ABSTRACT

Assistive Technology for persons with visual impairment is of the recent research field in the Indian Context. Assistive technology research is gaining prominence due to the explosion of new interest in the field from various disciplines. Students with visual impairment face many challenges to understand directional and spatial concepts due to their visual orientation. This study aimed at developing computer assisted Cartesian plane to enhance graph skills of students with visual impairment. The study focuses on designing a software-based Cartesian plane to perform Plotting and Finding Points on the Cartesian Plane. The study had two stages: 1. Developing Computer Assisted Cartesian Plane and 2. Studying the efficacy of Computer Assisted Cartesian Plane by introducing it to the students with visual impairment to perform various Graph concepts for rating the efficiency of the newly developed Computer Assisted Cartesian Plane, Special Teachers, and Student Teachers were involved.

The entire Computer Assisted Cartesian Plane system is divided into two modules namely *Plotting Points* and *Finding Points*. Further, each of these modules has three modes viz, Learning, Practice, and Evaluation. As mentioned earlier, the modules are developed individually and clubbed together finally to make the system a single unit. After the development of the Computer Assisted Cartesian Plane, its efficacy was analysed with the introduction of the software to students with visual impairment.

The results reveal that Computer Assisted Cartesian Plane was error-free and the audio and the video output of the programme are accessible to students with Visual impairment to learn graph concepts independently.

The results indicate that students with Visual impairment were able to Plot and Find points on the Cartesian Plane independently after orientation in the Tactile-based Cartesian Plane. This study stands as evidence that students with visual impairment not only learn graphs but they draw graphs independently when the right tools are provided. Thus Assistive technology for the education of students with visual impairment is expected to grow at a swift pace and impact the education and lives of the individuals with visual impairment.