Ecological validity of hyperactivity studies
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Summary

The main issue of this thesis concerns possible information processing deficits in hyperactive children, studied in complex tasks representative of daily life situations. Especially the ecological validity of experimental clinical research with hyperactive children has been subject of study. It is important to be able to establish precisely and repeatably what the behavioral problems consist of. Secondly it is important to develop tasks more or less typical of the daily behaviour of children, which can also be interpreted in terms of general experimental (clinical) theories.

Over the years the emphasis in the definition of hyperactivity has shifted from an organically defined syndrome (represented by the obsolete term Minimal Brain Dysfunction) to a category of behaviour in which attentional problems are at the core (represented by the American diagnosis of Attention Deficit Hyperactivity Disorder; DSM-III-R). In general terms three categorization models concerning behavioral problems are described. A description of various symptoms of hyperactivity and clumsiness is followed by the conclusion that hyperactivity and clumsiness do not overlap significantly. Hyperactivity and other behavioral problems, such as specific learning deficits, emotional disorders and especially conduct disorder, however, do overlap.

In Chapter 2 the two currently most used groups of models of information processing are discussed: the serial models of processing in which it is possible to distinguish various structural stages which are completed strictly sequentially, and the models in which the information is at least partly-processed parallelly. A discussion of the assumptions of both models and their workability for complex tasks is followed by the conclusion that the parallel models are preferable. The dual task method -often used within these models- was applied in the experiments currently reported.

Chapter 3 deals with the psychometric features of three selection instruments. The lists discussed each consist of 15 items referring to aspects of hyperactivity. The child's behaviour is assessed by teachers, parents, and trained observers on the basis of behavioral observations at school, at home or in a standard situation respectively. The various lists are used to establish to what extent the behavioral problems are independent of the situations in which they occur. The data presented show that the lists give a reliable image of the extent to which a child shows behavioral problems of a hyperactive nature.

In Chapter 4 the procedure of selecting a group of pervasively hyperactive children by screening a large number of children is discussed. This selection was based on the guidelines given by Loney which state that several sources of variance influence the behaviour of hyperactive children. In the procedure described these factors are either eliminated or their influence is controlled for.
possible information died in complex tasks daily the ecological hyperactive children be able to establish problems consist of. or less typical of the interpreted in terms of hyperactivity has (represented by the category of behaviour: (represented by the activity Disorder; DSM) on models concerning on of various symptoms y the conclusion that overlap significantly. s, such as specific I especially conduct groups of models of parallel models of processing lous structural stages and the models in which pressed parallely. A and their workability ion that the parallel often used within these y reported.

In chapter 5 the results of the first dual task experiment are discussed. It appears that the task, consisting of walking a balance beam and performing a two choice reaction time task, meets the demands of the dual task paradigm. Interaction of the factors difficulty of the reaction time task and group could not be demonstrated to such an extent that the conclusion that hyperactive children suffer from functional data processing problems was indisputably justified. The same negative conclusion applies to clumsy children.

The dual task described in Chapter 6 consisted of simulated crossing of a busy street under very realistic conditions and performing a recall task with 5 or 7 digits. The usual analyses showing that the data meet the demands of the dual task paradigm are again followed by the conclusion that hyperactive children perform less well.

With respect to the functional information processing the results of the crossing task and the balance beam task indicate more or less similar differences in the expected direction which do however not reach the level of significance.

Together these results justify the conclusion that differences in functional information processing may be at the basis of differences in performance between groups of hyperactive and control children. However, this conclusion has to be confirmed and specified in carefully controllable conditions in the laboratory.