

# INCLUSIVE PLAY

## How children with developmental disabilities play

This white-paper shows research of Yalp on how children with developmental disabilities play. This white-paper contains summaries of results of literature and our own research. The entire research and sources are available upon request.

31%

There are 1 million wheelchair users worldwide. 31% of the wheelchair users is under the age of 44.

(US Dept of Health)

15%

15% of children aged 3-17 years have one or more developmental disabilities.

(Center for disease control and prevention)

15%

15% of the world's population lives with a type of disability, of whom 4% experience significant difficulties in functioning.

(World Health Organisation)

## THERE ARE MORE THAN A BILLION PEOPLE WITH A DISABILITY GLOBALLY

Having a disability places you in the world's largest minority group. Over a billion people live with a type of disability. Between 110-190 million adults have significant difficulties in functioning. (World Health Organization, 2011)

Recent estimates in the United States by the "Centers for disease control and prevention" show that about 15% of children aged 3-17 years have one or more developmental disabilities.

- o ADHD,
- o autism spectrum disorder,
- o cerebral palsy,
- o hearing loss,
- o emotional disturbance,
- o intellectual disability,
- o learning disability,
- o vision impairment,
- o and other developmental disabilities

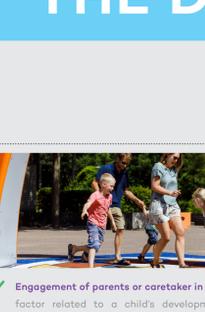
## THE CURRENT SITUATION

- ✗ Most playgrounds are usually focused on just one disability
- ✗ Children with disabilities face many hurdles in society, which affects them socially
- ✗ Communication and language barriers prevent many children with disabilities to join in, which leads to isolation

- ✗ There's less involvement for parents in current inclusive playgrounds, it's solely focused on children
- ✗ There is a lack of play equipment that enhances physical, emotional and social development, regardless their age or ability

We have seen that the group with special needs or disabilities is most neglected in playground design. Most inclusive play spaces are often stigmatized or not interesting. Inclusion means that everyone regardless of background, age, gender, and ability should have the same opportunities in life.

### ✗ EXCLUSION



### ✗ SEGREGATION



### ✗ INTEGRATION



### ✓ INCLUSION



## THE DO'S

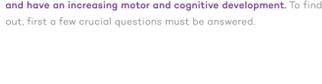
## AND DON'TS



✓ **Engagement of parents or caretaker in play.** This is a critical factor related to a child's development on a physical, emotional and social level.

✓ **Offer a structured form of play.** Structured play provides children with opportunities to develop abilities and experience achievement, which motivates them to seek new challenges and develop more advanced skills.

✓ **Provide an interesting and challenging playing environment with various sensory triggers.** Sensory experiences enhance intrinsic motivation, which is thought to be associated with a child's overall well-being and is a key point of play in children's development.



✗ **Directing children's play.** This may reduce their desire to play and acquire skills independently.

✗ **Lack in providing sensory stimuli.** Several studies suggest that children with developmental disabilities often struggle with decreased motivation to interact with objects in the context of play. Audio/visual elements are an important contribution in sensory play.

**A challenge is to find the right balance between structured play and free play, so that they are naturally motivated in their play and have an increasing motor and cognitive development.** To find out, first a few crucial questions must be answered.

## QUESTION 1

### DO CHILDREN WITH DEVELOPMENTAL PROBLEMS HAVE THE SAME MOTIVATION DURING PLAY?

Research of Glenn (2001) points out that **some parents underestimate their children's abilities**, even though they're just as strongly motivated as any other kid. Not surprisingly, these parents were more controlling of their play interactions than parents of normally developed children, because they believed their children

lacked an internal desire to play. **Children with developmental disabilities can show the same strong motivation to achieve in play as normal children do**, as long as the play is commensurate with their levels of ability (Smidt and Cress, 2007).

