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A Mobile Application and Academic Portal to Support Professionals Working with People Having Severe Intellectual or Developmental Disabilities

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Abstract

Some recent works claim that more support is required to include people with severe intellectual or developmental disabilities in their communities. This support can be provided in the form of tools for the professionals that will be in charge of the disabled people, that is, teachers, psychologists, speech therapists, etc. In this communication, we present one ICT tool for this purpose. The tool is composed of a mobile application, where the professionals can see some basic information on different syndromes that affect the communication abilities and have access to a list of basic words with related resources like sign language videos, pictures and pictograms. All the resources included in the mobile application are available in four different languages (Spanish, Catalan, German and Dutch) and are downloaded from a web service (not installed in the mobile application). The separation of mobile application and web service allows us to update and add resources whenever it is needed. The second part of the tool is an academic portal where the administrators can update and upload new resources that will be immediately available in the academic portal and in the mobile applications. These tools have been designed using an agile development methodology, which allows the frequent interaction between the stakeholders and the developers to end with a high quality software product. The design of both the academic portal and the mobile application allows the addition of new languages for the resources.

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Keywords: Severe intellectual disabilities; developmental disabilities; mobile application; communication needs

1. Introduction

According to the European Committee on Equality and Non-discrimination, there are more than 80 million people with disabilities in Europe and this number is expected to increase in the future¹. Most of the vast literature available on disabilities is focused on people with some capacities at a certain point. Some authors agree that there is a need to provide resources to people with severe disabilities and special communications needs (Light & McNaughton, 2014, p. 107; Miranda 2014, pp. 19-27). Resources like Makaton (Vinales, 2013) or PECS (Bondy & Frost, 2002) are valid alternatives for communicating with people with severe disabilities, but, frequently, they are not easily available when there is a communication need.

Nowadays, it is very common to have a smartphone in our pockets or a tablet at home or in our work place. Thus, a mobile application containing all the resources to help in an effective communication with severely intellectually or developmentally impaired people would be a valuable tool for families, caregivers, leisure assistants, teachers, healthcare workers, and community interpreters. They can simply install such a tool and search for a word they want to use in their communication.

Many tools for mobile devices are available to help disabled people in their communication (see Table 1). They all are Alternative and Augmentative Communication (AAC) tools, each one based on some multimedia elements. For example, JabTalk is based on real pictures. Most of the applications are based on pictograms. Arasaac is database of pictograms that are used in many AAC applications. Some applications allow the user to customize some pictograms, replacing them by a real picture taken with the mobile device (e.g., Words in Pictures and TalkInPictures). There are also applications whose main resource is a set of sign language video clips (e.g., Sign Language!). We can also find applications focused on providing information for caregivers, like Asperger's & Autism Community. However, as far as we know, there is no single application that contains information for caregivers and put together all the resources available for communication (pictograms, pictures and sign language video clips).

Table 1: Some AAC tools available for mobile devices.

Application	URL	Features
JabTalk	http://www.jabstone.com	Real pictures
AAC Speech Communicator	http://zemleris.com	Pictograms
Avaz	http://www.avazapp.com	Pictograms
CPA	http://www.comunicadorcpa.com	Pictograms
LetMeTalk	http://www.letmetalk.info	Pictograms
Pictotractor	http://www.pictoaplicaciones.com	Pictograms
PiktoPlus Autism AAC	http://www.limbika.com/team/	Pictograms
Pixwriter	http://www.suncastletech.com	Pictograms
Proloquo2Go	http://www.assistiveware.com	Pictograms
Sc@ut	http://scaut.ugr.es/scaut/	Pictograms
Words in Pictures	http://www.fingertalks.it	Pictograms that can be replaced by a real picture
Arasaac	http://arasaac.org	Database of pictograms
TalkInPictures	http://www.myautisticapps.com	Pictograms that can be replaced by a real picture
Sign Language!	http://www.everydayasl.com	Sign language video clips
Asperger's & Autism Community	https://www.aspiescentral.com	Information for caregivers

¹ See <http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=21339&lang=en> (accessed in July 2016)

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