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ETHNIC MINORITY CHILDREN ACQUIRING LITERACY

LUDO TH. VERHOEVEN

ETHNIC MINORITY CHILDREN
ACQUIRING LITERACY

ETHNIC MINORITY CHILDREN ACQUIRING LITERACY

PROEFSCHRIFT

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aan de Katholieke Universiteit Brabant,
op gezag van de rector magnificus,
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ten overstaan van een
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Introduction

In modern industrialized countries children entering primary school are faced with the task of achieving literacy. That means that they have to acquire the ability to both comprehend and produce written text. For at least two reasons the acquisition of literacy can be regarded as a very complex task. First, the discovery of the alphabetical principle in orthographic writing systems is problematic, because the alphabet is based on a segmentation of the sound stream in terms of highly abstract units, phonemes, which are not easily accessible. Second, children have to learn to deal with the decontextualized nature of written texts. The one-way communication of abstract ideas in written texts sharply contrasts with the socially interactive communication of concrete ideas in oral discourse.

In many places throughout the world children form part of ethnic minorities whose home language is different from the dominant and/or standard language of the society in which they live. Whether one or more languages are used for instruction at school and which language abilities are taken as educational objectives for ethnic minority children depends on language education policies. With respect to literacy, three main educational approaches for ethnic minority children can be distinguished. First, children can be totally immersed in a second language literacy curriculum. Second, children can initially be instructed in their native language, the transition to the second language being made after a period of time. Third, children can be given a bilingual literacy instruction programme from the start. In order to understand the impact of these different approaches, it is necessary to gain insight into the processes involved in learning to read and write in a first language (L1), in a second language (L2) and in bilingual literacy acquisition. In addition, insight into the social context of literacy acquisition of ethnic minority children is needed; especially cultural and political values with regard to literacy in a multilingual community must be taken into account.

At this moment a coherent theory about the acquisition of literacy by ethnic minority children is generally lacking. While there are at least basic insights into the processes which are involved in literacy acquisition in a first

language, the state of affairs regarding literacy acquisition in a second language context is far from clear-cut. At the moment they start to learn to read and write, ethnic minority children have a linguistic and socio-cultural background which in general is very different from that of their monolingual majority-language speaking peers. It is by no means clear what effect such differences may have on literacy success or failure.

In the present book an attempt is made to arrive at a better understanding of the processes involved in the acquisition of literacy by ethnic minority children. A detailed examination of such processes is undertaken from an interdisciplinary point of view. The central processes involved in reading and writing are essentially defined as mental operations dealing with linguistic structures in a visual mode. As such, linguistic aspects of reading and writing are highly emphasized. Both psycholinguistic and sociolinguistic aspects of literacy acquisition are highlighted. From a psycholinguistic point of view, structural aspects of processes of literacy acquisition are the main object of study. A distinction is made between processes at the word level and processes at the discourse level. Individual variation in rate of acquisition or level of proficiency are considered to be the result of an interplay of various psycholinguistic and sociolinguistic factors. The emphasis in the present book will be on empirical work and on the methodological issues involved.

The book consists of three parts. Part I deals with theoretical issues concerning literacy acquisition by ethnic minority children. In the first chapter, relevant aspects of literacy instruction for ethnic minority children are considered. Attention is given to different educational models, arguments in favour of monolingual versus bilingual literacy education, educational practice in various settings and relevant research paradigms regarding structural and temporal aspects of literacy acquisition. In Chapter 2, processes of literacy acquisition in L1 and L2 are compared. In addition, studies on literacy acquisition in L2 which have been conducted so far are reviewed. Chapter 3 explores the factors which determine individual variation in literacy acquisition in L1 and L2. In succession, the influence of educational variables, learner variables and background variables are discussed. Moreover, a general explanatory model of temporal differences in literacy acquisition in L1/L2 is proposed.

In part II a report is presented of a longitudinal study on the acquisition of literacy by Turkish children in The Netherlands. Turkish children were chosen

because they belong to the largest group of ethnic minorities in The Netherlands. In 1985 about 6 percent of the pupils in Dutch primary education were of non-indigenous origin (CBS, 1986). These children are rarely given initial literacy instruction in L1. In most schools literacy instruction is L2-based from the first year with a few hours set aside each week for additional literacy instruction in L1, usually starting in the second grade. In a few schools, transitional literacy programmes have been initiated. In these programmes instruction is started in L1, but after some time, instruction in L2 is added. The present practice of literacy programmes in Dutch schools makes it possible to examine the processes of literacy acquisition in ethnic minority children extensively. The general main stream programme can provide insight into the structural and temporal aspects of literacy acquisition in an L2 submersion context. Moreover, the outcomes from such literacy programmes can be compared with those of transitional programmes. In Chapter 4, a detailed outline of the present study is given. Data collection ran over a two-year period. In developing the research design, attention was paid to both quantitative and qualitative considerations. Furthermore, in gathering empirical evidence, various methodological innovations were regarded in order to arrive at a multi-factor explanation of the course of literacy acquisition processes. Structural aspects of L2 literacy acquisition processes in ethnic minority children are dealt with in Chapter 5 (at the word level) and Chapter 6 (at the discourse level). In Chapter 7, an explanatory account of the temporal variation in literacy acquisition processes in L1/L2 is given. Here the explanatory model proposed in Chapter 3 is taken as a starting point. Chapter 8 considers the success of literacy acquisition of ethnic minority children in a transitional context.

In part III the theoretical and practical implications of the present study are discussed (Chapter 9). Summaries in English, Dutch and Turkish are given in Chapter 10.

Finally, two points have to be mentioned. The first one concerns terminology. The terms 'acquisition' and 'learning' are used interchangeably in this book. Though the two terms are distinguished by several authors (e.g. Krashen, 1977) in referring to informal and formal learning conditions respectively, this distinction is abandoned because of its arbitrariness. Usually informal learning conditions are supposed to occur in natural communicative settings,

formal learning conditions in typical classroom settings. However, this categorization is judged problematic in that many schoolteachers emphasize language learning through meaningful communication and some parents or peers teach children aspects of literacy behaviour in more or less formal ways at home. Another terminological issue concerns the acquisition of literacy in a first versus second language. The terms first and second language are always referred to as minority and majority language respectively, irrespective of the order in which literacy is acquired. Third, ethnic minority children will often be referred to as minority children. Fourth, in agreement with international conventions, the first year at primary school (after kindergarten has been finished) is termed grade 1 or first grade, even though the new Primary Education Act (1980) in The Netherlands refers to kindergarten as the first year.

The other point to be mentioned concerns the results of the research project to be reported on. Though during a two-year period both oral and written language data on Turkish children were collected, the acquisition of oral Turkish and Dutch will only be discussed so far as it is related to literacy acquisition in the two languages. The acquisition of oral language proficiency is more fully discussed in separate publications. In Boeschoten & Verhoeven (1986), Verhoeven & Boeschoten (1986) and Verhoeven (1987a) an account is given of the acquisition of oral Turkish in an L2 Dutch submersion context. Furthermore, Boeschoten & Verhoeven (1985, 1987) and Verhoeven (1987b) consider the use of Dutch lexical elements in Turkish discourse. In Verhoeven & Vermeer (1984a, 1984b, 1985 and Verhoeven (1987c) the acquisition of oral Dutch as a second language is discussed. Finally, the influence of social factors in oral first and second language acquisition is reported on in Verhoeven (1987d, 1987e).

Part 1: Theoretical Background

Literacy Instruction for Ethnic Minority Children

Most minority children, as do most majority children, acquire literacy through education. Though some children learn to read and write with little or no instruction, most children need a rather long period of formal instruction. In the present chapter a number of relevant issues related to the acquisition of literacy by ethnic minority children are introduced. With respect to the literacy education of ethnic minority children, an important question concerns the language(s) used in the curriculum. Taking language use as a starting point, six different models of literacy instruction are highlighted. In addition, arguments in monolingual and bilingual literacy education are summed up. Attention is paid to educational, linguistic, psychological, socio-cultural and political arguments. Moreover, literacy programmes for ethnic minority children in various places are surveyed. This survey concerns the following areas: Canada, United States, Sweden and Western Europe. Finally, the need for a theory relating to the processes involved in the acquisition of literacy by ethnic minority children in both L1 and L2 is discussed. In this connection, two research paradigms, exploring structural and temporal aspects of processes of literacy acquisition respectively, are put forward.

1.1 Ethnic minority children and the acquisition of literacy

1.1.1 Spontaneous acquisition of literacy

Multicultural studies of early reading show that in spite of differences in cultural background and language diversity, children are able to learn the essentials of literacy at a very early age. A distinction can be made between individual case-studies and studies in which the acquisition of literacy by one or more groups of children was followed.

An often cited case-study comes from Past (1976). She recorded her daughter's progress in learning to read in Spanish and English from the age of two till five in a predominantly English environment. At the end of the study the child's literacy skills in both languages were at the second grade level.

According to Past, the confusion as a consequence of learning two codes was minimal.

Christian (1976) reported the progress of his Spanish-English speaking daughter in learning to read Spanish at pre-school age. The first step in learning to read was learning the Spanish alphabet. Before the age of twenty-four months Christian's daughter learned to recognize all the letters. Additionally, she attempted to give the sound for any consonant-vowel combination which included both words and nonsense syllables. At the age of thirty-two months the girl changed from phonemic reading to sight reading. At the same time she started to read sentences.

Lee (1977) reported her daughter's successful attempts to learn to read Korean and English from the age of four to six. Though the child was simultaneously exposed to both spoken languages, she began to read in English, which was the weaker language. She did not start reading in Korean until she was able to read rather fluently in English. However, it turned out that less than two months were needed to learn to read in Korean, indicating a positive transfer from English to Korean. In learning the two codes successively no striking confusion was noted.

Hanson (1980) investigated the process of learning to read by doing a case-study of her Spanish-English speaking daughter from the age of two through the third grade at primary school. Additionally, she studied the initial stage of learning to read by observing two low-income Spanish-speaking two-year-old children during a five-month period. All three children were taught to speak and read both languages simultaneously. The two Spanish-speaking children learned to read most of the words taught and learned to break the code in the two languages. Hanson's daughter was able to read the two languages before school entrance. In her acquisitional processes of oral and written language skills, interference was said to be minimal. Furthermore, the child had a good start at kindergarten and she remained above average throughout the first four school years. As such, the learning results proved to be stable over time.

Lado (1975) studied the acquisition of literacy in two languages in a group of 51 Spanish-English bilinguals of pre-school age. A developmental approach was followed in which children learned both speaking and reading in the two languages simultaneously, progressing from words to phrases, sentences, conversations and stories. The children read at their own pace and advanced through the reading materials according to their abilities. Lado concluded that the children had no difficulty learning to read in both languages

simultaneously. Moreover, the children liked the lessons and were motivated to keep on reading. He claimed that every child who is a potential bilingual is also a potential biliterate.

Kupinsky (1983) reported a study of kindergarten classes with 38 Hebrew-English bilinguals who received simultaneous reading instruction in Hebrew and English. She concluded that all children successfully acquired reading skills in two languages. Furthermore, she found a strong positive correlation between their ability to read in both languages.

Past, Past & Guzman (1980) reported successful biliteracy teaching in a Spanish-English Kindergarten. Their reading groups were organized according to the children's language dominance. Reading instruction started in their strongest language. During the year, their grouping was flexible and children were regrouped according to their progress or needs.

Mino Garces (1981) compared the progress in learning to read in English of six pre-school Spanish-English bilinguals with that of two pre-school bilinguals in Spanish and English. The prospective biliterates proved to be among the best readers in English. Furthermore, good results in the reading of English and school adjustment were reported for all the children studied.

1.1.2 Acquisition of literacy skills through education

The above studies suggest that children in informal interaction with teachers or peers are able to acquire literacy skills almost spontaneously. However, it turns out that many of them have great problems doing so. This can be explained in two ways. First, there is evidence that literacy will not be developed if a child does not intensively interact with written material. An essential point in spontaneous literacy processes seems to be the naturalness of the conditions under which learning proceeds (Goodman, Goodman & Flores, 1979). Only if a child is confronted with written language in a functional way will it satisfy his real interests and needs. Downing (1979) has placed this finding in a theoretical perspective. According to his 'cognitive clarity theory', the process that takes the child from oral language to literacy consists in the rediscovery of the functions and coding rules of the writing system, and the same features of communication and language that were accessible to the creators of the writing system. Furthermore, Wells (1981) in a long term study on early reading concluded that school success is related both to the values attached to literacy in the home and to the steps that parents take to explain this value to their

children. He claimed that the role of parents in helping their children to (re)discover the principles of literacy is crucial. In this respect, Lado (1982) suggested that in many cases the bulk of written material that surrounds the child even in literate homes is not adequate for interaction with children. Only through meaningful introduction of graded graphic materials are children said to be able to develop reading in an informal way. Moreover, these materials should be introduced in an atmosphere of tolerance and appreciation.

The second explanation of the problem that children have when attempting to grasp the essentials of written language is related to the nature of the written code itself. The code-breaking strategy seems to be especially problematic. As Rozin & Gleitman (1977) and Liberman (1977) have shown, this can be explained by the fact that phonemes as units in the alphabetical code can hardly be perceived in speech. For this reason it is suggested that teachers in the first years of primary schools should create a stimulating atmosphere, maintain fairly strict discipline, and provide well-designed phonics instruction (Anderson, Hiebert, Scott & Wilkinson, 1985). From such instruction children are said to be able to discover that words can be represented as strings of phonemes, and that graphemes are representations of these phonemes. Once they have grasped this principle, they can assign a pronunciation to words they have never seen before and arrive at the meaning of these words by spelling them out loud. After frequent practice they will reach the stage where they can read words more directly, so that attention can now be focussed on the understanding of larger units such as phrases, clauses and relations between sentences (Shankweiler & Liberman, 1972; La Berge & Samuels, 1974).

In deciding what is the best approach in teaching ethnic minority children to read, an important question is whether the alphabetic principle should be taught through the native language (L1) or through the second language (L2). Thonis (1970) claimed that bilingual children who have mastered this principle in one language do not have to start from scratch in the second language: what they do have to learn is a new written code. The basic reading skills are easily transferred from one language to another (Saville & Troike, 1971). Taking L1 and L2 as a starting point, six models of literacy instruction for minority children can be distinguished (see Verhoeven, 1985a; 1987f). In Figure 1.1 the models are graphically displayed.

Model A and B stand for a monolingual approach, the models C, D, E and F for a bilingual approach. In model A the minority language is used exclusively as

Figure 1.1: Models of the literacy instruction for ethnic minority children (arrows indicate progress in school from class 1-n)

the language of instruction and as the target language; there is no instruction in reading and writing in the majority language. In model B the majority language is the only language of instruction and target language; literacy instruction in the minority language is excluded from this model. Model C starts with literacy instruction in the minority language; after some period literacy instruction in the majority language is given as well. In the course of the curriculum (mostly at an early stage), L1 instruction is broken off. L1 instruction in this model is only used as a temporary means to reach an optimum literacy level in L2. For this reason, model C has been called transitional. The models D, E and F all aim at functional biliteracy. These models differ as regards order of instruction: model D is based on simultaneous L1/L2 instruction, model E begins with L1, followed by L2; model F has the reverse instructional order.

1.2 Arguments in monolingual and bilingual literacy education

There are a number of arguments supporting each of the alternatives of monolingual and bilingual literacy instruction for ethnic minority children. In this section, several educational, linguistic, psychological, socio-cultural and political arguments will be discussed.

1.2.1 Educational arguments

From an educational point of view, the facilities a school has at its disposal in order to set up a bilingual literacy programme play a significant role. First of all, there must be sufficient financial funds to make such a programme possible. In some places funds are only offered by the authorities if a fixed minimum number of pupils of an ethnic minority group is in a school. Because minority groups are quite often scattered among the majority population, such a requirement will not be met in many cases.

Furthermore, suitable curriculum materials must be available in the two languages. As Spolsky (1977) has pointed out, the development of appropriate curriculum materials for a bilingual programme often poses a serious problem. When the two languages are standardized, two sets of materials which are used for monolingual children in different countries may be used. However, in many instances both types of materials will not fit very well. The content of the materials of the majority language often reflects the values of the dominant culture, which will make it difficult for the minority child to relate to the context (Kaminsky, 1976). In order to arrive at a better connection between the child's background knowledge and the content of the second language curriculum, materials should be produced which reflect an ethnically balanced picture of society. As to the materials of the minority language, the problems may be even greater. Materials which have been developed in the home country are usually not very appropriate for use. Their rationale will often be widely different from the one used in the host country. For instance, in some places the traditional method of rote memorization of sentences is still used in learning to read. Moreover, the materials will usually not appropriately link up with the linguistic and socio-cultural experiences in the child's new environment. Furthermore, when the minority language is unstandardized, work on language standardization must be done beforehand. Even if two suitable curricula have been developed, it will be a complex matter to integrate them so that an optimum route to functional biliteracy is guaranteed. When many different minority

languages are spoken in a school, it will be especially difficult to organize a bilingual literacy programme which is appropriate for all ethnic groups.

Another educational argument concerns the availability of qualified teachers. In many places it is difficult to find qualified teachers who are both bilingual and bicultural so that minority children could easily identify with them. According to Spolsky (1977) the development of Spanish-English bilingual literacy programmes in the United States has been seriously hampered by the lack of Spanish speakers who are well trained and literate enough to be acceptable in the schools.

A final consideration concerns the policy which is held by school boards and school teachers. As Goodman, Goodman & Flores (1979) have suggested, schools may either respond favourably to linguistic diversity or ignore it. Positive response to linguistic diversity can be given through acceptance of minority languages and cultures and through community involvement. As to the latter point, Carrasquillo & Carrasquillo (1979) have pointed out that in bilingual literacy programmes bilingual parents can help in many ways.

1.2.2 Linguistic arguments

An essential linguistic issue with reference to the implementation of a bilingual literacy programme concerns the degree of codification of the minority language in question. A language can only be used to instruct children how to read and write, if it possesses a minimum level of codification. Codification of a language is established by standard orthography and by the existence of standard dictionaries and grammars. While standardization is a prerequisite for sound literacy instruction, minority languages are often more or less unstandardized. However, as Spolsky (1977) has pointed out, any language variety is modifiable in such a way that orthographies can be developed and lexical elaboration provided. Such modification involves complex processes of language planning, and language standardization. By means of these processes many minority languages have been codified and used for literacy instruction for the first time during the past decades (Gudschinsky, 1976; Coulmas, 1984). A comprehensive review of the principles of orthography construction and orthography revision is given by Smalley (1964).

With respect to the order of introduction of languages in a successive bilingual literacy programme, the relationship between the oral and written code in the two languages is often considered to be an important linguistic

argument. As such, the properties of orthographies are under consideration. It has been claimed by many educators that the correspondence or 'goodness-of-fit' between graphemes and phonemes affects the acquisition of literacy. The goodness-of-fit hypothesis has been tested in cross-cultural studies of literacy acquisition and in studies of bilingual literacy education. Downing (1973) summarized the data from a number of cross-cultural studies. He compared literacy acquisition in different cultures and languages in order to find universal processes. Data were collected in 14 countries in which the logographic system of Chinese and the syllabic kana system of Japanese, as well as various alphabetic systems, were contrasted. With reference to logographic writing systems, it was concluded that due to the relative absence of correspondence between graphemes and phonemes the acquisition of literacy is extremely difficult. Logographic systems require the acquisition of associations between symbols and meanings through rote memory. With regard to syllabic systems, a high goodness-of-fit was evinced from literacy acquisition studies in Japanese, whereas the degree of fit in alphabetic systems was said to vary from moderately high (e.g. English) to reasonably high (e.g. Finnish). Makita (1969), Sakamoto & Makita (1973) and Sakamoto (1980) suggested that the acquisition of reading skills in Japanese usually proceeds without problems because of a high degree of consistency between oral and written syllables. Reading difficulties were said to arise as the logographic component of Japanese orthography is introduced. The relative accessibility of syllables has also been demonstrated by Liberman, Shankweiler, Liberman, Fowler & Fischer (1977) in segmentation experiments and by Rozin & Gleitman (1977) in teaching experiments using syllables as the unit for learning to read. With regard to alphabetic orthographies English is usually said to have a fairly inconsistent grapheme-phoneme correspondence. In order to prevent learning problems, spelling reforms have often been proposed (see Barnitz, 1978). Moreover, Downing (1967) and Gleitman & Rozin (1973) have proposed transitional alphabets with regular grapheme-phoneme patterns which can be used for literacy instruction, before switching to standard orthography.

With respect to learning to read, there is some evidence that consistency of alphabetic orthography helps children learn to decode. Kyöstiö (1980) concluded that the acquisition of decoding strategies in Finnish, which has a highly consistent orthography, was relatively easy. However, as to the acquisition of higher level literacy skills no clear advantages were evinced. Oney & Goldman (1984) compared the acquisition of word decoding and discourse comprehension

skills of Turkish and American children of grade 1 and 3 in Turkish and English, respectively. They found that Turkish children were faster and more accurate than American children at the first grade level and equally accurate, but faster, at the third grade level. In grade 1, but not in grade 3, Turkish children were superior to American children on reading comprehension. It was suggested that Turkish, having a more regular orthography, leads to faster acquisition of decoding skills.

In a number of evaluation studies of bilingual literacy instruction in Canada, the goodness-of-fit hypothesis has been taken as an argument. In these studies, English-speaking children started to learn to read in French as a second language. It was generally found that their French reading skills lagged behind their monolingual peers, whereas the reading performance in English was more or less comparable to monolingual control groups (Lambert & Tucker, 1972; Barik & Swain, 1975). Moreover, a positive transfer of literacy skills from French to English was evinced. It was concluded that one of the reasons for the relative success of literacy acquisition in L2 was that advantage was taken of the more consistent grapheme-phoneme correspondences in French.

Though there is evidence that it is relatively easy to acquire literacy in a more regular orthography, some questions can be raised concerning the notion of 'regularity'. Read (1980) has pointed out that the notion is rather complex, if representations of more than one graphonological level are allowed for. Moreover, he claimed that there is often an asymmetry in the kinds of regularity which facilitate reading and writing in that aspects which are regular for the reader may be irregular for the writer.

1.2.3 Psychological arguments

In view of the child's cognitive and socio-psychological development, it can be argued that the acquisition of literacy will be facilitated if the instruction links up with his linguistic background. From a cognitive point of view, six-year-old children must acquire the functional characteristics of written communication. As Olson (1980) has pointed out, in written communication logical and ideational functions are primary, whereas oral communication has more informal characteristics. In oral communication the listener has access to a wide range of contextual cues which may clarify the intentions of the speaker, while in written communication such cues are almost completely absent. Accordingly, Cummins (1981) distinguished between context-embedded communication

on the one hand, and context-reduced communication on the other. As such, the transition from oral to written language can be thought of as a critical event. Moreover, ethnic minority children who receive literacy instruction in an L2 will be faced with a dual task: besides the characteristics of written language they will have to learn an unfamiliar language. Downing (1984) claimed that especially the structural features of a writing system will be more readily developed when literacy instruction is based on familiar exemplars from the learner's mother tongue than in less familiar exemplars from a second language. He suggested that the cognitively confusing effects of teaching literacy in a second language will concern featural rather than functional aspects.

Cummins (1979) has proposed the threshold hypothesis as an argument in favour of bilingual literacy instruction, taking L1 as a starting point. According to this hypothesis, there is a minimum level of linguistic competence which a child must attain in a first language in order to avoid cognitive disadvantages. If a child's threshold of competence in his L1 is low, it is highly likely that the competence level in L2 will also be low. Poor L2 literacy results will then be the result. If, however, the threshold level of L1 is high, a similar high threshold level in L2 will be attained with sufficient progress in literacy and other academic tasks. Thus Cummins claims that it is important to lend sufficient support to the first language to ensure that minority children make good progress in literacy acquisition. In addition, Cummins (1983) pointed out that by starting reading in a child's first language literacy-related skills can also easily be transferred to comparable skills in the second language. Given the fulfilment of such conditions as adequate exposure to the majority language and motivation to learn that language, it is to be expected that literacy skills that are learned in a minority language can easily be transferred to the majority language.

From a socio-psychological point of view, it is clear that the motivation of children to learn to read increases as they become more familiar with the language and as they find themselves more competent to accomplish the task they are set. According to Skutnabb-Kangas & Toukomaa (1976), many Finnish children with a low proficiency level in L2 Swedish experience a feeling of ambivalence or hostility towards Swedish because in that language their level of literacy is low and they do poorly in other academic subjects.

Fishman (1977) maintained that the motivation to learn in L2 seems to increase as societal institutions (for children primarily school) pay more

attention to the native language and culture of the bilingual child. Spolsky (1977: 17) stated that the major attitudinal argument in favour of bilingual education is that it enhances the pupils' self-respect to discover that their home language, in which they have invested so many years, is respected by the school system. Furthermore, Christian (1976) claimed that the choice of monolingual or bilingual reading instruction might have consequences for the child's identity development: bilingual education can prevent the appearance of a negative self-concept, while exclusive L2 education can lead to the feeling that the native language and culture are inferior. Evidence for a positive influence of the acceptance of the native language and culture of bilingual children on the self-concept has been found by Blanco (1978) and Hanson (1979). According to Skutnabb-Kangas (1984), this positive influence can be explained by the fact that mother-tongue instruction enables children to keep the emotional relationship with their parents alive. To the child, instruction in L1 would provide evidence that his/her own identity is accepted by the school.

A final socio-psychological argument is that literacy education in L1 can add to the possibilities for written communication among the members of the minority group. In this way contact between generations may also be facilitated.

1.2.4 Socio-cultural arguments

Sociolinguistic studies have shown that the acquisition of literacy has important consequences both for individual learners and for societal groups (Brasso, 1974; Cook-Gumperz & Cumperz, 1981; Stubbs, 1980). According to Goody (1977), the opportunities for storage, retrieval and repeated use of written text enlarge the possibilities of syllogistic reasoning and scientific inquiry so that scientific technologies and complex social structures can be developed. As such, literacy has important implications for the organization of personal and communal action and serves important social, economic and political purposes in society.

In a multilingual community minority groups may use various written codes because these codes have at least partially distinct sets of functions. In The Netherlands, for example, there are Turkish minority groups who make use of four written codes: Turkish, Arabic, Dutch and English. The use of Dutch is reserved for interethnic interaction in the community where they have settled. Turkish is used for intragroup communication with persons in the immigrant and home country

and for the expression of one's ethnicity. Arabic provides for a religious identification by making possible the reading of religious texts such as the Koran. English, finally, increases the chances of higher education and forms the basis of wider international communication.

The written code with the highest status in a society will mostly be used dominantly in societal institutions such as law and justice or schools. Moreover, this language will usually be the majority language. Geographically and socially this language possesses the largest communicative potential. Interethnic interaction by means of written texts proceeds best in that language. The communicative potential of a minority language will usually be much smaller. To what extent members of a minority group have a need to use their own language in written communication seems to be dependent on two factors: the written tradition of the minority language and background characteristics of a particular minority group.

As to the written tradition of the minority language, the extent to which the language has been codified in the past has proved to be very important (see Hudson, 1980). Rules of codification, such as orthographic conventions, provide a firm basis for standardized written language use. Besides, the literacy tradition of a language is important in promoting the status of the language in question. Zondag (1982) claimed that the high status of Frisian in comparison to other regional languages in The Netherlands was mainly the result of its literacy tradition.

The background situation of minority groups causes several factors to play a role in the use of native literacy. First of all, group size is a general factor in that smaller groups are more in danger of native language loss. Furthermore, the social group structure plays a significant role. The written use of the minority language will be better maintained when there are social institutions in which written texts play a significant role. This can be the case in such institutions as religion, education, and mass media (books, newspapers, periodicals). In the case of a temporary stay in a community, the written code of the minority language can also be used for dealing with (necessary) contacts with officials (e.g. consulates). Finally, the use of written minority languages can be motivated by personal needs. In the first place there can be a need to communicate with people and/or institutions in the country of origin. Furthermore, there can be a need to learn about one's own ethnicity or to express oneself in the native language. The latter need goes back to the concept of language as a symbol of one's own (ethnic) identity. Ethnic identity refers

to the cultural tradition of an ethnic group. Directly observable characteristics such as skin colour, dress and language use seem to be principal determinants. According to Ferguson (1978), members of an ethnic minority group will be able to strengthen their group identification and their social integration by means of written communication in the ethnic language.

If members of an ethnic minority group feel the need to become biliterate, the written use of both languages will usually serve two complementary sets of purposes (Fishman, 1980). The primary function of the use of the majority language will be intergroup interaction in the community; functions of the use of the minority language will be intragroup communication and expressing one's ethnicity.

1.2.5 Political arguments

According to Spolsky (1971), the educational programme for ethnic minority groups is not predominantly determined by psychological and/or linguistic factors but rather by political factors. The political goals that are aimed at by regional and national authorities by and large establish the organization of educational programmes for minority groups. Grosjean (1982: 207) claimed that there will be little chance for education in the minority language when a policy is one-sidedly directed at assimilation; linguistic diversity in bilingual education can be expected when it is a matter of policy to develop ethnic identities. According to Grosjean, language policies in multilingual societies are determined by many factors, such as the number and importance of the minority languages in the country, their geographic concentration, their linguistic development, the social and religious structure of the population, the attitudes of the majority and minority groups and the availability of teachers and learning materials.

In most evaluative studies on literacy education for minority children the languages of instruction were taken as independent variables, and literacy results as dependent variables. Paulston (1977, 1982) considered this approach as a search for technocratic-pedagogical solutions to improve education for minority groups. She believes that this approach ignores the macro-social factors that have led to certain educational programmes. As a starting point for research not only the relationship between educational models and school results has to be taken into account, but also the relationship between societal factors and educational models. It is only in the latter studies that political factors

that lead to inequality of educational opportunities can be demonstrated. Departing from such a research paradigm, Skutnabb-Kangas (1980) demonstrated why researchers in Sweden and West Germany make absolutely opposite recommendations for the education of minority groups. In Sweden researchers recommend paying more attention to minority languages as a reaction to the assimilation policy mandated by the government. On the other hand, recommendations for more attention to L2 education are made in West Germany as a reaction to a tendency of the societal policies towards segregation and repatriation.

Concerning the relationship between language policy and the education of minority groups, Fishman (1977) pointed to some disadvantageous consequences of transitional (literacy) education. Designed to be compensatory, this model can be seen as absorptive with regard to the native language: L1 is only used to enable the minority child to acquire linguistic and literacy skills in L2. In such a model the linguistic and cultural background tends to be neglected. Furthermore, Fishman maintains that a language maintenance model will only lead to functional bilingualism and biliteracy, if both languages find support in the wider community. However, when the majority group is not interested in minority languages such a programme can become separative.

The language policies of regional and national authorities determine whether or not minority groups will be in a position to become literate in the majority language as well as in the minority language. Three types of language policy can be distinguished: language segregation, language assimilation and language maintenance (see Kloss, 1971; Spolsky, 1977).

Language segregation refers to a policy that calls for exclusive attention to the minority language. Such a policy is usually pursued to keep open the possibility of the remigration of a group. The segregation of groups of Turkish workers in the German state Bavaria is a case in point.

Language assimilation refers to exclusive attention to the majority language. This policy is often imposed on ethnic minority groups striving for political independence. As such, the minority language is not only an expression of cultural identity, but also of political identity. The struggle of Kurdish people to use their language in Turkey provides an example. In the case of immigrant groups, language needs usually involve the maintenance of cultural identity. However, in many cases the language policy of authorities is assimilatory and based on the argument that the adaptation of immigrant groups is in their own interest.

Language maintenance refers to maintenance of the native language and

culture as well as participation in the majority language and culture. Here, cultural pluralism in the country is also appreciated. The primary argument for such a policy is that every ethnic group should be considered equivalent. Maintenance of ethnic identities should therefore be supported. Such support implies that all ethnic groups have the right to (learn to) express themselves in their own ethnic language in oral and written communication. This right has been officially recognized by international organizations such as Unesco (1960), the United Nations (1966) and the European Common Market (1977). Fishman (1977) claimed that language maintenance will only succeed when people in the community give both languages enough prestige. Written materials in the minority language must therefore gain sufficient acceptance in the wider community if they are to be of functional value.

Language policy primarily manifests itself in two domains: mass media and education. As to the mass media, it is a matter of policy to what extent minority languages will perform public functions in the community. Measures in this domain concern the use of the written language in institutions, periodicals and libraries. As to education, the legal opportunities for minority language education are generally defined by law. In Figure 1.2 it is shown how educational policies can be transferred to educational objectives and to the literacy instruction models distinguished in 1.1.2.

Language policy	Educational objective	Instruction model
Segregation	L1 literacy	A
Assimilation	L2 literacy	B, C
Maintenance	Functional biliteracy	D, E, F

Figure 1.2: Relation between language policy, educational literacy objectives and literacy instruction models

If authorities decide on functional biliteracy as an educational objective, legal measures must first be provided which enable bilingual literacy instruction. In addition, adequate instructional materials in both languages and qualified teachers must be supplied.

1.3 Educational practice in literacy instruction for minority children

Many modern industrialized countries are confronted with the problem of educating large numbers of ethnic minority children. The question is how different societies have dealt with the arguments in monolingual and bilingual literacy instruction mentioned before. In this section, the responses in Northern American and North-West European countries will be discussed.

1.3.1 Canada

Two thirds of the Canadian population speaks English as a first language, while 26 percent of the Canadians are native speakers of French. Apart from these large language groups, there are several groups of immigrants who settled in Canada during the past decades, speaking German, Italian, Ukrainian, Hebrew, and other native languages. Canada has a long tradition of bilingual policy. The Confederation Act of 1867 granted French official status. However, in practice English was still the means of upward mobility in society. In the 1960s the official language policy was reassessed as a result of the Quebec separatist movement. In 1968 the Official Languages Act was passed which declared both English and French official languages with equal status in all societal institutions. Since that time funds have been allocated to enable bilingual education. In order to develop French language and literacy skills in Anglo-Canadian children, experimental immersion programmes were organized. Though these programmes have been set up for middle class children speaking a majority language as their first language, the appropriateness of educating minority language speaking children has also been argued for, especially by American educators. A short description of these programmes follows. In an immersion programme children are first taught in L2. Unlike submersion programmes, all children in the classroom share the same language background. As Genesee (1979) pointed out, the children are segregated from native speakers throughout their educational experience. Through daily interaction an attempt is made to have the children master L2. During the course of the programme, L1 is introduced as a second medium of instruction. The most cited experiment is the St. Lambert project (Lambert & Tucker, 1972). In this programme children were permitted to speak native English in kindergarten, but from the first grade this was discouraged. In the first grade, L2 French instruction in literacy and maths was started. Instruction in L1 English for one hour a day started in the second grade, but was gradually extended in subsequent classes. At the end of the sixth

grade about half of the instruction was given in English. The St. Lambert project served as a model for several variants of immersion programmes in various parts of Canada (for an overview: see Genesee, 1978-79).

Though the St. Lambert project and other similar projects demonstrated high levels of literacy and other abilities in L2 without weakening corresponding abilities in L1, the immersion approach was not thought suitable for minority children for whom English was not their native language. With these children several other approaches were followed. Initially, minority children were submersed in English classrooms with some extra lessons in English. However, in 1971 the Canadian authorities adopted an official policy of multiculturalism which resulted in the development of so-called heritage-language programmes (see Cummins, 1981). In these programmes an attempt is made to maintain the minority child's cultural heritage, so that a linguistic and cultural continuity between the minority and the dominant group can be established. In some programmes L1 instruction was only a small part of the school curriculum. In other programmes (e.g. for Ukrainian children), L1 was used for 50 percent of the curriculum throughout primary school, with literacy instruction usually being started in L1.

1.3.2 United States

In the United States minority groups and minority languages have been present for a long time. At the moment, Spanish is the most prominent minority language, followed at a clear distance by French, American Indian, Portuguese and Chinese. A discussion about bilingual education did not take place until the mid-sixties (see Andersson & Boyer, 1978). Two facts contributed to the onset of this discussion. First, evaluation reports showed that the exclusive use of English as a second language in literacy and academic education resulted in an high drop-out rate among ethnic minority pupils. Gradually it was accepted that in a multi-ethnic society monolingual schools did not constitute equal opportunity. Second, under the influence of the 'Civil Rights Movement', many minority groups started to react against the American authorities' policy of language assimilation. They searched for a possibility of expressing their ethnic identity and they claimed respect for their languages and cultures in a number of societal institutions (see Fishman, 1977). Both facts led to the idea that better opportunities for children whose proficiency in the dominant school language is limited can best be achieved through instruction in the child's

mother tongue while at the same time proficiency in L2 English is being developed. Initial experiments with this type of bilingual education showed a lower drop-out. Moreover, pupils appeared to be better motivated when their parents became more involved in the schools.

In 1968 the 'Bilingual Education Act' was passed. This act provided the funds for bilingual programmes, for the development of bilingual curricula and for the training of teachers. However, the act was not very clear about the ultimate aims of these programmes. In educational practice this lack of clarity resulted in transitional education: pupils were given the opportunity to receive bilingual instruction until the moment they were dominant in English (see Paulston, 1978). Another point of criticism is that in spite of the legal support in 1979 less than 40% of ethnic minority children with limited proficiency in English had the opportunity to participate in a bilingual programme. Limited funds and a scarcity of capable teachers are the reasons why in the future no substantially larger participation can be expected. According to Houlton & King (1985), the current status of bilingual education in the United States is one of political and financial confusion, which makes policies at the local school district level ambivalent and indecisive.

1.3.3 Sweden

Minority groups in Sweden come predominantly from Finland and from Mediterranean countries. The central aim of the education of minority children in Sweden is 'active bilingualism' (see Yletinen, 1978: 20-25). This definition includes biliteracy as well. In nearly all present educational models for minority children in Sweden the first language has a place. This is partially the result of research by Skutnabb-Kangas & Toukomaa (1976), which showed that the level and degree of L1 development has a significant influence on L2 development. At the moment there are three types of instructional programmes in Sweden concerning literacy development (Hajer, 1983: 51):

- 1 Mother tongue classes in which children of the same first language background start to read in their native language. After some time they learn to read in Swedish as well. Gradually the share of Swedish in the curriculum increases. At the end of primary school instruction is exclusively in Swedish, except for a couple of hours of instruction in the native language per week.
- 2 Integrated classes in which minority children are given instruction in Swedish, together with Swedish speaking peers. However, part of the timetable

in these classes is reserved for instruction in the native language. So initial literacy instruction is given in that language.