## QUESTION 2

### HOW DOES STRUCTURED PLAY HELP CHILDREN IN DEVELOPING SKILLS?

Structured play helps children with developmental problems in **developing more advanced communication skills**. Structured play is not the same as controlling the child's play. Cress (2007) investigated the differences in engagement patterns of young children with developmental disabilities between structured and free play. They found that these children **demonstrated significantly more complex engagement behaviours in structured play than in free play**, including coordinated joint attention.

An example of structured play, a researcher passed the game after a child preferred a certain toy and continued the play with feedback through touch if the child repeated its behavior. This way the researcher reinforced the child's attention. Other studies also concluded that **children with developmental disabilities took a more active role and initiated more communicative behaviours during structured play** with researchers versus free play.

Children with developmental disabilities often have difficulty with joint attention that can affect their cognitive abilities. (Arens et al, 2005). The quality of joint attention between children with disabilities and their parents has a positive impact on the development of their cognitive abilities. Through joint attention the children learn to understand social interaction. (Arens et al, 2005).

## INTRINSIC MOTIVATION IS ASSOCIATED WITH A CHILD'S WELL-BEING

## QUESTION 3

### WHAT PHASES DOES A CHILD WITH DEVELOPMENTAL DISABILITIES GO THROUGH DURING PLAY?

#### 1) EXPLORATION

This phase arises from an inherent interest in the environment (Reilly, 1974). **Intrinsic motivation** provides a child through the phase of exploration and sensory experiences to enhance their drive of natural self-desire. (Reilly, 1974). The sensory aspects of the environment often provide the foundation for play and may include features of the physical and social environment. Some examples of these aspects include lighting, available objects and the presence of others (i.e., people or animals).

#### 2) COMPETENCY

As children move beyond exploring their environment, they are **naturally drawn to seek challenges**, meet the demands of a situation and produce effects in order to receive feedback (Reilly, 1974). This second phase, termed competency, may be observed when a child develops a preference for a certain play object and seeks to produce effects with the play object purposefully as well as repeatedly. Children who are operating in the phase of competency seek control of their environment and are active in pursuing their own agendas (Reilly, 1974).

#### 3) ACHIEVEMENT

When children begin to recognize the consequences of their behavior based on successes or failures, they move on to the **phase of achievement**. Achievement in play requires children to take risks and reflect on their skills (Reilly, 1974). A child in the achievement phase of play will **challenge his or her own abilities** and the amount of effort needed to bring about a desired outcome.

Coordinated joint involves 3-point gaze shifts. A 3-point gaze shift means that there is a three point attention shift between object-person-object and vice versa, for example: the child looks at the adult, then the object, and back at the adult.

The three phases of play development that Reilly identified have become the cornerstone of one of the most widely used occupational therapy models to explain human engagement in daily activities, which is the Model of Human Occupation (MOHO) (Lee, Taylor, Kielhofner, & Fisher, 2007).

**"Play brings feeling mastery, which motivates a child to seek new challenges and develop more advanced skills"**

Mary Reilly (1974) - Prominent leader in the field of occupational therapy

## 5 PILARS OF AN INCLUSIVE PLAY AREA

An inclusive play area is **easily accessible, well-organized and transparent**. If a site meets these requirements, the feeling of safety and the attraction to play will arise. The playground should be arranged in such a way that it attracts a broad target group and that everyone has access to it. In doing so, you take the utmost account of those with limited restricted motor skills, hearing impairment, visual impairment, depending on a device like a wheelchair or cane and learning disabilities.



**An inclusive play area rests on 5 pillars:**

**1. Accessibility**  
The play is accessible for wheelchair users and can be properly surveyed by children with autism or children with a hearing impairment. Visually impaired and children with hearing impairment find it also a relief to have landmarks to find their way within a playground.

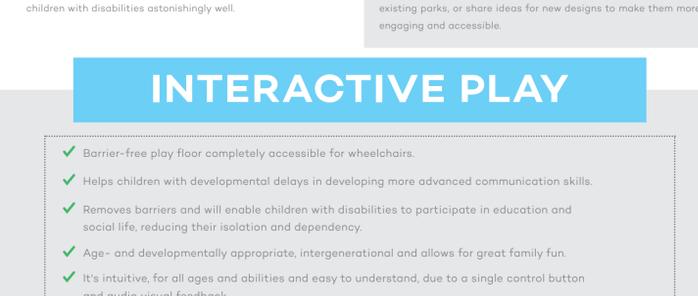
**2. Playability**  
A playable playground device contains sufficient resources to be able to use it regardless the ability or age. Respond to the sense of touch, sight and hearing, offer play value in each level. The playability can be enhanced by markings in colours and/or patterns and offering resting points.

