Chapter 18
Gamification of Therapy:
Treating Selective Mutism

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ABSTRACT
Selective mutism is a psychiatric disorder characterized by a withdrawal of speech in situations during which speech might be expected typically. Diagnostically speaking, selective mutism is labeled an anxiety disorder, likely due to the high co-occurrence between selective mutism and other anxiety disorders (e.g., social anxiety disorder), and the onset is usually during childhood. Successful treatment of selective mutism includes the use of cognitive-behavioral therapy methods, although early gains during treatment may prove difficult at times. This chapter will provide a background and rationale for the use of gamification in the treatment of selective mutism. Case-study data are also provided. Further, this chapter describes the development of a prototype tablet PC application developed to assist in the treatment of selective mutism.

INTRODUCTION
Selective mutism is a psychiatric disorder most commonly observed in children and adolescents (American Psychiatric Association, 2013). Selective mutism is characterized by a withdrawal of speech in situations during which speech would be expected typically. Recently, it has been categorized as an anxiety disorder, likely due to the vast research literature suggesting a high co-occurrence between selective mutism and other anxiety disorders, particularly social anxiety disorder (e.g., Young, Bunnell, & Beidel, 2012). In fact, more often than not, children with selective mutism report elevated levels of social anxiety, adding to the complexity of the disorder and its treatment. Treatment of selective mutism is difficult and often requires lengthy intervention before significant treatment gains are observed. Effective therapy makes use of behavioral interventions, which can be difficult to administer for untrained clinicians (Pionek Stone, Kratochwill, Sladezcek, & Serlin, 2002). Briefly, shaping procedures (rewarding the child for successive approximations of speech)
are extremely effective. Over time, children are required to produce more complex sounds and eventually are rewarded for verbalizing letters and words at increasing volume.

Several barriers to the successful treatment of selective mutism have been noted, and often contribute to the difficult and lengthy process of successful treatment outcome. For example, children are often resistant to treatment, whether due to elevated levels of anxiety associated with speaking or the child’s resistance to a transition from “the kid who does not talk” to one who does. Children with selective mutism also experience reinforcement in their natural environment to withhold speech, including both positive (i.e., presentation of a reward following a behavior) and negative (i.e., removal of an aversive stimulus following a behavior) reinforcement. This reinforcement may make it difficult to engage children in treatment, as the natural reinforcers may be stronger than the rewards offered during therapy. Given these barriers as well as possible limitations in the training of community clinicians with regard to behavioral interventions, a therapeutic tool which provides both strong reinforcement for treatment progress as well as assists a therapist in the treatment of selective mutism would prove dually advantageous. This chapter presents a new method by which these goals might be achieved, specifically via the use of tablet PC applications during the treatment of selective mutism.

The first section of the chapter introduces selective mutism and its associated features, as well as theories associated with the etiology and maintenance of the disorder. Literature examining the behavioral treatment of selective mutism is reviewed and a detailed discussion of the barriers to this treatment is included. Recommendations are provided regarding the use of tablet PC applications during the treatment of selective mutism, and case study data for four children treated successfully while making use of such applications. Finally, a description of an application development effort for treating selective mutism is provided in detail. The results of a small usability study are discussed, which other developers may find applicable to their work. The final section of the chapter will discuss future directions, such as how this app—and others like it—can become even more mobile and be generalized to treating a variety of mental health issues.

BACKGROUND

Selective mutism is a psychiatric disorder characterized by a persistent failure to speak, or withdrawal of speech in social situations during which speech is expected (e.g., at school, among familiar peers, or among adults). Despite this withdrawal of speech, individuals presenting with selective mutism often will speak normally in other situations. For example, they will often speak to immediate family members in the home, or whisper to a “best friend” while at school, but may not speak to extended family members even within the home. The pattern of vocal and social withdrawal associated with selective mutism results in significant functional impairment in areas such as academic or social achievement. Children with selective mutism, although often very bright, may experience difficulty while completing coursework at school as they often find it difficult to ask their instructor questions about assignments. Further, withdrawal of speech around peers may lead to withdrawal from social situations in general and subsequently decreased social skill and connectedness. Functional impairment is an important feature of the disorder and is required for a diagnosis according to the Diagnostic and Statistical Manual for Mental Disorders - Fifth Edition (DSM-V; American Psychiatric Association, 2013). Selective mutism is commonly considered a disorder of childhood and adolescence, with an average age of onset from 2.7 to 4.1 years-of-age (Cunningham, McHolm, Boyle, & Patel, 2004; Garcia, Freeman, Francis, Miller, & Leonard, 2004), although there may be some discrepancy.