Summary

As language development is a complex and multifactorial process, it is common practice to use different diagnostic procedures to examine children with assumed language problems. When a child is examined by one specialist we speak of a monodisciplinary diagnostic procedure (MonoDD), when two or more specialists are involved in the diagnostic procedure, we speak of a multidisciplinary diagnostic procedure (MultiDD).

Chapter 1 describes the current practice in diagnostic procedures in children with speech and language problems. As these procedures are characterised by lack of quality, efficiency and accessibility, parental organisations for children with speech and language impairments (BOSK/FOSS) have pleaded for the use of an unambiguous MultiDD procedure. The Dutch Federation of Centres for Audiology (FENAC) expressed the will to develop such procedures. However, in practice, a MonoDD procedure is often used, which led to many referrals to speech therapists. The Dutch Health Insurance Board has raised concerns about the costs and efficacy of speech therapy in young children with language disorders, reporting that “It is not clear how the need for speech therapy is determined”. These remarks led to the following three research purposes:

1. The development of a protocol for a multidisciplinary diagnostic procedure for children with speech and language problems.

2. Evaluation of the MultiDD protocol. Is the use of the MultiDD protocol feasible according to the co-operating disciplines, and useful to come to differentiation in diagnostics and treatment recommendations?

3. When referred to the MultiDD procedure or a regular MonoDD procedure for children with speech and language problems, are there differences regarding the background variables, therapy recommendations, therapy effect and parental satisfaction?
Part I: The development and evaluation of a MultiDD protocol for children with speech and language problems

Part I, containing the Chapters 2, 3, and 4, examines the first two research purposes concerning the development and evaluation of a MultiDD protocol.

Chapter 2 describes the process of choosing relevant disciplines to participate in the MultiDD procedure. This choice is connected with risk and/or causative factors likely to be associated with language disorders, as these factors should be examined by the specialists co-operating in the MultiDD team. Opinions about the influence of internal as well as external factors on language acquisition are discussed. Reckoning with these various factors, diagnostics in speech and language disorders includes linguistic, medical, audiological and psycho-social aspects. We choose for a team in which a speech pathologist, an audiologist, a child psychologist and an otorhinolaryngologist co-operate.

Chapter 3 describes the choice for the content of the MultiDD protocol. Especially the choice for language measures was a serious point of discussion, as there is no consensus about how to define a language problem. Also the procedure for the examination of the non-verbal development turned out to be under discussion. The MultiDD protocol for children with speech and language problems resulted in a scheme for diagnosis related treatment recommendations, in which five diagnosis groups are distinguished.

Chapter 4 studies the usefulness of the MultiDD protocol. In two explorative studies, the four co-operating disciplines concluded that they could easily work together, and that they could come to a diagnose and treatment recommendation using the MultiDD protocol. Another explorative study concluded that the differentiation in various diagnosis groups, i.e. children with specific language impairment and children with language problems in comorbidity with cognitive delay, resulting in different treatment recommendations led to improvement of language abilities.

Part I concludes that it was possible to develop a feasible MultiDD protocol for children with speech and language problems which led to objective and reproducible criteria for “normal” and “abnormal” findings, and differentiation of diagnoses and treatment recommendations.
Part II: Analysis of the developed MultiDD procedure compared to the regular MonoDD procedure

Part II, containing the Chapters 5 and 6, examines the third research question, considering the similarities and dissimilarities between the MultiDD and MonoDD procedure regarding the background variables, therapy recommendations, therapy effect and parental satisfaction.

Chapter 5 describes the subjects and methods. Dutch-speaking children (1;8 to 5;3 years old) with possible speech and language problems, according to the parents, were included in the study. Children in the MultiDD group were selected from children who were referred to the Department of Otorhinolaryngology, University Hospital Groningen, Communication Disorders in Children section. Children in the MonoDD group were selected by their General Practitioners. Both groups were analysed at the start of the study (T₀) and 12 months after inclusion (T₁). Language improvement was measured by standardised tests for language comprehension and language production, using the Dutch version of the Reynell Developmental language scales (RTB) and the Schlichting Test for Language Production (STP) respectively. Apart from that, spontaneous speech was screened by the Groningen Diagnostic Speech norms (GDS), and the global non-verbal development was screened by a revised version of the Dutch version of the Denver Developmental Scales (DOS-R). During the year, insight into the variety and number of therapies was obtained by the monthly questionnaires. At T₁, parental satisfaction concerning procedures was also examined by means of a short interview.