**3. Liveliness**  
This can best be translated through diversity and functionality. If a play area is designed for disabled people only, they still feel isolated and different. That's why it is important to offer a variety of play value where both young and older children, boys and girls, regardless their ability can play together. A lively playground is a social gathering area for all.

**4. Meeting place**  
The aim must be to design the public space in such a way that, under the conditions set for that location, a maximum inclusion of the different target groups is achieved. A well thought-out design allows children to play along with their peers within their own physical possibilities, without being segregated, excluded or put aside in their own playing environment amidst the total playground.

**5. Fun**  
The points mentioned above result in the most important and often forgotten aspect: **FUN!** That is what it is all about. When you have fun you'll feel safe, radiate enthusiasm and feel confident, push boundaries and personal opportunities become visible.

## THE SOLUTION



**What if there was playground equipment that challenges all children, adults and seniors, regardless their ability?**

In 2006 we started developing our first interactive play equipment, the **Yalp Sona play arch**. Now we have a range of educational, fun outdoor interactive play products that have been specially designed to stimulate and entice people of all ages and abilities.

The Yalp interactive products have **no barriers** are **all inclusive** and meet the needs of everyone. We strive to create completely unique sports- and playgrounds that define a play space, embracing the true meaning of inclusion.

In over a decade we've realised more than 680 play areas worldwide. In various projects we've seen that our products suit the needs of children with disabilities astonishingly well.

With **over 10 years of experience** in product and play area design we are able to give practical advice, help identify possibilities to existing parks, or share ideas for new designs to make them more engaging and accessible.

## INTERACTIVE PLAY

- ✓ Barrier-free play floor completely accessible for wheelchairs.
- ✓ Helps children with developmental delays in developing more advanced communication skills.
- ✓ Removes barriers and will enable children with disabilities to participate in education and social life, reducing their isolation and dependency.
- ✓ Age- and developmentally appropriate, intergenerational and allows for great family fun.
- ✓ It's intuitive, for all ages and abilities and easy to understand, due to a single control button and audio visual feedback.

## VIEW VIDEO



## PRACTICAL RESEARCH

One of the aims of the Yalp interactive play sets is to enhance free play for children and not control what children have to do. I.e. Yalp Sona has a game called **Freeze** where children have to move around while music is playing. When the music stops, they have to **Freeze**. The child that moved will hear "number 3 is out" instead of "number 3 is out". The children themselves can decide what to do: will the child be out or get an extra life? etc.

So, we needed to find out to what extent children with developmental disabilities are motivated and take an active role in the current games on the interactive play sets. And, if the play is not too free and the child's attention needs more structure by the play sets.

**To keep up the pace, the child gets feedback on his actions.** For normal developing children this feedback is good to keep their attention. The literature suggests that children with developmental disabilities demonstrate significantly more engagement in structured play than in free play (Cress 2007, Iacono 1996, Salmeron, 1998). This intrinsic motivation is a condition for any child to explore their environment (phase 1 of Reilly), seek challenges, meet the demands of a situation, and produce effects in order to receive feedback (phase 2 of Reilly) and lastly, to take risks and reflect on their skills (phase 3 of Reilly). Play brings feelings of mastery when a child confronts

conflict in these hierarchical stages. Important for the further development of children is to find the right balance between free and structured play for children with developmental disabilities, while not over directing play, which reduces their desire to play (Smidt and Cress, 2007).

This has led to a practical research in which:

- The quantitative popularity of current games is investigated.
- Interviews with educational professionals are conducted.
- Observations are done at the locations mentioned below.

