

# **The World Game Test as a Diagnostic Tool for Children with Reading Disabilities**

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The research described below offers the hypothesis that the World Game has an added value for the diagnosis of young children with developmental disorders.

The World Game has been used in clinical practice for a long time. Many authors have treated this specific method of testing children from different perspectives. In general, one may say that data from playing behaviour or playing results are being used to gain insight into the functioning of the child and to trace possible problems. In the past the basis on which the World Game was implemented and interpreted was insufficiently standardised and scientifically unsound and biased.

The World Play has been a research topic at the Free University of Brussels for many years. In 1997 a standardisation research project was set up in order to provide the World Play, as a diagnostic tool, with a sound scientific basis. The objective is to study relationships between play behaviour and play patterns on the one hand and cognitive, behavioural and emotional variables on the other hand. Through empirical analyses, we try to find as many play characteristics as possible that can give direction to the psychological assessment of young children. Furthermore we want to establish the specificity of this information in terms of differentially diagnostic leads for specific disorders, such as reading disorders.

To investigate these questions a number of clinical groups are composed consisting of young children with serious developmental problems.

In this article the results of an experimental group of children with reading disabilities will be compared with norm data of children from corresponding age groups. Furthermore we will introduce some diagnostic leads when using the World Game Test with children with reading problems.

## **INTRODUCTION**

When a child at school does not function properly and shows learning difficulties, we are confronted with a complex task. Conventional tests usually reveal only one particular aspect of the child, whereas serious learning disabilities often involve several, complex factors. Those factors include cognitive skills, linguistic, motor and social development as well as more emotional elements. Moreover, we need to take into account that these developmental disorders are part of the child's overall social and family situation. "Typically in young children the various lines of development are interwoven. The process of behavioural differentiation is in full swing. Disorders in one particular development area immediately affect other lines of development. Especially with young children lines of development intersect and cognitive skills are embedded in a broader framework" (Couturier, 1999).

Also, the way these developmental aspects are assessed in conventional tests may cause problems for children with developmental disorders. Some children are not able to complete the assignments because they don't understand the verbal instructions. Consequently, the outcome is largely limited to the child's verbal skills and is of little use when exploring other cognitive aspects – let alone when trying to understand emotional problems. Emotions and frustrations are very diffuse and hard to put into words, especially with young children. Interviewing children is also difficult because of their limited introspective capacity and their susceptibility to suggestion (Kamp, 1947). Furthermore we depend on parents, teachers and other relevant informants to get a clear picture of the problem.

In view of these considerations, the Free University of Brussels (Department of Developmental and Lifespan Psychology) started a research project into the World Game as an alternative research technique for the assessment of young children with developmental disorders.

## THE WORLD GAME

The World Game is a psychological assessment technique which has already been used for a long time with young children. The concept 'World Game' is a collective term for a range of play techniques in which miniature play components are used. In practice the child is asked to build a village or a world with miniature toys. The playing behaviour and the result of the game contribute to help us understand the way the child functions and may indicate potential problems.

When testing young children, the World Game has a number of advantages. To start with, it is a non-verbal technique. Although a verbal assignment is actually administered, the material speaks for itself. Even children who don't understand the concept of a "village" build something. Eventually, we end up with information we probably would not have managed to gather with other techniques. Secondly, the child does not perceive the assignment as a test. For the child it is a game, which makes the participation threshold very low. Especially the first time, when a child needs more reassurance than words can give, the World Game is an excellent start for a diagnostic investigation.

The World Game is also different in the sense that the information obtained is holistic. The task the child is to perform is a cognitive one, but the components of the task (houses, people, animals, fences....) also have emotional aspects. It elicits behavioural and motor as well as cognitive aspects. This results in information not only about those specific domains, but also about the interaction between them.

Finally, we think that The World Game can put us on the right track with regard to the diagnostic process after a relatively short amount of time. While other tests often explore very specific domains, the World Game can shed new light on the problems. It rather tells us what is potentially present than what is not present. It can be a starting point for further investigation and treatment.

## THEORETICAL MODELS

The World Game has been used in clinical practice since the 1920's. The play material was used in diagnosing children and also in personality assessment of adults. The origin of the World Game can be situated in the mental framework of psychodynamics which perceives the child's play parallel to the adult's dream.