Chapter 6 describes the results of the study. First the results of the MultiDD group and MonoDD group are described separately, followed by the similarities and dissimilarities between both groups. Background variables and parental concern were similar between the MultiDD and MonoDD group. Most parents thought the language problem was the only problem. However, only a few children (12% in the MultiDD and 10% in the MonoDD group) showed specific language problems. Moreover, in the MultiDD group 37% of the children, and in the MonoDD group even 78% of the children had adequate language development. The other children showed inadequate
language development (63% and 22% respectively). This means that language abilities at T₀ differed significantly between the two groups.

Also treatment recommendations differed significantly. In the MultiDD group many children were referred for medical treatment (37%), or a wait-and-see approach was recommended (28%). Less children were referred for speech therapy (17%) or a thorough developmental examination (18%). In the MonoDD group most children were referred for speech therapy (83%), despite adequate language development in most of these children.

Despite the significant differences in language abilities between the two groups, a similar number of children improved their language skills. This means that even children with adequate language development can improve.

In both groups, most parents were satisfied with the diagnostic procedure and the treatment their child received during the year. When they were dissatisfied, this mainly concerned differences in expectations and points of view between parents and specialists.

Part III: General discussion

In part III, containing Chapter 7, a general discussion resulting from the three research purposes is described, and recommendations for the future are formulated.

In a MultiDD procedure the choice for co-operating disciplines can differ based on preferences and practical considerations. Also the content of the protocol can differ as the norms to distinguish adequate from inadequate language development are ambiguous. The choice for co-operating disciplines as well as the content of a MultiDD procedure can vary in different organisations. This may lead to differences in the efficacy of diagnostics and also in differences in costs. Future research is recommended regarding costs and efficacy of different MultiDD procedures.

The main problem we met in the description of similarities and dissimilarities between the MultiDD and MonoDD procedures were the significant differences between the language abilities at T₀, despite the same inclusion criteria and background
variables in both groups. In the MultiDD group more children showed language problems compared to the MonoDD group. In both groups, the GP was important. Most children in the MultiDD group were referred by their GP (68%). All children in the MonoDD group were included by their GP. None of these children were referred for MultiDD examination. Therefore, it can be argued that GPs differentiate between specific language problems and language problems in comorbidity with medical and/or developmental problems. It seems that they refer ‘simple’ problems to a speech therapist and more complex or severe problems to a MultiDD team.

As most children in the MonoDD group received speech therapy despite adequate language abilities, the discussion about defining language problems is brought up. It underlines the literature in which is stated that it is difficult to determine whether a child has a deviant language development or not. Some researchers consider communication difficulties in everyday life as the most important criteria, whereas other researchers consider severity in terms of standardised scores as the most important criteria. This leads to uncertainty about normal variations in language development. As many children with articulation problems had not completed speech therapy at T1, the question raises as to whether pronunciation difficulties in young children should be considered a severe problem, or as part of normal language development in which maturation of (speech) motor development plays a part. Further research is needed to examine and identify the normal variations of language and articulation development in young children.

Speech therapy was effective in children with SLI, but in all other diagnosis groups other forms of treatment seemed to be more appropriate. Even children with adequate language development were capable of improving their language abilities. Future research is needed to develop criteria for the recommendations of these various forms of therapy and their effect on language development.

Despite the possibility of language improvement, language abilities remained stable for the majority of the children in both groups. Therefore, it must be accepted that some children have persistent language problems. It is still unknown which aspects of language development predict and differentiate between transient and persistent language problems, and therefore discussion and research should be carried out
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concerning the differentiation between these two aspects. Phonological, syntactical, morphological and pragmatic development should be measured before and after therapy. Coping strategies to support performance abilities should also be developed for children with persistent language impairment.

Clinicians as well as parents are easily concerned about the language development of children. For them, language problems are severe problems because of the assumed relationship of language with social and cognitive development, and thus with scholastic achievement. It is therefore recommended to inform parents about normal variations in language development.

Despite the variety of language problems and therapeutic strategies, most parents in both groups were satisfied with the diagnostic procedure and the treatment of their child. It appeared to be very important that parents felt confirmed in their concern by the specialists: dissatisfied parents mentioned their impression that specialists had different point of view and treatment recommendations than they expected. Explanation of the disorder and the resulting treatment recommendation is of utmost importance.