- 3 L2 classes. In these classes instruction takes place exclusively in Swedish, except for a couple of hours of instruction in the native language per week. Children whose proficiency in Swedish is insufficient to be able to learn to read are given extra lessons in Swedish or in the native language.

According to Skutnabb-Kangas (1980), the aims of these programmes refer to the policies of language maintenance, language transition and language assimilation, respectively. Paulston (1982: 53-54) claimed that parents and minority groups are especially involved in the first-mentioned programmes; however, the children from these groups were said to be more oriented towards the Swedish language and culture and therefore more involved in the last-mentioned programme.

1.3.4 Western Europe

Since the fifties England, France and West Germany have experienced a great influx of immigrant workers. National authorities in these countries reacted in more or less comparable ways (Wilke, 1975; Teunissen, 1982). Until the mid-seventies the number of minority children in school increased drastically as a consequence of family reunions and high birthrates. However, instruction was initially given in L2 only, with L1 lessons in some cases given outside the school. At that stage in time there was no coordinated educational policy.

Since 1975 the idea has gradually taken shape that many minority children were going to stay in their immigrant countries permanently or at least for a long time. This idea resulted, among other things, in the following guidelines by the Ministers of the EEC (1977):

- (1) *Member states must offer reception teaching which will include tuition in the language or in one of the official languages of the host country adapted to the special needs of foreign children.*
- (2) *They have to take appropriate measures in coordination with the country of origin to promote the teaching of the mother tongue and culture of the country of origin.*

Though these guidelines were discussed at length, they had little impact on educational policies in the separate EEC states (see Tosi, 1982: 11-14). In

England almost all immigrant children learn to read in English in uniform English only classes. Pupils with language and reading problems are often given extra L2 English lessons. However, since 1981 a number of national initiatives have been taken, which aim at offering assistance in mother tongue teaching (see Houlton & King, 1985). Education in minority languages is only given privately and usually outside the school.

The situation in France is comparable to that in England: literacy education is mostly given exclusively in L2 French; a few hours inside or outside the school curriculum literacy lessons in the native language are allowed for.

In Germany the organization of education for minority children's education is arranged for each state separately. According to Rist (1979), three educational variants can be distinguished. In some states (such as Berlin) minority children receive exclusive L2 instruction with the aim of integrating these children into the monolingual German educational system as soon as possible. Besides, there are states where minority children receive (segregative) literacy instruction in L1 in 'national schools' (for example Bavaria). The aim of this approach is to make possible a preferred remigration of minority groups. Finally, there are states in which experiments with bilingual literacy education are taking place (for example Nordrhein-Westfalen). However, the number of lessons in the native language in these experiments is very limited.

In Belgium and The Netherlands, ethnic minority children are rarely given initial literacy instruction in L1. In the vast majority of cases instruction is L2-based from the first year of primary school. In some cases first language teachers will start literacy instruction in L1 during a small proportion of the time-table, but this usually takes place without the two programmes being adequately geared to each other.

1.4 Paradigms in bilingual literacy research

From the present chapter it can be concluded that, though literacy can be acquired spontaneously, formal instruction for a rather long period is usually needed to teach minority children how to read and write. Accordingly, a choice has to be made from a wide variety of monolingual and bilingual instructional models. Choosing between the different models is difficult, mainly because of the lack of well-controlled long-term research. Studies which compare the

educational outcomes of minority children's learning experience in different instructional conditions are very scarce. Educational, linguistic, psychological, sociocultural and political arguments are in question when a final decision on literacy instruction for minority children has to be made. Political arguments are usually given the greatest consideration. First of all, the use and maintenance of a minority (written) language will depend on the political and economic power of the minority group in question. If such power is generally lacking, the possibility to use and maintain a minority language will depend on the societal tolerance for linguistic and cultural diversity and on the language policy which is taken by central authorities.

In Canada and Sweden there is an official policy in favour of bilingualism. On the other hand, the language policies in the United States and in many Western European countries can at best be characterized as ambivalent. In these countries the literacy development of minority children is usually based on monolingual L2 instruction. In some cases a transitional bilingual literacy programme is aimed at. However, in the vast majority of cases minority children are submersed in regular classrooms with exclusive instruction in L2. At the moment they start learning to read and write, minority children have a linguistic and socio-cultural background which may differ widely from that of native language speaking children around them. As yet, it is by no means clear what effects such differences may have on literacy success or failure. One of the major causes of this state of affairs is the absence of data based on systematic empirical research. What is clearly needed is a theory relating to the learning processes associated with the literacy instruction of minority children. A theoretical description of the processes of acquiring literacy in a first and second language does not serve purely academic goals; it may also lead to didactic suggestions for the actual educational practice.

With reference to the processes involved in the acquisition of literacy in ethnic minority children, a distinction can be made between structural and temporal characteristics (see Verhoeven & Extra, 1983; Verhoeven, 1985b). With a view to developing a theoretical description such as the one mentioned above, two research paradigms can be considered relevant. The first paradigm concerns the structure of processes of L2 literacy acquisition. A theoretical network is needed which is based on empirical research data from which the processes of literacy acquisition of L2 learners can be compared with those of L1 learners. The assumption is that, apart from universal principles that will also apply to first language acquisition, in L2-learning processes certain (language-)specific

principles will play a role as well. It would therefore be important to trace both types of principles by systematic research. The second paradigm concerns the individual variation in the rate of acquisitional processes of literacy acquisition in L1 and L2. Ethnic minority children will differ in the pace at which literacy (sub)skills are acquired. It should be possible to identify the variables that account for such differences (see Long, 1980: 33).

In the next two chapters a state of the art review will be presented regarding the two paradigms: Chapter 2 compares the structure of processes of literacy acquisition in a first and second language; Chapter 3 gives a review on the temporal variation in literacy outcomes in a first and second language.

Acquisition of Literacy in a First and Second Language

In the present chapter the processes of literacy acquisition in a first and second language are compared. With respect to learning to read and write in a first language, a considerable body of research data is available. Though a general consensus on the acquisition of literacy in L1 is lacking (see Resnick, 1979; Mitschell, 1982; Ellis, 1984; Perfetti, 1984a), a number of theoretical insights are agreed upon. However, the state of affairs concerning acquisitional processes in L2 literacy is far from clear-cut (see Simons, 1979; Shuy, 1979; Hall & Guthrie, 1982). It is unclear what effect linguistic and socio-cultural differences in background between L1-learners and L2-learners have on the course of literacy processes.

In the first section research evidence on literacy acquisition in L1 is summarized. Special attention is paid to studies which concern the linguistic skills underlying reading and writing. No attempt to give a complete review of L1 literacy research will be made. In section 2 acquisitional processes in L1 literacy are contrasted with those in L2 literacy. A hypothetical account of similarities and differences between the two types of processes is given. With regard to processual differences, a model of the bilingual user of (written) language is introduced. Taking this model as a starting point, possible differences between first and second language learners as to the efficiency of subprocesses in reading and writing are put forward. In the next section, a review of previous research in second language literacy processes is given. A distinction is made between studies on the various linguistic components, i.e. word recognition, reading comprehension, word spelling and discourse production. In the final section, the state of the art of research on the acquisition of literacy in a second language is discussed.

2.1 Acquisition of literacy in a first language

2.1.1 Learning to read

With respect to the acquisition of reading in a first language, three issues

are summarized. First, the basic models which have been chosen in order to describe the reading process and its underlying components are reviewed. In addition, two essential components are more extensively discussed: word recognition and reading comprehension.

Process models. With regard to the process of reading, traditionally two basic models can be distinguished: bottom-up versus top-down. In the bottom-up approach processing starts with the raw input and passes through increasingly refined analyses until the meaning of the text is grasped. The critical reading event from which meaning will follow is defined as decoding. By means of decoding, written symbols are transferred into units, such as words, morphemes and phonemes. As a result of continued experience in reading, the structure of orthography is acquired, so that reliance on speech units can be reduced. A typical bottom-up model of the reading process comes from LaBerge & Samuels (1974).

In the top-down approach decisions made at higher levels of processing are used to guide choices at lower levels. In order to arrive at the meaning of a text, the reader may activate his knowledge of the structure of language and his knowledge of the world. It is suggested that top-down influences can occur at different levels of processing, including the extraction of visual information, the parsing of sentences and the recognition of words out of context. Top-down effects at relatively early stages of the reading process have been proposed by Goodman (1976). He defined reading as a selective, tentative and anticipatory process in which graphonological, syntactic and semantic cues are added to the perceptual image from the text in order to make a final choice about the identity of the word.

At the moment neither bottom-up nor top-down models have proved to be fully satisfactory. Given the fact that both the raw text and the reader's expectations can make significant contributions to the reading process, interactive models which take both sources of information into account can be seen as more realistic. Rumelhart (1977) has proposed a model of reading in which both types of information are drawn upon before the reader eventually comes to an interpretation of a text. In Figure 2.1 this model is graphically displayed.

Figure 2.1: Graphic representation of Rumelhart's interactive model of reading

In the first stage information is picked up and registered in a visual information store. Visual features from this store are extracted and made available to the central part of the model: the pattern synthesizer. This component of the model is based on a wide range of sources to arrive at an optimal interpretation of the text. The main sources are information about letter features, orthographic knowledge, lexical information, information about syntactically and semantically acceptable expressions and contextual information. Each source of knowledge contributes a set of alternative hypotheses about the text. By checking the alternative hypotheses of all sources, a final interpretation of the text is arrived at.

Word recognition. The main issue in word recognition concerns the accessibility of word representations. Coltheart (1978) and McCurster, Bias & Hillinger (1981) claimed that for advanced readers recoding print into speech prior to lexical access is not necessary. However, Perfetti & McCutchen (1982) proposed that speech information is routinely activated as an automatic component of lexical access. Perfetti (1984b) has proposed a verbal efficiency theory which is based on the assumption that some of the higher order processes of comprehension require a share of limited resources. Comprehension is said to be hard if word identification also requires a significant share of these resources. The theory predicts that comprehension skill will be related to word identification speed (Perfetti & Lesgold, 1977). It also predicts that poor readers will be more dependent on context for word identification than good readers (Perfetti & Roth, 1981).

An important question is how individual differences in verbal efficiency in the course of reading acquisition arise. Doctor & Coltheart (1980) suggested that the initial stage of acquisition is marked by a shift from mediated to direct word recognition in that younger readers rely more on phonological mediation than do older children. Through reading practice children will be able to learn the ultimate print-to-speech-mappings. When a written word is encountered, its componential letters must be identified. The printed word must then be analysed by a visual analysis system which will create an internal letter code to be transferred by letter-sound conversion into an acoustic code. The latter code can then be identified by the auditory word recognition system (Adams, 1979). Through experience readers build up recognition units which identify letter codes rather than acoustic codes. Thus, letter patterns that occur quite frequently in words can acquire a representation status which is based on the reader's implicit understanding of orthographic rules (Venezky, 1970). In addition, word representations can be created which can respond to the word directly when it is encountered in print (Baron, 1977). This direct route benefits when homophones are spelled differently (Reitsma, 1983).

According to the logogen model (Morton, 1980, 1982), word representations or logogens have a threshold which determines the amount of activation to be present in order for a logogen to be fired. If so, access is provided to the meaning and pronunciation of the word. Each time a logogen fires, its threshold is said to be lowered somewhat, so that less activation is needed to fire the word a next time. This fact explains that lexical access in high-frequency words is facilitated. However, Morton (1979) has claimed that repetition priming is modality-specific. That means that distinct auditory and visual recognition units operate in distinct representational systems. Forster (1976) and Becker (1976) have proposed an alternative word recognition model. They assume that the process of word recognition starts with the isolation of a particular subset of lexical units for special consideration. All units that exceed a fixed criterion level of activation are said to be included in the so-called 'shortlist'. In a later phase the items in the shortlist are individually checked. When a satisfactory match with one of the items on the shortlist is found, the word is considered to be recognized. Although both word recognition models are different in some details, the general characteristics of the two models are similar.

An essential issue in word recognition concerns the structural word factors which account for the accessibility of written words. Word length has proved to

influence the naming latency of words. Frederiksen & Kroll (1976) found that the naming of words and non-words yielded an array-length effect. Naming latency increased with an increase of the number of letters. In addition, Mason (1978) showed that the array-size effect increased as reader ability diminished.

Orthographic regularity is a second factor that affects lexical access. Baron & Strawson (1976) and Bauer & Stanovich (1980) reported that even skilled readers produce longer pronunciation and lexical decision latencies for exception words compared to matched regular words. The regular pronunciations did not interfere with the recognition of exception words. Furthermore, Glushko (1979) demonstrated that regularity effects reflect the extent to which a word's pronunciation is consistent with that of its orthographic neighbours. He found that words which have a regular pronunciation, but share the same inconsistent spelling pattern as an exception word, produced longer naming latencies than matched regular words.

Seidenberg, Waters, Barnes & Tanenhaus (1984) have shown that the effect of variation in the correspondence between spelling and sound is dependent on another word factor, i.e. word frequency. They found that the conditions under which irregular spelling or pronunciation affects word recognition are restricted to the reading of lower frequency words. The pronunciation of higher frequency words turned out not to be influenced by uncommon spelling or irregular pronunciation. These results suggest that common words are rapidly recognized on the basis of familiar visual information with pronunciation subsequently read out of the memory store. One implication of the latter finding is that the effect of orthographic regularity will be dependent on reading skill. Indeed, Backman, Bruck, Hebert & Seidenberg (1984) showed that children who are good readers are able to process higher frequency words directly in an early stage of literacy acquisition.

Another essential point in word recognition involves the role of prior context. Meyer & Schvaneveldt (1971) and Schvaneveldt & Meyer (1973) found support for the role of contextual priming in reading. They observed that lexical decision latency decreases if a letter string followed a word which was semantically related to it, even if a non-related word was placed in between. Fischler (1977) found a similar facilitation effect with a sequential presentation of two words with only a moderate associative strength. These data could be explained in terms of the theory of automatic spreading activation (Collins & Loftus, 1975). According to this theory, the activation of a memory location by a context

stimulus spreads out to word representations which are related to that stimulus in a semantic network. Subsequent presentation of one of these words as a target will result in facilitation of its , recognition. Posner & Snyder (1975) claimed that besides this automatic contextual process there is a second process which is guided by a conscious attention component. This process which also aims at predicting target words prior to their presentation can both facilitate and inhibit the recognition of the targets. If an expected word is subsequently presented as the target, it will be recognized relatively fast. If, however, the target is unrelated to the prior stimulus its recognition will be inhibited.

Neely (1977), West & Stanovich (1978) and Stanovich & West (1979) provided evidence for the distinction of two kinds of contextual processes in understanding the semantic facilitation effect. In a number of experiments subjects were required to read a sentence, followed by a target word which was congruous, incongruous or neutral in the sentence context. It was found that skilled readers tend to show a facilitation effect when a short interval between context and target word was chosen without any sign of inhibition. However, if the processing of the target word was delayed or degraded somehow, both types of effects were obtained. The latter effect was also found when inexperienced readers were used as subjects (Stanovich 1980). Though it has been demonstrated that a facilitatory context can speed up the process of word recognition, it seems doubtful that the facilitatory effects of predicting words outweigh inhibitory effects (Perfetti, Goldman & Hogaboam, 1979). Stanovich (1980), and Perfetti & Roth (1981) have suggested that the set-up of facilitation effects is rather time-consuming. It seems that in many cases context-free word recognition proceeds faster than making use of context allows.

The findings of the studies just mentioned culminate in the interactive-compensatory model of reading proposed by Stanovich (1980). Basically, this model assumes that a deficit in any particular process will result in increased reliance on other information sources. In line with Perfetti's verbal efficiency theory it is furthermore assumed that skilled reading involves faster, context-free word access than does less skilled reading. As such, the model predicts that skilled readers will succeed in using facilitation effects before any slower contextual processes which may result in inhibition can take place. On the other hand, less skilled readers are said to be more dependent on the contextual processes, so that weaker facilitation effects and stronger inhibition effects will occur.

Reading comprehension. Studies of eye movements (Just & Carpenter, 1980; Carpenter & Just, 1981) have revealed some important aspects of the process of reading comprehension. First, it was found that even skilled readers fixate on most of the words they read, indicating that lexical access is the central recurring reading event. In addition, it was shown that interpretation immediately follows recognition ('immediacy assumption'), and that fixations tend to be longer at the end of sentences. The latter finding indicates that integrative comprehension processes must particularly take place at sentence endings. Sentence comprehension can at best be understood as an operation which uses both sentence structure and word meanings to formulate hypotheses about the meaning of sentence. Clark & Clark (1977: 55-79) have demonstrated that the process of interpreting sentences involves the use of particular syntactic and semantic strategies. Syntactic strategies make use of function words, suffixes, prefixes and grammatical categories of content words as clues to the identity of constituents and their underlying propositions. Semantic strategies, on the other hand, take content words and their meaning as a starting point for interpretation by taking advantage of the fact that sentences refer to real objects, states and events, and fit with ongoing discourse.

The use of syntactic and semantic strategies has been studied extensively by analysing the miscues made by children reading a text aloud. The usual procedure is to establish whether observed miscues can be accounted for in terms of graphonological, morphosyntactic or semantic strategies related to the target language. According to Goodman (1967, 1969), the following types of miscues appear to occur in learning to read:

- insertion: adding items to the text;
- deletion: omitting items from the text;
- substitution: replacing items with other items in the text;
- permutation: changing the order of items in the text.

In addition to miscue-analysis, aspects of monitoring were usually studied as well. Monitoring can be defined as paying conscious attention to what is being read. Monitoring manifests itself primarily as self-repetition and/or self-correction. On the basis of studies by Weber (1970), Biemiller (1970, 1978), Cohen (1975) and Francis (1977), a developmental sequence of reading strategies was uncovered which moves from the predominant use of context, to graphic-contextual conflict (no response), to the predominant use of graphic cues (nonsense errors), to the integrated use of graphic and contextual cues (see Donald, 1980). With regard to monitoring it was concluded that an efficient use

of the self-correction strategy was linked to the optimal development of the early reading process (Clay, 1970, 1979). However, though some evidence was found for the facilitation of word recognition by context, studies on miscue analysis have failed to find that this effect further increases with age and reading ability.

Kintsch & Van Dijk (1978) have proposed that the comprehension of text not only involves the interpretation of isolated sentences, but also the construction of text models. They suggest that readers develop a propositional base for each sentence as they progress through the text, with the resulting propositional representation serving as the sole basis for analysing cohesive ties among sentences. The propositional structure of the contents of a passage is said to delineate two types of structure. The first is a micro-propositional structure referring to the coherence of propositions that are in close proximity in the text. The second is a macro-propositional structure, specifying a more global level of meaning which is largely derivable from the first, and which consists of propositions that characterise the text as a whole. Haviland & Clark (1974) and Clark (1978) have suggested that listeners and readers often link propositions together by making use of the 'given-new strategy'. According to this strategy, the propositions in a current sentence are interpreted in terms of given and new information. Next, the internal representation of the preceding text is searched for an antecedent which exactly matches the given information. If such an entity can be located, the new information in the current sentence is stored with the given information which has just been located.

With regard to linking propositions together, two other discourse devices appear to be extremely important: anaphoric reference and inference. Anaphoric reference implies the relation between an element in the current proposition and an entity mentioned earlier in the text. Halliday & Hasan (1976) distinguish several forms of anaphoric reference, such as pronominal reference, synonyms, superordinates, collocational expressions, etc. Pronominal reference is a special case in that pronouns are used as reference terms which instead of being semantically interpreted in their own right make reference to something else for their interpretation. As such, the reference relation is explicitly marked.

Children's understanding of anaphora is thought to be an important intersentential device in reading comprehension in that the choice between possible antecedents presupposes sophisticated syntactic, semantic, pragmatic and inferential abilities (see Webber, 1980). Bormuth, Carr, Manning & Pearson

(1970) presented fourth grade children with short passages containing anaphoric structures. After reading each passage, children answered a question based on the target syntactic structure. The following ranking of difficulty was made. Pro-clause so was easiest, followed by pro-adverb, pro-verb, deleted modifier, noun phrase demonstrative, numerical pronominal, inclusive pronoun and deleted noun. Apparently more difficult were the devices negated pronoun, clause demonstrative, semantic substitute and personal pronouns. Lesgold (1974) challenged this hierarchy and came up with different results. In order of decreasing difficulty the following ranking was found: pro-clauses and pro-verbs, demonstrative noun phrase pronouns, demonstrative clause pronouns and personal pronouns. Lesgold attributed the variation in results to the effects of semantic factors such as background knowledge of the reader. Barnitz (1979) conducted a study which described the development of selected pronoun-referent structures among working class children in grades two, four and six. Three linguistic comparisons were made: referent types, referent order and referent distance. Target sentences were constructed containing these features and were embedded in short passages. Each passage was followed by questions based on the target structure. It was found that noun phrase pronominal structures were easier to comprehend than sentential pronominals, structures with forward reference were easier than those with backward reference, and there was no difference between intersentential structures and intrasentential structures.

As to inference, there is a considerable amount of evidence that skilled readers draw implications when reading text. According to Johnson, Bransford & Solomon (1973), implications are often wholly or partially based on world knowledge. From a developmental point of view it has been found that children as young as six years or even younger can make inferences of various kinds (Paris & Lindauer, 1976; Trabasso, Riley & Wilson, 1975). Furthermore, MacNamara, Baker & Olson (1976) have demonstrated that there is a developmental trend in making inferences of various sorts. Concerning the understanding of semantically complex propositions in some predicates, they conclude that assertion, presupposition and implication can be seen as distinct propositional components.

2.1.2 Learning to write

Hayes & Fowler (1980) claimed that the process of skilled writing can be divided into three kinds of activities: planning, translating and reviewing. In

planning the writer sets goals and plans the content of a text; in translating plans and knowledge are expressed in a written code; in reviewing the results of planning and translating are tested. They suggested that instead of being separate and discrete, the three stages often involve parallel operations. Furthermore, the initial stage of planning is said to be influenced by the task environment (topic, audience), by the writer's knowledge of the environmental factors which are in play, and by the heuristic plans he has developed. During the planning stage topics or ideas have to be broken down into sequences of propositions which can be expressed by clauses or sentences. In factual writing words which conform to standard spelling have to be written down successively.

In comparison to the amount of recent research on learning to read, the acquisition of writing has been relatively neglected. Moreover, most of the work on written language production has been devoted to word spelling (Graves, 1978). In this section we will first summarize studies on spelling behaviour. Additionally, studies on writing discourse will be reviewed.

Word spelling. Skilled writers usually make use of a visual-orthographic strategy in spelling words (Barron, 1980). From experiments on the spelling of homophones there is ample evidence that words can be retrieved as wholes from a sort of word production system, such as Morton's graphic output logogen system. According to Morton (1980), such a system contains many separate production units which can be activated by semantic representations. If the appropriate production unit is activated, the corresponding letter string will be released. The spelling of a word can also be retrieved by displaying a phonemic specification of the sound of the word to be written from the speech output logogen system. Phonic mediation will take place when unfamiliar words have to be written. Two spelling strategies can then be used (Simon, 1976). The first is breaking the word down into smaller units and applying phoneme/grapheme correspondence rules. This strategy starts with the segmentation of the word into its component syllables or phonemes. It will continue with the suppliance of letters by which these segments are represented. Finally, the letters will be blended into a word spelling. The second strategy arrives at a word spelling by analogy. Wing & Baddeley (1980) and Campbell (1983) have provided evidence that skilled writers make use of analogies with similar sounding common words. That implies that the phonemic form of an uncommon word can activate the production units of common words which have a similar sound.

In the early stages children appear not so much interested in the products

of writing, but rather in its process (Read, 1981). In learning to write the child is faced with at least two hurdles. First, the motor activities which are involved in writing must be mastered. By means of continuing practice, children will learn the orientations of the different letters and acquire the perceptual-motor coordination which is required in fluent writing. A second hurdle is the acquisition of spelling strategies. C. Chomsky (1970, 1979) and Read (1971, 1986) studied the spontaneous acquisition of spelling strategies by preschool children. Both authors found that some of the children without formal instruction create their own spelling systems. Chomsky reported that most of these children start writing before they read. They spelled words as they pronounce them, their word spellings being based upon letter-names and phonetic similarities. Read provided further information about the nature of spontaneous spellings. He found that preschool spellers generally represent phonetic detail which is abstracted in standard spelling because it is predictable. For instance, these children deleted preconsonantal nasals, because they only have the phonetic effect of nasaling the preceding vowels. As a second example, they invented systematic ways of representing lax vowels. They used the letter name of the vowel closest to the place of articulation of the vowel needed (e.g. /ship/ spelled as SEP). This system sometimes gave way to overgeneralization errors in spelling. When entering the first grade, children often learn the correct spelling of a word, but tend to overgeneralize a rule invented earlier. According to Read, young children are very sophisticated in analysing the phonetic structures of words, and in inventing plausible ways of representing these structures orthographically. He suggested that their approach to writing remains close to the surface structure of language in that predominantly words are spelled by representing individual sound-segments and syllables.

Read (1975, 1986) and Gundlach (1981) studied the spellings of first graders. They found that by that time children make use of two systems: one for reading standard spelling and another for writing in their own invented orthography. In an orderly pattern of acquisition, children appeared to gradually adopt the comparatively abstract characteristics of standard spelling. Marsh, Friedman, Welch & Desberg (1981) showed how children's strategies change as a function of their knowledge and experience. They reported a marked developmental increase in the use of the analogy strategy. Whereas children seem to start out with a simple sequential phonemic encoding strategy, they later develop a hierarchical encoding strategy, involving orthographic rules. In addition, they develop a strategy of spelling unknown words by analogy to the

spelling of known words.

Discourse writing. Besides specific motor activities and spelling, children must acquire the structural and stylistic characteristics of written language. First of all, writing demands the development of explicitness. In addition, children must learn to use the sentence as a new syntactic unit. Whereas in oral interaction clauses follow one another in a chain with no clear end-point, in writing, sentences containing usually more than one clause stand in a hierarchical relation to each other. Learning to write thus demands the development of planning, insight into the structure of sentences and larger textual structure such as episodes and paragraphs, and knowledge of rules for punctuation.

Kress (1982) concluded from countless examples of texts written by children that the mastery of writing involves both conceptual and linguistic development. Richardson, Calnan, Essen & Lambert (1975) in a review of syntactic development in writing came to the conclusion that older children tend to write longer and more complex sentences than do younger children. In an additional study they found that with eleven-year-old children length of composition did correlate with a non-verbal intelligence test, but not with syntactic maturity as measured by mean length of sentences. Gundlach (1981) found evidence that in initial writing syntactic patterns are influenced by speech patterns. As to the level of discourse, she observed that from an early stage of development a beginning-middle-end arrangement was followed. Moreover, she noticed that with progression of age children's compositions tend to become longer and more hierarchically structured. Bartlett & Scribner (1981) analysed reference organisation in written narratives of third to sixth graders. They found that all children produced more referential expressions in more complex contexts than in relatively simple contexts. From a closer look at the referential devices they concluded that most were in principle adequate for signaling the required distinctions. Ambiguities appeared to be primarily related to momentary performance factors.

2.1.3 Summary of research evidence

In summarizing the research on literacy acquisition in a first language several conclusions can be drawn. With respect to learning to read, it can be argued that processes can best be described by an interactive model which takes into

account both bottom-up and top-down information. Furthermore, there is good evidence that word recognition, forms a critical part of reading. In acquiring reading, children learn to use three representational systems: ⁽¹⁾phonemic mapping, ⁽²⁾recognition of orthographic patterns and ⁽³⁾direct word recognition. During the process of acquisition children gradually shift from access of word representations through phonic mediation to direct access of such representations. Though it was found that context may speed up word recognition, facilitation effects only seem to occur if fast context-free word access can take place. In addition, reading comprehension involves various operations beyond the word level. Comprehension of sentences includes the use of syntactic and semantic strategies which generate hypotheses about the meaning of sentences on the basis of sentence structure and word meanings. In discourse comprehension a distinction can be made between the development of a coherent micro-structure of propositions in the text and a macro-structure of propositions which characterize the text as a whole. In linking propositions together anaphoric reference and inference are the prominent devices.

With regard to learning to write, it can be concluded that, in accordance with lexical access in reading, word spellings can be retrieved directly or through phonic mediation. There is ample evidence that in learning to spell children take their own invented orthography as a starting point. The acquisition of discourse writing demands the development of planning, insight into the structural notions of sentence, episodes and paragraphs and knowledge of rules for punctuation. The mastery of writing involves both conceptual and linguistic development on the part of the learner.

2.2 Comparison of first and second language literacy acquisition

2.2.1 Similarities and differences

The processes of acquiring literacy in a first and a second language show both similarities and differences. The first similarity is that in both contexts learners are faced with a comparable task which comprises the understanding of functional and structural characteristics of written usage. From a functional point of view, children must learn that, by means of written language, information can be stored in a more or less permanent way and can be transmitted to people, regardless of space and time. This implies that they have to learn to (re)produce discourse in the physical absence of an addressee. They will also

have to develop a habit of explicitness in their writing. From a structural point of view the syntax of written discourse, which is characterized by hierarchically ordered sentences, will have to be acquired. It seems that in interaction with the environment and in response to stimulation from it, both first and second language learners are able to acquire the essentials of literacy through similar processes of discovery. According to Cohen (1985), three stages can be distinguished. First, the meaning of a written message is grasped intuitively and in general terms. At the same time, guesses are made and hypotheses formulated. The significance of the message is worked out on the basis of all the information available. In the second stage the child seems to crack the code by making visual and aural comparisons. Finally, in a stage of synthesis the child uses the materials he has discovered to reconstruct words or to form new ones. Cohen notes that these stages are not necessarily in succession.

A second similarity is that with both groups of learners there is an asymmetrical relation between comprehension and production of written language. In both L1 and L2 literacy acquisition, reading skills are always ahead of writing skills. Moreover, it can be claimed that at the onset of literacy instruction the essential conventions of the writing system are acquired through reading. Frith (1980) suggests that during the process of literacy acquisition children gradually learn to use their insight in orthography through reading as a starting point for writing standard spelling.

A third similarity is that in both contexts previous learning experiences seem to be very important. According to Downing (1979), children often approach the tasks of reading and writing with only partially developed concepts of the functions and features of oral and written language. Wells (1981) demonstrated that with children of different ethnic backgrounds understanding of such concepts at the onset of literacy instruction strongly predicts literacy results. Moreover, the understanding of literacy conventions proved to be strongly related to the extent to which parents share their own interest in literacy and to the quality of interaction. According to Wells, familiarity with the ways language can be used symbolically, to represent remote, imaginary or even hypothetical events and experiences is primarily associated with written language, and as such it is an important requirement for the acquisition of literacy. Hernandez-Chavez & Curtis (1984) arrived at a similar conclusion regarding the literacy experiences in early childhood of Mexican-American and Anglo children. The development of children's conceptualisation of print

appeared to be clearly related to the nature of literacy socialization. In addition, literacy socialization and graphic sense turned out to be more valid measures of children's readiness for literacy learning than traditional measures such as segmentation abilities.

Besides similarities, several differences in first and second language literacy acquisition can be distinguished. A striking difference concerns the temporal factors in both acquisitional contexts. In many comparative studies it has been found that individual variation in achievement or rate of learning to read and write is much larger among non-native learners than among native learners (Hatch, 1974; Argulewicz & Sanchez, 1982). Moreover, it has been noted that many bilinguals who are fluent second language users in normal communicative situations, nevertheless read more slowly in that language (Favreau & Segalowitz, 1982). The large individual variation in achievement in second language literacy acquisition can largely be explained in terms of considerable differences in linguistic and socio-cultural background. Bilingual learners bring with them a quite specific information processing system containing two subsystems, aimed at comprehension and production of L1 and L2 respectively. Following Levelt & Kempen (1976) each subsystem can be thought of as hierarchically built and consisting of four ability levels:

- phonological abilities directed to the discrimination and production of sounds;
- lexical abilities directed to the comprehension and production of words;
- syntactic abilities directed to the comprehension and production of sentences;
- textual abilities directed to the comprehension and production of discourse.

The bilingual language user can thus be defined as an information processing system in which two linguistic subsystems are somehow geared to each other. In Figure 2.2 we present a model of the bilingual language user which emerges from these considerations. The present model is interactive in that it allows both bottom-up and top-down processing in reading. Sources of information that can be used in order to arrive at an interpretation of a text may include information about letters and spelling patterns, information in the mental lexicon, information about what is syntactically and semantically acceptable and information about the contextual situation. In long-term memory a central position is occupied by the conceptual system which is linked to both linguistic

Figure 2.2: Model of the bilingual language user

systems. The conceptual system is used to build a structure of concepts which represents the meaning of consecutive input sentences. It also gives the opportunity to make inferences based upon background knowledge and on contextual information outside the text.

Considering this bilingual language user system, in what ways can performance in reading and writing in the second language be different from reading and writing in the native language. Three possibilities arise: by interference from L1, by limited proficiency in L2 and by restricted background knowledge. With regard to the early stages of literacy acquisition, the first two possibilities can be thought of as extremely relevant. Accordingly, these will be worked out more extensively below. The influence of restricted background knowledge at the onset of literacy acquisition is thought to be less strong because in the early school curriculum narrative discourse is emphasized.

2.2.2 Source language interference and L2 literacy processes

Second language learners have a specific characteristic in that they have developed skills in their mother tongue which can cause interference in L2 reading and writing. This possibility is indicated in Figure 2.2 by the two reciprocal arrows between the two language subsystems. Several methods can be distinguished in order to determine whether knowledge of L1 causes interference in L2 literacy processes. The first is contrastive analysis. For a more extended historical overview: see Van Els et al. (1984). This type of analysis is based on similarities and differences which exist between two or more languages. In

its strong version contrastive analysis is based on the assumption that the prime cause or even the sole cause of difficulties and errors in second language learning is interference originating from the learner's source language. In order to be able to predict the difficulties and errors which will occur in second language learning, a comparison between the two languages was made. In a weaker version contrastive analysis claims at least some of the observed learning problems can be explained on the basis of linguistic differences between L1 and L2. In the case of literacy acquisition through L2 instruction, corresponding structures in L1 and L2 may result in interference on the level of phonology, lexicon or syntax. In cases of bilingual literacy instruction, orthographic interference may occur as well.

An approach which has a broader focus on the learner is error analysis. The methodology of error analysis can be said to have followed a uniform method, consisting of several steps: data-collection, identification of error, classification into error types and analysis of the source of errors. Following this method two types of learning problems can be observed: *interlingual* and *intralingual* learning problems. Interlingual learning problems, traditionally interpreted as interference problems, are caused by mother tongue influence; intralingual learning problems are caused by the structure of the second language. As Simons (1979) has pointed out, many errors made by L2 learners, such as overgeneralizations of rules and orthographic inconsistencies, can be termed intralingual in that these relate to a specific interpretation of the target language. In this light, Corder (1977) suggested a new way of looking at L2 learning errors by referring to substantial similarities between the strategies employed in first language learning and those in second language learning. Processes in oral and written L2 acquisition were said to imply successive hypotheses about the nature of the L2. Thus, the errors of the second language learner are not only inevitable, but are a necessary part of the language learning process. According to Corder, errors are to be seen as systematic consistent deviations which are characteristic of the learner's L2 system at a given stage of learning. Errors are thus separated from mistakes, which are deviations due to performance factors such as memory limitations, fatigue, etc.

2.2.3 Limited oral proficiency and L2 literacy processes

Taking the intralingual nature of L2 literacy processes as a starting point,

the influence of the level of oral proficiency of L2 learners in the target language can be studied. In many cases, L2 learners will in general be less competent in the target language than are native speaking peers. This fact has two implications. The first is that L2 learners will have specific problems in following instructions in literacy education. Cummins (1979) claims that the child's cultural experiences and linguistic competencies must be taken as a starting point. He suggests that especially minority language children with a low socio-economic background are dependent on the school to provide the prerequisites for the acquisition of literacy skills. Inappropriate forms of educational treatment are said to transform the child's input linguistic knowledge into deficient levels of L1 and L2 literacy skills.

The other implication holds that L2 learners may have considerable difficulties in grasping the linguistic patterns of the target language and in using (meta)linguistic cues in reading and writing. Limited oral proficiency in a second language may influence the various subprocesses of reading and writing in that language. Thus, as to the degree of efficiency with which such subprocesses proceed, there can be several differences between first and second language learners.

With reference to *word recognition*, the following differences may be observed:

1. There could be differences in processes of phonic mediation. L2 learners may have relative difficulty in recoding letter strings phonemically. Because L2 learners are often less capable of distinguishing sounds (Ervin-Tripp, 1970), their acquisition of grapheme-phoneme correspondence rules may be troublesome. A lack of full auditory discrimination of phonemes may hamper the assignment of a full range of correct pronunciations to individual letters. Moreover, if the child does not know the meaning of the words, phonic mediation will be experienced as a meaningless rote procedure. Whenever such problems occur, L1 and L2 readers must differ in their capacity to pronounce unfamiliar words or orthographically regular nonwords (pseudo-words). Part of the difference may lie in the speed and accuracy with which individual letters are identified, but major problems can be expected with the use of grapheme-phoneme rules and with the blending of sounds.
2. There may be differences between L1 and L2 learners in their ability to make use of orthographic constraints in word recognition. Such differences could be due to a restricted awareness of phoneme distribution rules in the target

language on the part of the L2 learner. It seems likely that partial lack of such awareness will hamper the inductive learning mechanism which is able to organize (grapheme-)phoneme patterns. If L2 learners have difficulty in using orthographic constraints, they will have relatively more trouble reading longer words.

