

The Effectiveness of Adaptive Difficulty Adjustment in Touch Tablet App on Young Children's Spatial Problem Solving Development

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Abstract : Using tablet apps with a certain educational purpose to promote young children's cognitive development, is quite common now. Developing an educational app on an Ipad like tablet, especially for a young child (age 3-5) requires an optimal level of challenge to continuously attract children's attention and obtain an educational effect. Adaptive difficulty adjustment, which could dynamically set the difficulty in the challenge according to children's performance, seems to be a good solution. Since space concept plays an important role in young children's cognitive development, we made an experimental comparison in a French kindergarten between one group of 23 children using an educational app 'Debout Ludo' with adaptive difficulty settings and another group of 20 children using the previous version of 'Debout Ludo' with a classic incremental difficulty adjustment. The experiment results of spatial problem solving indicated that a significantly higher learning outcome was acquired by the young children who used the adaptive version of the app.

Keywords : adaptive difficulty, spatial problem solving, tactile tablet, young children

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