The World Game has given rise to two major patterns of thought. In a first phase, from the onset of the 1920's till the 1940's, mostly Austrian and Anglo-Saxon researchers concentrated on this technique. These include M. Löwenfeld (1920's) – World Apparatus; M. Klein (1920's) – Jeu du Monde; Ch. Bühler (1930's) – World Test; H. Bolgar and L. Fischer (1930's): The Toy Test; and G. von Staabs (1940's) – Scenotest. From the 1940's to the 1960's, the French followed: H. Arthus (1940's) – Le test du Village; P. Mabile (1950's) – Le test du Village; and R. Muchielli (1960's) – Le Test du Village Imaginaire. In the 1950's the Dutch N. Ojemann started researching The World Game.

### Gerhild von Staabs' 'Scenotest'

The 'Scenotest' evolved in the late 1930's from von Staabs' work with neglected children and children with educational disorders.

Von Staab describes the 'Scenotest' as "A contribution to understanding the psychological attitude of test subjects towards people and things in the world, especially with regard to their affective lives and particularly taking into account depth psychological factors. Apart from that the test contributes to the formation of an image of the test subject's total personality structure, his essential being, his talents, conscious propensities and character features." (von Staabs, 1964). The processing is purely qualitative and the author interprets the World Game from a psychoanalytical background.

### Charlotte Bühler's 'World Test'

Bühler's assumptions are more humanistic. She uses the test to assess behaviour and intelligence and to make a projection of the test subject (Ojemann, 1966). Bühler's approach is important in its recognition of standardisation and validation. From a series of comparative investigations with groups of normal children, children with language disorders, emotionally disturbed and intellectually retarded children, she deduced a number of clinical symptoms. Taking into account age standards, one can use these symptoms for a psycho-diagnostic indication.

## ***Signs***

Sign A: the aggressive world – A1: fighting soldiers; A2: the presence of biting or wild animals; A3: accidents.

Sign E: ‘emotion’ – the empty world – E1: less than 50 elements; E2: absence of persons (not a single person, children only, soldiers and policemen only).

Sign CDR: the distorted world (closed, disorganised, rigid): CDR1: the closed world (several small, closed off sections; a totally or almost totally closed off world); CDR2: the disorganised world (inadequately positioned elements; non-interrelated elements; chaos in the total result or in groups of elements; chaos in the total result or in groups of elements); CDR3: the rigid world (schematic constructions (exaggerated arrangement); ranking in rows of animals and characters or objects).

## ***Symptoms***

Bühler considers A, E and CDR-signs as symptoms of emotional problems – mental or emotional retardation. Only from two signs onwards, including one CDR, should one consider a disorder to be serious.

With the interpretation of the signs and the worlds constructed, Bühler uses what we could call ‘analogous interpretations’, reverting to the depth psychological pattern of thought. The use of few elements or categories is considered to be indicative of a restricted world, possibly linked to opposition, blockages or traumatic experiences.

The use of policemen and soldiers (only) would indicate hidden aggression. A-signs in a first test would indicate more outspoken aggression, whereas in following tests A-signs are present with the majority of children. Rather than A or E-signs, the CDR-signs indicate deep emotional disorders. C-signs, hedges, can be used to fence in dangerous objects or objects with which the testee identifies. Starting with fences can point out an unusual need for protection. Disorganisation (D) is linked to confusion and the disintegration of the personality structure. Absurdities may be representative of an unrealistic or fantasy world, or of phobias and hidden desires. Rigidity (R) is considered as a serious sign of emotional disorders and as an indication of obsessive traits.

Phobias reveal themselves through disorganisation as well as rigidity. With mental retardation one often sees E1 and E2 (lack of creative imagination) and CDR-signs (mental inability to organize properly, rigidity).

Children with language problems show all signs except for E1 (seldom or never less than 50 elements).

Bühler was the first researcher to turn to the use of standardised material and a more or less standardised testing method. With her findings on signs as symptoms of emotional and mental disorders Bühler was also the first to present an ordered view on World Game constructions of children in relation to disorders. Also, she explicitly introduces age and development-related aspects.

## **Ojemann’s World Game**

In the Netherlands Ojemann started her inquiry into the World Game in the early part of the 1950’s. She focused on World Game constructions by dyslexic children. Ojemann links dyslexia to ‘image thinking’, a way of thinking in images and actions (as opposed to language thinking) incorporating a visual-spatial skill. This way of thinking is common with toddlers and pre-schoolers. Normally it disappears during primary school. But image thinkers keep this way of non-verbal thinking as a principal cognitive style, which often gets them into trouble at school where learning processes are primarily focused on linguistic, verbal thinking. For Ojemann image thinkers are high-risk pupils or students who are often dyslectic.