3. It may be that L1 and L2 learners differ in their efficiency of direct lexical access. Due to a relatively small vocabulary, second language learners may have trouble in filling their visual word representation system. There will only be a chance of constructing a visual word representation of a word if its meaning is known. The most salient variable indicative of lexical accessibility is word frequency. Therefore, it can be predicted that L2 learners will profit from word frequency in lexical access to a lesser degree. Words which are encountered by L2 readers will frequently be unfamiliar. As a result they may have to switch from direct to mediated access which will increase word processing times. If this is true, L2 readers will be relatively less efficient than L1 readers in decoding high-frequency words as compared to low-frequency or pseudo-words.

With reference to *reading comprehension*, the following differences between L1 and L2 learners may be observed:

1. There may be differences between L1 and L2 learners in their use of syntactic and semantic constraints. L1 readers often rely on automatic processes to facilitate the identification of contextually relevant items. As a consequence of their high speed decoding processes and their lexical knowledge, a rapid automatic spreading activation process for contextual facilitation will become available. This process will lead to priming contextually relevant words with no inhibitory effects on contextually inappropriate words. On the other hand, due to restricted lexical and syntactic knowledge or limited background knowledge, L2 readers will often have difficulty using contextual constraints to narrow down lexical ambiguities. Consequently, their decoding speed may decrease while the 'spreading content' of the accessed words will be relatively limited. This implies that in memory search controlled attentional processes may take place with both facilitatory and inhibitory effects on the recognition of contextually unknown or unexpected words.
2. There may be differences between L1 and L2 readers as to higher order comprehension processes which follow the identification of words. L2 learners

may have difficulty in parsing sentences into their constituents and in finding their underlying propositions. Moreover, because of inefficient sentence processing the storage capacity for retaining strings of words in short-term memory may fall short. Comprehension difficulties may also play a role on the level of discourse. Limited textual knowledge in L2 may give way to a poor understanding of discourse devices such as coherence of sentences, anaphoric reference and inference.

3. There may be differences between L1 and L2 learners in the interaction of the different subprocesses of word recognition and reading comprehension mentioned before. In keeping with LaBerge & Samuels' (1974) notion of automaticity, L1 readers may become capable of completing some of these processes automatically. In consequence, they will be able to devote more processing capacity to other parts of the reading task. On the other hand, L2 readers may not achieve the same degree of automaticity in comparable subprocesses. Thus they will not be in a position to attend so closely to other processes. As a result these processes may be inhibited. In addition, it has been claimed by many researchers that fluent word recognition can only take place if readers are able to create redundancies in their lexical access. Thus, multiple representations such as single letters, orthographic patterns and visual word patterns as well as contextual influences may be important for achieving accuracy and fluency in lexical access. Partial lack of such redundancies in L2 readers may have a negative impact on their reading performance.

With regard to writing, analogous differences in performance between L1 and L2 learners can be assumed. With regard to *word spelling*, L2 learners may suffer from lack of awareness of phoneme-grapheme correspondency rules in the initial stage of learning, and from limited chances in producing words directly or by analogy at a more advanced stage. With reference to *discourse writing*, the restricted lexical, syntactic and textual knowledge, as well as a limited background knowledge may cause learner difficulties. Linguistic analysis of word spellings and discourse compositions of both L1 and L2 learners in the target language can determine decisively the extent to which the latter group has significant problems in writing.

2.3 Previous research on second language literacy processes

As we have seen in the previous section, processes in learning to read and write in L2 can be expected to be different from those in L1, because in the former oral competence in the target language is often restricted and competence in the source language may cause interference. In a number of studies the processes which are involved in literacy acquisition in a second language have been described. These studies will be summarized below. A distinction will be made between studies on word recognition, reading comprehension, word spelling and discourse production. In those cases where few studies on L2 literacy processes in children are available, studies on L2 literacy processes in adults will be reported on as well.

2.3.1 L2 word recognition

In a number of experimental studies an attempt was made to test well-defined hypotheses about the role of phonological interference from L1 in L2 word recognition. Hatch (1971) investigated whether phonological interference can occur in silent reading in L2. She constructed a test with multiple-choice items which tapped distinctions in English phonology not present in Spanish. She found that Spanish speaking children misread the English words while missing the forced distinctions.

Melmed (1971) considered the question of phonological interference in English reading with black children speaking a vernacular black dialect. He compared third-grade black and white children on their ability to discriminate phonological contrasts which are not present in the dialect, besides their ability to produce and to comprehend them in both oral and silent reading. He found that the black children had more difficulty in discriminating and producing the phonological contrasts. However, there appeared to be no difference on the reading measures.

Rystrom (1970) compared the effect of training in the production of English phonology on the reading achievement of first-grade black dialect speakers. He found that training in standard English phonology did not produce a significant gain in reading scores on three different reading tasks.

In a comparable study, Rentel & Kennedy (1972) studied the effect of drill of standard English phonological patterns on first-grade Appalachian dialect speakers and its influence on reading achievement. Compared to a control group, the experimental group did not gain in reading achievement.

Murray (1982) investigated the extent to which phonological and orthographic contrasts between English and Spanish are associated with word decoding problems in Spanish-speaking adults who are early readers of English. She found that these adults did not demonstrate clear difficulties in aural discrimination of minimal pairs of phonemes of English. However, word decoding problems clearly were associated with English contrasts of phonemes, not occurring in Spanish. Furthermore, she found a moderate, but significant correlation between aural discrimination proficiency and word decoding ability in English.

In some other studies the role of orthographic redundancies in L2 word recognition was examined. Mes-Prat & Edwards (1981) investigated the use of orthographic cues in reading English and French by 19 grade 3 and 19 grade 6 English-speaking boys in a French immersion programme. An attempt was made to determine whether tachistoscopically presented pseudo-words were better recognized than nonwords. Moreover, it was determined whether the recognition of spelling patterns typical of one language differed from that of patterns shared by the two languages. Results indicated that the children in both grades were aware of the orthographic regularities of both languages. However, the grade 3 subjects could better exploit the intra-word redundancy in their language of instruction than in their native language. Significant correlations between the reading scores in both languages suggested transfer of skill between the languages.

Favreau, Komoda & Segalowitz (1980) investigated the role of orthographic redundancies in L2 reading by adults. In two experiments skilled bilinguals were given a visual detection letter task which presented L1 and L2 words, anagram and single-letter stimuli in both a precue and a postcue position. In the precue condition, subjects had feature and positional information about the target word prior to its presentation, so that there was no need to look for visual features in the location specified in order to accomplish the task. On the other hand, in the postcue condition, subjects were required to synthesize the entire letter array enabling them to make use of their knowledge of orthographic redundancies in the target words as an aid to their recognition. It was expected that differences between L1 and L2 reading results would emerge in the postcue condition. A larger word superiority effect was predicted for L1 stimuli. In the precue condition, where the contribution of orthographic redundancy was minimized, no differences in L1 and L2 reading results were expected. In the first experiment, a word superiority effect was found with L1 stimuli while

there was no effect with L2 stimuli. In the second experiment, it was found that subjects required additional processing time to demonstrate a word superiority effect in L2. On the basis of both experiments, the authors concluded that skilled bilinguals are less efficient in using orthographic redundancies for letter identification in L2 as compared to L1. They suggest that this effect can be explained by the subjects' relatively slower reading speed in L2.

In a follow-up study Favreau & Segalowitz (1983) examined the hypothesis that, compared to L1 reading, L2 reading is associated with reduced involvement of automatic processing during lexical access. They selected bilingual adults with fluent oral proficiency under ordinary conditions of communication and with equivalent comprehension of their first and second languages when reading and listening under speeded conditions. These subjects were assigned to two groups: fast readers in both L1 and L2 versus subjects reading the second language more slowly than the first one. All subjects were tested on a lexical decision task which manipulated expectations about the semantic relatedness of context and target words and the stimulus onset asynchrony between them. A modified version of Neely's (1977) lexical decision task was used. Two expectancy conditions were held: one in which subjects were biased to expect semantically related word pairs and another one in which subjects were biased to expect semantically unrelated word pairs. Evidence of a facilitation effect that was a function of the semantic relation between the prime context and target words would support automatic processing. On the other hand, controlled processing was supposed by evidence of a facilitation effect and an inhibition effect being a function of expectancy. The hypothesis was that these effects would occur for all subjects in L1. However, with regard to L2 reading, it was expected that the subjects with unequal reading rates in L1/L2 would show this pattern in L2 to a lesser degree than the subjects with equal reading rates. The data turned out to be consistent with these expectations. The less skilled readers showed less automaticity in their L2 than did the more skilled readers or than they themselves did in their first language. However, there was no evidence that the less skilled subjects were correspondingly more dependent on controlled processing. In any case, no larger context effects in their L2 reading performance occurred.

2.3.2 L2 reading comprehension

Studies on L2 reading comprehension can be divided in two different categories:

miscue analyses and componential analyses.

Miscue analyses. In many studies the occurrence of miscues has been observed in first and second language learners reading a text aloud. The observed miscues were then accounted for in terms of graphonological, morphosyntactic or semantic strategies related to the target language or in terms of strategies that are based on interference from the source language. In this way the importance of both intralingual and interlingual developmental features of the second language reading process could be explored.

Romatowski (1973) analysed the oral reading behaviour of three Polish-English fifth graders whose length of residence in the United States varied from one to three years. The children read two stories, one in English and one in Polish. Miscue analysis revealed that the majority of miscues in both languages remained uncorrected by the children. Furthermore, it was found that, when reading English texts, Polish children used syntactic and semantic strategies which were comparable with those of L1 learners. In addition, they used strategies that can be accounted for by phonological and syntactic characteristics of Polish.

Rigg (1977) analysed the oral reading miscues in English of 48 children from four different language backgrounds: Spanish, Arabic, Samoan and Navajo. The children were second, fourth and sixth graders from schools where English was the sole medium of instruction. An analysis of the miscues observed caused her to conclude that the structure of learning to read in L2 is largely intralingual. Most of the children showed ability to regress and correct their miscues. Miscues that were left uncorrected often did not cause a different semantic interpretation.

In a study done by Barrera (1978) the first and second language oral reading behaviour of 14 Spanish-speaking third-grade children was analysed and compared. The children had been taught to read first in Spanish, and had not been provided with formal reading instruction in English until the third grade. Each pupil was required to read one story in Spanish and one in English at his/her reading instruction level in each language. Moreover, the oral reading behaviour of the Spanish children was examined for similarities and differences with the oral reading behaviour in English of native English peers. It was found that the Spanish-speaking children anticipate while reading in Spanish and English. Furthermore, the reading behaviour in English did not greatly differ from that of native English peers. While reading in English the children produced

recurring grammatical changes similar to those occurring in their spoken English.

Goodman & Goodman (1978) tried to find empirical evidence for the universal character of L2 reading strategies. They analysed the L2 English reading behavior of children in grades 2, 4 and 6 with varying L1 backgrounds (Spanish, Arabic, Samoan and Navajo). None of the second-language groups was in bilingual education programmes. Each child had to read two stories orally, one of which had been selected as culturally and linguistically relevant to the child's background. After reading the children had to retell the story in their own words and were then asked open-ended questions. Goodman & Goodman's major conclusion was that in spite of different source language backgrounds, none of the ESL children studied had particular problems with phonic relationships in English. The effect of a child's control of English was said to be mirrored in reading performance, as were factors of culture and experience. However, some unique characteristics of each language group also came to light. The Spanish speaking children turned out to be highly proficient in both Spanish and English. The pattern of their reading miscues was exactly the same as that of native speakers of English, and they could retell the stories read either in Spanish or in English. On the other hand, the L2 English of the Arabic speaking children was clearly in an initial stage of development. Among these children the miscues showed both intralingual and interlingual characteristics. Furthermore, these children experienced difficulties in retelling the stories in English. The miscue pattern of the Samoan children was intralingual to a high degree. Though they could obviously understand what they read in standard English, their retellings tended to be in an English dialect. The reading performance of the Navajo children was the least effective of all four second-language groups, but the authors speculate that this was due primarily to cultural factors. During the retelling and questioning sessions these children showed limited responses and long silences.

Jurenka (1979) described the oral reading miscues generated by nine Mexican-American children in grades three, four and five reading English texts. She found a definite trend for the older child to make fewer miscues. The older children produced syntactically acceptable sentences at a greater rate than younger children even though their reading texts had a more complex structure. Stories having ethnic overtones appeared to influence the performance of the readers. Younger readers especially read ethnic stories more effectively than neutral stories. All children left over half of the miscues uncorrected. A large

percentage of miscues was semantically unacceptable.

Dank & McEachern (1979) compared the oral reading strategies of ten third-graders from a French immersion programme with those of ten peers from a traditional English programme. Miscues were analysed after the reading of an English text. The conclusion was that the French immersion group used strategies similar to those of the English group. Both groups were quite proficient at interrelating graphophonemic, syntactic and semantic strategies while reading text.

Connor (1981) analysed the oral reading behaviour in English of seven ESL students from different language backgrounds. She found that the variation of reading miscues was highly comparable in all subjects. Errors which are due to L1 interference were found in Vietnamese students who tended to omit inflectional endings in their oral reading of English. However, such errors did not often occur, nor did they significantly affect comprehension.

Haddad (1981) examined the L2 English reading strategies of two illiterate Arabic 12-year-olds and compared them to the L2 English reading strategies of a first language literate student of the same background as well as with the reading data of L1 English readers. The first language illiterate children omitted a great many words and deleted many letters within words. Furthermore, their reading strategies frequently disrupted syntax, so that meaning could hardly be retained. Miscue-analysis with these children provided features which were like those of low proficiency second grade English readers. The reading strategies of the first language literate student turned out to be more productive. She corrected her miscues at a rate close to that of fourth grade monolingual English children.

Rodriguez-Brown & Yirchott (1983) investigated the reading behaviour of 23 bilingual Spanish-English children in both Spanish and English, and compared it with the reading behaviour of both monolingual Spanish and monolingual English peers. Comparison of the miscues made by the bilingual children in Spanish and English revealed a better performance in the use of contextual information in L1 en L2. In English they seemed to use mainly graphic information for reading. In Spanish they corrected many miscues, indicating that they used contextual information to a high extent. The comparison between the bilingual and the English-monolingual children reading in English showed that the latter group attended more to contextual constraints than did the former. The L2 readers proved to have more difficulty using the contextual constraints of the text. However, L1 interference appeared to have little influence on L2 reading. Spanish

monolinguals and bilingual children were more or less similar in the type of miscues they produced.

Componential analyses. Several authors have attempted to find out which linguistic components account for the individual variation of L2 reading comprehension in children. Lucas & Singer (1975) administered an English syntax test and a English reading task, together with a language background scale which was used to rate the degree of bilingual language use in the homes, to Mexican-American children in grades 1 and 3. Results indicated, in the third grade only, a significant negative correlation between the use of Spanish in the home and syntactic ability in English, and a significant positive correlation between syntactic ability and oral reading in English. But the direct relationship between the use of Spanish and L2 reading ability was not significant. Lucas & Singer concluded that a first language tends to interfere more on the syntactic level than on the phonological level. Moreover, they claimed that interference from L1 in L2 reading of Mexican children is likely to be transitory, and diminishes as syntactic ability in English increases.

Connor (1979) examined the relationships between word-identification, reading comprehension and listening comprehension of 91 ESL pupils from primary schools. She also compared the word-identification and reading comprehension skills of ESL and native English-speaking children. She found that ESL students lagged behind their native English-speaking peers on the majority of word-identification tasks. A positive correlation was found between ESL learners' reading and listening skills. However, no correlation was found between ESL children's first language background and their performance on the word-identification tasks. In addition, the ability to read in English was not related to first language background.

According to Daitchman (1976), L2 reading difficulties are not necessarily due to an inadequate knowledge syntax and vocabulary. He set up an experiment in which bilinguals with fluent listening and speaking abilities were required to read and listen to texts of comparable difficulty in either their first or second language. He found that spoken discourse was comprehended equally well in both languages while reading comprehension in L2 was inferior to that in L1. Daitchman suggested that L2 reading difficulties might have been caused by inefficient use of orthographic redundancies in written discourse.

Favreau & Segalowitz (1982) examined whether the performance difference of high-skilled bilinguals in L1 and L2 is specific to reading or whether similar

differences occur in the auditory modality. French-English bilinguals were screened for fluency on a number of reading measures. If subjects showed high levels of comprehension in both languages when instructed to read as quickly as possible while maintaining full comprehension, they were selected for assignment to one of two groups: subjects with little or no difference in L1 and L2 reading rates versus subjects with slower reading rates in L2. The two groups were then compared on a speeded language processing task which involved listening. The maximum speed at which L1 and L2 texts could be listened to without loss of comprehension was then assessed. The results showed that the pattern of listening rates for L2 relative to L1 mirrored the patterns of reading rates. However, correlation between both measures turned out to be only moderate. The authors came to the conclusion that besides a specific reading factor a more general linguistic factor underlies L2 reading proficiency. It is suggested that, in addition to orthographic redundancies, another second language proficiency component must be involved in second language reading.

In only a few studies the intralingual nature of componential subskills of L2 comprehension have been examined. Cowan (1982) investigated the extent to which ESL students from different proficiency strata experience difficulty identifying inter- and intrasentential anaphora. His subjects were elementary, intermediate and advanced students whose native languages were Farsi, Spanish and Arabic. He found that some anaphoric devices, notably the locative 'there' and backward subject pronominalization, proved to be extremely difficult to all these subjects. The advanced students appeared to make anaphoric connections correctly about 80 percent of the time. It turned out that ESL students at this level of proficiency can recognize sentential antecedents and noun phrase antecedents equally well.

Parish & Perkins (1985) studied the effects of some features which influence ESL readers' ability to resolve anaphoric expressions. With 50 ESL students from three different proficiency levels reading data were elicited by means of multiple-choice and cloze tests. The experimental design used proficiency level as a between-subjects factor and number of antecedents, case of pronominal anaphor and propositional distance from the antecedents as a within-subjects factor. Analysis of variance indicated significant effects for proficiency level, case of anaphor and the interaction of case and number of antecedents. Similar analyses of the cloze tests indicated significant effects for proficiency level, number of antecedents, case of anaphor, distance from antecedent

and for the interactions of case and antecedent, antecedent and distance and case and distance. It was concluded that an ESL reader's ability to resolve an anaphoric expression is primarily affected by increasing the number of antecedents of an anaphor and by manipulating the case of anaphor effect. It is suggested that these findings correspond highly to data from anaphoric processing in a first language.

2.3.3 L2 word spelling

In studies on L2 word spelling researchers were predominantly interested in the question of the interlingual versus intralingual nature of error patterns. Oller & Ziahosseiny (1970) investigated the L2 English spelling behaviour of non-English students. Their prediction was that students whose native language employs a non-Roman script would produce significantly fewer misspellings than students whose native language employs a Roman alphabet. The effects of interference for students knowing a Roman alphabet were expected to outweigh the effects of correct generalizations. In order to test this hypothesis a word dictation test was administered. Indeed it was found that students who knew a Roman alphabet made more spelling errors than other students. Moreover, their percentage of spelling errors out of a total number of errors on second language proficiency tasks was larger. The results were interpreted as a moderate proof of the contrastive hypothesis. However, the results had to be reinterpreted because additional error analysis showed that in both groups of students many spelling errors tended to be more commonly interpretable as intralingual than as interlingual.

Terrebone (1973) analysed the L2 English spelling errors made by a group of 20 native Spanish students from Latin American countries. The spellings were analysed in terms of substitutions, deletions, additions and permutations of graphemes. Substitutions proved to be the most persistent problem for all learners. Deletions and additions occurred less frequently; permutations were quite rare. Linguistic analysis of the misspellings revealed that the influence of phonetic, phonemic and orthographic characteristics of Spanish was considerable. The misspellings analysed were quite distinct from those of native English speakers.

Slembek (1981) examined interlingual and intralingual features in Turkish children's spelling of words in German. She concluded that the error pattern of children who had learned to read in Turkish (L1) first can largely be explained

in terms of Turkish orthography while the errors of children who had learned to read in German (L2) first was better explained in terms of German orthography.

2.3.4 L2 discourse production

The acquisition of writing discourse by bilingual students has been analysed in only a few studies. Edelsky (1982) compared the written texts in Spanish and English of 26 children in grades 1 to 3. With regard to spelling, she found errors to be affected by the nature of the language system. For instance, first graders primarily invented vowels in English, as opposed to a tendency of children to apply the graphonological system of the stronger language (mostly Spanish) to the weaker language. As to the level of syntax and discourse, it was noticed that children in both languages followed an acquisitional pattern similar to that of monolingual learners. In both languages the children's relative degree of oral proficiency influenced the use of writing strategies and the quality of the written product. Generally it was found that in writing in L2 the children used less complex syntactic and textual devices than in writing in L1. Furthermore, little or no interference was evinced by the acquisition of two writing systems. On the contrary, it was concluded that knowledge about writing in a first language tends to form a basis of new hypotheses for writing in another language.

In a number of multiple-case-studies the second language writing development of adult ESL learners was analysed (Lay, 1982; Zamel, 1983; Raimes, 1985). In all studies it was concluded that second language composing can be seen as a creative construction process which uses strategies which are highly intralingual. Furthermore, it was noted that L1 composing skills can be easily transferred to L2. In addition, Zughoul & Kambal (1983) compared the English compositions of ESL students of various levels of second language proficiency. From the assessments of teachers it could be inferred that spelling tended to be the main difficulty for beginning students, as opposed to vocabulary size for intermediate learners and content and organisation of discourse for the advanced group.

2.4 State of the art discussion on L2 literacy research

In summarizing the above review of previous research on second language literacy acquisition, the following conclusions can be drawn. Support for the

existence of interlingual developmental features was mainly based on studies of phonological strategies in the reading and spelling of isolated words. However, taken together such interlingual features seem to play a minor role. On the other hand, the importance of intralingual developmental features was in particular found in studies of morphosyntactic and semantic strategies used in reading text. Universal characteristics of L2 literacy processes have especially been claimed in studies on miscue analysis. The results of these studies suggest that universal strategic principles underly the L2 reading behaviour of learners with varying L1 backgrounds. Moreover, these principles seem to apply to L1 literacy acquisition as well.

In addition, it has been found in many studies that L2 literacy subprocesses are less efficient than corresponding subprocesses in L1. In a number of studies the occurrence of inefficient processing on different aspects of reading and writing in L2 has been demonstrated. In studies on reading and spelling L2 words, predominantly the inefficient use of graphonological and lexical redundancies has been marked; in studies on comprehension and production of L2 discourse, on the other hand, primarily the use of syntactic and semantic redundancies has been considered inefficient.

With reference to previous research on second language reading and writing, several critical comments can be made. First, in a number of studies contrastive analysis was taken as the only explanatory device for interpreting L2 learning problems. As has also been concluded in other reviews (e.g. Simons, 1979; Shuy, 1979; Hall & Guthrie, 1982), the debate on the role of interference in L2 reading and writing is far from conclusive. To a large extent the inconclusiveness was due to the method of contrastive analysis. First of all, contrastive analysis did not account for all errors, since native language interference is only one possible source of error. Moreover, many of the difficulties predicted by contrastive analysis did not show up in actual learner performance. In the light of this, it was suggested that the only version of contrastive analysis that has any validity at all is an a posteriori version (cf. Van Els et al., 1984: 50). In other words, the role of contrastive analysis should not be predictive, but only explanatory, restricted to the recurrent problem areas revealed by error analysis, rather than the a priori or predictive version. As Wode (1978) critically remarked, this does not necessarily invalidate the theory of contrastive analysis itself. It only shows that we are in need of a more precise characterization of the conditions under which different aspects of

linguistic knowledge are made use of. More insight into research findings in terms of interlingual and intralingual literacy processes can be obtained from studies in which reading and writing tasks of L2 learners are analysed with reference to comparable tasks of L1 learners.

Second, studies on L2 literacy acquisition have been devoted mainly to reading. Studies on the nature of L2 word spelling and discourse writing behaviour are rather exceptional. This could be due to the fact that literacy instruction usually starts with reading. However, it can be argued that studies on innovative strategies in word spelling and discourse writing of L2 learners in comparison to L1 learners can be highly informative.

Third, most of the studies on lexical abilities conducted so far have failed to give a precise characterization of inefficient components in L2 word reading and L2 word spelling. In a few studies the lexical abilities in adult L2 learners were examined. However, no attempt has been made to take the relevant structural factors word length, orthographic complexity and word frequency into account in one design. Studies on L2 lexical abilities in children are as good as absent. As such, it is by no means clear how children acquiring literacy in a second language learn to access written word representations.

Fourth, with regard to comprehension of L2 discourse in children, research has almost one-sidedly been devoted to miscue analysis. It will be recalled that from our review of studies on L1 reading no clear evidence was found that word recognition was facilitated by the reader's anticipation. Rather, there was some evidence that less skilled readers are more dependent on contextual processes, which may result in inhibition processes. In general, studies on miscue analysis have neglected the possibly inhibitory role of inefficient verbal efficiency in reading discourse. Furthermore, studies in which the products of comprehension of L2 discourse are analysed in children are very scarce. Accordingly, there is no evidence of the intralingual nature of important discourse devices in L2 discourse reading, such as coherence, anaphoric reference and inference. Additionally, in most of the studies on L2 reading just reviewed, either bottom-up subprocesses or top-down subprocesses have been highlighted. A more comprehensive view of reading in terms of an interactive model (see 2.2.2) has generally been neglected. Such a view is needed in order to be able to investigate the interaction of processes at the word level and at the discourse level of L2 reading.

Fifth, in the vast majority of case studies a developmental view on L2 reading and writing is lacking. Attention is mostly focussed on deviations from

the L2 norm at a given point in time. In only a few studies have the processes of literacy acquisition been seen as a systematic and coherent attempt to understand and express structural principles of the (written) second language. Moreover, if a developmental point of view was taken into account, in many cases a cross-sectional design was followed. As Fathman (1977) pointed out, such a design allows statements on the order of difficulty of linguistic units and only indirectly on their order of acquisition. Longitudinal studies which present evidence of L2 literacy acquisition in children over time have proved to be very scarce.

Finally, in many cases aspects of L2 literacy have been investigated with a very small number of informants. As a consequence, the results from these studies can hardly be generalized.

Rate of Literacy Acquisition in a Bilingual Context

Literacy instruction in a bilingual context may result in different skills on the part of the learner. The level of achievement or the rate at which reading and writing is learned in a first and/or a second language may vary considerably. The variables determining this temporal variation can be divided into three groups: educational variables, learner variables and background variables. On the education level the first issue is the language(s) which is/are used in the curriculum. The effectiveness of several instructional alternatives has been discussed in many studies. The research debate can at best be characterized as a series of claims and counter-claims regarding the instructional models which have been distinguished in 1.1.2. School characteristics, such as instructional approach and teacher attitudes, are additional educational variables that may influence children's literacy results. With respect to the learner, the following variables seem to be particularly relevant: metalinguistic awareness, oral proficiency in L1/L2, intellectual skills and cultural orientation. An important issue in relation to the acquisition of both oral and written skills is the extent to which L1 and L2 skills are interdependent. Regarding the learner's background socio-economic class, language input in the home and in the community and parent attitudes appear to be relevant variables.

In the present chapter, research evidence is given with regard to each of the variables just mentioned. In addition, an interaction model explaining temporal differences in achievement in two languages is presented and discussed. In that model all of the educational, individual and background variables under consideration are taken into account.

3.1 Educational variables

3.1.1 Language use in the curriculum

In many cases minority children learn to read and write through direct instruction in L2. The position of direct literacy instruction in L2 has been

complicated by extremely contrary results in different countries. In experimental bilingual programmes in Canada (immersion-programmes), English-speaking children were initially given literacy instruction in French (L2) and only gradually learned to read and write in English (L1). It turned out that these children reached a high level in L2 literacy skills without their L1 literacy abilities lagging behind (Lambert & Tucker, 1972). Comparable results were obtained in the United States with English-speaking children who were exposed to language and literacy instruction in Spanish (L2) with English as a separate course for several hours a week (Cohen & Swain, 1976). An important similarity between the two settings was that L1, being the majority language, had a high level of societal prestige. Quite contrary results were obtained in studies of direct literacy instruction in L2 in the United States and Europe when L1 was a minority language and L2 the majority language (submersion programmes). Cummins (1978) concluded that these programmes produce low language and literacy proficiency levels in both languages.

Lambert (1978) and Cummins (1979) showed that immersion in L2 for children speaking a majority language results in high levels of functional biliteracy, while comparable educational conditions for children speaking a minority language leads to a low level of literacy in both languages. According to Lambert, a distinction can be made between additive and subtractive contexts of language and literacy acquisition. In an additive context, the learning of L2 occurs without loss of L1, whereas in a subtractive context, the learning of L2 reflects the 'loss' or poor learning of L1. In the latter context, the result is that the social milieu creates ambivalence on the part of the minority group toward the majority language and majority group as well as insecurity toward the minority language and the minority group. Poor results in both languages in school will then be the consequence. According to Cummins (1979), the context of language and literacy acquisition in projects with positive learning results is predominantly additive, in projects with negative learning results it is mainly subtractive.

Because of the low literacy results of minority children in subtractive acquisitional contexts, experimental programmes with bilingual literacy instruction were set up. In these experiments literacy was first achieved in the native language. As early as 1953 participants of a Unesco Conference on education concluded that this approach was preferable for various reasons:

"It is axiomatic that the best medium for teaching a child to read is his

mother tongue. Psychologically, it is the system of meaningful signs that in his mind works automatically for expression and understanding. Sociologically, it is a means of identification among the members of the community to which he belongs. Educationally, he learns more quickly through it than through an unfamiliar linguistic medium." (p. 11)

In practice, however, the results of the bilingual experiments proved to be rather ambiguous. The study most frequently cited is that of Modiano (1968) in Chiapas (Mexico). She compared the reading results of Indian pupils in two instructional settings: successive L1-L2 approach in Indian schools versus direct Spanish approach in state schools. She concluded that the children who started to read in their native language achieved better reading results in Spanish (L2) than the children who were directly taught in Spanish. Nonetheless, this option was criticized by Engle (1975) because of the poorly organized implementation of the direct Spanish instruction. Engle reviewed 24 studies related to the topic of medium of instruction in literacy education for minority group children. Her conclusion was that the studies varied in every conceivable way, and on the whole provided no substantial evidence as to which approach is better (p. 320).

Another survey comes from Chu-Chang (1980). She reviewed studies conducted in the United States in which L1 was a minority language (usually Spanish) and L2 was the majority language (English). She claimed that the effects of the native approach were mainly positive. She distinguished two types of study: the first examines whether a successive presentation of literacy instruction (L1 followed by L2) produces better L2 readers than instruction in L2 right from the start. Chu-Chang listed sixteen studies, eleven of which reported that instruction based on L1 resulted in better literacy performance in L2; in the remaining five cases there was no significant effect. The second type of investigation examines whether simultaneous L1/L2 literacy instruction yields better results than instruction in L2 only. Chu-Chang cites six studies, two of which suggested that simultaneous literacy instruction produced better literacy performance in L2; no significant effects were noted in three of the remaining studies, and in one there was a negative effect.

Both Engle and Chu-Chang explicitly reviewed studies on literacy instruction. However, in most reviews of bilingual education studies the progress in L2 proficiency was evaluated without distinguishing between the domains of

listening, speaking, reading and writing. Highly influential was a large-scale national evaluation of bilingual education in the United States by Danoff, Coles, McLaughlin & Reynolds (1978). They pointed out that the bilingual programmes did not bring about a more positive student attitude toward school and school related activities. However, this report has come under heavy criticism because of serious methodological flaws (see Gray, 1978; Dulay & Burt, 1978).

A number of reviewers found empirical evidence in support of bilingual education. Zappert & Cruz (1977) reviewed 15 studies and concluded that 8 of these were positive, 6 were neutral and 1 was negative as regards bilingual education. They claimed that a neutral finding can be considered positive because students in a bilingual programme have the advantage of learning a second language without impeding their educational progress. In a review of 7 studies by Troike (1978), it was concluded that enough evidence has been accumulated to say with confidence that quality bilingual programmes can meet the goal of providing equal educational opportunity for non-indigenous pupils (emphasis given by Troike). In a later review (Troike, 1981), he added another 5 studies which point to the same conclusion. Dulay & Burt (1978) in a review of 12 studies concluded that bilingual education was successful because it either improved or did not impede academic results in school. In all of these reviews a large number of studies were rejected on methodological grounds. Zappert & Cruz rejected 97 percent of the studies they reviewed by applying the following methodological criteria:

- no control of socio-economic background;
- inadequate sample size, excessive attrition rate;
- no baseline comparison data, no control group;
- significant differences in teacher qualifications;
- improper statistical procedures.

Using similar criteria, Troike rejected 95 percent of the studies for inclusion in his survey; Dulay & Burt rejected 93 percent.

Under the auspices of the U.S. Department of Education, Baker & De Kanter (1983) reviewed several hundred studies on the effectiveness of bilingual education of which only 28 were found to meet their extremely stringent methodological criteria. Studies were considered to be acceptable when students were randomly assigned to treatment and control groups, or when pre-existing differences between the groups had been controlled either by matching students

in treatment and comparison groups or by using statistical procedures. Several studies which had previously been widely cited as evidence for the effectiveness of bilingual education (i.e. Modiano, 1968; Skutnabb-Kangas & Toukomaa, 1976) were thus excluded. Examining the impact of bilingual education on achievement in English and maths, they concluded that the support for bilingual education is extremely weak. However, in the study by Baker & De Kanter bilingual education was only considered effective if a programme resulted in an acceleration of the children's achievements. Closer inspection of their data shows that out of 35 studies comparing transitional bilingual education with L2 in a submersion context, 11 studies reported a positive effect, 18 a neutral effect and 6 a negative effect on L2 learning. Of 2 studies comparing transitional bilingual education with immersion L2 programmes, one provided a neutral, and one a negative effect. In conclusion, in 76 percent of the studies it turned out that L2 learning was not impeded by bilingual instruction. However, even the Baker & De Kanter report has been sharply criticized on methodological grounds and for misleading conclusions (see Cummins, 1982; Yates & Ortiz, 1983).

In summary, it is hard to reach final conclusions in the research debate on bilingual education for a number of reasons. First, different reviewers applied different criteria for selecting evaluative studies in their survey. Second, reviewers differed in their explicitation of linguistic domains which served as criteria for programme success. Third, reviewers differed in their interpretation of successful programmes. Some of them concluded that a programme was successful if academic achievement was not hindered, whereas others decided a programme was successful only when it succeeded in the accelerating of L2 acquisition.

Given the difficulties encountered in summarizing evidence related to the effectiveness of bilingual education, Willig (1985) conducted a very comprehensive statistical synthesis of earlier studies by using meta-analysis. The technique involves the coding of variables from original evaluation studies followed by the estimation of effects of bilingual treatments on all identifiable areas of school achievement. Meta-analysis provides a better understanding of the dynamics and effects of bilingual education on different school subjects. As such, the effects on literacy acquisition could be studied separately. Moreover, the technique provides insight into the influence of methodological characteristics of the studies under consideration by choosing research parameters as independent variables.

Willig decided to synthesize the same body of literature which had been reviewed narratively by Baker & De Kanter. Thus a check would be provided on their conclusions by using a different methodology. However, a restriction was made to include only those studies done in the primary grades in the United States. Consequently, 5 of the original 28 studies reviewed by Baker & De Kanter were excluded. In her study, Willig investigated the effects of bilingual instruction on all school subjects for which information was available, the mediating effects of student and programme characteristics and the mediating effects of methodological characteristics.

The results of Willig's study can be summarized as follows. First, there was evidence that the variance in effect sizes across studies was conjointly accounted for by a large group of variables. Analysis of variance of effect sizes showed that the academic domain of criterion tests, the language of criterion tests and the assignment of students to programmes each accounted for a significant portion of the variance in effect sizes. Of special interest are the patterns of variation that are reflected by the interaction of language of criterion instrument by domain of criterion instrument. In Table 3.1 these are

	adjusted mean	sd	p
First language			
- oral production	.36	.27	n.s.
- listening comprehension	2.52	.28	<.001
- reading/reading vocabulary	.86	.18	<.001
- writing	1.18	.57	<.05
- total language	.73	.11	<.001
- maths	.58	.12	<.001
- attitudes/self-concept	.58	.15	<.001
Second language			
- oral production	.13	.27	n.s.
- listening comprehension	.20	.32	n.s.
- reading/reading vocabulary	.20	.08	<.05
- writing	.17	.35	n.s.
- total language	.21	.07	<.01
- maths	.18	.08	<.05
- attitudes/self-concept	.26	.15	<.10

Tabel 3.1: Adjusted means, standard deviatons of adjusted means and statistical signficence of t-test of first and second language criterion variables (based on Willig, 1985)

presented by showing the adjusted means for effect sizes and their standard errors for each of the individual variables. The adjusted means are the best possible estimates of mean size effect because they control for the effect of the remaining variables. A positive effect indicates that the experimental group fared better, while a negative effect indicates that the comparison group fared better. As can be seen from Table 3.1, the adjusted mean effects sizes for all L1 subjects are positive and, with the exception of the domain of oral production, significant. When tests were administered in L2, significant means favouring bilingual education were found for reading, total language and maths, and a tendency for significance for attitudes/self-concept. Although the means for listening comprehension and writing were of a similar magnitude, there was too large a spread of effect sizes to allow for statistical significance. Willig (1985: 292) suggested that with a larger data base significant positive effects might also be found for these subject areas. Moreover, she demonstrated that the positive effects of bilingual education on all L1 and L2 curricular subjects increase significantly when a correction was made for methodological weaknesses in the original studies.

3.1.2 School characteristics

Instructional approach. Literacy curricula usually start with learning to read. Traditionally, a distinction can be made between two types of programmes. On the one hand, there are code-emphasis programmes in which speed and knowledge of decoding skills are main objectives of instruction from an early stage. On the other hand, there are meaning-emphasis or language-experience programmes in which words familiar to the child from oral language experience are introduced with the purpose of building up a sight vocabulary. Comparative studies generally report small advantages of code-emphasis programmes for literacy results which are confined to word recognition and spelling and usually restricted to the first grades (Williams, 1979). However, in their evaluation of code- and meaning-oriented literacy programmes, Evans & Carr (1983) reported that at the end of the first grade children in the former programmes had higher scores on reading comprehension measures as well.

