

Summary

In this project, research and design was done for the company TjuTjo, who collaborates with companies in the Czech republic and Slovakia, where their products are produced. The aim of the project was to develop a wooden toy for children with a disability.

Children with a disability is a target group which needed to be specified more. Therefore, analysis was done into types of disabilities, TjuTjo, toys, wooden toys and toys for disabled children. From that, collages were made and it was decided to focus on physical disabilities. This was chosen because it could take advantage of the tactile aspects of wood, so a wooden toy could be made, instead of a toy that happens to be made from wood.

Physical disability is still too general of a target group, which means that more research was done in types of disabilities, but also into literature about toys and physical impairments. From that, the decision was made to focus on cerebral palsy, as a lot of literature focused on it, and a type of therapy called the piratengroep was perfect as a group to develop a toy for. Cerebral palsy is caused by damage in the brain, for example by a brain haemorrhage. People with cerebral palsy have diminished control over part of their muscles, often because of a high tension in them. An interview with a physiotherapist was also conducted, which resulted in more background information about the disability. For example, an important aspect was the gross motor function classification system (GMFCS) and the manual ability classification system (MACS), which are both scales to determine the abilities of a child with cerebral palsy. Specific research into cerebral palsy gave even more information about it, including the fact that some children have unilateral or bilateral cerebral palsy. Unilateral means on one side of the body, and bilateral means on both sides (Schieving, 2022). The piratengroep is a therapy types where children with unilateral cerebral palsy pretend to be pirates who injured their unaffected hand (Roessingh, n.d).. This hand is put into a sling, which means they need to do all pirate activities with their hand with cerebral palsy. This trains the children to do daily activities. The initial plan was to do codesign activities with these children, but there was some difficulty getting into contact with people. Therefore, there was only one evaluation meeting after the design phase with an occupational therapist who works at a piratengroep.

From all this information a design was to be made. First, the requirements were set up, such as that the product should help children train their motor skills. The production techniques were analysed, and exploration into pirates and possible interaction movements was done. After that, the ideation phase could start, which ended up in four concepts. These were compared to each other using the requirements, after which the choice was made for a ship with blocks that can be lifted using hooks. The blocks have ropes attached

to them, and the child uses a hook to lift them. In the realisation phase, the product got the additional functionality of being able to be turned into a box, using the lid as a sail. A stack of cards were added, to show challenges that the child could do with the box. To accommodate this, the ropes on the blocks, the hooks, and the sides of the box are coloured to have 2 types of blocks. From this a prototype was made, which was used to optimise certain aspects.

The prototype was also evaluated in a discussion with an occupational therapist from the piratengroep. She was positive about the product, as most movements that are trained at the piratengroep were incorporated into the product. If it were used in the piratengroep, a competitive aspect could be added to make it a two player game.

In conclusion, the product did reach its goal. However, tests with the children themselves needs to be done, as well as further development to make it a producible product.

