National Institute of Technology Rourkela

Defence Seminar

Seminar Title	: Design and Evaluation of a Kinesthetic Digital Game for English Alphabet Training
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Venue	: CAD Lab., Industrial Design Department
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Abstract	: Alphabet training of primary school students is an essential, but challenging activity. Alphabet knowledge is an important fundamental literacy skill which has been found to directly impact the future academic success of students. Game-based learning and the use of multimodal engagement activities have been found to be effective intervention strategies in successful alphabet training programmes. In this study, a Kinect based digital Catcher Game - I was developed for English alphabet training of primary school students in government primary schools in Rourkela, Odisha. For a duration of 4-weeks, a control group (CG) consisting of 41 class-III students received traditional classroom training for 60- minutes each day. During the same period, an intervention group (IG) consisting of 45 class-III students was trained for 30-minutes in the traditional class and using a Catcher Game &ndash I session for another 30-minutes. The alphabet knowledge performances of the two groups were compared before and after the game-based training intervention. During the pre-test, no statistically significant differences were observed in the alphabet knowledge performance of the CG and IG. In the post-intervention evaluation, the IG students performed significantly better than the CG. During their post-intervention feedback, most of the IG students and teachers talked favorably about the use of Catcher Game &ndash I intervention and attributed the significant improvement in IG performance to this intervention. Post-intervention, the teachers also reported a significant improvement in the motivation and engagement among the IG students during regular classroom sessions. Later, the Catcher Game - I was further updated to train the players using a multisensory training approach. This involved the use of visual picture mnemonics (using the first letter of the object spelling) as well as the sound of the letter name. This updated version was named Catcher Game - II. Again, the impact of the new kinesthetic digital game on the alphabet knowledge performance was assessed. Also, the classroom engagement of primary school students was assessed. 111-Primary school students were randomly assigned to one of the two treatment groups (CG and IG) and received English alphabet training at the primary school for 6-weeks. In the CG, the students received English alphabet training using the traditional teaching methods for 60-minutes daily. In the IG, the students were daily trained using the traditional method as well as a kinesthetic digital game for 30-minutes each. The student alphabet knowledge performances were measured using - (1) letter name accuracy in isolation, (2) letter name fluency in isolation, (3) letter name accuracy in word context, and (4) paired associate learning. The extent of student engagement was recorded and compared during training. Within-group comparisons were made for the pre-test and post-test data. Also, between-group comparisons were made between the CG and IG. It was found that the students from both the groups achieved improvements in their performances from the pre to the post test phase. Improvements were also observed in the session engagement from the pre-test stage to the post-test stage. However, the IG students demonstrated a statistically significant higher mean score gain than CG students in their alphabet knowledge performance as well as in the session engagement.