Chapter 12
Design and Development of a Mobile Writing Application for Students With Dysgraphia

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ABSTRACT

Writing plays a vital role in both daily life and academic life. Students begin learning to write in the first years in school and then they use writing skills their whole life. However, some students, such as students with dysgraphia, experience difficulties in writing. The purpose of the chapter is to develop a mobile writing application for students with dysgraphia and to reveal ideas of special education experts, educational technology experts, and classroom education experts, and a teacher about application. A pilot study was conducted with three students with dysgraphia firstly, and necessary revisions were made. After revisions, experts’ views were taken. The results indicated that experts reflected positive ideas about mobile writing application for students with dysgraphia. However, the experts suggested some minor revisions for improving the mobile writing application. To sum up, final improvements were made, and a mobile writing application was developed.

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INTRODUCTION

Handwriting is one of the most used skills in school and daily life. Students who are attending primary school spend almost half their school days in writing activities (McHale & Cermak, 1992). Students especially with dysgraphia have the additional challenge of having difficulties in writing. They can verbally answer questions, but find it difficult to answer them in writing. Accordingly, frustration may be observed among these students (Zhang, 2000) and the struggles in writing possibly can bring about emotional and social problems. According to Cahill (2009), instead of requesting help or explaining their difficulties, students may start to avoid writing tasks, and failure may begin.

Writing should be considered in two stages. The first stage is called acquisition and the second is called development. Acquisition is about learning and using one’s basic knowledge. In other words, it is the stage that is concerned with teaching letters, syllables, words, and sentences more broadly; this stage is about how to use the words and letters in writing. Especially in early grades, writing skills should be given in accordance with the rules and figures (Akyol, 2005). In line with this, if there is a problem in the acquisition stage, it will be challenging to focus on the content. This is where students may first encounter challenges in their writing and their performances can be affected. Students with learning disabilities from the beginning of their school experience show the signs of the struggles in writing in several ways. Typing the letters in wrong directions, having severe organization problems, not being able to correct the mistakes despite all error corrections might be accounted as common problems. Another challenge is that teachers tend to give higher grades for legible handwriting (Graham, Harris & Fink, 2000).

Galanis (2008) states that failures in any of the acquisition stages can have long-term undesirable effects on academic success and self-esteem of students. Considering this, as in the early grades, the knowledge and writing performance of students with writing difficulties can be improved with the use of effective instructional strategies (Harris, Graham, & Mason, 2006). In this context, mobile devices have an essential role for students with writing disabilities. The mobile devices allow students to study at their own pace (Evans, 2008; Kagohara et al., 2013) and in various places (Evans, 2008).

Fernández-López, Rodríguez-Fórtiz, Rodríguez-Almendros, and Martínez-Segura (2013) summarizes the main features and functions of mobile devices such as touch screens, mobility and design, interaction through motion, accessibility, connectivity, and the ease of acquisition. Mobile writing applications have the potential to improve writing skills in students. In this way, the applications may help to close the gap between the practices of both field and literature. Literature reveals that writing requires skills rather than knowledge and skills are acquired by practice (Akyol, 2005; MONE, 2005). Therefore, insufficient number of such applications that have promising potential to provide opportunities for necessary practice is another area that needs to be addressed. To this end, the main purpose of this study is to develop a mobile writing application for students with dysgraphia.

BACKGROUND

Handwriting

Writing is a complex skill with different dimensions, such as cognitive, kinesthetic, and perceptual motor components (Engel-Yeger, Nagauker-Yanuv, & Rosenblum, 2009; Reisman, 1993). In school, students use their writing skills in writing activities most of the time. Writing is a mean that provides students to
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