Teacher attitudes. In a review by Entwisle (1979) it was concluded that teachers have different expectations concerning the academic performance of

varying in sociobiographical characteristics such as sex, race and ethnicity. Good & Brophy (1974) have shown that the teacher's expectation of the educational success of ethnic minority children is generally lower than for majority children. A study by Williams, Whitehead & Miller (1971) demonstrated that even the speech habits of children may influence the teachers expectations. It turned out that teachers' judgments of non-standardness of children's speech was correlated with measures of language performance expectations. According to Henderson (1980), ethnic minority children may be less able than majority children to adapt to the functional setting of the school culture. As a consequence, they may more often display lack of attentiveness and lack of persistence. This may influence the expectations of the teacher, which in turn may influence teacher-child interaction.

Shuy (1970) pointed out that many teachers are not adequately trained to diagnose student problems related to language. Reading teachers in particular are said to suffer because they only receive information on methods of teaching literacy and have little knowledge of the linguistic, psychological and cultural aspects of language diversity. Furthermore, Cazden, Carrasco, Maldonado-Guzman & Erikson (1980) proposed that bilingual teachers in bilingual literacy programmes should have proficiency in the child's mother tongue and respect for the child's cultural heritage.

3.2 Learner variables

3.2.1 Metalinguistic awareness

Metalinguistic awareness can be defined as the conscious understanding and manipulation of the units of language (Ehri, 1979). In the case of learning to read and write in an alphabetical code, the awareness of the phonological structure has proved to be of crucial significance (see Valtin, 1984: 227-260). It has been argued that children have trouble learning the correspondences between letters and phonemes because the access to phonemic representations of speech is generally lacking (Wallach & Wallach, 1979; Liberman, Liberman, Mattingly & Shankweiler, 1980). Since phonemic segments do not exist in the acoustic signal, and thus must be constructed, the detection of grapheme-phoneme correspondences involves metalinguistic operations. Fischer, Liberman & Shankweiler (1978) have shown that visually segmenting and identifying letter units is not a serious problem for the early reader. However, Rozin & Gleitman

(1977) have claimed that when a spoken word must be analysed into phonemes, word recognition becomes a difficult task to master. Liberman, Shankweiler, Fischer & Carter (1974) have shown that most 5-year-olds and many 6- and 7-year-olds are unable to segment words into phonemes. Lack of phonemic awareness was demonstrated by children's difficulties in word rhyming (Calfee, Chapman & Venezky, 1972), judgments of number of phonemes in spoken words (Liberman, et al., 1974), in segmentation tasks which require the pronunciation of separate phonemes in a word (Fox & Routh, 1975), and word synthesis tasks which require the child to recognize a word when a string of phonemes is presented (Kirk, McCarthy & Kirk, 1968).

In a number of studies it was found that good readers are better at phonemic segmentation than poor readers (Golinkoff, 1978). However, the exact relationship between metalinguistic abilities and literacy success is not totally clear. On the one hand, Bradley & Bryant (1983) found that the degree of phonemic awareness in children at the onset of literacy instruction is a good predictor of literacy success in later years. On the other hand, Perfetti, Beck & Hedges (1981) found evidence for the opposite relationship in that acquiring literacy makes children more aware of the nature of reading and writing. Though it can be concluded that the relationship has a reciprocal nature, training studies stress that phonemic awareness facilitates the acquisition of literacy. Fox & Routh (1976) showed that 4-year-old children who were able to segment syllables into phonemes were able to benefit more from auditory training than children who were unable to do so. Bradley & Bryant (1983) also found that training on phonemic segmentation improved reading and writing abilities. Finally, Treiman & Barron (1983) show that phonemic analysis training helps children benefit from grapheme-phoneme correspondency rules.

Summarizing, it seems likely that mastery of strategies for indirect word recognition depends on the children's knowledge of linguistic rules, on the use of phonic segmentation and blending skills and on the knowledge of the relationships between phonemes and graphemes. The process of learning the grapheme-phoneme correspondency rules presumably depends on the ability to identify individual letters and on the ability to discriminate and produce all of the potential sounds of these letters. Robeck & Wilson (1974) claimed that the discrimination of phonemes is a necessary prerequisite for first-grade reading success. Marzano (1976) showed that the discrimination of speech sound segments even influences more mature reading. It turned out that good readers consistently scored higher on an auditory discrimination task than poor

readers.

In some studies the relationship between metalinguistic awareness and the acquisition of literacy by minority children was investigated. Mace-Matluck, Dominguez, Tunmer & Hoover (1980) administered several metalinguistic awareness tasks to 300 Spanish-English speaking children at the onset of literacy instruction. It was found that most of the children at the beginning of first grade possessed sufficient skill in both languages on most of these tasks. For the English version, letter naming, and to a lesser degree, phonic segmentation was found to be predictive of early literacy achievement. However, none of these tasks proved predictive of early literacy achievement in Spanish. On the other hand, it turned out that children who performed successfully on these tasks in one language could also successfully perform them in the other. Metalinguistic skills were, therefore, said to be transferable across languages. The results of a follow-up study (Mace-Matluck & Hoover, 1980) indicated that the group as a whole had a better feel for the phonological rules of Spanish in that initial reading of words was better in Spanish than in English.

Kramer (1978) showed that the auditory discrimination skills in L2 of Spanish-English speaking children can be improved significantly through training. An auditory training programme which consisted of daily instruction for four weeks resulted in a significant gain in scores on an auditory discrimination task. Additionally, it was indicated that improved auditory discrimination skills were operational in the subjects' phonic segmentation of words.

Hernandez-Chavez & Curtis (1984) demonstrated that the conceptualization of print which Mexican-American children have developed is a good predictor of their achievement in literacy. Clear stages in the development could be identified by the criteria used by children at each level in deciding whether particular graphic representations can or cannot be read and where portions of an utterance are located in a text. It was shown by Romero (1983) that even in a poor context, print awareness can be present in minority children at a very young age. Many of the 25 Spanish-English speaking four- and five-year-old children under investigation turned out to be aware of print and to have knowledge of books. However, from the responses given by the children it was found that the literacy environment of the home and its surroundings does influence the degree of print awareness.

3.2.2 Oral proficiency

By definition reading and writing can be regarded as skills which are derived from the same linguistic competence which underlies oral proficiency. Though the linguistic devices used to comprehend or produce written discourse are not completely identical to those involved in oral discourse, a close relationship can be expected. According to Sticht & James (1984), three premises regarding relationships among oral and written language can be held in the case of mother tongue acquisition. First, oral language skills develop to a fairly high level prior to the development of written language. Second, oral and written languages share essentially the same lexicon and syntax. Third, in the initial stage of literacy acquisition children draw upon their knowledge of oral language. Levin & Kaplan (1970) have pointed out that syntactic parsing of sentences is especially difficult for beginning readers, because a relatively great deal of attention must be devoted to the recognition of individual words. Adams (1980) has claimed that reading may demand more syntactic sophistication than does listening even in a later stage. She pointed out that the syntactic structure of a written sentence must in large part be discovered by the reader, whereas the syntactic structure of a spoken sentence is largely given to the listener through prosodic cues. Rosenshine (1980) highlighted vocabulary as a relevant predictor of reading ability. He claimed that the comprehension of individual words is crucial for the comprehension of discourse.

In a number of studies, the relationship between oral language proficiency and literacy outcomes in mother tongue learners was investigated. Loban (1964) compared the reading results of children from grade 4 to 8 who were evaluated in kindergarten for oral language competency. He found a strong relationship between oral language proficiency and subsequent reading results. Re-analysis of Loban's data by Sticht & James (1984) revealed that the relationship grows with increases in grade level. Apparently, in the initial stages the variation in reading outcomes is more related to individual differences in decoding efficiency than to differences in language comprehension. A similar conclusion was arrived at by Durell (1969). He presented the same material in both oral and written form to first through eighth graders. Listening comprehension of sentences and paragraphs surpassed reading comprehension in first grade, while the reading comprehension of eighth graders was superior to their listening comprehension. Tatham (1970) studied the reading comprehension results of second and fourth graders using materials with controlled grammatical patterns. She found that readers have a better understanding of patterns which frequently

occur in their own oral production than those which occur infrequently.

Wells (1981) also reported significant relationships between oral language proficiency and progress in literacy acquisition. His conclusion was that children who are more sophisticated in the use of school language will be better prepared in acquiring literacy. Torrance & Olson (1984) have examined the issue of oral and written acquisition by relating different measures of oral fluency and vocabulary knowledge with the reading performance of children from kindergarten through the second grade. The use of complex verbs, indicating the propositional content of a sentence, vocabulary knowledge and mean length of utterances turned out to be significant predictors of reading performance. The prediction measures are seen as an index of a system of concepts for decontextualizing language and thought which is generally supposed to be a prerequisite for literacy success.

Some authors have investigated the relationship between oral morpho-syntactic skills and literacy results. Ruddell (1976) reported significant relationships between children's capacity to control morphological and syntactic aspects of their oral language and their ability to comprehend written discourse. Cromer (1970) also found evidence for the suggestion that reading difficulties are related to difficulties in parsing sentences. In an experiment, low-ability readers performed worse on reading tasks where the organization into meaningful units was not explicitly given, whereas no differences were evinced if word groupings were presented which conformed to the syntactic division of constituents. Vogel (1974) also reported that reading problems are related to syntax deficiencies. She found that low-ability readers had significantly lower scores on oral syntax measures than high-ability readers. Pike (1976) asked children from grade 5 and 6 to repeat words in several conditions: random lists, syntactically well-formed, but anomalous sentences and meaningful sentences. She found that good and poor readers did equally well on the random lists, while in the other conditions good readers performed better. Her conclusion was that good readers had a greater ability to make use of syntactic and semantic structure.

In other studies, the relationship between oral language proficiency and literacy outcomes in second language learners was investigated. Lucas & Singer (1975) compared the results on an English syntax test and an English reading task of Mexican-American children in the grades 1 and 3. In the third grade they found a significant positive correlation. Apparently, individual variation in reading results in grade 1 is more related to decoding abilities than to

syntactic abilities. Connor (1979) came to a similar conclusion. She compared the listening and reading results of L2 learners from various backgrounds at different grade levels. She found a significant positive correlation at the fourth and sixth grade level, but not at the second grade level. On the other hand, Talbott (1976) and Matluck & Mace-Matluck (1977) reported a significant relationship between oral L2 proficiency and L2 reading results with Mexican-American children from grades 1 to 6. Furthermore, Goodman & Goodman (1978) found that as the level of oral L2 proficiency in children from different L1 backgrounds and from different grades increases, their L2 reading process becomes more efficient. Van Dervoort (1980) compared the predictive power of several verbal and nonverbal tasks on the L2 reading performance of English-German first graders. The verbal tests turned out to be the best predictors, indicating a close relationship between L2 oral proficiency and L2 reading achievement. When the children were placed into high reading ability and low reading ability groups, the low-ability group demonstrated poorer use of syntax.

Some studies arrived at inconsistent results. Rosales (1981) studied the relationship between the oral L2 proficiency and reading performance of Mexican-American children with a broad variation of English proficiency from grade 1 and 5. Using standardized tests, she found a significant relationship between oral proficiency and reading of English for children with a limited proficiency and reading of English in grade 1 and 3, and for children with a moderate proficiency of English in grade 5. Though significant correlations were derived for some groups, the results were said to be inconsistent. The results of Tregar & Bak Fun Wong (1984) can be called inconsistent as well. They studied the relationship between oral L2 proficiency and reading results in both L1 and L2 in Spanish-English and Chinese-English students from bilingual classes at elementary and secondary school levels. Oral proficiency was measured through elicitation tasks, reading performance through cloze tests. For the Spanish-English children, they found moderate correlations between oral proficiency and cloze-test performance in L1 and L2 at the elementary school level. At the secondary school level, a low correlation in L1 and a high correlation in L2 was found. For the Chinese-English groups, the correlations in both languages were relatively low.

Notwithstanding the latter inconsistencies, it can be concluded that there is a strong relationship between minority children's oral proficiency and their reading achievement in L2. Cziko (1978, 1980) came to the same conclusion

concerning the L2 reading results of minority adults. As the level of oral L2 proficiency increased, students were able to make better use of contextual information during the reading process. Similar conclusions were arrived at in studies on reading cloze-tests in L2. Lapkin & Swain (1977) and Hauptman (1981) all came to the conclusion that in such tasks the reading strategies of L2 learners become more efficient as their oral proficiency in L2 increases. Finally, Cowan (1982) and Parish & Perkins (1985) reported that the ability to resolve anaphoric expressions in L2 texts is highly dependent on the reader's oral L2 proficiency level.

Some authors claim that acquiring literacy in whatever language requires a basic mastery of both oral-receptive and oral-productive aspects of that language. Carroll (1977) and Pearson & Johnson (1978) suggested that oral language comprehension is a prerequisite for the development of reading comprehension: before they start reading children need to have a basic command of the phonological, morphosyntactic and semantic-pragmatic conventions of the language they are going to learn to read. According to Hatch (1974), a basic familiarity with both oral-productive and oral-receptive aspects of the second language is also required. After studying the reading performance of both monolingual and bilingual Mexican-American children, Matluck & Tunmer (1979) concluded that the likelihood of success in reading English as a second language depends on a certain threshold level of oral proficiency in that language. They assumed that this threshold level corresponds to the mean level achieved by monolingual English speaking first-graders on a measure of oral proficiency. However, the latter position has been relativized by Goodman, Goodman & Flores (1979). They claimed that the issue of when to begin L2 reading instruction in relationship to oral proficiency in that language is far from automatic. They recommended starting oral and written second language instruction simultaneously when literacy skills in the native language have to some extent been attained.

3.2.3 Interdependencies in first and second language acquisition

Interdependency hypothesis. Interdependency is an important issue in the debate on the development of oral and written proficiencies in L1 and L2. Skutnabb-Kangas & Toukomaa (1976) found empirical support for what they call the 'interdependency hypothesis', which holds that the level of L2 proficiency of

bilingual children is a function of the level of proficiency these children have reached in L1 at the moment when intensive L2-learning by education starts. Skutnabb-Kangas & Toukomaa studied how the oral and written language development of Finnish children of various ages was influenced by their immigration to Sweden. They found that the immigration had no negative consequences for ten-year-olds with a well-developed proficiency in L1. However, for seven-year-olds a stagnation in L1 development was found which had a negative effect on L2 development. Skutnabb-Kangas & Toukomaa's conclusion was that the degree of L1 development had a significant influence on L2 development. This interdependency hypothesis has been worked out by Cummins (1981) as follows:

"To the extent that instruction in a certain language is effective in promoting proficiency in that language, transfer of this proficiency to another language will occur, provided there is adequate exposure to that other language (either in the school or environment) and adequate motivation to learn that language."

In this form, the hypothesis not only predicts transfer from L1 to L2, but also from L2 to L1, unless the exposure and motivation conditions are negative. In order to be able to explain the actual processes that lead to interdependency between language skills, Cummins (1980) made a distinction between basic interpersonal communicative language skills and cognitive/academic language skills. The former are skills that are closely related to communicative competence; the latter are general cognitive or academic skills such as linguistic skills beyond a surface level (i.e. range of vocabulary, knowledge of complex syntax), problem solving skills and literacy skills. In a bilingual programme, the interdependency hypothesis would predict that reading instruction in one language not only leads to literacy skills in that language, but also to a deeper conceptual and linguistic proficiency which is strongly related to literacy and general academic skill in the other language. In other words: although surface aspects such as orthography, fluency, etc. develop separately, an underlying cognitive/academic proficiency is presupposed which is common across languages. This common underlying proficiency is said to facilitate the transfer of cognitive/academic such as literacy-related skills across languages.

Cummins (1984) attempted to conceptualize language proficiency in such a way that the developmental interrelationships between academic achievement and

language proficiency in both L1 and L2 can be more fully understood. He integrated his earlier distinction between basic interpersonal and cognitive/academic language skills in a new theoretical framework by conceptualizing language proficiency along two continuums: a horizontal and a vertical continuum. The horizontal continuum relates to the range of contextual support for expressing or receiving meaning. The extremes of this continuum are described as 'context-embedded' versus 'context-reduced'. In context-embedded communication, meaning is said to be actively negotiated by participants who give each other feedback and supply paralinguistic cues, if meaning is not fully understood. In context-reduced communication, learners are said to be entirely dependent on linguistic cues for meaning and to suspend knowledge-of-the-world in some cases in order to interpret the logic of the communication.

The vertical continuum in Cummins' framework is intended to address the developmental aspects of language proficiency in terms of the degree of active cognitive involvement for appropriate performance on a task. Cognitive involvement is conceptualized in terms of the amount of information which must be processed simultaneously or in close succession by the individual. As such, the upper part of the vertical continuum refers to tasks in which language processes become largely automatized, while at the lower end active cognitive involvement is required.

According to Cummins (1984), the above framework permits the developmental interrelationships between proficiency in L1 and L2 to be conceptualized. First, he proposed that such interrelationships can predominantly take place in the case of performance on academic tasks. A task is defined as more academic as the context-reduction and the cognitive demands increase. Cummins suggested that the transferability across languages of many of the proficiencies involved in reading and writing is obvious because they highly incorporate context-reduction and cognitive demands.

Gibson & Levin (1975) reported that for transfer of literacy skills from one language to another to occur, certain conditions must be met: skills must be generalizable, and the persons involved must perceive the applicability of the skills in the new situation in this regard. It seems reasonable to assume that the distance between the languages involved in the transfer plays an important role in the ease with which transfer takes place. First, the orthographic characteristics of the languages involved play a role. The similarities in writing systems (ideographic, alphabetic), alphabet (Arabic, Cyrillic, Roman), and specific grapheme/phoneme-correspondencies will add to the possibilities of

language transfer. Furthermore, the more closely related the morphosyntactic systems of two languages are, the greater the chance is that some transfer of reading strategies will occur in the form of higher level constraints.

Empirical evidence. In a number of studies an attempt has been made to provide empirical evidence in support of Cummins' interdependency hypothesis. First of all, there are several studies in which L1 and L2 skills have been correlated. Cummins (1979) reviewed nine studies which show high correlations between minority children's cognitively demanding language skills in L1 and L2. Moreover, it turned out that both types of language skills showed a similar pattern of correlations with verbal and nonverbal intelligence measures. Leslie (cited in Cummins, 1979) in a study of Cree Indian children in Alberta acquiring L2 literacy skills found high correlations between children's oral Cree proficiency and English literacy skills. Mace-Matluck & Hoover (1980) demonstrated that once Spanish-English speaking children have learned the 'story-grammar' of narratives in one language this knowledge can be transferred to the comprehension or retelling of stories in the other.

Additional evidence for the interdependency of first and second language skills comes from bilingual programme evaluations. With respect to immersion programmes for Anglophone students in Canada, Lambert & Tucker (1972) and Genesee (1979) reported high correlations between L1 and L2 reading skills by the end of primary school. It was concluded that a rapid transfer of reading skills from French (L2) to English (L1) had taken place.

With respect to submersion programmes, Cummins (1983) cited several studies relating both age of arrival and L1 development to minority children's acquisition of L2. The first study was set up by the Southwest Educational Development Laboratory Austin (see Mace-Matluck, Hoover & Caffee, 1984). In this study, regression analysis was used to examine the influence of variables such as length of residence in US, amount of reading instruction received and level of L1 academic proficiency on the oral and written proficiency in English of Chinese students in Seattle. It turned out that the students in this study tended to perform relatively well in English academic skills. Furthermore, a consistent effect of bilingual instruction and of L1 instruction on the development of English literacy skills was found. These results suggest that transfer of underlying cognitive skills occurred between the two languages despite strong surface structure dissimilarities between Chinese and English.

The second study concerns the performance of immigrant students in Canada

(Cummins, 1981). It turned out that older learners make more rapid progress than younger learners in the acquisition of cognitive aspects of L2 skills. Moreover, length of residence was a major determinant of L2 acquisition. Again, the stage of L1 development appeared to have a significant effect on L2 development.

The third study was done by Ekstrand (1979). He assessed a series of background variables designed to measure L2 skills and more general cognitive skills of immigrant children in Sweden. The students' age appeared to be a more powerful predictor than length of residence. Indirect support of the interdependency hypothesis is that older students whose L1 literacy skills have been promoted in school in the home countries make more rapid progress in the acquisition of L2 cognitive and academic skills.

The fourth study was done by Carlson (1981) who investigated the effects of length of residence and age of arrival on the acquisition of proficiency in English of Russian immigrant children ranging in age from 7 to 18 years. She found that both temporal factors correlated positively with several English proficiency measures, though length of residence tended to have a stronger impact on English proficiency than age of arrival. Furthermore, it was found that age of arrival related significantly to cognitive/academic aspects of English proficiency, but not to interpersonal communication measures.

A final study is one by Cummins et. al (1984). In this study, the acquisition of cognitive and academic skills in L2 (English) of Japanese and Vietnamese students in Toronto was followed. It was concluded that the academic, cognitive and literacy related skills in English of these students were strongly predicted by cognitive and academic variables such as L1 academic proficiency, age, and age at arrival.

In sum, it can be concluded that, in addition to Skutnabb-Kangas & Toukomaa's study, many other studies provide evidence that cognitively demanding skills in L1 and L2 are at least partially interdependent. This conclusion permits considerable transfer of skills from one language to another, given sufficient exposure (instruction) and motivation to learn. However, the idea of interdependency of language skills has been critically evaluated by a number of authors.

Critical evaluation. Several critical comments can be made with respect to the empirical studies which have been conducted so far in order to test Cummins' interdependency hypothesis. First, it can be pointed out that given the conditions of exposure and motivation, the hypothesis has been defined so

broadly that it can hardly be empirically tested. Furthermore, the hypothesis presupposes a causal relationship between skills in L1 and L2, while in most empirical studies a correlational design is followed. As such, no causal relationship between language skills could be evinced. Finally, empirical studies relating L1 and L2 skills have often failed to control such variables as socio-economic background of learners.

A number of authors have critically evaluated the nature of the interdependency hypothesis itself. It was pointed out that in Cummins' perception of interdependency between L1 and L2 skills the role of social factors in explaining differential literacy success has been neglected, compared to the role assigned to cognitive and linguistic factors. Brent-Palmer (1979) proposed an alternative explanatory model of academic success of ethnic minority children. She emphasized the way macro-social factors such as power conflict and socio-economic background translate into language behaviour at the micro-social level. She argued that in a multi-ethnic society linguistic and cultural differences of minority groups are in reality translated into a low level of power. The school is said to reflect such a position when the minority children's linguistic repertoire is viewed as a restricted code, whereas in fact it is a manifestation of copying with stigmatization in a hostile environment. According to Brent-Palmer, the dominant group in society controls the school by stigmatising the language behaviour patterns of minority children. It has been suggested that the teacher-child interaction in school will reflect the wide socio-psychological climate and the social meaning and behaviours associated with dominant groups will be acted out in school. Thus the school is said to be controlled by the dominant groups, whereas the social patterns of minority children are neglected. Brent-Palmer claimed that the notion of interdependency of linguistic skills in Cummins' theory should be rejected as the linguistic performance can be explained by macro-social factors.

Edelsky, Hudelson, Flores, Barkin, Altwerger & Jilbert (1983) and Martin-Jones & Romaine (1986) also discussed the validity of Cummins' framework concerning linguistic competence in bilinguals. The former group questioned the operationalization of oral and written language proficiency through standardized tests. In response to Cummins' construct of cognitive academic language proficiency, they pointed out that with such tests only 'test-wiseness' can be measured, an ability which incorporates a desire to do well on artificial tasks. As such the relationship of cognitive academic language proficiency and school success is said to be a tautology. Both Edelsky et al. and Martin-Jones &

Romaine argued that Cummins' theory refers to a new version of a deficit theory as an explanation for differential school achievement of lower-class minority children and middle-class majority children. They pointed out that an alternative theoretical network of language variation in a bilingual context can only be built up through ethnographic research in which oral and written language skills are assessed in a functional way. In a reply to Edelsky et al., Cummins & Swain (1983) pointed out that the deficit allegation was based on a supposed relationship between learner characteristics and educational performance in a given social and political context. Furthermore, they claimed that a universal condemnation of all formal test situations is simplistic and unsupported.

At the Language Proficiency Assessment Symposium in Warrenton (1981) a dialogue between Cummins and other scholars took place which was a state of the art discussion of Cummins' theoretical framework relating language proficiency and academic achievement. The principal concern that emerged was the perception that the role of social factors had been more or less neglected by Cummins. Both Genesee (1983) and Troike (1984) argued that linguistic and cognitive variables are insufficient to account for differences in school progress in a bilingual context. According to Genesee, language proficiency can better be conceived of as intervening effects than as causal factors. He claimed that language alone is not likely to explain the developmental lag that some minority language children experience in the acquisition of school-related linguistic proficiency. With respect to interdependencies between L1 and L2 proficiency, he pointed out that it is unclear whether it is L1 proficiency or age that predicts L2 academic proficiency. Generally it is found that children with more advanced L1 academic skills are also likely to be older and consequently more cognitively mature. According to Troike, socio-cultural factors may be more powerful than purely linguistic factors in influencing school achievement in bilingual contexts. As to the concept of cognitive academic language proficiency, he pointed out that in some cases it can be seen as an artifact of test results which actually reflect acculturative approximations to middle-class Western cultural norms and behaviours. Wald (1984) even suggested that cognitive academic skills can be strictly test skills. He pointed out that in Cummins' model the notion of context is poorly defined. Wald argued that a number of features of context which are distinguished by sociolinguists are collapsed into a single continuum, whereas factors such as familiarity and acceptance of language tasks can be seen

as distinct contextual aspects.

In a reaction, Cummins (1984) fully admitted that the role of socio-linguistic factors in his theoretical framework requires clarification and elaboration. He argued that these factors can be incorporated in more detail without relinquishing the parsimony of two basic dimensions. Given the fact that the framework is regarded as a set of intervening variables, there will be no difficulty in postulating that sociolinguistic factors affect teacher-child interactions which in turn affect the acquisition of literacy skills. As to the concept of academic language proficiency, he pointed out that this concept is often confused with one particular way of operationalising it. In Cummins' interpretation, cognitive language skills are not only learned in school, but are developing from the child's first interactions and certainly long before exposure to any test or printed text.

3.2.4 Intellectual skills

It can be assumed that in acquiring oral and written language proficiency one brings to bear a number of highly transferable skills which underly many other intellectual abilities as well (see Oller, 1980). After decades of research on intelligence testing, a substantial communality between verbal and nonverbal factors was evinced (Kaufman, 1979; Carroll, 1980). With respect to second language learning, Genesee & Hamayan (1980) claimed that intellectual skills play a more dominant role as the curriculum is more formalized. They found that the correlation between intelligence measures and L2 proficiency was relatively low in younger learners as opposed to older learners.

According to Carroll (1976), the intellectual skills of learners at any age put limits on the acquisition of literacy. Evans (1979) found that memory capacity, class inclusion ability and predictive reasoning all correlated positively with reading comprehension among first graders. Furthermore, Singer & Crouse (1981) found a positive correlation between predictive reasoning and reading comprehension amongst sixth graders. As regards literacy acquisition in a second language, Genesee (1976) reported some relationship between nonverbal intelligence and literacy measures of Anglophone children in L2 French.

The study of the relationship between intelligence and language abilities is complicated by the fact that conventional intelligence-tests are culturally biased. Especially verbal subtests appear to be biased because these usually reflect the prior learning experience of middle class majority children and

consequently exclude the learning experiences of those who have grown up in a different cultural and linguistic milieu (Cummins, 1984: 25). For that reason, the intellectual skills of immigrant children should be assessed independently from language skills. This can be done by using nonverbal tasks which can be taken with minimal, preferably nonverbal instructions. As a global nonverbal measure of the intelligence skills of minority children, the Progressive Matrices Test (Raven, 1965) is often recommended.

Since the early seventies, a more dynamic approach of assessment has been proposed which involves the concept of learning potential (Budoff, 1970; Feuerstein, 1979; Dumont, Hamers & Ruijsenaars, 1982). In learning potential assessment, a three-stage procedure of pretest, training and post-test is followed to measure intellectual potential. In most cases, traditional nonverbal tests are used, such as Raven's Progressive Matrices. Although the concept of the learning potential test seems to be promising, serious doubts can be expressed as to its predictive power (Wijnstra, 1984). Using the learning potential device with second graders from Surinam, Turkish, Moroccan and Dutch origin in The Netherlands, Wijnstra found a significant increase in the mean posttest scores compared to the mean pretest scores. However, no increase of predictive validity of the posttest scores could be demonstrated with academic proficiency as the criterion.

3.2.5 Cultural orientation

In general terms, cultural orientation can be defined as the attitudes minority children have developed towards their native language and culture and the majority language and culture. These attitudes determine the degree of identification with the two cultures. Lambert (1967) distinguished four possible identification patterns: identification with both cultures, identification with majority culture/rejection of minority culture, identification with minority culture/rejection of majority culture, or a failure to identify with either culture. Which identification pattern minority children develop is important for the course of L1 as well as L2 development.

Attitudes can be thought of as relatively stable and enduring predispositions to respond in a consistently favourable or unfavourable manner with regard to a given object (see Fishbein & Ajzen, 1975). However, as Appel (1984: 71) has pointed out, the cultural orientation of minority people cannot be seen as a stable personality characteristic because in a 'natural' second language

context such orientation will primarily be socially or politically determined.

With respect to the concept of cultural orientation, Brown (1980) has pointed out that language and cultural are so intricately interwoven that the two cannot be separated without losing the significance of either language or culture: second language acquisition also involves the acquisition of a second culture. Similarly, Gardner (1979) pointed out that the acquisition of a second language not only presupposes the learning of the symbols and rules of that language, but also the characteristics of the other ethnolinguistic community. Accordingly, he suggested that the students' harmony with their own cultural community and their willingness to identify with the other cultural community are important considerations in the process of L2 acquisition. Schumann (1978) clustered the social and affective factors related to cultural orientation together into the term acculturation, which is defined in terms of the social and psychological integration of the learner with the target group. Two types of acculturation are distinguished. In type-one acculturation, the learner is said to be socially integrated in the target language group so that sufficient contacts with target language speakers can be developed in order to acquire the target language. In type-two acculturation, the learner is not only psychologically open to the target language, but at the same time target language speakers are regarded as a reference group whose life style and values should be adopted. Though Schumann claims that both types of acculturation are sufficient for acquisition of the target language to take place, the distinction stresses that social and psychological contact with the target group is the essential component in acculturation.

Gardner (1979) argued that the relationship between attitudes and language development is only indirect. According to Gardner, a positive attitude towards learning a language combined with effort in that direction enhances the motivation to learn a language which in its turn has a positive influence on language achievements. In a series of studies involving Anglophone Canadian students learning French, a fairly strong association between attitudinal/motivational variables and L2 achievement was shown (Gardner & Lambert, 1972; Clément, Gardner & Smythe, 1977; Gardner, 1977, 1979).

Gardner & Lambert (1972) proposed two basic motives to be especially relevant for learning an L2: integrative and instrumental motivation. The former type of motivation refers to the wish to get to know more about the culture of the community in which the language is spoken by learning that language. The

latter type refers to the wish to be better educated by learning the language for utilitarian purposes. They claimed that integrative motivation generally leads to far better language achievement than does instrumental motivation. However, as Cooper & Fishman (1977) have shown, the relevance of both types of motivation is largely dependent on the context in which a language is learned. In a societal context where the target language skills are highly valued, instrumental motivation can be expected to be particularly effective. Meisel, Clahsen & Pienemann (1981)'s findings which indicate that instrumental and integrative motivation among foreign workers in Germany led to the same L2 proficiency level can easily be explained. Though in a number of studies positive correlations have been found between attitudinal/motivational variables and L2 proficiency, Oller & Perkins (1978) have argued that the debate is far from conclusive. In a review, they made it clear that in some studies a positive correlation is fully absent. They suggested that this is mainly because of the questionable validity of the attitude measures which have been used, i.e. self-reports. They pointed to three potential sources of extraneous variance in such measures: approval motive, self-flattery and response set. Gardner (1980) considered statistical, contextual and conceptual arguments in order to explain the inconsistencies of previous research, which had been brought forward by Perkins & Oller.

Another controversial aspect concerns the ultimate character of the relationship between cultural orientation and language proficiency. Both Gardner & Lambert (1972) and Schumann (1976, 1978) implicitly stated that there is a causal relationship between attitudes and language proficiency. However, Savignon (1972), in a study of Canadian students learning French, showed that positive attitudes are a function of L2 learning achievement rather than the reverse. Furthermore, Hermann (1980) found that German children who had some experience in learning English as a foreign language displayed more positive attitudes towards the target culture than did beginners. In a later publication, Gardner (1979) pointed out that the relationship between attitudes and language proficiency is reciprocal. According to Gardner, attitudes may influence language achievement, while at the same time a higher language proficiency may influence attitudes thanks to greater possibilities of contact with the language community.

Most studies on cultural orientation have been done with adolescents and adults. From a study by Rosenthal (1974), however, it can be concluded that social

awareness regarding non-standard language varieties develops very early, between the ages of three and six. Day (1980) investigated the development of linguistic preferences with respect to Hawaii Creole English and standard English among kindergarten and first grade children from different socio-economic backgrounds. He found that kindergarten children from the lower-class expressed a preference for the former language, whereas older lower-class children and all middle-class children preferred standard English. Day concluded that a switch by speakers of Hawaii Creole English in linguistic preferences occurred in the first grades of school. Wong-Fillmore (1976) presented evidence that some sort of integrative motivation influences children. She found that children who displayed a great desire to belong to and identify with target language speaking peers made the best progress in language learning. On the other hand, Genesee & Hamayan (1980), in a study of 6-year-old Anglophone Canadian children learning French, found no correlation between attitudinal variables and L2 proficiency. However, it can be pointed out that no strong positive or negative feelings towards L2 speakers have been developed because in the Canadian context both English and French are highly valued.

Several recent studies with Turkish and Moroccan children learning L2 Dutch also lead to inconclusive results concerning the relationship between cultural orientation and L2 learning. Appel (1984) in a study of 8 to 13-year-old children concluded that such a relationship could not be clearly established. He argued that perhaps many children need a strong grip on their own culture when acquiring a second language. However, the operationalization of cultural orientation he used can be qualified as rather poor. In a longitudinal study of Turkish and Moroccan children from six to nine years old, Vermeer (1986) found a significant correlation between children's language choice and L2 proficiency in that the frequent choice of Dutch was related to high proficiency of that language. Contact of children with Dutch people also correlated positively with L2 proficiency. No significant correlation was found between motivation to learn Dutch and proficiency in Dutch. However, the latter result may be due to a poor operationalization of children's motivation. Finally, Boers, Van den Bosch & Verhoeven (1987) found language contact and cultural orientation to be strong predictors of L2 proficiency at the ages of five and seven. However, at the age of nine the predictive power of cultural orientation was only moderately high, while that of language contact was fully absent. The latter fact was explained from the children's prolonged exposure to the second language.

3.3 Background variables

3.3.1 Socio-economic background

In a number of studies it has been found that children from lower-class homes perform less well on literacy measures than do children from economically advantaged backgrounds (Coleman, 1972; Weber, 1973; Abelson, Zigler & Deblasi, 1974). A comprehensive review of such studies is given by Seitz (1977). Moreover, Swain (1981) found that middle-class children attained better results in literacy learning than lower class children, whether they were taught in the mother tongue or in a second language.

Whereas the relationship between social class and the acquisition of literacy is well established, its explanation is still a matter of debate. Entwisle (1979) pointed out that the social environment influences children's acquisition in several ways: by affecting their linguistic awareness, by affecting their use of language and by affecting their ways of perceiving and reacting to the world they experience. The relationship between language development and social class has been extensively examined by Bernstein (1961, 1962, 1971). He proposed that the acquisition of certain elaborated linguistic forms reinforces skills which are crucial for educational success, and that these linguistic patterns are essentially determined by the different social conditions of middle- and lower-class communities. He argued that all classes develop verbal interactions which are implicit, immediate and direct, whereas in middle-class families additional elaborated verbal devices are developed which more or less conform to the academic language of school. However, it is important to note that this fact does not necessarily imply that the linguistic system of lower-class immigrant children is in any sense deficient. As Cummins (1979) claimed, it only implies that the school programme must be geared to the children's linguistic needs if they are to attain fluent literacy skills in L1 and L2.

Wells (1978) has shown that a match between linguistic experience in children's homes and the linguistic demands in the classroom is essential for academic progress. With respect to the acquisition of literacy, the child's facility in comprehending and using language which is taken out of the context of the immediate, interpersonal situation is a fundamental factor (Olson, 1977a). Olson suggested that the extent to which children have developed facility in processing decontextualized language has a great impact on literacy achievement. According to Olson (1977b), children can be orally taught about the

explicit logical structure of printed texts by parents through abstract language use in communication and through reading stories. Wells (1981) found empirical evidence for Olson's claim. He found that the degree of experience with decontextualized use of language in children's homes and the extent of their being read to had a positive influence on the understanding of the functions and mechanisms of literacy. Such understanding proved to be the best predictor of literacy results. However, Wells rejected the necessary connection between a 'typical' use of language and social class. He argued that he had found enough counterevidence to invalidate a simple distinction along social classes.

3.3.2 Language input

As regards the linguistic network in minority children's homes and in the wider community, different channels of language input can be distinguished, such as oral communication between family members, contact with people outside the family, use of radio and television (video) and use of written materials (books, newspapers, magazines). According to Tosi (1979), lack of reinforcement of accepted norms in the community and exclusion from exposure to the standard language can be responsible for weakening L1 development. Tosi (1984) pointed out that the language input in the case of first generation immigrant children will often be characterized by a favourable position of L1. Its development may originally benefit from a rich infra-structure within the family and the wider community, but later on, if not reinforced by full conditions of exposure, the mother tongue may develop only within restricted domains. Accordingly, the tendency to shift to the majority language may grow stronger.

