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## **ITRA 8<sup>th</sup> World Conference**

**Category:** Toys, education, health and environment

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### **DESIGNING TOYS FOR CHILDREN WITH CEREBRAL PALSY**

This study presents an investigation into designing toys for encouraging peer-to-peer social interactions of children with cerebral palsy as a part of developing their social competence. The focus is on developing a new model of, and guidelines for designing toys for engaging children in peer interactions during play sessions. According to the statistics of the National Health Service, it is estimated that near 1800 children are diagnosed with cerebral palsy every year in the UK (NHS 2016). It is recognised that these children often have reduced social engagement, yet socialization plays a fundamental role in children's development. In spite of this need, there are few toys specifically developed for children with cerebral palsy, and even fewer which support peer socialisation.

We offer a new model for toy design to guide designers in creating toys for the development of the social competence of children with cerebral palsy. Here the designer's task shifts to constructing semiotic content that can trigger cognitive, emotional and physical processes of children to encourage aspiration to interact with the designed objects and to build social interactions through these objects. This allows children to take the initiative and to think beyond the immediate interaction with an object. Toys should trigger interactions between children not only around itself but by means of itself.

Based on this model, design guidelines have been developed, integrating two interrelated sets of indicators. The first set pertains to the design position and comprises child friendly design criteria. The second pertains to the social purpose, comprising indicators of social competence, such as social skills and self-confidence. Based on the guidelines, a number of design ideas were developed, using ideation, intuitive hand sketching and brainstorming.

The research is interdisciplinary and steered by a social perspective on disability. It combines theoretical investigation with design practice within an action research approach. A child-centred design approach was applied with adaptation for purposes of the study. Observations of children with cerebral palsy and interviews with their parents are employed for collecting data about children's social interactions before and after the design intervention in order to determine the effectiveness of the suggested model.

The study provides new understandings of designing toys for the development of social competence for children with cerebral palsy and provides a set of design guidelines for this specialist toys.