

Tactual profile, an assessment procedure for tactual functioning in children and adolescents

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Abstract. Tactual Profile is an instrument that provides a procedure to assess tactual functioning in children who are blind or who have a severe visual impairment, from birth up to 15 years of age. The instrument concentrates on the tactual requirements that the everyday environment places on perception. Tactual Profile is based on practical experience checked against literature and developments in the scientific field of touch. The instrument has been outlined as a ‘structured observation’. Recently there has been a research on the reliability and validity of the instrument. The study has proved that Tactual Profile is a valid and reliable instrument that differentiates from intelligence tests. © 2005 Elsevier B.V. All rights reserved.

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1. Introduction

Tactual Profile is an instrument which provides a procedure to assess the tactual functioning in children who are blind or who have a severe visual impairment, from birth up to 15 years of age. The tactile demands the child has to meet in its environment serve as a starting point. The instrument was developed by the Visio, National Foundation for Education of the Visually Impaired and Blind.

Tactual Profile provides items, graded according to age-level and domain of tactual functioning. There are 6 different age-groups: 0–2; 2–4; 4–6; 6–9; 9–12; 12–16 years of age.

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2. The development

In the nineties a project was started ‘To develop a Pupil Monitoring System for visually impaired children’ by Visio, an institute for the visually impaired and blind children and adults in the Netherlands. The project-group chose to develop and to apply tests for the visually impaired in the following areas: language (reading, comprehension and writing), arithmetic, visual functioning and tactual functioning. The project started with an inventory by means of an official written inquiry and interviews using a Pupil Monitoring System at the schools for the visually impaired and blind children in Holland and Belgium (Flanders). Great need was encountered for a normed and standardized didactic set of instruments for the visually impaired at each school. For certain areas (visual and tactual functioning) no instrument existed to monitor the development of a pupil. For higher levels of visual functioning Ida E. Ekkens developed In-Sight [1].

In 1996 an application was presented to the board of directors of Visio to develop an observation instrument for the touch. The board widened the assignment to create an instrument for charting the tactual functioning of children with a severe visual impairment from birth up to 15 years of age.

The instrument was developed by a group of practitioners working with visually impaired children: special education, remedial teacher visual and tactual functioning, occupational therapists and early intervention workers [2]. Based on experience and on scientific literature [3–10], a first concept was made. After this, collaboration was sought with scientists, of the universities of Nijmegen and Utrecht, who worked in the field of touch. A first trial version was made, which has been used as a starting point for a validation study [11]. This study resulted in the current version of Tactual Profile.

Recently there has been a study to the reliability and validity of the instrument (period 2002–2004). The study proved that Tactual Profile is a reliable and valid instrument that differentiates from intelligence tests.

3. Tactual Profile

Tactual Profile has been primarily geared towards the development of children, 0–15 years of age, who are born blind or who have, at the most, some residual vision. The Tactual Profile includes different areas of tactual functioning: cutaneous and proprioceptive.

Tactual Profile aims to measure the tactile prerequisites of everyday activities and school-related subjects. The tactile demands the child has to meet in its environment serve as a starting point. Tactual perception and functioning are explicitly viewed in a broader context than just reading braille or understanding geographical maps and graphics. In Tactual Profile the sense of touch has been described in a differentiated and systematic way. Tactual Profile enables to chart a child’s tactual functioning in several areas (described in Section 4.1). This gives an overview of the strong and weak sides concerning the sense of touch. These outcomes may be used as a base for intervention.

Initially the instrument has been developed for children and adolescents who are blind or severely visual impaired from birth and who do not have additional impairments. However the expectation is that Tactual Profile should also be suitable for children who become severely visually impaired at a later stage. It is likely that some parts of the instrument can be used to assess the tactual development of children with a visual and intellectual disability.

4. The framework

The aim of Tactual Profile is to assess the tactual functioning of children who are blind or have a severe visual impairment. Because the instrument was made from a clinical point of view, children aren't blindfolded during the administration of the instrument. If they have residual vision, they are allowed to use it, because in daily living, they will also do so.