Saltarelli & Gonzo (1977) have claimed that in the case of immigration of minority groups, a language shift will usually be completed in four generations. Swain & Cummins (1979) believe that the process of language shift in a L2 submersion environment may even proceed faster. As to Northern American countries, it can be concluded from studies by Fishman (1966, 1972), Haugen (1969, 1973), Gaarder (1977) and Hernandez-Chavez (1978) that a rapid shift to L2 among minority groups can indeed take place, and that strong support from local and central authorities is needed for minority languages to survive. Research in European countries points to similar results (Skutnabb-Kangas, 1976; Tosi, 1979; Ekstrand, 1980; Boeschoten & Verhoeven, 1986; Verhoeven & Boeschoten, 1986).

As to the acquisition of L2, Schumann (1978) pointed out that social and

psychological contact of the family with target language speakers will enhance the development of L2. Klein & Dittmar (1979) demonstrated that the L2 proficiency of Italian and Spanish immigrant workers in Germany was highly influenced by their contacts with Germans during leisure time. Furthermore, Vermeer (1985, 1986) found that the degree of contact of Turkish and Moroccan children with Dutch people correlated positively with their proficiency in Dutch.

3.3.3 Parent attitudes

For ethnic minority children, the linguistic models within the family and the linguistic support obtainable in the neighborhood can be expected to be dependent on their parents' attitudes toward L1 maintenance and L2 acquisition. Gardner (1968) has shown that parent attitudes have an effect on the attitudes and motivation of children. He found that Anglophone parents with positive attitudes toward French Canadian developed similar attitudes in their children. Moreover, it turned out that these children had better success in L2 learning than children of parents with unfavourable attitudes. Lalleman (1986) investigated the relationship between L2 proficiency in 6-year-old Turkish children and three attitudinal variables among their parents: social distance, cultural distance and psychological distance. Social distance related to social contact with L2 groups; cultural distance related to cultural assimilation; and psychological distance related to attitudes which the L2 group adopts toward the L1 community and vice versa. She found moderate but significant correlations between children's L2 proficiency on the one hand, and parents' social distance and cultural distance on the other. However, the correlation between children's L2 proficiency and parents' psychological distance was not significant.

3.4 Towards an explanatory model of temporal differences

With respect to an appropriate design of literacy instruction for minority children, it is important to find out which educational variables, learner variables and background variables are particularly effective in promoting (or impeding) achievement in this area. A distinction must be made here between factors which can be controlled and/or changed and those which cannot. For example, linguistic background is an unalterable factor, while socio-economic

position is one that cannot directly be influenced through education. The remaining factors mentioned above would all seem to allow themselves to be affected more or less directly by education. Furthermore, it must be realized that results of literacy instruction for immigrant children are quite sensitive to the socio-political context in which the literacy programme is presented.

It should be borne in mind that the factors that determine success in learning to read in L1/L2 need not be completely independent of each other. It is not so much the influence of isolated factors that must be determined; rather, an attempt should first be made to ascertain how potentially relevant factors interact, and subsequently how such interaction affects learning. Only if all these factors are taken into account can a theoretical framework be built from which temporal differences in learning achievement in bilingual literacy instruction can be explained. In Figure 3.1 the outline for such a framework is given. It concerns a modified version of Cummins' interaction model of bilingual education (1979).

Figure 3.1: Explanatory model of temporal differences in literacy acquisition of ethnic minority children

Factual ongoing literacy processes are assumed to result in literacy outcomes. Furthermore, it is supposed that, given a socio-political context, literacy processes are directly influenced by educational variables on the one hand, and

by learner characteristics on the other, whereas learner characteristics are assumed to be dependent on both educational and background variables. Finally, educational outcome is considered to be a recurring variable in that the outcome of literacy processes can influence learner variables.

Multi-factor studies of temporal differences in literacy education for ethnic minority children are scarce. Williams (1981) assessed the performance in reading English as a second language of Nigerian children from the fifth grade in relation to variables such as language environment, literacy resources, attitudes towards reading English, exposure to English mass media, type of school, sex and age. He found type of school and literacy resources to be the best predictors of reading performance. Additionally, attitude towards reading English turned out to be a significant predictor as well. Connor (1983) investigated the predictive value of several individual, socio-cultural and instructional factors gathered from a questionnaire on ethnic minority children's reading results in English. Her conclusion was that the number of students in a class, their L1 background, the degree of English spoken in the home and paternal occupation all contributed to a positive prediction of L2 reading achievement.

Of special significance is a multi-factor study of transitional literacy acquisition by Spanish-English speaking children reported by Mace-Matluck, Hoover & Calfee (1984). In a longitudinal investigation, several cohorts of children entering during their kindergarten year were followed for at least three years. In different instructional settings, the following skills were measured in both Spanish and English: oral language and literacy readiness skills, subsequent growth in literacy in varying component skills. The relationship of instructional variables with subsequent literacy achievement was also studied. The results of the study can be summarized as follows. As to the acquisition of L2 English, the oral proficiency level on entry turned out to be associated with above-average literacy skills assessed throughout the early grades. Independently of oral language on entry, knowledge of the English alphabet on entry into kindergarten was strongly related to decoding-based literacy skills. There was some indication of relatively superior English literacy skills for those students with longer enrollments in Spanish literacy programmes. From an instructional point of view, it was found that literacy skills are advanced by instruction that makes strong formal language demands on students. Moreover, comprehension skills were improved by increasing

comprehension instruction. As to the acquisition of L1 Spanish, it was found that Spanish oral language level on entry to kindergarten was associated with above-average performance in literacy skills assessed during the early grades. Knowledge of the Spanish alphabet correlated only weakly with first grade literacy performance. Students' enrollment in Spanish literacy programmes was positively related to the acquisition of Spanish literacy during the early grades, but not at later grade levels. Given the practice of transferring the most successful student to the English programme, this last fact is understandable. Furthermore, it was found that literacy skills were improved by instruction with extensive use of text materials and with limited interruptions. Moreover, decoding skills were improved by increased decoding instruction and by smaller numbers of students in the group.

Though all of the above studies followed a multi-factor design, several critical comments can be made. In the studies by Williams and Connor, the variation of L2 literacy results was cross-sectionally investigated. A longitudinal perspective which is especially relevant in the study of individual differences of learner behaviour was lacking. Furthermore, only a limited number of variables was taken into account as possible predictors of L2 literacy success. No information was gathered as to the extremely relevant variables of oral proficiency in L1. Moreover, the predictor variables under consideration were mostly indirectly measured by means of questionnaires.

With respect to the study of Mace-Matluck, et al. it can be argued that there is a loss of information about the longitudinal character of changes in literacy skills because of the fact that the outcomes in each year were evaluated in isolation from the outcomes in the other years. Furthermore, the role of social factors in explaining oral and written acquisition of L2 was neglected. Nor was there clear information about the control of influential factors such as socio-economic background of the informants.

Part 2: Literacy Acquisition of Turkish Children in The Netherlands

Outline of the Present Study

In this chapter the outline of a study which examined the acquisition of literacy by Turkish children in The Netherlands is presented. The study was a two-year longitudinal study in which the processes involved in the acquisition of literacy by Turkish children in various instructional contexts were investigated. In the study the paradigms of structure and rate of literacy processes of ethnic minority children, mentioned in 1.4, were taken as a guiding principle. A linguistic description of the processes of literacy acquisition in Dutch as L2 is given from a structural point of view. To that end, the theoretical principles discussed in Chapter 2 were taken as a starting point. In addition, an attempt was made to identify the temporal factors which account for individual variation in literacy success in L1 and L2. This part of the study is based on the theoretical framework which has been worked out in Chapter 3.

In the first part of this chapter the educational background of the study is presented. After a discussion of the demographic characteristics of ethnic minorities in The Netherlands, the educational policy of the Dutch authorities is reviewed. Moreover, actual programmes of literacy education for minority children are presented. Additionally, the purpose, research questions and research design of the present study are discussed. Furthermore, the selection of informants is accounted for; special attention is given to educational control variables and to the linguistic background of the informants. In the final section, the research data and data processing are discussed.

4.1 Educational background

4.1.1 Ethnic minorities in The Netherlands

Since the sixties several groups of immigrants have come into The Netherlands for different reasons. Extra & Vallen (1985) distinguished five groups. First, there were the foreign workers who came from Mediterranean countries. In 1966 about 50,000 immigrant workers were counted. In 1983 their number increased to about 325,000 people. Since the reunion of families of immigrant workers was

regulated by law in 1971, many women and children were among them. Most immigrant workers are natives of Turkey (46 percent). Moroccans make up the second largest group (30 percent). Considerably smaller are the numbers of Spaniards (7 percent), Italians (6 percent), Portuguese (3 percent) and Greeks (1 percent). Second, people came in from ex-colonies. A distinction can be made between people coming from the former Dutch Indies (285,000), Surinam (185,000) and Dutch Antilles (42,000). Third, about 30,000 Chinese people, originating from various countries, immigrated. Fourth, there were immigrants from Western European and North American countries. Their number is estimated at 185,000. Finally, political refugees came in, originating from different places, their total number being about 24,000.

At this moment, about 7 percent of 14 million inhabitants of The Netherlands are of non-indigenous origin. Most of the immigrants live in rather big cities in industrial areas. Several prognoses have been made regarding the expected increase of ethnic minority groups in the Netherlands (see: Van Praag & Kool, 1982; Kool & Van Praag, 1982). Table 4.1 displays the actual numbers in 1983 and the number of Turks, Moroccans, Surinams and Antillians, expected in 1990.

Ethnic group	Number 1983	Max. prognosis 1990	Min. prognosis 1990
Turks	154.200	196.000	165.000
Moroccans	101.500	149.000	119.000
Surinams	185.000	230.000	210.000
Antilleans	42.200	70.000	65.000

Table 4.1: Numbers in 1983 and prognosis of maximum/minimum numbers of four ethnic minorities in The Netherlands in 1990

It can be seen that in all ethnic groups a substantial increase in number is expected.

4.1.2 Educational policy

The rapid increase in the number and size of ethnic minorities in the Netherlands has had a profound effect on Dutch education. As a result of immigration and a high birth rate, the number of ethnic minority children within the Dutch educational system has shown an enormous increase. Especially the number of Turkish and Moroccan schoolchildren is expected to increase in the coming years. Van Praag & Kool (1982) provided their actual numbers in 1982/83 and their expected numbers in 1990 (see Table 4.2).

Ethnic group	Number 1982/83	Max. prognosis 1990	Min. prognosis 1990
Turks	31.033	40.000	32.800
Moroccans	21.638	36.200	27.600

Table 4.2: Numbers for 1982/83 and prognosis of maximum/minimum numbers of Turkish and Moroccan 4- to 12-year-olds in Dutch schools in 1990

When the first immigrant children entered the Dutch educational system, it was assumed that their stay would be temporary. As Appel (1984: 28) pointed out, educational policy at that time was ambiguous. On the one hand, it was aimed at the integration of immigrant children into the Dutch educational system. On the other hand, their potential remigration was taken into account. This policy resulted in special facilities for the teaching of Dutch and the teaching of minority languages. The former type of facilities included extra teaching staff who were expected to teach non-native pupils who came directly from their country of origin, in special classes. In these so-called 'reception classes', an attempt was made to give these children sufficient linguistic skills to be able to follow instructions presented in Dutch. The facilities for education in the minority language included the hiring of teachers from abroad who were in charge of instruction in the minority language and culture up to a maximum of 4 hours a week.

During the seventies it was gradually realized that the majority of the immigrant families had definitely settled into the Netherlands. More and more schools were attended by non-native pupils who were born in The Netherlands. School teams realized that in order to do justice to the development and maintenance of the immigrant child's social and cultural background, it was necessary to pay attention to his own language and culture in a more structural way. However, the Primary Education Act of 1980 makes it clear that the present status of educational policy in The Netherlands continues to be ambiguous. It provides facilities which are designed for children from 'socially deprived' background, thereby neglecting the specific linguistic and cultural background of immigrant children. Additionally, the Act legislated the position of the languages of minorities originating from Mediterranean countries. According to this legislation, mother tongue instruction in these languages may be given if the local authorities deem it necessary. The frequency of these lessons is limited to a maximum of 2½ hours a week within the school curriculum. It is clear that this legislation offered no genuine opportunities for bilingual

literacy instruction.

4.1.3 Literacy instruction

From the very beginning, language instruction in Dutch primary schools has been devoted mainly to teaching reading and writing. Ethnic minority children are rarely given initial literacy instruction in L1: in the vast majority of cases, instruction is L2 based from the first year. If the school meets the required number of 10 pupils of one ethnic group, in some cases L1 literacy instruction is also given for some hours a week. However, this often takes place without the two teaching programmes having been adequately geared to each other. In most schools with a high concentration of minority children, L1 instruction during the first year is completely devoted to oral skills. Not until the second year is literacy instruction in L1 offered. In a few schools, transitional bilingual literacy programmes have been initiated.

With reference to literacy instruction in Dutch, a more or less uniform approach is followed by almost all schools. More than 85 percent of the schools use the same method 'Veilig leren Lezen' (VLL), which is generally applied very strictly. This method is primarily directed to the teaching of reading skills; writing skills are restricted to the spelling of words. Creative writing skills are not explicitly taught. VLL can at best be characterized as an eclectic approach combining whole-word and code-breaking principles (see Caesar, 1982). It starts with the reading and writing of words which are presented as meaningful units. Grapheme-phoneme correspondences are incorporated in that words are introduced in an instructional sequence to avoid confusion and to give children a repertoire of useful grapheme knowledge as early as possible. While presenting the words, a mixture of synthetic and analytic phonics is employed, together with text displays which illustrate linguistic principles. In the initial part of the method, sounding and blending are considered to be fundamental decoding skills. After the alphabetic principle is understood, texts and exercises are offered to add new skills to the child's repertoire or to increase fluency at his current level. Besides VLL, several other literacy methods are used in The Netherlands. Of these, 'Letterstad' is mostly used. In comparison with VLL, this method is more one-sidedly directed to code-breaking strategies.

As to literacy instruction in ethnic minority languages, mostly curricula are used which have been developed in the countries of origin. However, these

materials often turn out to be not very appropriate. Moreover, these materials do not properly link up with the linguistic and socio-cultural background of ethnic minority children. Recently, several initiatives have been developed to produce teaching materials which are more suitable for these children.

In The Netherlands, long-term research into the acquisition of literacy by immigrant children is generally lacking. Until now, only two studies provided L2 reading results. In a study by Van Esch (1982), it was pointed out that immigrant children generally lag behind their monolingual peers in academic skills at the end of the sixth grade. In addition, Wijnstra (1985b) compared the reading comprehension scores of second graders of different ethnic groups in 37 primary schools. All children had attended kindergarten in The Netherlands for at least 1½ year. For pupils of Surinamese and Antillian origin, the level of achievement was comparable to that of the non-indigenous sample. The pupils of Turkish and Moroccan origin, on the other hand, scored markedly lower than the Dutch sample.

4.2 Scope of the study

4.2.1 Purpose

In order to proceed towards a theory with reference to acquisitional processes associated with the literacy instruction of ethnic minority children, a longitudinal study was conducted with Turkish children in The Netherlands. Turkish children were selected because they form the largest minority group. The processes of literacy acquisition of Turkish children were documented during the first two grades at primary school. The study was conducted in current field settings at several places during the years of 1982 through 1984. Given the fact that in The Netherlands and in many other countries minority children are usually taught to read and write in L2 first, the acquisition of literacy in a submersion context received primary attention. Furthermore, because the initial part of literacy instruction is usually devoted to the teaching of reading, the focus of the study was on the acquisition of reading.

In its orientation the study can be said to be fundamental, but at the same time aimed at practical application. Problems that occur in or are related to actual educational practice form the basis of the study. As such, it was expected that the study would have both theoretical and practical implications. The purpose of the study was to provide information which would result in

greater insights into the processual features in second language literacy acquisition, the learner characteristics which predict first and second language literacy results in a submersion context, and the literacy outcomes in current transitional contexts.

4.2.2 Research questions

In this study on the acquisition of literacy by Turkish children in The Netherlands, the two paradigms distinguished in 1.4 were taken as a starting point. From a structural point of view, an attempt was made to give a linguistic description of the processes of literacy acquisition in Dutch as L2. To that end, the acquisitional processes of Turkish children in a L2 submersion context were followed. In this condition, Turkish children learned to read and write in Dutch together with Dutch peers. During the first year, literacy instruction for Turkish children was solely L2 based. During the second year it continued to be in L2 with additional instruction in L1 for 3-4 hours a week.

Furthermore, an attempt was made to identify the temporal factors which account for the individual variation in achievement of both L1 and L2 literacy acquisition in various bilingual contexts. As has been discussed in Chapter 3, the literacy outcomes of ethnic minority children can be seen as a result of a complex interaction of educational variables, learner variables and background variables. In the present study, the variation in literacy results will be investigated in three models of literacy instruction that have been distinguished in Figure 1.1 (p. 11). Because in current practice minority children receive literacy instruction in L2 first, the variation in literacy results in the L2 submersion context was given primary attention.

The present study aims at answering three focal questions:

- (1) What are the differences between the learning behaviours of Turkish children involved in L2 literacy processes and Dutch children involved in literacy acquisition in L1?
- (2) What learner variables and background variables account for temporal differences in the acquisition of literacy by Turkish children in a submersion context?
- (3) Is there a difference between the literacy processes and literacy outcomes of Turkish children in transitional contexts and Turkish children in submersion contexts?

The assumption underlying the first question was that apart from universal principles which will also apply to literacy acquisition in L1, in L2 literacy acquisition certain specific principles can play a role as well. Such specific principles can be thought of as a consequence of different linguistic skills and background experiences minority children bring to the learning situation. In studying structural principles in L2 literacy acquisition, lexical abilities and discourse abilities were examined separately.

The second research question is concerned with the learner and background variables which account for temporal differences in literacy outcomes of Turkish children in L1 and L2 in an L2 submersion context. The following relevant learner and background variables, closely related to the children's linguistic and socio-cultural background, are highly emphasized: intuitions about (written) Dutch, oral proficiency in Turkish and Dutch, cultural orientation, nonverbal intelligence, language input and parent attitudes. Socio-economic background was kept under control by selecting children who all belonged to the lower socio-economic class. Possibly relevant educational variables such as instructional approach and teacher attitudes were also controlled for (see 4.2.2.).

To answer the final research question, the oral and written language outcomes of Turkish children in the submersion context were compared to those of Turkish children in two current small-scale transitional programmes, following a simultaneous and L1-L2 design of literacy instruction respectively. Moreover, the patterns of individual variation in literacy results in the two transitional contexts were studied.

The first research question deals with structural aspects of literacy acquisition in a second language, and is worked out in Chapters 5 and 6. In Chapter 5 the processes of acquisition in word reading and word spelling of Turkish children in Dutch as L2 are compared with those of Dutch children in Dutch as L1. Chapter 6 compares the acquisitional processes of discourse comprehension and discourse production in Dutch in the two ethnic groups.

The next two questions deal with temporal aspects of literacy acquisition in different acquisitional contexts; they are worked out in Chapters 7 and 8. Chapter 7 considers the temporal variation of Turkish children's reading achievement in Dutch and Turkish in a submersion context. Chapter 8 gives an account of Turkish children's achievement in learning to read the two languages in transitional contexts.

4.2.3 Design

In order to arrive at an answer to the above research questions a longitudinal design was followed. With respect to the first question, the acquisition of literacy of Turkish children in L2 was compared with that of Dutch children in L1 by administering various reading and writing tasks after 5, 10 and 20 months of literacy instruction. The acquisitional processes in the two groups of children were subsequently subjected to linguistic analysis in order to discover similarities and differences. With regard to the second research question, the temporal variation in reading achievement of Turkish children after 5, 10 and 20 months in Dutch reading performance is accounted for in terms of relevant learner characteristics and background variables. The latter types of variables were assessed at the onset of, and after 10 and 20 months of literacy instruction. However, metalinguistic awareness was only assessed at the moments 1 and 3, nonverbal cognitive skills only at moment 3. Figure 4.1 gives a schematic representation of the data collection design as regards the submersion context. 60 Turkish and 30 Dutch informants were aimed at. For the Turkish children, the complete set of tests is administered; for the Dutch children, data collection only concerns Dutch skills.

	period of literacy instruction (in months)			
	1	5	10	20
Oral proficiency in L1/L2	+		+	+
Metalinguistic awareness	+		+	
Cultural orientation	+		+	+
L1/L2 input	+		+	+
Nonverbal cognitive skills			+	

Literacy skills in L2	+	+	+	+
Literacy skills in L1				+

Figure 4.1: Data collection design for the submersion context

With respect to the third research question, the reading outcomes of 25 Turkish children in two current transitional literacy programmes were determined after 10 and 20 months of literacy instruction. Moreover, these outcomes were related to their oral proficiency in L1 and L2 and their cultural orientation which had

been assessed at the onset of, and after 10 and 20 months, of instruction.

4.3 Selection of informants

4.3.1 Procedure

In selecting informants the natural variation of instructional practices was taken as a starting point. In view of the study of literacy acquisition in the L2 submersion context, 15 schools were selected in three industrial cities: Arnhem, Deventer and Nijmegen. The local authorities indicated that these schools had substantial numbers of minority children among their populations. School teams were supplied with written information about the research project and were asked to participate, if all of the following criteria could be met:

1. Literacy instruction had to be given in regular submersion classrooms in which Turkish children start to learn to read and write in Dutch as a second language together with Dutch children. In these classes L1 education, taking four hours a week, should be limited to oral skills during the first year, while during the second year L1 literacy skills should be taught as well. As such model F of bilingual literacy instruction is under consideration (see p. 11).
2. The literacy curriculum followed had to be based on the method "Veilig Leren Lezen" which is used by 85% percent of all schools in the Netherlands, and which is applied fairly strictly.
3. The percentage of minority children in the classroom should not exceed 60 percent. This criterion was set because in the old neighbourhoods of the big cities the number of ethnic minority children in some schools exceeds 80 percent. In such cases an immersion approach is used with the pupils having minimal opportunities to have contacts with native Dutch peers.
4. The socio-economic background of the children was held constant in that only working class children would be selected. As far as the profession of parents was concerned, only the categories (un)trained workers, lower level employees and small-shop-keepers were permitted (see Westerlaak et al. 1975).
5. All Turkish children should have Turkish as their mother tongue. Thus, native speakers of minority languages in Turkey such as Arabic or Kurdish were excluded.
6. All Turkish children should have been living in The Netherlands for at least two years during which period they had attended nursery school.

7. All Turkish children should be not older than seven and should not have attended the first grade of primary school before.
8. The sample of Turkish children should include a similar number of boys and girls.

Of the 15 schools, only four did not meet all of the above criteria. One school used a different reading method, another had more than 60 percent of minority children in the first grade, and two schools had no Turkish children meeting the required criteria. Furthermore, one school did not wish to participate so that ten schools were left from which the student sample was drawn: 3 schools in Arnhem, 4 in Deventer and 2 in Nijmegen. From these schools, 74 Turkish pupils could be selected who met the criteria set beforehand.

In addition, Dutch children were selected from the same classes. In selecting the Dutch children, an attempt was made to match them with the Turkish children as to their socio-economic background, sex and age. With respect to socio-economic background, the children were matched according to the profession of their parents. As with the Turkish children, the only professional categories allowed were (un)trained workers, lower level employees and small-shop-keepers. Sex and age of the Dutch children were controlled by striving for a balanced distribution of boys and girls, and by excluding children who were repeating first grade. For some purposes, all of the Dutch pupils of low socio-economic background were tested. For other purposes, a target subsample was selected for more detailed examination. This subsample was randomly drawn by taking from each class Dutch pupils to a number which was half the number of Turkish children who had been selected before. Thus, if 10 Turkish children had been selected from a class, 5 Dutch children would be drawn.

Table 4.3 presents the number of Turkish and Dutch children who participated in this part (i.e. submersion context) of the study. The distribution of sex and the mean age at the onset of literacy instructions in the two groups are given as well.

Besides the selection of pupils in submersion context, schools which were enrolled in transitional literacy programmes were sought. Though such schools are quite rare in The Netherlands, two of them were found, of which the school teams were at once willing to participate. One was located in Enschede (school E) and took part in the so-called Enschede-project (see Verhoeven et al, 1983; Theunissen, 1986). With reference to the instructional models distinguished in Figure 1.1 (p. 11), the literacy programme at school E can best be defined as

	Numbers			Mean age
	Boys	Girls	Totals	
Turkish sample	36	38	74	6;7
Dutch subsample	19	22	41	6;5
Dutch total sample	65	67	132	6;5

Table 4.3: Numbers of Turkish and Dutch informants participating in a L2 submersion context of literacy acquisition. Mean age is given in years plus months.

model E. The literacy curriculum was 'Letterstad', a method which is slightly different from VLL (see 4.1.3.). However, in a study by Reitsma, Komen & Kapinga (1981) it was found that the two curricula do not lead to differential literacy outcomes on the part of the learner. The other school was located in Arnhem (school A). This school followed the Jena-plan, which was initiated by Petersen (1980). Within this plan children are organized in homogeneous groups for expressive and social activities, whereas curricular subjects such as reading and maths are presented in differential groups. The literacy curriculum used at school A was VLL. The instructional programme can best be typified by model D (see p. 11. In Table 4.4 the numbers of pupils and the distribution of sex and age in the two transitional programmes are presented.

	Numbers			Mean age
	Boys	Girls	Totals	
School E	12	5	17	6;6
School A	3	5	8	6;5

Table 4.4: Number of Turkish informants participating in transitional contexts of literacy acquisition

All children had a low socio-economic background, spoke Turkish as their mother tongue and had been living in The Netherlands for at least two years during which period they had attended nursery school. Moreover, they were not older than seven years and had not attended the first grade of primary school before. The children at school A were taken from two different cohorts of children; 3 children started primary school in 1982, 5 in 1983.

4.3.2 Control of educational variables

For the purpose of control, several educational variables within the submersion classes were carefully documented. As to instruction in L2 Dutch, the variables concerned were the professional background and the attitudes of the teachers and the nature of their instructional programmes at the first and second grade. The results can be summarized as follows.

With respect to the teachers' background, it turned out that none of the teachers had been involved in any kind of courses in second language teaching at their School of Education. Moreover, none of the teachers had been enrolled in any special programme of second language education of the local School Counseling Services. Furthermore, all teachers reported that they had had experience with education for minority children for at least two years with a maximum of 10 years.

In order to get insight into the teachers' attitudes concerning bilingualism and bilingual education, a questionnaire was supplied with 15 items (see Appendix 1.1). Each item contained a statement about bilingualism or about the importance of courses in minority language and culture, followed by a five-point-scale running from 1 (fully agree) to 5 (fully disagree). In scoring the items on the questionnaire, all item scores were recoded so that the high pole corresponded to a positive attitude towards bilingualism and the low pole to a negative attitude towards bilingualism. The attitude scores could range from 15 (extremely negative) to 75 (extremely positive). The mean score of the teachers in the first grade was 47.2 with a range of scores running from 37 to 58. In the second grade the mean score was 50.3 with a range from 43 to 60. Thus it can be concluded that teachers at both grade levels had in general a moderately positive attitude towards bilingualism and bilingual education.

With reference to the instructional programmes in Dutch, a determination of the number of hours a day teachers devoted to the teaching of oral and written language skills was made. From structured teacher interviews the following time-tables of daily programmes in the first and second grades were found (see Table 4.5).

As to the instruction of reading and writing, all teachers reported that they followed the same curriculum (VLL) fairly strictly. Literacy instruction generally involved group activities. In grade 1 such activities accounted for 87 percent of the time on an average (range: 75-100); in grade 2 the mean

	First grade		Second grade	
	mean	range	mean	range
Oral language	1.6	1.25 - 2.0	1.1	.75 - 1.75
Reading	1.0	.75 - 1.25	.9	.75 - 1.25
Writing	1.0	.75 - 1.25	1.2	.75 - 1.75

Table 4.5: Mean numbers and ranges of hours of instruction in oral language, reading and writing in Dutch a day at the first and second grades under investigation.

percentage of group activities reported was 89 with a range of 80-100. All teachers furthermore indicated that library facilities in L1/L2 were available at school which both Turkish and Dutch children could make use of.

In addition, the implicit beliefs of teachers about literacy education were determined by a questionnaire consisting of 15 statements to be rated on a five-point-scale (see Appendix 1.2). All statements had been chosen in order to elicit a preference for a code-breaking emphasis on the one hand (as indicated by a low score, with a minimum of 15), and a language experience approach on the other (as indicated by a high score, with a maximum of 75). Among first grade teachers the mean score was 40.6 with a range of 31-52; among second grade teachers the mean score was 39.8 with a range of 29-47. Thus no extreme preferences among teachers of either grades were found. All teachers used an eclectic approach with a slight emphasis on code-breaking principles.

With respect to the Turkish lessons, the same Turkish teachers were involved in grade 1 and grade 2. They had had experience with the education of Turkish children in The Netherlands for at least 3 years with a maximum of 9 years. In the first grade, Turkish instruction was one-sidedly devoted to oral abilities and varied from 1 to 4 hours a week. In the second grade, Turkish instruction was given for 3 to 4 hours a week and focussed on literacy abilities (about 2 hours a week). All teachers reported that they made use of the most recent literacy curriculum developed in Turkey, supplemented with materials they themselves developed. As with the Dutch teachers, their implicit beliefs about literacy education were rated by a questionnaire which was a translation in Turkish of 12 of the statements given to the Dutch teachers. Three items about the use of 'sight words' in learning to read were left out, because these were not applicable to Turkish. As such, scores could range from 12 to 60 points. The mean score obtained by the Turkish teachers was 29.3 with a range from 21 to 35,

indicating that all of them were slightly oriented towards a code-breaking emphasis.

Furthermore, the background and beliefs of the teachers in the experimental schools turned out to be highly comparable to those of the teachers mentioned above. The Dutch teachers had five to seven years experience with education to minority children. They had had no special course at their School of Education, but they had received special instructions for bilingual education from their School Counseling Services. Their mean scores for implicit beliefs about literacy education was 36. The Turkish teachers from the same schools had on the average 6 years of experience in Dutch primary education. Their mean score on beliefs about literacy instruction was 31.

4.3.3 Background of the Turkish children

The parents of the children under investigation were part of the group of Turks who have moved to The Netherlands during the sixties and seventies. The mean duration of stay in The Netherlands for the fathers was 11 years, and 8 years for the mothers. The families had on average 4 children living in The Netherlands, while a few families (5) reported to have some children in Turkey as well. Of the children in our samples 80 percent was born in The Netherlands; the others had been living there for three and a half years on an average. It turned out that the Turkish families originated from various areas of Turkey. Figure 4.2 shows the percentages of children originating from 11 different, regions.

Region	Percentage of children
Thracia/Marmara	6
Aegean	3
Black Sea	9
North Central	25
South Central	31
Mediterranean	10
North East	9
Central East	6
South East	1

Figure 4.2: Percentages of Turkish informants originating from different regions of Turkey

It can be seen that most children originated from the central part of Anatolia. Only a small proportion came from the industrialized Western part, or from the Eastern part with its low density of population. The present distribution conforms to the general distribution of origin of Turks in The Netherlands (see Boeschoten, 1985).

As regards the present professions of the parents, it turned out that most of the fathers did skilled or semi-skilled work in factories (85 percent). Others were unemployed (12 percent) or had occupations such as shop-keeper (3 percent). The majority of the mothers were house-wives (80 percent). The others were cleaners or workers in factories.

The parents of the children, constituting the first generation of immigrants, can be seen as predominantly Turkish speaking persons with only limited competence in Dutch. However, the language pattern of the children who were mostly born in The Netherlands is quite complex. Their early language input is Turkish, but quite quickly the Dutch language enters into their lives via Dutch playmates, day-care and television.

In order to gain more insight into the language pattern of the children under investigation the parents of the 74 children from the submersion classes were interviewed (see Appendix 2.1a). The interview was semi-open and was conducted by the Turkish and the Dutch teachers in the children's home. During the interviews questions were asked concerning language choice within the family, language contact outside the family and language contact via media. With respect to language choice within the family, the use of Turkish and Dutch in daily conversation had to be rated along a five-point-scale; (1) indicated almost exclusive use (90 percent of the time or more of L1, (2) predominant use (about 75 percent of the time) of L1, (3) equal use of L1 and L2, (4) predominant use of L2 and (5) almost exclusive use of L2. Figure 4.3 presents the mean ratings of language choice for various family interaction patterns.

It can be seen that the interaction among and with parents is more or less exclusively in Turkish. The children still use predominantly Turkish when speaking to each other.

With regard to language contact outside the family, the same rating procedure was made use of, (1) indicating almost exclusive contact with Turkish persons, etc. The results are presented in Figure 4.4. It can be seen that the mothers have contact with persons of the own ethnic group to a very high degree.

The language contact of the fathers and the children is also primarily with Turkish people.

Figure 4.3: Language choice in different family interaction patterns

Figure 4.4: Language contact outside the family

The parents were also asked if they had followed any course in Dutch. Only 15 percent of the fathers and 9 percent of the mothers responded that they had. The mean length of these courses was about one year.

Regarding language contact via media, the use of Turkish and Dutch television (video), radio and newspapers had to be rated along a three-point-scale: (1) indicated daily use, (2) use now and then and (3) never. In Table 4.5 the distribution of these ratings are presented in percentages. It is clear that Dutch television is used daily in more or less all of the families, while Turkish video is only modestly used. As to the use of radio and newspapers, it can be concluded to be extensive in Turkish and only limited in Dutch.

Medium	Daily	Now and then	Never
Dutch television	91	9	0
Turkish video	13	26	61
Dutch radio	15	32	53
Turkish radio	64	29	7
Dutch newspapers	7	32	61
Turkish newspapers	50	49	1

Table 4.5: Ratings of use of Dutch and Turkish media (in percentages)

Finally, both parents were asked whether they read books, and if so, in what language. Two thirds of the fathers responded that they read books. Most of them did so in Turkish only (73 percent), some in both languages (25 percent) and one in Dutch only. About half of the mothers reported that they read books with an equal distribution in Turkish only and in both languages.

Summarizing the results of the interview on the linguistic background of the Turkish informants, it can be concluded that the interaction patterns within the families are mainly in Turkish. Especially in interactions among parents and of parents with children, Turkish is almost exclusively used. With respect to the contact with people outside the family, the fathers of the children appeared to have contact with persons from their own ethnic group in 70 percent of the contact situations; for the mothers of the children, this was the case in more than 80 percent of the contact situations. With regard to media, Dutch television turned out to be an important source of language input. To a lesser degree, the same was true of Turkish radio and Turkish newspapers.

4.4 *Data base, data collection and data processing*

4.4.1 *Data base*

In the present section a general description will be given of the approach as regards the assessment of literacy data, oral proficiency data and socio-cultural data. As to the other variables, in most cases a multiple-indicator approach was followed. The precise characteristics of the instruments which have been developed as well as the results of the study will be given in the following chapters.

Literacy data. In the next two chapters literacy processes in L2 Dutch will be considered. In the processes of reading and writing in Dutch, two different components were distinguished: word recognition and discourse comprehension in reading, and word spelling and discourse production in writing. These components were thought of as interrelated in that word recognition can lead to mental representations of meaningful units which can initiate comprehension in reading. Likewise, word spellings were seen as the elementary units for text production. Thus, regarding the acquisition of literacy, the distinction between lexical abilities on the one hand, and discourse abilities on the other, was taken as a starting point. Accordingly, in operationalizing literacy tasks, a distinction was made between two types.

To study the acquisition of lexical abilities in Dutch, word reading tasks and word spelling tasks were developed. In order to gain insight into the process constraints in reading words, the word reading task consisted of word lists to be read out loud. In this way, two important process parameters, speed and accuracy, could be accounted for.

In order to learn more about the acquisition of comprehending and producing discourse in Dutch, several tasks were developed. With regard to reading comprehension, a distinction was made between tasks comprising texts to be read out loud, and silent reading tasks which comprised texts followed by questions. The former tasks were aimed at exploring speed and accuracy in reading discourse. Special attention was given to the analysis of misreadings and monitoring principles. The silent reading tasks would provide insight into the products of comprehension. By developing tasks which differentiate between crucial aspects of comprehension of coherence, anaphora and inference in Dutch discourse, such insight was strived for. With respect to discourse production,

monitoring principles. The silent reading tasks would provide insight into the products of comprehension. By developing tasks which differentiate between crucial aspects of comprehension of coherence, anaphora and inference in Dutch discourse, such insight was strived for. With respect to discourse production, two compositions were asked for. These were afterwards analysed as to several linguistic parameters.

With regard to the temporal variation of literacy outcomes of Turkish children in various instructional contexts, both Turkish and Dutch abilities were taken into account. The word-lists and reading comprehension tasks mentioned above served as the relevant measures of reading results in Dutch. Analogous tasks were developed for Turkish.

Oral language data. The development of assessment procedures of oral language proficiency starts with the adoption of a theoretical model that defines the language user. In order to be able to interpret first and second language behaviour in terms of meaningful learning objectives, the use of a language will not be seen as a monolithic ability. The assumption is that speaking a language involves several separate skills that can be acquired in differential individual patternings (cf. Snow & Hoefnagel-Höhle, 1978: 335).

Departing from the definition of the language user as a hierarchically built grammatical system, two types of oral language assessment procedures can be distinguished: direct vs. indirect procedures (Stolz & Bruck, 1976). A direct procedure is one in which the focus of the learner is on communicating to someone else in a natural manner. In such situations the speaker unconsciously uses the grammatical rules acquired to convey the message in spontaneous speech. On the other hand, an indirect test is one where the focus of the learner is on performing a conscious linguistic task required by specific elicitation techniques. In such a test the learner is consciously focussing on the linguistic rules required to perform the task requested.