## RESEARCH LOCATIONS

### REVALIDATION CENTRE "ROESSINGH" IN ENSCHEDE - THE NETHERLANDS

Rehabilitation centre Roessingh is specialized in rehabilitation treatment and care, for both adults and children. They have treatment programs for various diagnostic groups, from light to heavy, visible and nonvisible. The largest group of clients are diagnosed with CVA (stroke). They have special treatments for pain, high paraplegia and clinical rehabilitation for children.

**Core values:** Innovative - thoughtful - together.

**Installation date interactive:** 2011-05-04

### SCHOOL FOR CHILDREN WITH LEARNING AND DEVELOPMENTAL DISABILITIES "DE BEYAERT" IN HENGLO - THE NETHERLANDS

Sg. Beyaert is a school for children who cannot attend a regular primary school, because of learning and developmental delays. They teach children from 4 to 12 years. The school uses the same methods as a regular primary school, but in smaller groups and with more time. All teachers obtained a 'Specialist Teacher degree' after their primary education. In addition to learning, well-being is a key social point as well.

**Core values:** Students can learn from their own positive strength - Besides knowledge of language, math and reading, another important vocal point is the socio-emotional development.

**Installation date interactive:** 2008-10-03

### CENTRE FOR CHILDREN WITH A DEVELOPMENTAL DELAY, LEARNING OR MULTIPLE DISABILITIES "DE IEMENKORF" - THE NETHERLANDS

The Iemenkorf is a day centre (KDC) for children with a developmental delay and for children 2 to 16 years with learning or multiple disabilities. The Iemenkorf is part of the Twintee Zorgcentra (Health centres), which has around 1900 clients, 2400 employees and 600 volunteers. The Iemenkorf has different groups young and old: hearing and vision impaired children and children with more severe mental disabilities.

**Core values:** Close-by - simplicity - professional - without taking over the control.

**Installation date interactive:** 2016-01-15

## RESULTS

Interviews with educational staff from the above locations revealed some **desirable adjustments, such as an adjusted volume, game rate and game skill levels to better suit the target group**. The desired adjustments have been made on the spot. The volume of the device is adjusted and the games that best suit the level and needs of the children uploaded.

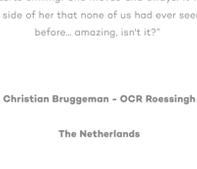
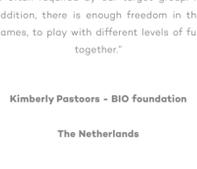
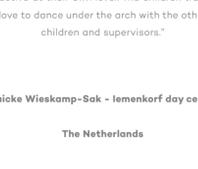
The Yalp interactives are **connected to the internet**. Therefore Yalp or the product owner them self is able to alter settings remotely by using any kind of device with internet connection (mobile phone, tablet or computer). Volume settings, on/off times and games can be changed. Your personal login also gives access to **advanced product user statistics** which can be monitored live to see how well the product is played and which game is most popular.

After the changes made, a time frame was put in place to compare statistics from the same month a year ago. This has resulted in an increase in the number of playing hours as shown in the graphs below.



- ✓ Games & volume levels can be adjusted
- ✓ Wide range of games with difficulty levels
- ✓ Varying challenges for all ages and abilities
- ✓ Online connected for game updates and monitoring
- ✓ Equipment gives audio visual feedback
- ✓ High tech equipment for outdoor use

## REFERENCES



"The Yalp Sona is of great success with the children at our day centre and due to the different games and music types suitable for all. The play arch invites everyone to be active at their own level. The children truly love to dance under the arch with the other children and supervisors."

"The Yalp Sona is accessible to everyone. The play arch does not distinguish between players and all children can play together. The Sona games offer structure, which is often required by our target group. In addition, there is enough freedom in the games, to play with different levels of fun together."

"The Sona play arch is a real success! One of our students usually shows no emotion at all, but when she plays underneath the Sona, she immediately feels better and starts smiling! She moves and sways. It is a side of her that none of us had ever seen before... amazing, isn't it?"

Maïcke Wieskamp-Sak - Iemenkorf day center

Kimberly Pastoors - BIO foundation

Christian Bruggeman - OCR Roessingh

The Netherlands

The Netherlands

The Netherlands