LEARNING AND TEACHING INNOVATION FOR STUDENTS WITH SPECIAL EDUCATION NEEDS

Worapan Kusakunniran

ABSTRACT

People with visual impairment have faced many types of barriers which restrict them from being a part in society. Therefore, it is important to make them have opportunities in education as similar to a normal person as possible. Learning on topics of graphs and equations in mathematics is important example of main difficulties in education of visually impaired people. This is because, learners need to see graphs to get understanding on the topics. Interestingly, the technology can play a significant role to support them to get through such limitation. Thus, this work is to present a developed Braille Graph Builder program which can support both visually impaired students and instructors to have a better experience in teaching and learning graphs and equations. Visually impaired instructors can use this program to create teaching materials (i.e. braille graphs), which will be later on used by visually impaired students in a class. The program is developed by using Java language under Window platform. The text-to-speech is employed to speak out all working processes during the program usage, in order to facilitate the visually impaired users. Then, they can check the correctness of the constructed graphs by asking the program to speak out the graphs' descriptions and/or to generate the sound presenting the curve of each graph at different frequencies. Later, the users can print out graphs in the braille format to be used in teaching/studying the mathematical subject.

Keywords: blind, visual impairment, braille, graph, mathematics, printer, software