In evaluating direct versus indirect procedures for oral language assessment, the criterion of validity should be regarded in the first place. The validity of a test can be defined as the extent to which the test measures what it intends to measure. Labov (1972: 112) questioned the validity of an indirect procedure in that the stimulus in such a procedure is highly superficial. Furthermore, he argues that people will show their most advanced language abilities only in informal situations. On the other hand, Corder (1973) questioned the validity of direct assessment procedures in that spontaneous

speech data "(are) both too small in quantity and (...) probably do not give a representative sample of the learner's language." Quite apart from the supposed paucity of these data, he notices that the recorded sample as such is biased: the learner himself will place limitations upon the data by selecting from his actual repertoire only those aspects of his knowledge which, rightly or wrongly, he has most confidence in. Directly related to the matter of representativity of spontaneous speech data Rieck (1980) questioned the notion of 'obligatory context'. It seems that even hours of transcribed speech recordings result in fewer than three occurrences for some linguistic variables, which is regularly taken as an absolute minimum. Moreover, utterances can often hardly be reconstructed without highly biased interpretations of the researcher.

In an earlier study, Verhoeven & Vermeer (1984a) found that the correlations between the scores on direct and indirect assessment procedures of oral L2 Dutch are only moderately high. It was concluded that in order to get as accurate as possible a description of oral language proficiency, a combination of both procedures should be used. In the present study this option was taken as a starting point for the assessment of oral language proficiency in Dutch. In order to assess oral language abilities which are related to concrete language use, spontaneous speech samples between an experimenter and the child were recorded. Spontaneous speech was elicited by means of three different procedures: giving a spatial description on the basis of pictures; describing a series of events on the basis of photographs; and a free conversation about the child's environment and cultural orientation. The language samples were subsequently transcribed and analysed.

The indirect procedure concerned the administration of specific knowledge-oriented tests for Turkish as well as Dutch which had been constructed in order to assess phonological, lexical and morphosyntactic subskills in the two languages. The phonological tests require children to distinguish words that differ in one phoneme, or in the position or the number of phonemes. For each pair of words, children are asked to indicate whether the words are the same or different.

In order to measure lexical skills, productive and receptive vocabulary tests were developed. The productive vocabulary test makes use of pictures for recognition; the receptive vocabulary test is a multiple-choice test which involves listening to a particular word and selecting the correct referent out of four pictures. The procedure adopted in constructing the vocabulary tests was to rank them in order of supposed difficulty.

Morphosyntactic skills were measured by means of a sentence imitation test. The aspects under investigation were specified beforehand and fall into three subcategories, for Turkish as well as Dutch: function words, word-final markers and word order.

The indirect tests for oral proficiency in Dutch were supplied with two separate tasks measuring linguistic intuitions about (written) Dutch: phonemic segmentation and knowledge of grapheme-phoneme correspondences.

Socio-cultural data. In order to find out about the socio-cultural background of the pupils, three sources of information were utilized: the pupils themselves, their teachers and their parents. In every case, a (semi-)structured interview was conducted involving questions about the nature and the extent of language exposure within the school as well as outside it, in addition to questions about the pupil's socio-cultural orientation. The latter characteristic was also assessed by means of culture attitude scales of popular symbols of Turkish and Dutch culture. Comparable scales had earlier been constructed for American subcultures by Zirkel & Green (1976).

4.4.2 Data collection

All data collection took place in the schools which the children attended. Except for some written production tasks, the gathering of data was done individually. Children came to a separate room in the school where they were asked to sit in front of the experimenter. As a rule, the Dutch data were collected by native speakers of Dutch, while the data collection in Turkish was done by native speakers of Turkish. All experimenters had studied linguistics and had received detailed written instructions about the data collection procedures.

As regards the Turkish children, data collection at each moment took place in two in to three sessions of about 40 minutes. Half of the children started with tests on Turkish, the other half with tests on Dutch. Within each session informal tests (i.e. spontaneous speech recording) were taken as a starting point. In all cases, before the tests were administered, the Turkish subjects were given detailed instruction in L1, followed by additional instruction in L2.

For the Dutch children data collection took place in one session of about 40 minutes.

4.4.3 Data processing

Several stages were involved in the processing of data. First of all, various language samples had to be transcribed. Transcription of data comprised an enormous activity. Spontaneous speech data, sentence imitation data and word reading data in Turkish and Dutch from three testing moments, together with discourse reading data in Dutch at two moments of testing had to be transcribed. Specific conventions for the transcription of each of these tasks were set beforehand. Data transcription in the two languages was done by well-trained native speakers.

In addition, the language data were subjected to linguistic analysis. The spontaneous speech data in Turkish and Dutch were subsequently analysed for number of different words, use of grammatical morphemes (both word-final markers and function words), mean length of utterances and proportion of subordinated clauses. The aspects under investigation of the sentence imitation tests in Turkish and Dutch fall into three categories: function words, word-final markers and specific word order characteristics. Word reading data were analysed as to speed and accuracy of reading, as well as to decoding strategies. Discourse reading data in Dutch were analysed as regards speed and accuracy, while at the same time the appropriateness of misreadings in terms of the context was determined.

Apart from linguistic analysis, data processing concerned statistical analysis. With regard to the reading processes of Turkish and Dutch children, simple mean tests, along with univariate and multivariate analysis of variance, were used. However, in order to assess a gain in Dutch reading comprehension abilities over time, a vertical equating procedure had to be applied. The Rasch model was therefore introduced (see 6.3.2). This model provides item analyses which are independent of the distribution of abilities in different groups of informants, or in one and the same group at different moments of testing (see Verstralen, 1984). Mean tests and analysis of variance were also used in testing differential effects of instructional alternatives on the growth of literacy abilities in Turkish children.

With respect to the temporal variation of literacy outcomes of Turkish children, correlational procedures such as regression analysis were applied. In addition, the more advanced Lisrel technique was used which postulates a causal structure between research variables whose probability can be determined by statistical tests (see 7.1.1).

Acquiring Lexical Abilities in Dutch as a Second Language

In this chapter the acquisition of lexical abilities by Turkish children in Dutch as a second language is under consideration. An attempt was made to determine the intralingual and interlingual strategies Turkish children use while reading and spelling isolated words in Dutch. In order to discover such strategies, the acquisitional processes of word reading and word spelling efficiency in Dutch of Turkish and Dutch children were compared. The learning behaviour of Turkish children in L2 was compared with that of Dutch children in L1.

In the first section, the study of lexical abilities in Dutch as a second language is introduced. After a short description of Dutch orthography and graphonological differences between Turkish and Dutch, the research questions and the design of the present part of the study are outlined. In the next section, a study on children's acquisition of reading isolated words is reported on. In this study the efficiency of Turkish and Dutch children in reading Dutch words was compared after 5, 10 and 20 months of literacy instruction in Dutch. In selecting tasks for uncovering relevant subprocesses, Perfetti's (1984b) paradigm of verbal efficiency was taken as a starting point. In the third section a report is given on a study of children's spelling of isolated words in Dutch. In this study, spontaneous processes of Dutch word spelling by Turkish and Dutch children in the initial stage of literacy instruction are discovered. Read's distinction between invented and standard orthography was taken as a starting point. In the final section, Turkish children's acquisition of lexical abilities in Dutch as a second language are discussed.

5.1 *Word reading and word spelling in L2 Dutch*

5.1.1 *Dutch orthography*

With respect to grapheme-phoneme correspondence, Dutch orthography is highly regular, although there is no perfect one-to-one relationship between graphemes and phonemes. Four main principles constitute Dutch orthographic conventions. The basic principle is that all distinctive phonemes are uniquely represented by

different graphemes, consisting of letters or letter combinations. Non-distinctive variation in pronunciation, due to different socio- or dialects is thus neglected. A second principle claims that grammatical morphemes are written congruently. That means that phonetic changes in morphological alternants do not give rise to different spellings. For example, the singular of a noun plural like *honden* will be written with a final *d*, although a voiceless /t/ is pronounced. A third principle indicates that grammatical morphemes are consistently represented in spelling, even if they are absent in pronunciation. For example, by analogy with (hij) *loopt* ('he walks'), indicating third person singular present tense, the spelling (hij) *laadt* ('he loads') is formed. However, no final *t* is added to verb stems ending with *t*. A final principle is that of etymological derivation. According to this principle, homophonous words with different meanings may be written differently, illustrating differences in pronunciation at earlier stages of orthography. Examples of this principle are alternatives in spelling for /*ɛi*/, such as in *eis* ('claim') and *ijs* ('ice'). In synchronic respect, such distinctions have no significance in describing the morphonological basis of Dutch orthography.

Dutch orthography is based on the use of 26 letters. Four of these (*c*, *g*, *x*, *y*) are only used in words of Latin origin, except that *c* can occur in the digraph *ch*. Latinate words are usually polysyllabic and of low frequency. In the initial stages of literacy instruction these words are usually not dealt with. The subject matter in literacy instruction in the first grades of primary school is predominantly constituted by monosyllabic and simple polysyllabic words of native origin. In these words, 23 letters are dealt with, which cover 34 phonemes: 13 distinctive vowels plus 3 diphthongs have to be represented by only 5 vowel symbols, 18 consonants by 18 consonant letters.

Most monosyllabic words in Dutch have the pattern CVC as their distribution of consonants (C) and vowels (V). However, words with consonant clusters occur as well. In principle, the following distribution of consonants and vowels is possible: CCCVCCCC. The word *striktst* ('most strictly') is an example of the distributional pattern just mentioned. With some restrictions, the pronunciation of Dutch monosyllabic words is fully predictable from their spelling, although the inverse does not hold. In Figure 5.1 the correspondence relation between graphemes and phonemes for Dutch vowels in different word positions is summed up.

Single vowel symbols represent short vowels in word initial and medial

Grapheme	Phoneme	Word position		
		Initial	Medial	Final
a	/α/	as (ash)	bal (ball)	—
	/a/			na (after)
e	/ε/	er (there)	zes (six)	—
	/ð/			de (the)
i	/I/	ik (I)	kip (chicken)	—
o	/ɔ/	op (on)	vos (fox)	—
	/o/			zo (so)
u	/œ/	urn (urn)	zus (sister)	—
			duw (push)	nu (now)
aa	/a/	aan (on)	kaas (chese)	—
ee	/e/	een (one)	beek (brook)	zee (sea)
oo	/o/	oom (uncle)	boog (bow)	—
uu	/y/	uur (hour)	duur (duration)	—
eu	/ø/	—	deuk (dent)	reu (male dog)
ie	/i/	iep (elm)	kies (molar)	die (that)
oe	/u/	oef (ugh)	boek (book)	koe (cow)
au	/αu/	—	saus (sauce)	—
ou	/αu/	oud (old)	goud (gold)	kou (cold)
ei	/εi/	eis (claim)	geit (goat)	wei (meadow)
ij	/εi/	ijs (ice)	dijk (dike)	rij (row)
ui	/Λy/	uit (out)	vuil (dirty)	bui (shower)

Figure 5.1: Grapheme-phoneme correspondences for Dutch vowels in different positions of monosyllabic words

positions. From a distributional point of view, short vowels are not permitted in word final positions. In those positions, the symbols *a*, *o* and *u* are used to represent long vowels, and *e* for the neutral vowel schwa (/ð/). As an exception, *u* in non-final position represents the long vowel /y/, if followed by *w*. All other vowels are represented by digraphs. An irregularity concerns the digraphs *au* and *ou*. In word final

position, the former is always followed by *w*; the latter may or may not be followed by *w*. Another special issue is the analysis of trigraph vowel combinations, such as in *taai* /tai/ ('tough') or /eu/ in *leeuw* /leu/ ('lion'). These complexes can be interpreted as single phonemes or as long vowels, followed by a semi-vowel /j/ or /w/ respectively. In current analyses, predominantly the latter position is taken (Brink, 1970).

Dutch grapheme-phoneme correspondence rules for consonants are more or less in conformity with the values that are given by the International Phonetic Alphabet (IPA). However, some exceptions do occur. First, there are slight differences in the use of letter symbols. The phoneme /ŋ/ is written in word final positions as *ng*, such as in *ding* ('thing'); before *k* this phoneme is written as *n*, such as in *dank* ('thank'). Furthermore, the symbol *ch* relates to the phoneme /x/, such as in *licht* ('light'). Second, under some conditions letter symbols follow different pronunciation rules. In word-final position a voiced obstruent consonant symbol is pronounced as a corresponding voiceless phoneme. Besides, the last feature of the trigraph vowel combination /ai/ is represented by the vowel symbol *i*, and pronounced as the consonant *j*. Third, the distinction between voiced and voiceless velar fricatives in Dutch is lost. According to Van Heuven & Van den Broecke (1977), no differences are perceived in Dutch pairs of voiced fricatives and voiceless velar fricatives. In written texts velars are represented by the symbol indicating a voiced velar stop (*g*), whereas in speech the voiceless sound /x/ is pronounced throughout. Thus *genoeg* ('enough') is pronounced as /xənuχ/. In certain urban dialects the voiced/voiceless distinction seems to disappear in all fricatives in every word position. Fourth, /r/ in word final position influences preceding tensed vowels. 't Hart (1969) has shown that the effect primarily occurs in high vowels. Before -r these vowels tend to be shortened. Pols (1977) demonstrated that the phonemes /e/ and /ø/ before /r/ are identified as /ɪr/ resp. /œr/, although spectral analysis that was done beforehand predicted an identification as /i/, resp. /y/. Finally, when a liquid or nasal is followed by a non-homorganic consonant in postvocalic position, a word is pronounced with an unstressed schwa inserted between the two consonants. Thus, *wolk* ('cloud') is pronounced as /wɔlɔk/, *helm* ('helmet') as /hɛlɔm/, but *dans* ('dance') as /dɔns/.

In polysyllabic words, several deviations from one-to-one correspondence between letters and sounds occur. In the first place, the status of schwa as a central vowel is quite unclear. It can only be found in unstressed syllables,

where it can be represented by the letters *e*, *ij*, and *i*, such as in *lopen* ('walk'), *heerlijk* ('delicious'), *aardig* ('nice'). Furthermore, a schwa is also inserted in the spelling of sonorant consonant clusters in unstressed syllables, for example /l/ in *lepel* ('spoon'), /r/ in *boter* ('butter'), /m/ in *adem* ('breath'), and /n/ in *deken* ('blanket'). The spellings of these sequences contrast with that of liquids or nasals followed by a non-homorganic consonant in monosyllabic words, where an audible schwa is not spelled. Another deviation concerns the reduplication of vowels or consonants. Vowels which are normally spelled with reduplication (*aa*, *ee*, *oo*, *uu*) are represented by one letter in word final position. For example, the plural of *boot* ('boat') is spelled as *boten*. On the other hand, a single letter consonant is reduplicated if it occurs in intervocalic position after a stressed short vowel. Thus, the plural of *kam* ('comb') is spelled as *kammen*.

In order to convert graphemes into phonemes in Dutch polysyllabic words, proper syllabification and stress assignment is needed. In general, a proper division of a word into syllables demands some lexical decision-making beforehand. That means that the overall word structure must be taken into account before syllabification can take place. Take a word like *filmavond* ('movienight'). Following the rule that CV-patterns form the basic syllables in Dutch, this word would wrongly be divided into *fil-ma-vond*. By way of lexical search two basic lemmas would be recognized, i.e. *film* ('movie') and *avond* ('night'), so that the correct pronunciation /fɪlɔ̃mavənt/ could be assigned. Parallel with the suggestion made for English by N. Chomsky (1970), it is our assumption that step-by-step decoding of polysyllabic Dutch words would not work efficiently since the spelling of many such words is lexically rather than phonemically based.

In conclusion, most Dutch words are transparant in that one grapheme for each phoneme is used. Incidentally, two or more graphemes correspond to a single phoneme (e.g. *aai*). Furthermore, some vowel sounds have a different pronunciation (as with the *-uw*) depending on the context of the word. Finally, there are some word-specific pronunciations of vowels (e.g. *-e-*). It is to be expected that inconsistencies and multiple levels of correspondence in Dutch spelling will create specific problems for the learner.

5.1.2 Structural differences between Turkish and Dutch

In the present part of the study, both interlingual and intralingual developmental characteristics of literacy acquisition by Turkish children will be analysed. Concerning the first type of features, insight into structural differences is presented as to the levels of phonology and orthography. Phonological interference may especially be expected in the initial stage of literacy acquisition when Dutch grapheme-phoneme correspondences and word distribution characteristics have to be learned. The possibility of L1 influence on the level of orthography in the second grade, when additional literacy instruction in Turkish is given, is also taken into account. For a more extensive overview of Turkish phonology see Lees (1961), Yavaş (1980).

Phonological differences. At the phonological level there are striking differences between Turkish and Dutch. First of all the number of vowels in Turkish is much lower than in Dutch. Figure 5.2 presents a classification of Dutch and Turkish vowels based on the phonological features of place of articulation (frontal, central, back) and height (high, middle, low). For the Dutch vowels the slash refers to the contrast of lax/tense, for the Turkish vowels to the contrast of unrounded/rounded.

	Dutch	Turkish
Frontal		
- high	i	i/y
- middle	I/e	-
- low	ε	ε/ø
Central		
- high	y	-
- middle	æ/ø	-
- low	-	-
Back		
- high	u	i/u
- middle	ɔ/o	-
- low	α/a	α/ə

Figure 5.2: Classification of Dutch and Turkish vowels by means of the phonological features place of articulation and height

The Turkish phonological system has only two distinctive levels of height: high and low. At the same time, it has no such contrast as lax/tense. Turkish vowels

are normally short; only in borrowings or in combination with the consonant *g* can vowel length increase. However, such a difference is only quantitative and not qualitative.

Furthermore, Turkish has no original diphthongs. Some loan phonemes from Arabic are used in Turkish that approach some of the Dutch diphthongs. However, these are treated as consisting of vowel plus consonant. For instance the Arabic diphthong /ai/ appears in written Turkish as *ay* or *ey*. In the latter case, the Dutch diphthong /ɛi/ is approached. Likewise, the Arabic diphthong /αu/ is written as *av* or *ev*. The Dutch diphthong /ʌy/ seems to have no foreign equivalent in Turkish.

In Turkish word formation and suffixation in Turkish, the principle of vowel harmony is followed, which makes the vowel more or less predictable. Three implicit rules are obeyed. First, a back vowel will always be followed by a back vowel, a front vowel by a front vowel. Second, if the first vowel in a word is unrounded, any subsequent vowel will always be followed by a back vowel; if a front vowel in a word is unrounded, any subsequent vowel will also be. Third, if the first vowel is rounded, subsequent vowels can be rounded and close, or unrounded and open. The first of these rules is based on palatal assimilation; the two other rules are based on labial assimilation. Although vowel harmony can be characterized as a general principle, some exceptions occur in both native and loan words. Most Turkish consonants have Dutch equivalents. However, there are some clear differences. The Dutch consonants /ɣ/ and /w/ do not occur in Turkish; the Dutch loan phonemes /q/ and /x/ are left out of consideration. The pronunciation of /v/ in Turkish is somewhat lighter than in Dutch. It can rather be interpreted as a weak version of /w/. On the other hand, there are some Turkish consonants which do not occur in Dutch: /ʝ/ (as *g* in *manager*), /g/, /č/ (as *cz* in *Czech*), /š/ (as *sh* in *shawl*) and /ž/.

Consonant clusters in Turkish words rarely consist of more than two consonants. They never occur at the beginning of native words, whereas at the end of these words only clusters occur with *l*, *n* or *r* as the initial consonant and *k*, *p*, *s*, *t* and the final consonant occur, besides the clusters *st*, *st*. Consonant clusters in loan words are often decomposed. Decomposition can take place through the addition of a vowel before an initial cluster (e.g. 'station' (French) → *i-station*), through the addition of a vowel within an initial cluster (e.g. 'sport' (French) → *sipor*), or through the addition of a vowel within a final cluster (e.g. 'ism' (Arabic = name) → *isim*).

Orthographic differences. Originally Turkish phonemes were represented by Arabic graphemes. In 1982 the Latin alphabet was introduced with 29 characters. The correspondence between phonemes and graphemes is quite high. Turkish orthography is often called phonemic. In comparison with Dutch, some Turkish characters are used differently. Figure 5.3 presents the graphemes that occur in both languages, but refer to different phonemes.

grapheme Dutch	phoneme	
	Dutch	Turkish
c	/s/	/ʃ/
g	/ɣ/	/g/
i	/I/	/i/
j	/j/	/ž/
u	/œ/	/u/
y	/ei/	/j/

Figure 5.3: Graphemes occurring in both Turkish and Dutch, but referring to different phonemes

In addition, there are some differences in the pronunciation of certain graphemes, such as *v* (as mentioned above). Also, some distributional differences arise. Whereas in Dutch *h*, *v* and *z* do not occur in wordfinal position, in Turkish they do. Furthermore, Turkish orthography uses some graphemes that do not occur in Dutch: *ç*, *ı*, *ö*, *ş*, and *ü*, representing the phonemes /ç/, /ɪ/, /ø/, /š/ and /y/ respectively, and *ğ* ('yumusak' or soft *g*) which as an intervocalic is hardly pronounced and which serves to lengthen the preceding vowel, a following vowel swallowing up, such as in *soğuk* ('cold'). Some Turkish consonants change in certain phonemic environments. *k* in intervocalic position becomes *ğ*. For instance *bardak* ('glass') + *-ım* (poss 1) becomes *bardağım*. *p*, *ç*, and *t* in word final position are voiced when a vowel is added. As such *kitap* ('book') + *-ım* (poss 1) becomes *kitabım*.

5.1.3 Research questions and design

In section 5.2 the acquisition of efficiency in reading isolated words is discussed. After 5, 10 and 20 months of literacy instruction a word reading task was administered to Turkish and Dutch children. In this task several series of

words are presented to be read out loud. In this way an attempt was made to isolate two parameters that are involved when words are read: reading speed and reading accuracy. Reading speed is measured by registering the time it takes to read a word; reading accuracy by means of an analysis of misreadings, including degree of monitoring of reading behaviour. In the word lists presented, two features were varied, word length and word familiarity. Orthographic complexity was allowed for within each of the lists in a similar way. Regarding the acquisition of word reading efficiency, two broad research questions were posed:

1. What routes do Turkish and Dutch children use in lexical access?
2. What different word attack strategies are used by Turkish and Dutch children?

With respect to the first question, the structural word factors which account for the accessibility of Dutch written words for Turkish and Dutch children are explored. By assessing the efficiency of decoding pseudo-words versus meaningful words of different length in both groups, the use of different routes in lexical access was evaluated. Relatively fast recognition of meaningful words would point to direct lexical access on the part of the children. If, on the other hand, their latency time for meaningful and pseudo-words turned out to be more or less equal, mediated lexical access would be inferred. The longitudinal perspective of data collection made it possible to explore a predicted shift over time from mediated to direct access in both groups of learners. Moreover, the use of orthographic constraints was traced by comparing the relative efficiency of decoding words of different lengths. Relative difficulty in decoding longer words would be interpreted as a sign of inability to use such constraints.

The second research question concerns word attack strategies. The monitoring registrations of the children's oral reading were analysed in order to discover such strategies. Though not every use of word attack strategies is reflective in overt behaviour, Ericsson & Simon (1984) have proposed that the observable manifestations of monitoring processes can be taken as valid indicators of the underlying strategies followed. Dehn (1979, 1984) and Bus (1984) have demonstrated that such strategies can indeed be assessed in a valid way through analysis of monitoring responses. In analysing the monitoring behaviour of Turkish and Dutch children, an attempt was made to prove the existence of four different word attack strategies: direct word recognition, recognition mediated by partial word analysis, recognition mediated by analysis of spelling patterns,

and recognition mediated by grapheme-by-grapheme analysis. Repetition of strategies was also taken into account.

In section 5.3 the study of decoding efficiency in words is complemented by a study of encoding efficiency in spelling words. In it the L1 influence in L2 spellings of Turkish children is explored. A spelling task was administered to Turkish and Dutch children, after 5 months of literacy instruction. The aim of the task is to discover strategies both groups of learners use in relating Dutch orthography and Dutch speech sounds. The analysis of word features in this task was restricted to graphemes corresponding to phonemes which originally do not form part of the phoneme inventory of Turkish. As such, the possible occurrence of interlingual misspellings is optimized, assuming that phonological conversion rules play a role in the mediated processes of spelling words.

In Figure 5.4 the design of the present part of the study is graphically displayed.

Figure 5.4: Design of the study on verbal efficiency

5.2 Acquisition of visual word representations

5.2.1 Materials

In order to study the acquisition of visual word representations, a word reading task was developed to be read out loud (see also Verhoeven, 1987g). The word reading task included nine lists of 20 isolated words, which are presented on separate cards. The words were printed one underneath the other and were represented by the same characters which were used in the reading method followed by all schools. The words on the lists differ in three aspects: word familiarity, word length and orthographic complexity. With reference to word familiarity, three levels were distinguished: familiar words, unfamiliar words and pseudo-words. In distinguishing familiar from unfamiliar ones, we made use of the 'Streeflijst Woordenschat' (Kohnstamm et. al. 1981) which is based on a

corpus of 6785 words, evaluated by teachers on the question whether they thought that a particular word on the list, given in a context, had to be understood by 6-year-old native Dutch children. Words were considered familiar when they scored over 75 percent of agreement among teachers. The unfamiliar words, on the other hand, had a percentage of agreement that lies between 25 and 75 percent. Because text writers for reading primers usually take the above corpus as a starting point, it can be assumed that the higher the percentage of agreement, the greater the chance that a word will be encountered in written text and thus become familiar to the child at an early stage of literacy acquisition. The selection of words was as much as possible restricted to items which belong to the syntactic class of nouns. Moreover, words which are used as sight words in the reading method were excluded. The familiar words selected had a mean percentage of agreement among teachers of 85 percent that a 6-year-old had to understand that word. For the unfamiliar words, this percentage amounted to 49. Furthermore, the familiar words had a mean occurrence of 2 in the basal readers that followed the reading method as opposed to a zero occurrence for the unfamiliar words. Pseudo-words were created by altering one grapheme of a word which was randomly taken from the familiar and unfamiliar items selected before. However, only those patterns were selected which conform to the graphonological distribution of Dutch.

As to the factor of word length, a distinction was made between three distributional patterns: ²monosyllabic CVC-words, ²monosyllabic words containing a consonant cluster and ³bisyllabic words. In this order, these categories of words also increase in orthographic complexity in that consonant clusters are more complex than single consonants and polysyllabic words are more complex than monosyllabic words. Orthographic complexity was at the same time expressed by varying the degree of grapheme-phoneme/correspondence of the words within each list. In Table 5.1 the characteristics of the nine word lists are displayed.

	monosyllabic		bisyllabic
	CVC	(C)CVC(C)	
Familiar words	20	20	20
Unfamiliar words	20	20	20
Pseudo-words	20	20	20

Table 5.1: Distribution of words over the lists in the Word Reading Task

Within the various word lists orthographic complexity was varied as follows.

As to the meaningful CVC-patterns, our starting point was the occurrence of all vowels and diphthongs in Dutch. In each list these graphemes were combined with consonants in word-initial and word-final positions in such a way that in both positions each consonant occurred at least once. Digraphs, such as *ng* and *ch*, as well as *b* and *d* in word-final position were also included. To these words some specific orthographic patterns, such as *ooi*, *eer*, *oor* and *eur*, were added.

Table 5.2a and Table 5.2b show the distribution of consonants in initial and word-final position in the three lists of CVC-patterns.

	b	d	f	g	h	j	k	l	m	n	p	r	s	t	v	w	z
Familiar words	2	1	1	1	2	1	1	2	-	1	-	2	1	1	1	1	2
Unfamiliar words	2	2	-	2	2	-	1	1	1	1	1	1	-	1	1	2	2
Pseudo-words	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	2

Table 5.2a: *Distribution of consonants in initial position in the CVC-words*

	b	d	f	g	h	j	k	l	m	n	p	r	s	t	v	w	z
Familiar words	2	1	1	1	2	1	1	2	-	1	-	2	1	1	1	1	2
Unfamiliar words	2	2	-	2	2	-	1	1	1	1	1	1	-	1	1	2	2
Pseudo-words	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	2

Table 5.2b: *Distribution of consonants in final position in the CVC-words*

In varying orthographic complexity in the consonant cluster words (CC), we selected the following distributional patterns: 7 CCVC, 7 CVCC, 2 CCCVC, 2 (C)VCCC and 2 CCVCC. 10 word initial and 10 word final clusters could then be analysed. In each list, comparable clusters in both positions were selected. In initial position, we selected clusters with the liquid *l* and *r* and *w* as second consonant, clusters with *s* and *k* as first consonant and two of the most frequent CCC-clusters (*spr*, *str* and *spl*). In final position liquid, occlusives and plosives in penultimate consonant, besides two of the most frequent CCC-clusters (*rst*, *rnst*, *rfst* and *ngst*) were selected.

Orthographic complexity in the bisyllabic word lists was varied by forming words through consistent morphological procedures. Firstly, two cases of word composition were assigned to each list (e.g. *wasmand*, ('laundry-basket')).

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followed, such as plural, diminutive and i, 'bungling'). In most of the cases rs. Because of its unclear status, this ng difficulties in the initial stage of the lists were expanded with some extra itions.

the nine lists is presented in Appendix

Data collection. The children were tested after 5, 10 and 20 months of literacy instruction. The same procedure was followed for each testing. The children were individually tested in a separate room in the school. The presentation of stimuli occurred in two sessions. In one session the child had to read the meaningful word lists; in the other sessions the lists with pseudo-words had to be read. Half of the children in each ethnic group attended the sessions in the order just mentioned; the order was reversed for the other half. In the session using meaningful words, the presentation for half of the children started with the lists of familiar words, for the other half with the lists of unfamiliar words. Furthermore, in presenting the CVC-, CC-, and bisyllabic patterns a randomised block design was followed. Randomization was effected by shuffling the cards. Likewise the order of presentation of the three lists of pseudo-words was randomized.

At the moment of presentation the word lists were covered by a cardboard strip. The child was then asked to read the words one by one while moving the strip down. Thus, skipping of words could be prevented as much as possible.

With the presentation of the meaningful word lists, the experimenter gave the following instruction: "On the back of this card you will find a list of words. I would like you to read these words out loud. You should try to read the words as fast and clear as you can. Start at the top and go on until you have read all the words on the list. If there is a word you cannot read very well, then you should make your best guess."

The instruction for the lists of pseudo-words was similar, except that the experimenter stressed that the words to be read had no meaning by saying:

"On the back of this card you will also find a list of words. However, these

words have no meaning at all, such as 'mip' or 'kel'. Though these words have no meaning, you read them. If you have difficulty in reading a particular word, then try your best guess."

The same word lists were presented at three testing moments. However, because literacy instruction in the first five months is more or less one-sidedly directed to CVC-words, at that very moment the administration of the CC- and bisyllabic patterns was restricted to the familiar and pseudo-versions. At that moment of testing, no difference in reading behaviour was expected as to the familiarity of these more complex patterns.

While administering the word reading task, the experimenter sat opposite the child and recorded the child's reading on a cassette recorder. By means of a click sound he indicated the exact moment that the first word on the word list came under the child's eye so that afterwards precise reading times per list could be assessed. During the administration of the various tasks, no help of any kind was given to the child. In Table 5.3 the numbers of informants are given for the different moments of administration of the Word Reading Task.

	Period of instruction (in months)	n of informants	
		Turkish	Dutch
Word Reading Task	5	73	41
	10	73	40
	20	57	38

Table 5.3: Numbers of information who took part in the Word Reading Task after 5, 10 and 20 months of literacy instruction

Data analysis. All recorded word reading data were transcribed on separate sheets per pupil on which all stimuli had been printed. The transcription implied that all responses that deviated from direct correct response were written down in phonetic spelling. The International Phonetic Alphabet was used for transcription. Responses such as repeats, spellings, corrections and interruptions were also registered.

Afterwards the transcribed reading data were subjected to different kinds of analyses. First, the verbal efficiency of both ethnic groups on each of the lists that had been assessed was investigated. A stopwatch measured the reading time for each list. Timing began with the click given by the experimenter and ended with the pronunciation of the last word. Verbal efficiency was then measured by computing per list the number of words which had been read correctly

in one minute. By means of analysis of variance, verbal efficiency was compared with the factors of ethnic group, word familiarity, word length and period of instruction.

Second, word attack strategies were analysed. According to Ericsson & Simon (1984), the verbal responses of individuals performing a complex task such as reading can be taken as indicators of the underlying strategies that are followed. Especially in the first stages of the reading process, when subprocesses do not proceed automatically, this will be the case. As has been demonstrated, readers can arrive at an interpretation of a word either on the basis of direct recognition or on the basis of recoding. Moreover, there is evidence that the units in the recoding process may be single graphemes or larger spelling patterns.

Taking the subprocesses of graphemic analysis (A) and word synthesis (S) as a starting point, the following strategies were distinguished:

- (1) direct word recognition (A0S);
- (2) partial word analysis, followed by synthesis (A1S), e.g. /h/ → /hop/;
- (3) analysis in spelling patterns, followed by synthesis (A2S),
e.g. /kr-ant/ → /krant/;
- (4) grapheme-by-grapheme analysis, followed by synthesis (A3S),
e.g. /v-ɛi-f/ → /veif/;
- (5) successive analyses, followed by synthesis (A4S),
e.g. /str/ → /str-o-p/ → /strop/.

In addition, repetition of use of strategies was distinguished in:

- (6) repetition of a sequence of analysis and synthesis (ASAS);
- (7) repetition of direct word recognition (SS).

Finally, two rest categories were chosen:

- (8) no synthesis (NS), e.g. /h-a-s/;
- (9) no response (NR).

The occurrence of the above reading strategies was registered in both ethnic groups. T-test statistics were computed in order to test the differences in strategy for statistical significance. A distinction was made between strategies used in reading familiar words and in reading pseudo-words. Therefore the analysis of reading strategies was done separately for words and pseudo-words. The analysis of reading strategies was done at all three testing moments so that a change in strategy over time could be discovered.

5.2.3 Results

Word reading efficiency. Table 5.4 presents the means, standard deviations and t-test statistics with regard to Turkish and Dutch children's scores on seven lists of the Word Reading Task after five months of literacy instruction. It can be concluded that in the initial stage of literacy instruction Dutch children are generally more efficient in decoding both meaningful and nonsense CVC-words than Turkish children. On the lists with CC-patterns and with bisyllabic words, Dutch children also obtained higher scores. However, only for familiar CC-patterns did these differences turn out to be significant, while on pseudo-CC-patterns, a tendency to significance was evinced ($p < .07$).

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Familiar-CVC	5.64	4.71	8.11	6.44	-2.14	64.7	<.05
Unfamiliar-CVC	5.46	4.75	8.28	6.83	-2.34	62.6	<.05
Pseudo-CVC	4.77	3.86	7.53	5.42	-2.87	63.2	<.01
Familiar-CC	4.76	4.31	6.69	5.51	-2.05	110	<.05
Pseudo-CC	4.01	3.96	5.36	3.76	-1.18	110	n.s.
Familiar-bisyllabic	1.61	2.43	2.52	3.02	-1.76	110	n.s.
Pseudo-bisyllabic	1.26	2.12	1.90	2.46	-1.45	110	n.s.

Table 5.4: Means, standard deviations and t-test statistics of the word reading efficiency scores of Turkish and Dutch children on seven lists of the Word Reading Task after five months of literacy instruction

Multivariate analysis of variance was performed with the scores on the familiar and pseudo-word lists taken as repeated measures in order to find out how the word factors of length and familiarity had influenced the scores in both ethnic groups. The main effect for ethnic group turned out to be significant with $F(1,110)=5.28$, $p < .05$.

The factor of word length provided a significant contribution as well with Wilks' $\lambda = .29$, Approximate $F=133.65$, $p < .001$. However, the interaction between ethnic group and word length was not significant. A significant main effect was also found for word familiarity, with $F(1,110)=21.46$, $p < .001$. Again, the interaction of this word factor with ethnic group appeared not to be significant. No longer significant were the interactions between the two word

factors and between ethnic group and the two word factors.

The results can be interpreted as follows. After five months of literacy instruction, Dutch children achieved higher overall word decoding scores than Turkish children. The differences in scores were largest on those word patterns which had just been taught in literacy addition. In addition, both ethnic groups obtained higher scores as the words became shorter, and as they became familiar. The impact of both word effects was the same for the two groups.

In Table 5.5 the means, standard deviations and t-test statistics of Turkish and Dutch children on all lists of the Word Reading Task after 10 months of literacy instruction are presented. It can be seen that Dutch children attained significantly higher scores on all lists containing meaningful words. On the other hand, no significant differences in scores were found on the lists with pseudo-words. However, a clear tendency to significance was found on the pseudo-CVC- and pseudo-bisyllabic patterns (in both cases $p < .06$).

Word list	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Familiar-CVC	14.59	11.13	24.37	16.88	-3.29	58.3	<.01
Unfamiliar-CVC	12.77	9.81	19.61	12.32	-3.23	111	<.01
Pseudo-CVC	11.06	7.78	14.21	8.58	-1.98	110	n.s.

Familiar-CC	11.70	8.39	18.83	12.87	-3.15	58.1	<.01
Unfamiliar-CC	9.25	6.12	13.99	8.65	-3.06	61.4	<.01
Pseudo-CC	8.57	6.61	10.69	6.95	-1.60	110	n.s.

Familiar-bisyllabic	6.25	6.01	11.45	9.01	-3.26	59	<.01
Unfamiliar-bisyllabic	4.37	4.81	8.24	6.62	-3.24	62.6	<.01
Pseudo-bisyllabic	4.38	4.94	6.38	5.34	-1.98	109	n.s.