Ojemann presents the World Game as a paedo-diagnostic tool, an aid in the diagnosis of children whose learning process stagnates. For Ojemann the World Game can be used to formulate and test hypotheses in an individual educational investigation. Ojemann also discusses the emotional development aspects which can be expressed from the World Game. In that respect she primarily starts from Böhlers clinical symptoms without, however, indiscriminately copying them. Although “it certainly is not the

The clinical population comprises the following research groups: reading disorders and learning disorders; mental retardation; high ability; developmental retardation; child maltreatment; pervasive developmental disorders; ADHD; and conduct disorder.

### **The World Game Test as a Diagnostic Tool for Children with Reading Disabilities**

The research results presented here are related to the clinical group of children with dyslexia.

#### ***Method***

Based on the criteria put forward by the committee on dyslexia of the Health Council of the Netherlands (Gerson-Wolfensberger & Ruijsenaars, 1997), 48 dyslexic children between 8 and 10 years old were selected.

“Dyslexia is present when the automatization of word identification (reading) and/or word spelling does not develop or does so very incompletely or with great difficulty” (Gerson-Wolfensberger & Ruijsenaars, 1997: pp. 209).

This working definition means that dyslexia is characterised in practice by retardation in reading and spelling that is severe and persistent and resists the usual teaching methods and remedial efforts” (Gerson-Wolfensberger & Ruijsenaars, 1997: pp. 209).

In addition a control group of children was assembled through matching (according to age, intelligence and socio-economic status). In order to clearly separate the research group from the mentally retarded children, only children with an IQ higher than 70 were selected. The clinical group consists of 35 boys and 13 girls.

#### ***Results***

The following subsections describe significant characteristics during the building process (observation period)

*Verbalisations (t-test)*. Children with dyslexia talk more while building than children from the control group. The test procedure limits and even discourages communication by using standard answers. Still the children talk more during the test (d: 17.29% - c: 2.48% of the playing time,  $p = 0.00$ ). The verbalisations about the play in particular stand out. They address the test leader (d: 9.33% - c: 1.79% of the playing time,  $p = 0.00$ ), but even more striking are the verbalisations for or in themselves (d: 13.88% - c: 0.88% of the playing time,  $p = 0.00$ ).

Apparently many of the children with dyslexia put their playing behaviour into words during the game.

*Sorting (t-test)*. When children are sorting during the building process they collect game elements according to one characteristic e.g. shape, colour or category. So they make material clusters of at least 3 game elements. Sorting can be done in the hand or on the play table. The children from the dyslexia group sort significantly more than the ones from the control group (d: 12.40% - C: 6.69% of the playing time,  $p = 0.006$ ).

#### ***Significant Characteristics in the End Product***

*Use of elements (t-test)*. The analyses show that on average the group of dyslexic children use more elements than the control group (d: 89.94 - c: 74,  $p = 0.012$ ).

Not all the categories are used more by the dyslectic group. The following categories are used more often in the dyslexic group than in the control group: fences (d: 16.85 - c: 12.98,  $p = 0.006$ ); people (d: 8.63 - c: 5.79,  $p = 0.002$ ); Domestic animals (d: 12.31 - c: 8.85,  $p = 0.025$ ); and wild animals (d: 2.35 - c: 1.6,  $p = 0.038$ ).

*Stack building (Pearson Chi-Square)*. Here material is placed on top of other material. Stack building implies a minimum of three layers. This specific type of building occurred 17 times in the dyslexia group, while 7 children from the control group used this type of construction ( $p = 0.018$ ).

*Number of elements in the longest chain (coupling) (t-test)*. Coupling means placing building elements against or on top of other elements. In this way groups of elements are formed which stick together and which we call ‘couplings’ (d: 11.71 - c: 8.73,  $p = 0.021$ ).

those structures and processes. That analysis is mostly based on psychoanalytical and depth psychological theories.

Most authors share this approach to the World Game. Yet one could question this way of working and one should be aware of the many risks in this method of interpretation. For instance, there is the presumptive reasoning that is often used. e.g.: aggressive inclinations are often attributed to test subjects using elements with a so-called 'aggressive' nature (wild animals, soldiers and/or policemen). The child's perception, however, can be completely different. 'During our tests 6 and 7 year olds described policemen or soldiers as extremely friendly, intelligent or wise characters who were, moreover, perceived as protectors of the entire family' (Ponjaert-Kristoffersen, 1977).

