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Research Article

Educational Software as a Learning Tool for the Prevention of Sexual Violence in Children with Intellectual Disabilities and Down Syndrome

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Abstract

The main purpose of this research is to support students with disabilities, studying at the Multiple Attention Center No.8 (CAM No.8) in Nuevo Casas Grandes, Chihuahua, with a playful and friendly software. With help of this program, students can learn about the parts of the human body, as well as prevent and/or detect a possible sexual abuse. Currently, anyone is susceptible to sexual abuse, but people with disabilities are particularly vulnerable, since some of them are unfamiliar or do not know how the parts of the human body are called, which are crucial topics. Nowadays, educational software has come onto the market to help children, young people and even adults to learn in an interactive and dynamic way. Therefore, the purpose of the software is for students with disabilities such as Down syndrome and intellectual disability to learn to distinguish, relate, memorize, observe, explore, and identify the parts of the human body. In the software development, Java was used for programming and MySQL as the database manager.

Keywords: CAM; Disability; Java; MySQL; Scrum

Introduction

Despite not being widely publicized, sexual abuse against vulnerable people exists in our country and around the world. Among the different types of vulnerability, we will focus on a sector rarely attended by the authorities: children and young people with one or more disabilities. Unfortunately, this sector of society does not receive much attention, especially in terms of their learning, health, safety and well-being. In order for these children to be aware of what is happening around them and be able to identify sexual harassment and abuse immediately, they must be given special attention and care. There is no doubt that sexual abuse is a sad reality, and the fact that it is much more prevalent in people with intellectual disabilities, including those with Down syndrome, requires special attention [1].

Therefore, it is necessary to look for alternatives to adequately support these children, and it is important to consider that ICT´s allows us to provide academic strategies in the classroom as well as solutions when students present difficulties, such as physical access to education, deficiencies in the learning process, disabilities, among others [2]. Educational software is also an essential tool for the development of teaching-learning processes in this century [3,4]. In general, educational software (ES) is defined as applications or computer programs that facilitate teaching and learning.

The use of ICT in people with disabilities has become increasingly recognized as beneficial because it can enhance the individual's knowledge and development. As a result, the research

aims to develop a software that can help prevent a possible case of sexual abuse among students of the Cam No. 8 job training group and, if it occurs, let the appropriate authorities intervene promptly.

Materials and Methods

The students from the Computer Systems Engineering program at the Instituto Tecnológico Superior de Nuevo Casas Grandes that worked on this project are: Luisa Fernanda Sandoval Chávez and Aneth Guadalupe Ochoa Lozano.

This project was developed using the scrum methodology, in which partial and regular deliveries of the final product are made, prioritized by their benefit to the client.

This approach works well in complex environments, where results need to be obtained quickly and requirements are constantly changing, or are poorly defined, making innovation, competitiveness, flexibility, and productivity essential [5-8]. The activities carried out are presented below.

Sprint or iteration planning

Surveys were conducted at this stage to determine the needs of the students at CAM No. 8. By doing so, we had a clear understanding of functionalities, goals, sprint risks, delivery deadlines, among others.

Subsequently, work meetings were held with those involved in the project to explain how each point of the interval would be developed and schedule activities, as well to identify those responsible for each activity. At this point, some changes, decision, improvements and other factors proposed by the client were evaluated.

A specific analysis was then conducted based on the needs of children and young people with intellectual disabilities and Down syndrome in the job training group. It was made through surveys, with the purpose of guiding the structure and design of the program, as well as getting information about topics of interest that may need to be implemented in the software. The viability of the project was also tested by carrying out an analysis of technical, operational and economic feasibility, in order to identify the school's computer equipment for better implementation of the software. Accordingly, a system proposal was developed and approved by the group teacher.

Development stage

Use case diagrams, activity diagrams and sequence diagrams were developed to capture the system and show it to the client, aiming to ensure that no last-minute changes would affect its purpose in addition, to ensure compliance with the deadlines established for its completion.

Subsequently, the MySQL database manager was developed to manage and manipulate the data software using its structure and design. In the next stage, the program's logical and didactic operation was developed and validated.

Sprint review

Tests and their respective debugging were carried out; collaboration and feedback among all were also encouraged. The following points were included: collaboration between teams, external analyses were admitted as a form of complementation, review what was developed, revisions, etc. Along with performing the necessary tests and debugging to ensure the software was working correctly.

Feedback

The progress of the project and its final delivery were presented. Both project members and clients provided feedback on the results, which were adjusted accordingly. Consequently, customer feedback improved the next sprint's effectiveness and efficiency. Lastly, the software was installed and the users were trained.

Results and Discussion

In addition to being a support tool for teachers, the software reinforces what is taught in class, with content (audios, videos, games, and images) especially designed to meet the needs of people with intellectual disabilities and Down syndrome, taking into account, colors, size and font, audio and most importantly, that the content of images and videos are appropriate for them. With the games included in the software, students will have a better learning experience, since the program has been designed to be pleasant and easy to use, as well as providing audio and written instructions for all activities.

Two different sessions can be used to access the system, one for the teacher and the other for the student.

Figure 1: Login.

The system consists of 4 modules: body knowledge, pleasant and unpleasant caresses, people of trust and mistrust, as well as reports. There are 3 activities to develop in each module, each with an explanation video.

Figure 2: Body Awareness Menu.

In the first module, for instance we have body knowledge, which includes an explanation video and three activities to complete, where student put together, puzzles about boy's and girl's body parts, in order to learn the correct names of each one.

The second module deals with the appropriate caresses that a student can receive, who can touch him, on what part of their body and who cannot do it for any reason.

As part of this activity, the student will drag the image of a kiss and place on in the areas of the body in the image presented, where the person can receive a kiss if trusted. Another activity, involves placing a small hand and dragging it on parts of the body where they can touch be touched, such as the shoulder, the head, etc.

Figure 3: Menu of pleasant and unpleasant caresses.

By participating in the activities of the third module, the student will determine who is trustworthy and who is not, based on a previously presented video.

Figure 4: Trusted and distrusted people.

Lastly, there is the report module which can only be accessed from the teacher's session. In each interaction with the software, information about the activities is registered in the database. These records will be displayed in an Excel report generated by the system.

Figure 5: Excel report.

Conclusion

Sex education is a sensitive issue to address, especially for children and young people with certain disabilities. This system will help students in the job training group, learn in a dynamic and fun way to identify the male and female body parts, differentiate between pleasant and unpleasant caresses, and to recognize which are trustworthy people and which are not.

The system will also provide reports on the results obtained from activities. A significant benefit of this approach is that, based on generated results, if any of the students are in an inappropriate or risky situation, the teacher will be able to channel them with the appropriate people to investigate, in a more detailed and professional manner.

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Conflict of Interest

There is no financial or conflict of interest.

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