Table 5.5: Means, standard deviations and t-test statistics of the word reading efficiency scores of Turkish and Dutch children on all lists of the Word Reading Task after 10 months of literacy instruction

Multivariate analysis of variance was performed on the scores on all lists taken as repeated measures in order to determine significant differences between and among ethnic groups on the factors of word length and of word familiarity. The main effect of ethnic group was again significant with $F(1,109)=10.18$, $p < .01$. Both word factors were also significant: for word length Wilks' lambda=.23,

Approximate $F=183.52$, $p<.001$, and for word familiarity Wilks' $\lambda=.53$, Approximate $F=48.79$, $p<.001$). Significant effects were also found for the interactions between ethnic group and word length (Wilks' $\lambda=.95$, Approximate $F=3.08$ and $p<.05$) and between ethnic group and word familiarity (Wilks' $\lambda=.82$, Approximate $F=11.66$, $p<.001$). and between both word factors (Wilks' $\lambda=.75$, Approximate $F=9.02$, $p<.001$). However, the interaction between ethnic group and both word length and word familiarity was not significant.

From these results it can be concluded that after 10 months of literacy instruction Dutch children have an overall better performance on word decoding than Turkish children. However, the differences are only significant on the meaningful word lists. Again it was found that in general all children perform better as words become shorter and more familiar. The effects of word length and word familiarity appear to have a different impact on the children in both ethnic groups. It seems that Dutch children profit most from both effects. Furthermore, the interaction between both word effects indicates that the word familiarity effect is stronger as words get shorter. The latter finding holds for both ethnic groups.

Table 5.6 gives the means, standard deviations and t-test statistics of Turkish and Dutch children's scores on all lists of the Word Reading Task after 20 months of literacy instruction.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Familiar-CVC	51.77	27.05	55.76	24.08	-.73	93	n.s.
Unfamiliar-CVC	41.29	20.96	48.70	19.16	-1.75	93	n.s.
Pseudo-CVC	34.02	17.74	37.93	16.22	-1.09	93	n.s.
Familiar-CC	43.94	24.53	51.58	21.24	-1.57	93	n.s.
Unfamiliar-CC	32.79	19.02	38.67	19.16	-1.47	93	n.s.
Pseudo-CC	28.47	17.21	30.93	14.22	-.73	93	n.s.
Familiar-bisyllabic	31.19	18.87	40.71	18.96	-2.41	93	<.05
Unfamiliar-bisyllabic	23.03	14.39	29.81	14.56	-2.24	93	<.05
Pseudo-bisyllabic	20.39	12.59	22.49	12.38	-.80	93	n.s.

Table 5.6: Means, standard deviations and t-test statistics of the word reading efficiency scores of Turkish and Dutch children on all lists of the Word Reading Task after 20 months of literacy instruction

It can be seen that Dutch children obtained higher scores on all lists. However, only the scores on the bisyllabic meaningful lists turned out to be significant.

The singular and communal contributions of the factors of ethnic group, word length and word familiarity to the variance in verbal efficiency scores was again determined by means of multivariate analysis of variance. The main effect of ethnic group was no longer significant ($F(1.93)=2.38$). Both word factors appeared to be significant again. For word length Wilks' $\lambda=.23$, Approximate $F=155.32$, $p<.001$, and for word familiarity Wilks' $\lambda=.31$, Approximate $F=100.84$, $p<.001$. The interaction between word length and ethnic group was not significant, while the interaction between word familiarity and ethnic group was significant with Wilks' $\lambda=.93$, Approximate $F=3.59$, $p<.05$. The interaction between both word factors was significant as well with Wilks' $\lambda=.85$, Approximate $F=3.91$, $p<.01$. However, the interaction between both word factors and ethnic group was not significant. These data lead to the following conclusions. After 20 months of literacy instruction the overall performance on word reading efficiency is no longer significantly different for Turkish and Dutch children. Only on those words which had recently been taught (i.e. meaningful bisyllabic words) did the Dutch group achieve significantly better results. Again it is found that generally all children perform better as words become shorter and more familiar. Word length by now has a similar impact on both ethnic groups. On the other hand the Dutch children still seem to profit more from the factor word familiarity. The significant interaction between both word factors again indicates that the word familiarity effect is stronger as the words get shorter. This trend proved to be similar for both ethnic groups.

In addition, we investigated the acquisition of word reading efficiency in longitudinal perspective. Figure 5.5 displays the mean scores of Turkish and Dutch children on the various word lists at the three moments of measurement. It can be seen that both ethnic groups made fair progress in verbal efficiency as a result of literacy instruction.

Multiple analysis of variance encompassing all reading data over time revealed period of instruction to be a significant main effect (Wilks' $\lambda=.18$, Approximate $F=207.39$, $p<.001$). Interaction of the same factor with ethnic group proved not to be significant. Thus it can be concluded that both groups obtained a comparable gain in scores on word reading efficiency over time. The interaction between word length and period of instruction was

Figure 5.5: Mean scores of Turkish and Dutch children on the lists of the Word Reading Task after 5, 10 and 20 months of literacy instruction

significant (Wilks' $\lambda=.26$, Approximate $F=60.83$, $p<.001$). This is the logical result from the fact that reading instruction started with the introduction of short words, only gradually bringing longer words under the children's attention. Three-way interaction of period, word length and ethnic group was not significant, indicating that the before-mentioned effect was equally apparent in both ethnic groups. The interaction between word familiarity and period of instruction was also significant (Wilks' $\lambda=.29$, Approximate $F=108.30$, $p<.001$). Three-way interaction, after ethnic group was added to these factors, turned out to be significant as well (Wilks' $\lambda=.84$, Approximate $F=8.35$, $p<.001$). The two final interaction patterns indicate that the facilitation provided by word familiarity increased from the first to the second grade and that this trend was more apparent in the Dutch group. Interactions of higher order were left out of consideration.

	5 months				10 months				20 months			
	Turkish		Dutch		Turkish		Dutch		Turkish		Dutch	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
AOS												
FW	24.70	20.60	30.43	20.46	39.46	20.02	45.17	16.77	53.79	10.59	55.02	6.04
PW	25.68	22.08	28.86	21.77	38.17	19.48	44.94	15.67	50.98	12.15	51.08	9.13
A1S												
FW	5.88	5.31	6.51	7.48	5.79	5.61	3.74	4.13	4.12	3.94	2.86	4.80
PW	5.17	5.20	6.54	6.94	5.81	5.72	4.20	3.89	4.98	6.32	5.06	4.76
A2S												
FW	5.92	7.81	4.86	8.08	3.46	5.31	4.03	7.33	1.31	3.41	.72	1.78
PW	5.80	7.69	5.91	9.09	4.29	5.62	3.69	6.31	2.10	6.45	1.53	4.82
A3S												
FW	11.60	13.00	9.40	14.17	4.85	9.83	2.83	7.71	.12	.70	.03	.17
PW	11.18	13.12	9.26	12.41	5.25	10.82	2.86	8.23	.11	.62	.14	.49
A4S												
FW	4.18	5.82	2.46	3.54	1.81	3.36	.94	1.94	.13	.52	.01	.01
PW	4.82	6.11	3.14	5.42	2.27	3.48	.54	1.25	.19	.71	.14	.42
ASAS												
FW	.57	1.06	.57	1.04	.38	1.05	.26	.51	.13	.35	.06	.23
PW	.82	1.98	.37	.81	.35	.88	.60	1.46	.13	.40	.22	.59
SS												
FW	.35	.63	.80	1.26	.96	1.43	1.00	1.57	.94	1.01	.81	.98
PW	.15	.48	.71	1.93	.92	1.28	1.29	1.74	2.11	5.58	1.47	1.92

Table 5.7: Means and standard deviations of word attack strategies of Turkish and Dutch children reading familiar words (FW) and pseudo-words (PW) after 5, 10 and 20 months of literacy instruction

Word attack strategies. In Table 5.7 the means and standard deviations of word attack strategies used by Turkish and Dutch children after 5, 10 and 20 months of instructions are presented. Strategies in attacking high familiar words and pseudo-words are displayed apart.

Several tendencies can be seen in Table 5.7. First, it can be seen that the word attack strategies used by Turkish and Dutch children at each moment of measurement are highly comparable. Though there is a slight tendency for Dutch children to make more use of direct recognition (AOS) than Turkish children, none of the mean numbers of strategies in Table 5.7 yielded significant t-test statistics regarding differences between ethnic groups. Relying on the large standard deviations at especially the first two moments of measurement, it appears that the differences in use of word attack strategies are much greater within than between ethnic groups.

Second, it turns out that over time, there is a sharp increase in direct word recognition in both ethnic groups. After 5 months of literacy instruction, direct word access took place in about 45 percent of the cases; after 10 months this percentage increased to about 75, and after 20 months to over 90. At the same time, there is in both groups a slight decrease in the use of strategies which involve (partial) segmentation of spelling patterns (A1S, A2S), and a sharp decrease in the use of strategies involving phonemic segmentation (A3S) or successive segmentation (A4S). Repetitions of segmentation strategies (A5AS) tend to decrease over time, while repetitions of direct recognition strategies (SS) tend to increase slightly.

Third, it appears that the differences in strategy use of attacking familiar versus pseudo-words are relatively small. However, an interesting point arises at the last moment of measurement. By that time the Dutch children make significantly more use of direct recognition in familiar words than in pseudo-words ($t=2.17$, $df=60.8$, $p<.05$). At the same time, the use of A1S and A2S is significantly less in familiar words than in pseudo-words ($t=-1.96$, $df=70$, $p<.05$ in both cases). On the other hand, in the Turkish group there is only a tendency towards greater use of direct recognition in familiar words as opposed to pseudo-words. However, no significant differences could be found. The latter findings are in line with the results reported in the previous section; the Dutch group is more facilitated by word familiarity in word recognition than the Turkish group.

Table 5.8 gives information about the relative success of word attack strategies used by Turkish and Dutch children. The mean proportion correct

scores and accompanying standard deviations are presented for all strategies at each moment of measurement. Again, the attacking of familiar words and pseudo-words is presented separately.

	5-months				10 months				20 months			
	Turkish		Dutch		Turkish		Dutch		Turkish		Dutch	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
AOS												
FW	.47	.27	.60	.21	.61	.28	.76	.22	.87	.12	.92	.11
PW	.43	.29	.54	.21	.52	.27	.59	.23	.72	.18	.80	.18
A1S												
FW	.31	.32	.49	.35	.60	.33	.77	.35	.80	.28	.83	.26
PW	.36	.33	.51	.33	.39	.32	.51	.37	.70	.26	.77	.29
A2S												
FW	.41	.35	.58	.31	.68	.35	.78	.30	.57	.32	.88	.19
PW	.34	.29	.65	.26	.56	.34	.64	.38	.72	.37	1.53	.34
A3S												
FW	.48	.34	.41	.22	.61	.31	.54	.41	.50	.71	.00	.00
PW	.35	.29	.42	.27	.46	.27	.39	.38	.88	.18	.67	.58
A4S												
FW	.32	.34	.59	.35	.64	.37	.36	.40	1.00	.00	.00	.00
PW	.28	.27	.41	.32	.43	.28	.44	.45	.43	.44	.75	.50
ASAS												
FW	.48	.48	.91	.20	.81	.34	.88	.35	1.00	.00	.00	.00
PW	.58	.45	.47	.51	.75	.43	.97	.09	1.00	.00	.90	.22
SS												
FW	.82	.39	.98	.09	.89	.28	.99	.04	.85	.34	.99	.06
PW	.71	.49	.85	.35	.84	.34	.86	.28	.90	.29	.93	.17

Table 5.8: Mean proportion correct scores and standard deviations of Turkish and Dutch children's use of strategies in attacking familiar words (FW) and pseudo-words (PW)

It can be seen from Table 5.8 that Dutch children generally obtain a higher proportion correct scores than Turkish children. However, only in a restricted number of cases did these differences turn out to be significant. After five months of instruction Dutch children were significantly more successful on direct recognition of familiar words ($t=-2.26$, $df=81$, $p<.05$) and of pseudo-words ($t=-2.04$, $df=81$, $p<.05$). Moreover, they did significantly better on strategies which are primarily based on knowledge of orthographic patterns, namely partial analysis followed by synthesis of familiar words ($t=-2.36$, $df=84$, $p<.05$) and of pseudo-words ($t=-2.02$, $df=84$, $p<.05$); analysis in spelling patterns followed by synthesis of familiar words ($t=-1.98$, $df=68$, $p<.05$) and of pseudo-words ($t=-4.47$, $df=68$, $p<.001$); and successive analyses followed by synthesis of

familiar words ($t=-2.79$, $df=56$, $p<.01$). The Dutch group also obtained higher scores with repeated sequences of analysis and synthesis of familiar words ($t=-2.80$, $df=26,4$, $p<.01$). After 10 months of instruction Dutch children did significantly better on direct recognition of familiar words ($t=-2.62$, $df=82$, $p<.05$), and on partial analysis followed by synthesis of familiar words ($t=-2.13$, $df=72$, $p<.05$). At the last moment of measurement Dutch children performed better on direct recognition of familiar words ($t=-2.18$, $df=86$, $p<.05$), and on graphemic analysis followed by synthesis ($t=-2.34$, $df=15$, $p<.05$).

From a longitudinal perspective, it can be seen that direct recognition proves to be a very helpful strategy. It seems that at the end of the second grade direct word recognition proceeds more or less automatically for children in both ethnic groups. Furthermore, it is interesting to note the differences in correct scores of strategies used with familiar words versus pseudo-words. After five months of instruction, none of these differences was significant, though there is a slight tendency for scores to be higher with familiar words. After 10 months of instruction, Dutch children score significantly better on familiar words in their use of the strategies A0S ($t=3.07$, $df=67$, $p<.01$), A1S ($t=-2.80$, $df=62$, $p<.01$) and S8 ($t=2.17$, $df=21$, $p<.05$). On the other hand, Turkish children only score better on familiar words in their use of A1S ($t=3.04$, $df=88$, $p<.01$). After 20 months of instruction, the Dutch children obtained significantly higher scores on familiar words for the strategies A0S ($t=3.49$, $df=59$, $p<.001$) and A2S ($t=2.51$, $df=12$, $p<.05$), the Turkish children only for strategy A0S ($t=4.82$, $df=84,6$, $p<.001$). Thus it can be concluded that the Dutch children profit from the facilitation of word familiarity from the end of the first grade, whereas the Turkish children do not seem to profit from it until the end of the second grade.

5.3 *First language influence in the spelling of words*

5.3.1 *Materials*

A word spelling task was developed in which mono- and bisyllabic words were presented orally for the children to spell. To avoid ambiguity and/or misunderstanding, these words were always presented in a meaningful context. First the children always heard a sentence in which the word they had to write was semantically most prominent. This word was then pronounced in isolation

twice.

Word Spelling Task 1 was aimed at exploring the graphonological strategies and Dutch speech sounds after a five-month period of literacy instruction in Dutch only. For this part of the project graphemes or grapheme patterns were selected which corresponded to phonemes or phoneme patterns originally not belonging to the phoneme inventory or phoneme distribution of Turkish. As such, the target language features vowel length, diphthongs, several consonants, and specific consonant clusters apply.

The selection of relevant word features was based on earlier research findings of Read (1971, 1975) who studied invented spellings of preschool and first-grade children in England, and of Van Rijnsoever (1979) who replicated part of Read's study with children of the same age in Dutch. With regard to vowel length, two pairs of tense-lax vowels were selected which are similar in place of articulation, namely / ϕ / - / ϕ e/ and /e/ - /I/. Other pairs of tense-lax vowels were left out of consideration, because in Dutch orthography tense vowels can be represented by means of the grapheme of the corresponding lax vowels in open syllables. With the spelling of such vowels it would be inconclusive whether they result from knowledge of standard Dutch orthography or from relating tense to lax vowels. Furthermore, the spellings of / Λ y/ and of / ϕ /, /e/, /o/ before /r/ was studied. The former spelling was chosen because this diphthong can hardly be approached through Turkish phonemes. The latter spellings are of interest because high vowels in that position tend to be shortened. In addition, two spelling patterns were selected which contain sonorant consonant: / ∂ l/ and / ∂ r/, and three (clusters of) consonants / η /, / η k/ and /sx/. The sonorant consonants were chosen in order to discover whether the syllabicity of the sonorants is distinguished from that of syllables which consist of an unstressed vowel and an obstruent. Evidence for children's categorisation of speech sounds would be obtained from spellings of both clusters with the single consonant. (see Read 1975:61). The consonants / η /, / η k/ and /sx/ were chosen because they are displayed by relatively complex patterns (*ng*, *nk* and *sch*). Finally, three types of consonant clusters were investigated: word initial clusters, word final clusters and clusters with preconsonantal nasals in word final position. With regard to the latter type, three different nasal contexts were distinguished: followed by a voiceless consonant, by a voiced consonant, or by a non-homorganic consonant. On the basis of earlier findings by Read (1975) it was hypothesized that the proportion of nasal deletion in children's spelling decreases in the order just mentioned.

Table 5.9 presents the features selected for admission to the present word spelling task. The complete task consisted of 68 words which are fully displayed in Appendix 4.1.

Category	Word Features	n of cases per feature
Tense-lax vowels	/ɒ/, /œ/, /e/, /I/	4
Diphthongs	/ʌy/	4
/r/ preceded by tense vowel	/ɒ/, /er/, /or/	2
Sonorant consonants	/ðl/, /ðr/	4
Consonants	/ŋ/, /ŋk/, /sx/	2
Initial consonant clusters	/br/, /dr/, /kn/, /pl/, /sl/, /sn/, /sp/, /st/	1
Final consonant clusters	/lf/, /ls/, /ps/, /rg/, /rt/, /sp/, /st/, /ts/	1
Preconsonantal nasals	/nt/, /ns/ /nd/, /mp/, /nz/ /mp/	1 2 4

Table 5.9: Categories on Word Spelling Task 1 with corresponding features and numbers of cases per feature

5.3.2 Procedure

Data collection. Word Spelling Task 1 was administered after five months of literacy instruction in Dutch. The task were given by the teacher in class. It was split into two halves which were set with a one-week interval. The task was administered to 64 Turkish children and 116 Dutch children.

Data analysis. With reference to Word Spelling Task 1, temporal differences between ethnic groups in the acquisition of each of the spelling categories under investigation were determined by means of statistical analysis. Analysis of variance was used to test the singular and communal contributions of the factors ethnic group and type of (tense/lax) vowel. The same procedure was followed to test the contributions of ethnic group and nasal context in the spellings of preconsonantal nasals. In all other cases, differences between ethnic groups were determined by means of t-test statistics. In order to discover structural similarities and differences in the spelling behaviour of Turkish and Dutch children, all misspellings were inventoried and additionally

subjected to linguistic analysis. Following Read (1971, 1975), it was hypothesized that the children's misspellings give an indication of their judgments of relationships between phonetic structures of the target language. Accordingly, intralingual and interlingual features of the misspellings of Turkish children might be uncovered.

5.3.3 Results

Tense-lax pairs of vowels. Table 5.10 presents the means and standard deviations of Turkish and Dutch children on the spellings of the tense-lax pairs of vowels / ϕ / - / ϕ e/ and /e/ - /I/.

	Turkish		Dutch	
	mean	sd	mean	sd
/ ϕ /	2.22	1.78	2.68	1.58
/ ϕ e/	3.08	1.33	3.54	.94
/e/	3.38	1.12	3.71	.79
/I/	2.98	1.36	3.62	.79

Table 5.10: Means and standard deviations of Turkish and Dutch children on their spellings of tense and lax vowels (maximum score = 4)

It can be seen that the vowels under investigation yielded higher scores for the Dutch children, while the order of difficulty was similar for both ethnic groups. In order to determine whether the differences in vowel scores between and among ethnic groups and vowel identity were significant, multivariate analysis of variance was performed with vowel identity taken as repeated measure. Main effects turned out to be significant for ethnic group, $F(1,178)=10.61$, $p<.001$, and vowel identity, Wilks' $\lambda=.63$, Approximate $F=33.92$, $p<.001$. However, the interaction between ethnic group and vowel identity was not significant (Wilks $\lambda=.98$, Approximate $F=1.36$). So it can be concluded that the Dutch children are better at spelling vowels than the Turkish children, though the relative complexity of spelling these vowels is the same for all children.

In Table 5.11a to 5.11d the results of the analyses of misspellings are presented. With regard to each vowel, the mean percent of error scores is given for each ethnic group.

/ø/	U	E	UI	UU	UE	other
Turkish	57	3	10	5	11	14
Dutch	34	6	14	5	16	25

Table 5.11a: Mean percent of misspellings of Turkish and Dutch children on the tense vowel /ø/

/œ/	EU	E	UI	UU	UE	other
Turkish	60	5	7	2	-	25
Dutch	16	16	8	11	8	41

Table 5.11b: Mean percent of misspellings of Turkish and Dutch children on the lax vowel /œ/

/e/	I	E	IE	other
Turkish	47	27	20	7
Dutch	32	32	16	20

Table 5.11c: Mean percent of misspellings of Turkish and Dutch children on the tense vowel /e/

/I/	EE	E	IE	other
Turkish	57	6	22	15
Dutch	48	34	9	9

Table 5.11d: Mean percent of misspellings of Turkish and Dutch children on the lax vowel /I/

With regard to both tense-lax pairs of vowels, the misspellings of the Turkish children are much more consistent than those of their Dutch peers. The Turkish children interchange tense and lax vowels which are similar in place of articulation in the vast majority of cases, as can be seen from their many spellings of U for /ø/, EU for /œ/, I for /e/ and EE for /I/. Such spellings conform to those of the children in the studies by Read (1975) and Van Rijnsvoever (1979). In other words, the misspelling of the Turkish children are highly intralingual. The Dutch children on the other hand, demonstrate much more variation in their misspellings, especially regarding the tense-lax pair /ø/ -

/œ/. Accordingly, it can tentatively be concluded that, though the Turkish children make more misspellings than Dutch children, their misspellings are more phonetically based on the target language Dutch.

Diphthong /Ay/. Mean score and standard deviations for the spelling of the diphthong /Ay/ by the Turkish children amounted to 2.77 and 1.54, respectively; the parallel numeric values for the Dutch children were 3.01 and 1.30. T-test analysis showed the differences in mean scores between the two groups not to be significant ($t=-1.07$, $df=178$).

Table 5.12 presents the outcome of the analysis of misspellings of /Ay/.

/ y/	EU	U	UU	EI/IJ	IU	other
Turkish	25	12	-	16	23	23
Dutch	12	17	7	4	49	10

Table 5.12: Mean percent of misspellings of Turkish and Dutch children on the diphthong /Ay/

Inspection of this table reveals some striking differences between the patterns of misspellings in the two ethnic groups. The Turkish children show quite a varied pattern. In 37 percent of the cases they exchanged the target spelling UI for a spelling corresponding to front vowels with a similar narrowing place, but a different height (middle vs. low); in 16 percent the exchange concerns diphthongs which are both low. A considerable percentage applies to the mirroring of the target spelling and to the rest category. The Dutch children, on the other hand, show less phonological correspondence in their misspellings: in half of the cases, mirroring of the target was the case.

Vowels /ø/, /e/ and /o/ before /r/. Means and standard deviations for the scores on the spelling patterns EUR, EER and OOR are presented in Table 5.13. It appears that there are no significant differences on the spelling for /ø/ and /e/ before /r/. However, Turkish children spelled the /o/ before /r/ significantly better than the Dutch children. The fact that Turkish children spell tense vowels relatively better when followed by /r/ can tentatively be explained. It seems that by them the shortening of these vowels is not perceived so dramatically as by Dutch children. Apparently, Turkish children's evaluation of the contrast tense-lax as a consequence of extra attention in school is so critical that a slight decrease in the length of tense vowels preceding /r/ is not very influential.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
/ø/ before /r/	.84	.95	.75	.80	.70	178	n.s.
/e/ before /r/	.95	.90	1.19	.85	-1.75	178	n.s.
/o/ before /r/	1.64	1.37	1.34	.80	2.25	178	<.05

Table 5.13: Means, standard deviations and t-test statistics for the scores of Turkish and Dutch children on the spellings of /ø/, /e/ and /o/ before /r/

In the Tables 5.14a to 5.14c the patterns of misspellings of the vowels under investigation are presented.

/ø/ before /r/	U	UI	UU	UE	other
Turkish	53	4	32	4	7
Dutch	66	3	13	6	11

Table 5.14a: Mean percent of misspellings of Turkish and Dutch children on the vowel /ø/ before /r/

/e/ before /r/	I	E	IE	other
Turkish	57	5	34	4
Dutch	78	5	11	5

Table 5.14b: Mean percent of misspellings of Turkish and Dutch children on the vowel /e/ before /r/

/o/ before /r/	O	OE	other
Turkish	83	9	9
Dutch	87	5	8

Table 5.14c: Mean percent of misspellings of Turkish and Dutch children on the vowel /o/ before /r/

As can be seen from the misspellings of both ethnic groups, tense vowels

preceding /r/ in word final position tend to be shortened. Misspellings of /ɸ/, /e/ and /o/ can be identified as EU, I and O in the vast majority of cases. This result conforms to earlier findings of Van Rijnsoever (1979). Additionally, it is interesting to note that Turkish children in many of their misspellings chose corresponding high vowels as is predicted from spectral analysis (see Pols, 1977).

Syllabic sonorants. The mean scores and standard deviations for the spelling of syllabic sonorants were .61 and 1.65 for the Turkish group, and 2.15 and 2.94 for the Dutch group. The mean scores difference between both groups turned out to be significant ($t=-3.86$, $df=177.9$, $p<.001$).

In Table 5.15a and 5.15b an analysis of the most frequent misspellings is given for the patterns /ɸl/ and /ɸr/. It can be seen that the pattern of misspellings in both segments is highly comparable.

/ɸl/	OL	UL	L	other
Turkish	71	5	17	7
Dutch	76	5	17	2

Table 5.15a: Mean percent of misspellings of Turkish and Dutch children on the syllabic sonorant /ɸl/

/ɸr/	OR	UR	AR	R	other
Turkish	13	16	3	66	3
Dutch	18	17	15	46	5

Table 5.15b: Mean percent of misspellings of Turkish and Dutch children on the syllabic sonorant /ɸr/

The above data give evidence for the fact that both Turkish and Dutch children make use of their own invented orthography which is based on very similar phonological judgements. In many cases, they spell /ɸr/ and to a lesser degree /ɸl/ with the single letters R and L. Apparently to both groups of learners the syllabicity of the sonorants is distinguished from that of a syllable consisting of a sjwa and an obstruent. In addition, the misspellings OR, UR and AR for /ɸr/ and OL and UL for /ɸl/ can rather be interpreted as attempts of the children to approach the target spellings ER and EL. According to Van Rijnsoever (1979) the

frequent misspellings with O can best be explained by the fact that front vocals preceding l or r in word final position tend to be articulated more backward. The latter finding had earlier been observed by Ladefoged (1975).

/ŋ/, /ŋk/ and /sx/. Table 5.16 displays the means, standard deviations and t-test statistics for the spellings of /ŋ/, /ŋk/ and /sx/ by Turkish and Dutch children. It can be seen that Dutch children achieved significantly higher scores on the spelling of /ŋ/. However, the mean scores on the spellings containing /ŋ/ appeared to be low in both ethnic groups. In contrast, the scores on the spelling of /sx/ turned out to be substantially higher with no difference between ethnic groups.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
/ŋ/	.50	.24	.85	.61	2.14	99.5	<.05
/ŋk/	.72	.90	.83	.82	1.78	178	n.s.
/sx/	1.41	1.48	1.43	.79	-.12	83.5	n.s.

Table 5.16: Means, standard deviations and t-test statistics with regard to the spellings of / /, / k/ and /sx/ by Turkish and Dutch children

Analysis of misspellings revealed no striking differences between the two ethnic groups. In the vast majority of cases, both Turkish and Dutch children chose N as the spelling of /ŋ/ in word-final position (80 versus 88 percent). If /ŋ/ was followed by /k/, deletion of the preconsonantal nasal occurred most frequently in both groups (77 versus 78 percent). Besides, the misspelling NGK often occurred in both groups (15 versus 13 percent). With regard to the word-initial consonant cluster /sx/, both Turkish and Dutch children often deleted the second consonant (33 versus 37 percent). However, Turkish children more often showed the misspelling SG (48 versus 25 percent), whereas Dutch children more frequently deleted part of the second grapheme CH (5 versus 19 percent). As to the latter result, it can be said that the misspellings of the Turkish children were more phonologically based.

Consonant clusters. The means, standard deviations and t-test statistics for the spellings of word-initial and word-final consonant clusters by Turkish and Dutch children are given in Table 5.17.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
CCV	5.55	2.60	5.58	2.95	-.52	178	n.s.
VCC	4.59	2.59	4.96	2.66	-.88	178	n.s.

Table 5.17: Means, standard deviations and t-test statistics on the spellings of word initial (CCV) and word final (VCC) consonant clusters

Both ethnic groups obtained slightly higher scores on CVV-patterns than on VCC-patterns. No differences in mean scores on the two consonant clusters pattern between ethnic groups came to light. The Tables 5.18a and 5.18b present the results of the analyses of misspellings in word-initial and word-final clusters.

CCV	C1-deletion	C2-deletion	vowel insertion	other
Turkish	5	78	14	3
Dutch	6	84	4	6

Table 5.18a: Mean percent of misspellings of Turkish and Dutch children on word-initial consonant clusters

VCC	C1-deletion	C2-deletion	vowel insertion	transposition	other
Turkish	61	17	8	9	5
Dutch	61	9	9	12	9

Table 5.18b: Mean percent of misspellings of Turkish and Dutch children on word-final consonant clusters

It is clear that the patterns of misspellings in both groups are similar to a high degree. Two differences may be mentioned. With regard to the CVV pattern, Turkish children appear to demonstrate more vowel insertions than do Dutch children. As to the VCC pattern, Turkish children delete more consonants in second position. A striking result from both tables is that in CCV patterns, both groups predominantly delete the second consonant, while in VCC patterns they predominantly delete the first. The same result regarding Dutch children was reported by Van Rijnsoever (1979). Apparently, the first consonant in word initial clusters and the last consonant in word final clusters are acoustically more salient to children. Another interesting fact is that transpositions do

occur in VCC patterns, but not in CVV patterns. Closer inspection of the data indicates that the transpositions in the former patterns primarily occurred in two clusters: /sp/ and /ts/. Both cases have reversed equivalents /ps/ and /st/ which have a higher frequency of occurrence in Dutch (see Stroop, 1981).

Finally, we will discuss the occurrence of vowel insertions. In CCV patterns such misspellings predominantly occurred in clusters containing liquidae in second which can easily result in syllabic interpretations. In VCC patterns such misspellings concerned the clusters /rg/ and /lf/. In both clusters a liquid is followed by a non-homorganic consonant, which implies that in their pronunciation an unstressed schwa has been inserted between the two consonants. Thus all vowel insertions can be considered phonetically correct.

Preconsonantal nasals. Table 5.19 presents the means and standard deviations of Turkish and Dutch children's spellings of preconsonantal nasals in three different contexts: followed by a voiceless consonant, a voiced consonant or a non-homorganic consonant.

	Turkish		Dutch	
	mean	sd	mean	sd
nasal + voiceless C	2.22	1.79	2.41	1.65
nasal + voiced C	2.20	1.60	2.26	1.58
nasal + non-homorganic C	2.55	1.50	3.00	1.41

Table 5.19: Means and standard deviations of Turkish and Dutch children on their spelling of nasals, followed by voiceless, voiced or non-homorganic consonants

It can be seen that Dutch children perform slightly better on the three spelling patterns than Turkish children. Moreover, both ethnic groups achieve higher scores on the spelling of nasal, followed by a non-homorganic consonant. Multivariate analysis of variance was performed to test the main effects of ethnic group, nasal context and their interaction for statistical significance. The main effect of ethnic group turned out not to be significant with $F(1,178)=1.04$. The main effect nasal context was significant: Wilks' $\lambda=.73$, Approximate $F=32.76$, $p<.001$. However, the interaction between the two factors was not significant (Wilks' $\lambda=.97$, Approximate $F=2.94$).

In addition, Table 5.20 gives the percentages of nasal deletions in the three nasal contexts.

	Turkish	Dutch
nasal + voiceless C	37	36
nasal + voiced C	35	31
nasal + non-homorganic C	19	15

Table 5.20: Percentages of nasal deletions in three different nasal contexts

It can be seen that in both ethnic groups nasal deletions constituted over 30 percent of the total number of spellings in the first two categories. These percentages are strikingly higher in the preceding section than the other C1-deletions in the VCC patterns investigated (17 versus 19 percent). Furthermore, there is little difference as regards nasal deletion between the contexts dominated by voiceless versus voiced consonants, in favour of the latter. However, we see a sharp decrease of deletions of nasals if they are followed by a non-homorganic consonant. Thus, it can be concluded that the omission of nasals is primarily a consequence of the relation between the nasal and the following consonant. If the nasal and consonant are articulated at the same place, children tend to delete the nasal more often. Apparently, the basis for omission of nasals is highly kinesthetic in that children may feel only one articulatory movement in their spelling of a nasal followed by a homorganic consonant. The latter result is in conformity with earlier results of Read (1975) and Van Rijnsoever (1979).

5.4 Conclusions and discussion

The evidence presented in this chapter suggests that Turkish and Dutch children rely on highly comparable strategies in determining how to read and spell words. With regard to the reading of words in both groups, there is a sharp increase of successful direct access over time. This result conforms to the earlier finding of Doctor & Coltheart (1980) that even in an early stage of reading acquisition there is a shift from mediated to direct word recognition. Though the strategies being used by Turkish and Dutch children are highly comparable, the Turkish children are relatively slower in their rate of acquisition of verbal efficiency. The differences in verbal efficiency scores are largest on those word patterns which have just been taught. After five months of instruction, they concern CVC-patterns and high-frequency CC-patterns, after 10 months all

meaningful words, and after 20 months the meaningful bisyllabic words. In the initial stage of acquisition the differences can be interpreted as a result of restricted knowledge of grapheme-phoneme correspondence rules on the part of the Turkish children.

At all moments of testing, the factors word length and word familiarity play a significant role in first and second language verbal efficiency. It can be concluded that during the first two years of literacy acquisition, both L1 and L2 learners are more efficient in reading CVC-patterns than CC-patterns and more efficient in reading monosyllabic than bisyllabic patterns. This result is in accordance with Frederiksen & Kroll's (1976) finding that verbal efficiency increases, as the number of letters decreases. Another conclusion which can be drawn is that both groups of learners were more efficient in reading familiar than unfamiliar words, and in reading meaningful than pseudo-words. The latter result conforms to the research findings of Perfetti & Hogaboam (1975) and Frederiksen (1981). The facilitatory effect of word familiarity can also be explained in terms of the model of lexical access of Becker (1976) and Forster (1976). The assumption that a particular subset of lexical units is isolated before individual word checks are carried out provides evidence for such facilitation.

It is important to note that the factors word length and word frequency had a different impact on the reading results in the two ethnic groups. It was found that at the end of the first grade the Turkish children have relatively more difficulty in reading longer words. Apparently, at that stage of acquisition they were not equally able to make use of orthographic constraints as their Dutch peers. It is somewhat surprising that at the end of the second grade, word length no longer has a differential impact on the two ethnic groups. However, it can tentatively be assumed that at that time such problems only affect orthographic patterns of greater length. Regarding word familiarity, it was found that from the end of the second grade Dutch children were relatively more efficient in reading, as words become more familiar. It seems that the Turkish children were less successful in direct lexical access. The analysis of word attack strategies points to the same conclusion. Though the strategies used in the two groups were highly comparable, the Dutch children were slightly more successful in direct access at all moments of testing. Moreover, from the end of grade 1 the Dutch children are more successful in using direct access in reading familiar words than in reading pseudo-words, while at the end of grade 2 they also make more use of direct access in familiar words than in pseudo-words. The

Turkish children, on the other hand, only increase their relative success in reading familiar words at the end of the second grade.

The spelling behaviour of the Turkish children in Dutch turns out to be based on highly universal strategies as well. Half-way through the first grade only slight differences in the spelling strategies of Turkish and Dutch children can be demonstrated. On a word spelling task aimed at exploring the phonological strategies that children use in relating Dutch orthography and Dutch speech sounds, mainly universal principles seem to apply. Turkish children have no serious or specific problems with phonemes and phoneme clusters which do not occur in the Turkish phoneme inventory. In comparison with Dutch peers, they are slightly slower in the acquisition of the spellings of tense and lax vowels, syllabic sonorants and the nasal /ŋ/, and somewhat faster in the acquisition of the spelling of the pattern /or/. On the spelling of other phonemes and phoneme patterns (/ʌy/, /ɔr/, /er/, /ŋk/, /sx/, word initial and word final consonant patterns, including preconsonantal nasals), no temporal differences are evident.

From a structural point of view, the spelling behaviour of Turkish and Dutch children is highly comparable. In both groups of subjects, grapheme substitution, deletion, insertion and permutation can generally be explained in terms of the graphonological structure of the target language. Children rely on two distinct systems. On the one hand they make use of their own invented spelling system which is based on a set of phonological judgments. On the other hand, they gradually learn to apply the conventions of Dutch standard orthography conventions. Ample evidence was found that the phonological judgments made by, Turkish and Dutch children are highly comparable. Moreover, these judgments generally correspond to those of the spontaneous spellers in the studies of Read (1971, 1975, 1986) and Van Rijnsoever (1979). With regard to the spelling of tense and lax vowels, Turkish and Dutch children primarily interchange vowels which are similar in place of articulation. However, Dutch children show less consistency in their misspellings. The same result is found with the spelling of the diphthong /ʌy/. The misspellings of Turkish children are closer to a categorization of speech sounds than those of their Dutch peers. The most common misspelling in the latter group is digraph reversal. These findings indicate that in the same acquisitional process, Turkish children rely more on phonological principles than Dutch children. The spelling difficulties in the former group are especially phonologically based, whereas the Dutch

children experience both phonological and visual orthographic problems. Slightly different phonological categorisations in both ethnic groups are discovered in the misspellings of /ø/ and /e/ followed by /r/. Both groups of children tend to exchange the tense vowel for a lax vowel with a similar place of articulation. Besides, Turkish children chose corresponding higher vowels, which was also predicted through spectral analysis by Pols (1977). Accordingly, these misspellings can be said to be phonologically based as well.