Processing systems like these, using playing symbolism, can be criticised from a methodological viewpoint. For one thing this method gives rise to confusion between processing and interpretation and for another it can lead to unilateral diagnoses which are mainly intended to explain and motivate complaints by the environment. In this way they take little notice of criteria of the classical testing theory (Altmann-Herz, 1990).

## **RESEARCH AT THE FREE UNIVERSITY OF BRUSSELS**

The Department of Developmental and Lifespan Psychology of the Free University of Brussels has researched the World Game for several years.

### **Research Plan**

The actual research project opted not to start from a specific theoretical model. Using Ojemann's material, the processing is carried out through a list of (some 250) variables that can be rated objectively. Those were partly collected from criteria put forward in scientific literature, but new variables were added as well, based on what can be built with the material. No meaning is attributed to these variables. They are merely descriptive. The following phases led to the development of the World Game as an objective, scientifically substantiated diagnostic tool.

### **Standardisation of the World Game Material and Test Procedure**

#### ***Age-based Norm Tables***

Five hundred children between 5 and 10 years old were tested. These children were primary school pupils and did not have any obvious problems. Their schools were selected from all over Flanders and were equally distributed over the various school systems.

Apart from the information through the World Game, the following data were collected:

- Raven's Coloured Progressive Matrices or Standard Progressive Matrices
- CBCL-teacher form: questionnaire on behaviour
- Temperament questionnaire filled out by the parents
- List of family variables

Based on these data, age-corresponding norm tables are drawn up. We also looked for connections between playing behaviour and play results on the one hand and cognitive, behavioural and emotional components on the other hand. The processing of the results is currently going on.

#### ***Reliability***

From the norm group 250 children were retested to check the reliability of The World Game.

#### ***Longitudinal Investigation***

Longitudinal norm group data were collected. In that way 60 children from two different age categories (3rd year of pre-school and 2nd year of primary school) were followed over two years.

This research project is intended to see whether the World Game can offer differentially diagnostic leads for the diagnosis of young developmentally disturbed children.

Therefore the research focuses on finding playing characteristics that are specific to groups of children with similar problems. The test results will be compared to the norm group.

*Formation of houses (Pearson Chi-Square).* In the dyslectic group more children put all their houses against each other, so the houses stick together. In the dyslexic group this occurred 7 times, in the control group it didn't occur ( $p = 0.012$ ).

*Sorted juxtaposition (Pearson Chi-Square).* Juxtaposing is a specific way of positioning game elements. They are positioned at more or less equal distances and form groups of at least 5 elements. With sorted juxtaposition these elements are arranged according to shape, colour or characteristics. Dyslectic children use this form significantly more than children from the control group ( $d: 16 - c: 2, p. 00$ ).

*Towers (t-test).* Dyslectic children use more towers in their village than the children of the control group ( $p = 0.033$ ).

### ***Significant Characteristics in Inquiry***

*Actions (t-test).* When the children are asked about what they build, the dyslexic children use more actions ( $p = 0.024$ ) in their verbal description. In particular, these actions have a realistic nature ( $p = 0.022$ ).

*Relationships between animals (t-test).* In their story the dyslectic group mentions more actions and intentions between animals than the control group ( $p = 0.016$ ).

## **DISCUSSION**

Dyslexic children use some very specific play features, although there is some overlap with significant characteristics of other clinical populations.

'Putting more elements in larger groups against each other', a significant characteristic for dyslexic children, is also found in a group of children with ADHD (Sermijn, 2000). The dyslexic children in this study weren't screened for symptoms of ADHD, but the co-morbidity of learning disabilities and ADHD is high (Wong, 1996). When we compare the characteristics of the dyslexic group with specific characteristics of a group of children with Post-traumatic Stress Disorder (PTSD) and Pervasive Developmental Disorder (PDD), there are no similarities of play features. This may mean that those different clinical groups do build 'worlds' in another way.

Looking at the characteristics Ojemann put forward to describe the play features of 'image thinkers', we only found one similarity with the dyslexic group, namely 'stack building'. This remarkable result questions Ojemann's assumption of a strong relationship between image thinking and reading problems. However, some of the characteristics she identified as being typical of 'image thinkers' were found in other clinical populations. Sermijn (2000) reported that children with ADHD use more castles and the absence of people occurred more in a PDD population. So further differential diagnostic research is needed.

These limited results allow us to conclude that the World Play can indeed offer differentially diagnostic leads for dyslexic children. Furthermore, it can be used as a screening instrument to find out if there are secondary problems that would perhaps be neglected otherwise. Nevertheless, we are fully aware that further research is necessary to answer the unresolved questions.

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