In order to assess the tactual functioning of the children, the framework of the instrument consists of two parts: an item-set and a frame of reference (Fig. 1).

4.1. The Item-Set

Tactual Profile provides items, graded according to age-level and domain of tactual functioning. There are 6 different age-groups: 0–2; 2–4; 4–6; 6–9; 9–12; 12–16 years of age and difficulty. Based on experience, the developers of Tactual Profile categorised the items on age. After the validation study of Roelof Schellingerhout [12] the order of some of the items changed. On the basis of the data of this study, the items were placed in order of difficulty, which referred to the number of children that do well on a certain item.

The Tactual Profile distinguishes three domains of tactual functioning. Next to these domains there is a leading category of practical skills. Each domain is divided in different categories. Not every category has items for each age-group. Tactual Profile consists of 430 items. Each item is described and contains examples of material that can be used to



Fig. 1. Contents of tactual profile.

observe the item. Sometimes the materials are common and can be found in our daily live environments; materials that are very specific, are included in the kit of Tactual Profile. The administrator can make the following judgements: the child masters the item completely, partly or not at all.

The domains and categories of the Tactual Profile are:

Tactual sensory functioning: (106 items) This refers to the passive perception. It consists of the following categories: tactual awareness, noticing, body awareness, touch sensitivity and proprioception. Items of these categories are for example: ‘is able to point out the belly and the back’, ‘is able to match cylinders on texture’ and ‘can distinguish a circle from an oval’.

Tactual motor functioning: (52 items) This refers to the tactual perception that requires motor proficiency. It includes the following categories: tactual exploration, manipulating, two-handedness and middle and near space. Some items of these categories are: ‘explores an object with the mouth and hands’, ‘turns a small object between thumb and finger-tips’ and ‘is able to draw a line on relief-paper along a ruler’.

Tactual perceptual functioning: (162 items) This refers to the interpretation of tactual information. It contains the following categories: recognising, perception of detail, discrimination, constructing/reproducing, tactile-spatial perception, part-whole relationship, figure-ground perception, third and second dimension and tactual ‘language’. Items of these categories are for example: ‘is able to distinguish familiar and unfamiliar persons by using touch’, ‘is able to find a detail on a smooth line’, ‘recognises an object on account of a part’, ‘can identify three intertwining shapes as three singular shapes’ and ‘is able to build a three-dimensional construction’.

Practical skills: (110 items) These are the skills necessary to function well in daily life. This domain contains the following categories: touch strategy, self help skills, game-activity, linking function to object, action-sequences and dealing with variables. Some items of these categories are: ‘uses a point of reference as instrument to estimate a distance or determine the middle of a flat surface’, ‘can deal with change in scale’ and ‘puts one flat form on the other to compare size’.

4.2. Frame of reference

Tactual Profile offers a frame of reference, distinguishing various factors which influence tactual perception and functioning in blind and visually impaired children. The developers of Tactual Profile composed this model on the basis of literature and their clinical experience. In the meantime this framework repeatedly was put before professionals working at the university and adjusted according to their suggestions and additions.

This list of factors can serve as a frame of reference when observing a child. It can play an important role in diagnostics and decisions concerning training schemes and intervention programs. The factors are divided into three domains, which are:

General child variables: These include living environment, physical condition, modalities, character traits, intelligence, executive skills, concentration and attention, memory.

Specific child variables: These include motor skills, touch sensitivity, tactual zones, proprioception, tactual experience, sequential perception, tactual database, visual database, touch strategy.

Stimulus variables: These include texture, shape, size, relief, weight, line, temperature, material, the factor time, spatial aspects, tactile distracting factors, sensory distracting factors.

The purpose of this model is to provide assistance in observing the tactual perception and functioning of *this* child, with *these* abilities, under *these* circumstances, in a differentiated way.

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