input and evaluates it using sophisticated algorithms, to offer an intelligent response (Singh & Thakur, 2020). This is a complex process, which is itself continually evolving as consumer expectations of the semantic intelligence of chatbots grows in line with the output, of what is now a technologically competitive industry (Cambria & White, 2014; Adamopoulou & Moussiades, 2020; Singh & Thakur, 2020).

In 2016, the use of chatbots accelerated following their integration within the Facebook messenger platform (Taylor, 2016). Organisations soon realised that by systemising repetitive and low-level tasks commonly performed by humans, they were able to offer consumers a service agent with endless patience and unlimited availability (Følstad & Brandtzæg, 2017). This proliferation has seen chatbots enter the digital strategy for organisations across multiple sectors, including education and mental health services (Adamopoulou & Moussiades, 2020; Díaz & Pereira, 2019).

Chatbots in Mental Health

In mental healthcare, chatbots have been used to screen, provide training, and offer therapeutic support for people with mental health conditions (Abd-Alrazaq, Alajlan, Ali & Bewick, 2019). At the forefront are chatbots for depressive disorders. A previous review looking at the application of chatbots in mental health, showed that those focusing on depression significantly outnumber chatbots targeted at other disorders, such as anxiety, post-traumatic stress, and autism (Abd-Alrazaq, Asma, Alajlani, Bewick & Househ, 2020). Overall, however, the corpus of work looking at the efficacy of chatbots in mental health is underdeveloped, in comparison with alternative areas of application, such as physical health, entertainment, customer services and engineering (Adamopoulou & Moussiades, 2020; Vaidyam, Wisniewski,