Furthermore, the patterns of misspellings of syllabic sonorants and consonant clusters, including those containing preconsontal nasals in word final position, are highly comparable in both ethnic groups. Though on these patterns Turkish children lag slightly behind their Dutch peers, they produce misspellings of a highly comparable nature. As to the spelling of consonant clusters, there is no evidence that Turkish children rely on principles which have occurred diachronically with Turkish loan words, such as vowel insertion. Apparently, the distribution of consonants in monosyllabic Dutch words is acquired relatively early. Finally, the spelling of preconsonantal nasals turns out to be an interesting case in point. Given the high numbers of nasal deletions in that position, it can be concluded that both groups of learners regard the nasal as an aspect of the preceding vowel of the following consonant. Moreover, the effect of nasal context as displayed by homorganicness versus non-homorganicness of the following consonant is equally evident in both ethnic groups.

In conclusion, there is ample evidence that the strategies that Turkish and Dutch children use in reading and spelling words in Dutch are highly comparable. Though the Turkish children are relatively slower in acquiring verbal efficiency than their Dutch peers, the misreadings and misspellings are usually based on the graphonological structure of the target language Dutch.

Acquiring Discourse Abilities in Dutch as a Second Language

The present chapter deals with the acquisition of discourse abilities by Turkish children in Dutch as a second language. The purpose of this investigation was to identify the strategies Turkish children use in comprehending and producing written discourse in Dutch. A comparison of the features of the learning behaviour of Turkish children in L2 with those of Dutch children in L1 was made to discover the intralingual versus interlingual strategies used.

In section 1, an introduction to the study of discourse abilities in Dutch as a second language is given. First, important syntactic differences between Turkish and Dutch are outlined. The assumption is that interlingual strategies, if they occur at all, will primarily be a consequence of syntactic contrasts between Turkish and Dutch. In addition, the research questions and research design are outlined. In the second section, a report of a study on process characteristics and self-corrections in Turkish and Dutch children's oral reading of discourse in Dutch is presented. The aim of this study was to determine the influence of context in reading first and second language discourse. In section 3, the development of Dutch reading comprehension of Turkish and Dutch children is studied. The comprehension of three different aspects of discourse is examined: coherence, anaphoric reference and inference. In section 4, observations of Turkish and Dutch children's first attempts to write discourse in Dutch are discussed. Though in Dutch primary schools writing instruction in the lower grades is very limited, spontaneous writing processes are studied insofar as they can present additional evidence of intralingual and interlingual features in L2 literacy acquisition of Turkish children. In the final section, the results of the above mentioned studies are discussed.

6.1 Comprehension and production of written discourse in L2 Dutch

6.1.1 Morphosyntactic differences between Turkish and Dutch

Primarily in consequence of its agglutinative structure, Turkish is a language that differs widely from Dutch. In Turkish many syntactic functions are realised

by grammatical suffixes which are added to nouns or verb-stems. Moreover, this suffixation proves to be highly productive. Three broad classes of suffixes can be distinguished. First, there are suffixes which modify nouns, adjectives and pronouns. These suffixes can additionally be inflected by case suffixes (i.e. genitive, dative, accusative, locative, ablative), possessive suffixes, plural suffix (-ler), post-predicate personal suffixes and demonstrative suffix -ki. Second, there are suffixes which modify verbs. Turkish verb roots can be complemented by derivational suffixes to form reflexive, reciprocal, causative, passive, modal and negative verb stems. These derivational suffixes can in addition be followed by eight different inflectional endings, marking aspect and tense, and three different endings marking past and conditional projection. Finally, personal endings can be added. In contrast, Dutch verbs are only inflected for person and tense. Aspect and tense are further signalled in Dutch by the use of two or more words in a specific word order. Third, there are suffixes in Turkish which modify a verb to make nouns, adjectives, adverbs and gerunds, or a noun to make verbs and adjectives. In consequence, the differences between grammatical word classes in Turkish are less clear than in Dutch.

In addition, several striking syntactic contrasts occur. In the first place, the definite-indefinite distinction of noun phrases in Turkish is often marked by the position of nouns in the sentence, whereas in Dutch mostly (in)definite articles are used. Likewise, Turkish marks pronominal reference by means of personal verb endings, whereas in Dutch usually pronouns occur. Another contrast is that in Turkish the plural suffix is omitted if a numeral precedes a noun. In Dutch such omissions seldom take place (e.g. *twee koffie*). The use of prepositions in Dutch has a number of counterparts in Turkish: relational suffixes in case-marking, postpositions, possessive constructions and derivational suffixes. There are also many divergences in subordination in the two languages. Whereas in Dutch subordination is generally formed by means of subordinating conjunctions, in Turkish subordination is expressed by special devices, e.g. participles, verbal nouns and gerunds.

Due to its agglutinative structure, word order in Turkish is much freer than in Dutch. The primary constraint in Turkish word order is that the qualifier precedes the qualified, e.g. the adjective precedes the noun in a noun phrase, whereas the adverb or complement precedes the verb in a verb phrase. The typical word order in Turkish is based on the marking of subject - time - place - indirect object - direct object - modifying verb - main verb respectively. If any of these elements is qualified, the qualifier precedes this element.

6.1.2 *Research questions and design*

In section 6.2 the influence of context on reading discourse in Dutch as a first and a second language is discussed. First, the way in which decoding and contextual processes interact when Turkish and Dutch children learn to read Dutch was examined. This was done by comparing the word decoding performance of both groups of learners while reading isolated words versus words in context. Moreover, the question whether Turkish children profit as much from contextual facilitation as Dutch children was investigated. In other words, the assumption of compensatory-interactive use of context was tested (cf. Stanovich, Cunningham & Feeman, 1984). Second, the misreadings (miscues) were analysed in terms of surface characteristics. Moreover, a determination was made of the extent to which misreadings are graphically similar to the textual stimulus on the one hand, and syntactically, morphologically and semantically acceptable in the current sentence, on the other. The latter analysis shed light on the efficiency of Turkish and Dutch children in using (morpho-)syntactic and semantic redundancies in addition to word decoding efficiency. Additionally, the occurrences of self-corrections which Turkish and Dutch children display when reading text out loud were studied. Three types of self-corrections were distinguished: graphonological, grammatical and conceptual corrections. It is assumed that the first type reflects decoding difficulties, whereas the latter two reflect efficient reading.

Section 6.3 compares the development of reading comprehension in Dutch of both groups of learners in more detail. After 10 and 20 months of literacy instruction the children's reading comprehension ability was compared on tasks bearing on three different aspects of text cohesion: coherence, anaphoric reference and inference. On each task several subtasks were distinguished, referring to varying aspects of the three textual devices under consideration. An analysis of the extent to which the distribution of subscores on each task is comparable within the two ethnic groups was made.

Section 6.4 examines the performance of Turkish and Dutch children in writing discourse in Dutch. Given the fact that writing instruction is only a minor part of the curriculum at the lower grades of Dutch primary school today, essentially spontaneous writing strategies were the object of investigation. As such, strategies on the level of word, sentence and discourse receive separate attention.

In the final section (6.5) the results on the above studies on discourse abilities in Dutch are discussed.

Figure 6.1 presents the design of the comparative study on Turkish and Dutch children's discourse abilities in Dutch in a schematic way.

Figure 6.1: Design of the study on Turkish and Dutch children's discourse abilities in Dutch

6.2 Process characteristics in reading aloud

6.2.1 Materials

Two text reading tasks were developed. The first task contains a simple text which was taken from a basal reading series and adapted in such a manner that it consisted of only (C)VC patterns. The text contains 21 sentences with a mean length of 4.4 words, while the mean word length was 3.0 graphemes. The second reading task contains six texts which comprise an implicational sequence of ideas. In Table 6.1 some surface characteristics of the texts of this Inference Task are given.

Text	Number of sentences	Mean sentence length	Mean word length
1	11	6.2	3.7
2	10	6.4	3.8
3	10	7.0	3.8
4	10	6.9	3.9
5	10	9.7	4.5
6	10	10.3	4.1

Table 6.1: Surface characteristics of the texts in the Inference Task

After reading each of these texts, the children were asked four questions. The content of the questions is outlined in more detail in 6.3.1.

6.2.2 Procedure

Data collection. The children were tested after 5, 10 and 20 months of literacy instruction in Dutch. At each moment of testing the children were individually brought into a separate room in the school where they were asked to sit in front of the experimenter. Different texts were presented at the three testing moments. After five months of literacy instruction, the text with only CVC words was submitted. Five months later, the four easiest texts of the Inference Task were presented. After 20 months of instruction, all six texts of that task were given. At the moment of presentation, each text was covered by a sheet which was removed by the experimenter whenever he wanted the child to start to read. With the presentation of the first text, the following instruction was given: "Underneath this sheet is a short story which I would like you to read out loud. When you have finished, I will ask you some questions about it. If you encounter an unfamiliar word, try to make your best guess."

While administering one of the above text reading tasks, the experimenter recorded the child's reading on a cassette recorder. The exact moment that a text came under the child's eye he sounded a click so that afterwards precise reading times per text could be assessed. During the administration of the text reading tasks, no help of any kind was given to the child.

Data analysis. All the texts were printed on separate sheets per child. All misreadings were written below the target words in phonetic spelling (IPA). Monitoring responses, such as repeats, word spellings and self-corrections, were registered as well. In addition, the transcribed text data were analysed in various ways. First, a numerical account of misreadings in text was given. For each child the number of misreadings as well as the total reading time were determined. Articulation difficulties and repeats or corrections were not counted as misreadings. Reading time was measured by starting a stopwatch when the experimenter's click was heard on the tape and was stopped when the child read the last word. Number of misreadings and total reading time were then transformed to a text reading efficiency measure denoting the number of words which had been correctly read in one minute. By means of t-test statistics, the differences in mean scores of Turkish and Dutch children on number of misreadings, reading time and discourse efficiency were tested for significance. Additionally, the influence of context in reading Dutch as a first and second language was examined. An attempt was made to answer the question how decoding

and contextual processes interact by comparing the efficiency of Turkish and Dutch children in reading text with their efficiency in reading isolated words. The means of the children's scores on four lists of the Word Reading Task, i.e. familiar and unfamiliar CVC-words, familiar CC-words and bisyllabic words (see 5.2.1), were taken as an index of the latter skills. By means of analysis of variance with ethnic group and context as main effects, it was determined whether Turkish children profit as much from contextual facilitation while reading text as Dutch children. Thus, it was possible to test the hypothesis whether Turkish and Dutch children differ in the extent to which they profit from contextual facilitation while reading text.

Second, misreadings were subjected to a qualitative analysis in terms of surface characteristics. For this purpose, we modified earlier classifications of misreadings proposed by Goodman (1967), Cohen (1975) and Hood (1976). The following misreadings were distinguished:

- (1) No synthesis. Child spells a word without blending the sounds together (e.g. /v-r-i-nt/).
- (2) Deletion or substitution of affix. Child deletes or substitutes an affix in a word. This was indicated by a circle around the affix in question.
- (3) Word substitution. Child substitutes word in the text for another word. This includes real and nonsense words. Substitutions were indicated by writing them underneath the target words.
- (4) Deletion of content words (CW). Child skips a content word in the sentence. This was indicated by a circle around the skipped word.
- (5) Deletion of function words (FW). A function word is skipped in the sentence. (Again indicated by a circle.)
- (6) Word insertion. Child adds a word in the sentence. This was indicated by a caret at the point of insertion and writing the inserted word over it.
- (7) Word permutation. Child changes word order in the sentence. This was indicated by writing the changed words underneath the target sentence.

In comparison with the earlier classifications, two striking differences appear. The category 'no synthesis' was added because word spellings do not guarantee the recognition of words. Besides, a distinction was made between CW and FW deletions, because content words and functions words have very different functions in discourse. The deletion of either type of words can be said to have a different impact on the reading process. For word substitutions, this distinction was ignored because the contextual appropriateness would be examined

for all substituted words.

By means of the above classification, the actual misreadings of Turkish and Dutch children were scored. After scoring for each child, the proportions of misreadings over the seven types were computed. Again t-test statistics were computed in order to test differences in mean proportions of misreadings between both ethnic groups.

In addition to the surface analysis of misreadings, an attempt was made to gain insight into certain process characteristics of L1 and L2 reading. For that purpose, the Turkish and Dutch readers' apparent use of textual (bottom-up) cues and contextual (top-down) cues were analysed. With reference to the former cues, the graphemic similarity of misreadings identified as affix or word substitutions was determined by assessing the measure to which the misreading corresponded to the target word. The following procedure was followed. The number of graphemes in the target word was taken as a starting point (n). For each substitution, deletion, addition or transposition of a grapheme, n was subtracted with 1. Additionally, the graphemic similarity index was computed by dividing the resulting numerical value of k by n . Because of the high degree of regularity of Dutch orthography, the present index can be thought of as a valid measure of graphic similarity. Our assumption is that the higher the mean graphemic similarity index of word misreadings, the more readers rely on bottom-up cues.

The use of contextual cues was inferred by recording the proportion of meaningful words in the misreadings, and by noting whether the misreadings identified as affix or word substitutions were syntactically, morphologically and semantically appropriate to the context in the current sentence. In judging the contextual appropriateness of misreadings, the sentences were considered only up to the point where the misreading occurred. A misreading was judged acceptable if the ongoing sentence could be completed beyond the misreading notwithstanding the remainder of the sentence. The judgment was not applied to misreadings of the first word of a sentence. If more than one error occurred in a sentence, later errors were judged in the context of the sentence including any previous error. However, if a word had been read which made the sentence uninterpretable (i.e. in the case of a nonword), all additional misreadings were ignored. Following this procedure for each informant, the acceptability of misreadings was indicated. A misreading was judged syntactically acceptable if the response in the ongoing sentence obeyed a correct paradigm. Morphological acceptability was judged in terms of correctness of inflectional morphemes. In

the case of function words, morphological judgment was ignored. Semantic acceptability was judged in terms of meaningfulness of misreadings in the context of the current sentence. A misreading could only be judged semantically acceptable, if syntactic acceptability was evinced. In addition, the proportions of syntactically, morphologically and semantically acceptable misreadings was determined out of the total number of interpretable misreadings. Misreadings were counted as interpretable if they were meaningful and not occurring as the first word of a sentence. In order to check the reliability of the coding systems used, samples of misreadings which had been coded by two different persons following the above procedures were compared. It turned out that both coders were in perfect agreement as to the graphemic similarity indices of misreadings, while the analysis of contextual appropriateness of misreadings yielded an agreement in over 96 percent of the cases.

In order to compare characteristics of reading in a first and second language, the differences in mean proportions on graphemic and contextual appropriateness measures were tested for significance by means of t-test. Moreover, aspects of the reading process were studied by relating surface characteristics and graphemic and contextual appropriateness measures with efficiency in reading text. For that purpose correlations were computed.

Besides analyses of misreadings, the occurrences of self-corrections during the process of reading aloud were studied in the two ethnic groups. Three types of self-corrections were distinguished:

- (1) Graphonological self-corrections. Child corrects on word level. Such corrections seem to be primarily related to one of the stages of mediated lexical access. For instance, a word may first be spelled before blending of speech sounds (and thus recognition of the word) takes place, e.g. /bo→brot/ (bread).
- (2) Grammatical self-corrections. Child corrects a morphosyntactically wrong construction, e.g. /hei lop→hei lopt/ (he walk→he walks).
- (3) Conceptual self-corrections. Child corrects a conceptually anomalous construction, e.g. /vas met bukən→vas met blumən/ (vase with books→vase with flowers).

6.2.3 Results

Efficiency in reading discourse. In Table 6.2 the means, standard deviations

and t-test statistics of the numbers of misreadings, reading times and text reading efficiency measures are presented as a function of ethnic group and period of literacy instruction in Dutch. It can be seen that after 5 and 10 months of instruction the Dutch children obtained higher scores on all three measures. The differences after 20 months of instruction were significant as well, except for the number of misreadings. Apparently, at that very moment reading accuracy is starting to level off, whereas word access speed is still increasing. It can also be seen that text reading efficiency, defined as the number of correctly read words per minute, sharply increased in both groups as a result of literacy instruction.

		Turkish		Dutch		t.	df	p
		mean	sd	mean	sd			
n of misreadings	(5)	19.92	14.33	11.76	11.96	2.94	102	<.01
	(10)	47.41	33.84	24.27	30.68	3.42	99	<.001
	(20)	22.96	19.13	19.30	19.15	.90	91	n.s.

Reading time (in seconds)	(5)	305.46	144.62	213.38	128.67	3.23	102	<.01
	(10)	676.45	378.90	413.35	263.65	4.10	95.5	<.001
	(20)	396.59	220.91	287.73	167.66	2.55	91	<.01

Text reading efficiency	(5)	19.03	12.39	33.26	21.64	-4.27	102	<.001
	(10)	28.48	19.89	49.55	27.02	-4.14	58.8	<.001
	(20)	83.47	34.65	110.34	34.85	-3.85	91	<.001

Table 6.2: Means, standard deviations and t-test statistics on numbers of misreadings, reading times and text reading efficiency measures of Turkish and Dutch children after 5, 10 and 20 months of literacy instruction (displaying 93, 270 and 470 words respectively)

In Figure 6.2 the mean scores on reading efficiency with and without context are presented as a function of ethnic group and period of instruction. It can be seen that there is a tendency for Dutch children to profit more from context in word recognition than Turkish children do. The relative gain in profit also seems to be greater as a result of instruction. In order to test these tendencies for significance, three-way analysis of variance was carried out. The main effects of ethnic group ($F(1,77) = 12.94$, $p < .001$), presence of context ($F(1,77) = 387.38$, $p < .001$) and period of instruction (Wilks' lambda = .13, Approximate $F = 264.19$, $p < .001$) turned out to be significant. Thus, it can be concluded that in discourse reading Dutch children are generally more efficient than Turkish children, there is a gain in reading efficiency if words are presented in context and there is also a gain in reading efficiency as a result

correct words
per minute

Figure 6.2: Mean scores of Turkish and Dutch children on reading efficiency with and without context after 5, 10 and 20 months of literacy instruction

of instruction. Furthermore, the interaction between ethnic group and presence of context was significant as well ($F(1,77) = 21.18, p < .001$). The latter finding indicates that the tendency of Dutch children to make better use of context in word recognition than Turkish is statistically significant.

Process characteristics in reading discourse. In Table 6.3 the results of the analysis of misreadings in terms of surface characteristics are presented. The means and standard deviations of proportions of types misreadings are given as a function of ethnic group and period of instruction.

It can be seen that the characteristics of misreading made by Turkish and Dutch children at different moments of measurement are highly comparable. Word substitution is by far the most important type of misreading in both ethnic groups. However, its proportion gradually decreases in the two groups as a function of time. The analysis of surface characteristics of misreadings revealed no clear incidence of interlingual patterns. Some changes of word order by Turkish children might be interpreted as such. However, similar patterns occurred in the reading performance of Dutch children. Thus, the types of misreadings displayed by Turkish children can be said to be highly intralingual. By means of t-test analysis, the differences in mean proportions of types of misreadings between ethnic groups were tested for significance for each moment of measurement. After 5 months of instruction, none of the misreading types turned out to be significantly different. At the next moment of measurement,

	5 months				10 months				20 months			
	Turkish		Dutch		Turkish		Dutch		Turkish		Dutch	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
No synthesis	.12	.22	.09	.19	.19	.18	.15	.10	.07	.11	.06	.12
Affix del./subst.	.04	.08	.03	.07	.07	.11	.14	.13	.25	.17	.22	.22
Word substitution	.78	.24	.81	.23	.65	.21	.62	.25	.56	.21	.41	.24
Deletion CW	.01	.04	.01	.02	.04	.07	.03	.07	.01	.02	.02	.06
Deletion FW	.03	.05	.02	.06	.04	.07	.03	.07	.07	.01	.08	.17
Word insertion	.01	.03	.03	.07	.01	.01	.04	.08	.03	.05	.09	.12
Word permutation	.00	.00	.01	.01	.00	.00	.00	.00	.01	.03	.02	.06

Table 6.3: Mean proportions and standard deviations of surface characteristics of misreadings made by Turkish and Dutch children after 5, 10 and 20 months of literacy instruction

significant differences were found for affix deletion/substitution and word insertion. Dutch children appeared to misread affixes and to insert words more often than Turkish children. After 20 months of instruction, again significant differences between the two groups of children could be found. Dutch children inserted more words and deleted more function words than Turkish children, though they substituted fewer words than did the latter group. It is striking that the proportions of affix deletion/substitution, deletion of function words and word insertion increase over time. Especially for the Dutch group this seems to be the case. A possible explanation could be that when children become more skilled in reading they stop paying attention to rather formal features in the text. Compared with the large number of deletions of function words, it is striking that content words are rarely deleted.

In Table 6.4 the graphical and contextual appropriateness of misreadings is presented. For each moment of measurement, the mean proportions, standard deviations and t-test statistics are given for the following characteristics: graphemic similarity of (non)words, proportion of nonwords, and syntactic, morphological and semantic acceptability of words substituted.

It can be seen that the graphemic similarity index does not lead to different values in ethnic group. Moreover, with the progression of time the values remain more or less constant. All in all, the graphemic similarity scores seem to indicate that in terms of graphemes, Turkish and Dutch children approach the text equally closely. With reference to contextual appropriateness, however, clear differences between the two groups of children emerge. First, at every moment of measurement Turkish children display a higher proportion of nonwords than Dutch children. At the end of the second grade, nonwords still make up a substantial proportion (30%) of the Turkish children's misreadings. The fact

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Graphemic similarity	(5) .51	.10	.49	.11	.94	99	n.s.
	(10) .54	.12	.53	.10	.48	97	n.s.
	(20) .55	.12	.51	.16	1.49	61	n.s.
Proportions of nonwords	(5) .47	.25	.31	.31	2.62	98	<.01
	(10) .56	.22	.40	.27	3.25	97	<.01
	(20) .30	.21	.12	.15	4.51	89	<.001
Syntactic acceptability	(5) .58	.31	.73	.29	-2.17	95	<.05
	(10) .76	.19	.93	.13	-5.16	90	<.001
	(20) .91	.12	.97	.13	-2.23	88	<.05
Morphological acceptability	(5) .69	.36	.84	.30	-1.99	87	<.05
	(10) .69	.24	.77	.20	-1.66	95	n.s.
	(20) .70	.25	.81	.25	-2.03	87	<.05
Semantic acceptability	(5) .60	.46	.68	.34	-.83	95	n.s.
	(10) .66	.20	.83	.22	-4.05	96	<.001
	(20) .84	.14	.90	.23	-1.42	88	n.s.

Table 6.4: Mean proportions, standard deviations and t-test statistics of graphemic and contextual appropriateness measures on Turkish and Dutch children's misreadings after 5, 10 and 20 months of literacy instruction

that in both ethnic groups there is a small decrease in the proportion of nonwords by the end of the first grade is probably due to the relative simplicity of the text used after 5 months of instruction. Second, the syntactic and contextual acceptability of substituted words is generally higher in the Dutch group. The effect is particularly striking with syntactic and morphological appropriateness of misreadings. However, by the end of the second grade, the proportion of syntactically acceptable errors is high in both groups. The difference in semantic acceptability is somewhat smaller. Only at the second moment of measurement were these differences significant.

In addition, reading process constraints were investigated by relating both surface characteristics and graphemic and contextual appropriateness measures of misreadings with efficiency in reading text. In Table 6.5 the correlations between the proportions of surface characteristics of misreadings of Turkish and Dutch children as well as their text reading efficiency scores are presented. As to the first moment of measurements it can be seen that for Turkish children there are significant negative correlations between text reading efficiency and the proportion of deletion and insertions of words: for Dutch children text reading efficiency appears to correlate positively with the proportion of word substitutions and negatively with the proportions of function word deletion. In both groups there seems to be a tendency for good decoders to keep close to the

words which are encountered in the text. At the end of the first grade we find that Dutch children with high scores on text reading efficiency make relatively fewer substitutions and more insertions. It seems that these children are able to make more use of context in their recognition of words. For the Turkish children no such tendency can be found. At the end of the second grade the skilled decoders in both ethnic groups make fewer word substitutions in favour of more misreadings of affixes. Moreover, children in the Turkish group also demonstrate relatively fewer words without synthesis and more deletions of function words, while good decoders in the Dutch group additionally demonstrate more word insertions. Apparently, at this moment text reading efficiency goes hand in hand with greater attention to contextual cues in the two ethnic groups. In both groups the misreadings by children with a higher degree of text reading efficiency seem to keep the meaning of the text intact in many cases.

	Text reading efficiency					
	5 months		10 months		20 months	
	Turkish	Dutch	Turkish	Dutch	Turkish	Dutch
No synthesis	.09	.25	.02	.02	-.35**	.11
Affix del./subst.	.13	.12	.13	.12	.38**	.28*
Word substitution	.02	.31*	.00	-.31*	-.42**	-.16**
Deletion CW	-.22*	-.12	-.12	-.01	.08	.09
Deletion FW	-.29**	-.30*	-.02	.00	.43**	.41
Word insertion	-.28*	-.18	-.14	.32*	.10	.42**
Word permutation	-	-.05	-.11	-	.15	.06

Table 6.5: Correlations between Turkish and Dutch children's degree of text reading efficiency in reading text and their proportions of misreadings characteristics after 5, 10 and 20 months of instruction (* $p < .05$, ** $p < .01$, *** $p < .001$)

In Table 6.6 the correlations are given between Turkish and Dutch children's degree of text reading efficiency and the degree of graphemic and contextual appropriateness of their misreadings at the three moments of measurement. In most of the cases the correlations between text reading efficiency and graphemic similarity are significant. The absence of a positive correlation between these variables in Turkish children after 20 months of instruction can be explained by the fact that at that very moment and in the Turkish group only, text reading efficiency is related to reading speed ($r = .25^*$), but is not related to reading accuracy ($r = .01$). Furthermore, positive correlations are generally found between text reading efficiency on the one hand, and contextual appropriateness measures on the other. However, in the Turkish group the correlations reach the

level of significance on all measures, except for the morphological acceptability measures at the first and the last moment of measurement. At the latter moment, the correlation is even strikingly negative, indicating a relative neglect of morphological features by skilled decoders. On the other hand, in the Dutch group, only the correlations between text reading efficiency and proportion of nonwords appear to be significant at all moments of measurement. None of the other misreadings at the end of the second grade reaches significance. From these findings it can be concluded that the relation between text reading efficiency and graphemic similarity is stronger within the Turkish group during the first grade, and stronger within the Dutch group during the second grade. However, the correlation between text reading efficiency and contextual appropriateness, though positive in both ethnic groups, is stronger within the Turkish group in both grades.

	Text reading efficiency					
	5 months		10 months		20 months	
	Turkish	Dutch	Turkish	Dutch	Turkish	Dutch
Graphemic similarity	.45***	.22	.30*	.30*	-.02	.30*
Proportions of nonwords	-.57***	-.37*	-.45**	-.45**	-.37**	-.41**
Syntactic acceptability	.45***	.20	.41***	.37*	.26*	.27
Morphological acceptability	.16	.25	.37***	-.05	-.34**	-.12
Semantic acceptability	.26*	.19	.39***	.26	.29*	.20

Table 6.6: Correlations between Turkish and Dutch children's degree of Text reading efficiency in reading and the degree of graphemic and contextual appropriateness of their misreadings after 5, 10 and 20 months of instruction (* $p < .05$, ** $p < .01$, *** $p < .001$)

Table 6.7 gives the means, standard deviations and t-test statistics of the number of graphonological, grammatical and conceptual self-corrections as they occurred in Turkish and Dutch children's reading behaviour at three moments of measurement. It can be seen that the Turkish children made significantly more graphonological self-corrections than the Dutch children. On the two other types of self-corrections, no significant differences were found at any moment. In both groups the occurrence of these self-corrections seems to be low.

		Turkish		Dutch		t	df	p
		mean	sd	mean	sd			
Graphonological self-corrections	(5)	23.19	19.43	15.03	14.36	2.44	93	<.05
	(10)	41.23	43.31	18.27	30.39	3.12	95	<.01
	(20)	15.43	16.42	7.49	11.78	2.71	90	<.01

Grammatical self-corrections	(5)	.22	.49	.35	.35	-.89	51	n.s.
	(10)	1.48	1.27	1.35	1.35	.49	99	n.s.
	(20)	1.78	1.63	1.63	2.35	-1.48	91	n.s.

Conceptual self-corrections	(5)	2.36	2.86	2.86	4.63	1.20	99	n.s.
	(10)	4.63	3.70	3.70	4.24	.59	93	n.s.
	(20)	3.55	4.24	4.24	4.24	-.29	91	n.s.

Table 6.7: Means, standard deviations and t-test statistics of number of graphonological, grammatical and conceptual self-corrections in Turkish and Dutch children after 5, 10 and 20 months of instruction

6.3 Comprehension of coherence, anaphora and inference

6.3.1 Materials

In order to investigate children's reading comprehension ability in Dutch, three tasks were developed bearing on three different aspects of text cohesion: sequential principles in coherence, anaphoric reference and implicit relations.

The *Coherence Task* is the first reading comprehension task that was constructed. Twenty groups of four sentences are displayed that together build a mini-story; however, the sentences are presented in an illogical sequence. In half of the 20 mini-stories children are asked to point to the initial sentence of the story; in the other half the last sentence is asked for. Because the former instructions seem to demand a less intensive use of context, it is assumed to be easier than the latter (see Spiro, 1980). In Figure 6.3 two examples of items of the *Coherence Task* are given.

The *Anaphora Task* is based on referential relations between sentences in a text. From earlier research it can be concluded that with regard to different types of anaphoric expressions, a hierarchy of comprehension difficulty or an order of acquisition can be identified (Bormuth, Manning, Carr & Pearson, 1970; Lesgold, 1974; Barnitz, 1979). A task was constructed in which four types of anaphora are distinguished: personal reference, reference to space or time, verbal reference and clausal reference. Each of these anaphoric types was assumed to be syntactically characterized by specific anaphora-antecedent

1. Met welke zin moet het verhaal beginnen?

- A Ik krijg er een groot stuk van.
- B Moeder maakt deeg.
- C Ze bakt een koek.
- D Ze doet de oven aan.

2. Wat moet de laatste zin van het verhaal zijn?

- A De wekker loopt af.
- B Hij gaat naar zijn werk.
- C Vader wordt wakker.
- D Hij trekt zijn kleren aan.

1. Cross the initial sentence of this story.

- A I am getting a large piece of it.
- B Mother is making dough.
- C She is baking a pie.
- D She is lighting the oven.

2. Cross the last sentence of this story.

- A The alarm clock is ringing.
- B He is leaving for his work.
- C Father is waking up.
- D He is putting on his clothes.

Figure 6.3: Two items of the Coherence Task (on the right an adapted version of English is given)

pairs. In the Anaphora Task ten texts are presented. Each text is followed by four multiple-choice questions, referring to the earlier types of anaphora. In Figure 6.4 one of the texts with questions is presented. The questions successively refer to spatial, personal, clausal and verbal antecedents.

The *Inference Task* which was earlier discussed in 6.2.1, measures implicit relations between sentences in a text. The task consists of six texts. Each text is followed by four questions related to explication, assertion, presupposition and implication respectively. Figure 6.5 presents one of the texts with its questions in the order just mentioned. In this task the children were requested to read the text aloud. After each reading of a text, the children were asked four questions.

6.3.2 Procedure

Data collection. The children were tested at the end of the first grade and at the end of the second grade, after 10 and 20 months of literacy instruction in Dutch. Both the Coherence Task and the Anaphora Task were administered by the classroom teacher. At the first moment of measurement the Coherence Task was split in two halves which were taken with a one-week interval: half of the children started with the stories in which the last sentence was the target sentence; the other half of the children took the reverse order. The instructions for the Coherence Task were as follows: "On each page of your booklet you will find a number of short stories. The sentences in the stories are not given in the right order: they are all mixed up. For each story you will have to find out the right order of presentation. Mark the first or the last sentence of the story. This can be done by circling the letter before the sentence which is asked for."

Ali zit op het dak van de schuur.
 Daar kan hij veel zien.
 Hij ziet Kees en Roos in de tuin.
 Ali roept naar hen.
 Dat heeft moeder gehoord.
 Ze komt naar buiten.
 Ali moet van het dak af.
 Moeder is erg boos.
 Vader ook.

Ali is sitting on the roof of the shed.
 From there he can see a lot.
 He sees Kees and Roos in the garden.
 Ali calls out to them.
 His mother has heard that.
 She goes outside.
 Ali is ordered to get off the roof.
 Mother is very angry.
 So is father.

1. Waar kan Ali veel zien?

- A. Op het dak van het huis
- B. Op het dak van de schuur
- C. In de schuur
- D. In de tuin

1. Where can Ali see a lot?

- A. On the roof of the house
- B. On the roof of the shed
- C. In the shed
- D. In the garden

2. Naar wie roept Ali?

- A. Naar Kees
- B. Naar vader en moeder
- C. Naar Kees en Roos
- D. Naar moeder

2. Who does Ali call out for?

- A. Kees
- B. His father and mother
- C. Kees and Roos
- D. His mother

3. Wat heeft moeder gehoord?

- A. Dat Kees en Roos in de tuin zijn
- B. Dat Kees en Roos naar Ali roepen
- C. Dat Ali naar Kees en Roos roept
- D. Dat Ali op het dak klimt

3. What has mother heard?

- A. Kees and Roos playing in the garden
- B. Kees and Roos calling for Ali
- C. Ali calling for Kees and Roos
- D. Ali climbing on the roof

4. Wie is erg boos?

- A. Ali
- B. Moeder
- C. Vader
- D. Vader en moeder

4. Who is very angry?

- A. Ali
- B. Mother
- C. Father
- D. Father and mother

Figure 6.4: A text of the Anaphora Task with multiple-choice questions (on the right an adapted version in English is given)

The Anaphora Task was at both moments of measurement split in two halves. These were also taken with a one-week interval. The task was accompanied by the following instructions: "On each page of the booklet you will find a short story and a number of questions. You will have to read the story first. When you think you understand what the story is about, answer the questions. For each question there are four possible answers. Mark the right answer by circling the letter before it."

Ali wacht op zijn vader.
Daar komt hij al aan.
Ali vraagt hem of hij morgen mee gaat fietsen.
Morgen is het zondag.
De vader van Ali hoeft dan niet te werken.
Ali wil graag met de fiets naar het bos.
Als het mooi weer is, wil vader wel mee.
De volgende morgen is Ali al vroeg wakker.
Hij kijkt vlug naar buiten en zegt:
"wat jammer dat het regent."

1. Wil Ali naar het bos fietsen?
2. Regent het, als Ali 's morgens naar buiten kijkt?
3. Vindt Ali het fijn dat het regent?
4. Gaat Ali met zijn vader fietsen?

Ali is waiting for his father.
There he comes.
Ali asks him to go and cycle with him tomorrow.
Tomorrow it will be Sunday.
Then Ali's father does not have to work.
Ali would like to go by bike to the woods.
If the weather is good father is willing to join him.
The next morning Ali wakes up early.
He looks outside saying:
"what a pity that it rains!"

1. Does Ali want to go and cycle to the woods?
2. Is it raining when Ali looks outside in the morning?
3. Does Ali enjoy the rain?
4. Will Ali go cycling with his father?

Figure 6.5: A text of the Inference Task with questions (on the right an adapted version in English is given)

The Inference Task was administered individually. The children were brought into a separate room, and asked to sit in front of the experimenter. In succession, the texts to be read out loud were presented. After the text was read, the text card was taken away and four questions were asked about it. Before administering the Inference Task, the examiner gave the following instructions: "I will present you several cards. On each card you will find a short story. Please read that story out loud. After you have read the story I will ask you some questions about it."

All instructions were given orally. For each task there were two exemplary items which were explicated until the procedure of administration was fully understood by all children. Table 6.8 presents the numbers of informants which were involved in the administration of the tasks at each moment of measurement.

	Turkish		Dutch	
	grade 1	grade 2	grade 1	grade 2
Coherence Task	61	54	117	99
Anaphora Task	58	56	113	101
Inference Task	65	58	40	39

Table 6.8: Numbers of informants which took the three comprehension tasks at the end of the first and the second grade

Data analysis. Three different kinds of analyses were involved in the reading comprehension data collected. First, some general task statistics were gathered. For each task, means and standard deviations were computed. Moreover,

to determine internal consistency of scores, the KR-20 coefficient and the mean numerical, values of item-total score correlations (R_{it}) were calculated. In addition, the possible use of the Rasch model was explored. The claim is made that the Rasch model provides sample free item analyses. Sample free in this context points to no statistically significant effect or any differences in the values of abilities of groups of informants on item parameter estimates (Rasch 1966; Fischer, 1974). In the Rasch model, item characteristic functions can be expressed in terms of two parameters: θ_i : as the ability of person i and b_g as the difficulty of item g . If X_{ig} is given by g correct and 0 otherwise, then the probability of the response X_{ig} is given by

$$p_{gi} = \frac{e^{(\theta_i - b_g)}}{1 + e^{(\theta_i - b_g)}} \quad (e = 2.718)$$

Fit of the Rasch model was determined by estimating the item parameters by means of a conditional maximum likelihood procedure for the two ethnic groups separately and for the whole sample of informants. The resulting likelihood-ratios were additionally tested with Andersen's (1973) LR-test. If on a task Turkish and Dutch children yield equivalent estimations of item parameters, it could be concluded that for both ethnic groups the items on the task can be scaled along one and the same dimension. In that case, the underlying task ability could be said to be based on highly intralingual strategies.

The aim of the second type of analysis was to uncover the differences in scores on the three comprehension tasks between ethnic groups over time. Three research questions were asked:

- (1) Do Turkish and Dutch children perform differently on the task?
- (2) Do both groups of children attain higher reading comprehension scores as a consequence of literacy instruction?
- (3) If progress can be assessed, will it be to the same extent in both groups?

In order to answer these questions, a two-way analysis of variance was performed with ethnic group and period of instruction (expressed by grade) as the main factors. However, in order to be able to compare the comprehension scores over time, a consecutive equation procedure of scores had to be carried out beforehand (see Verstralen, 1984). For that purpose, we equated the Rasch calibrated task at different moments of measurement into a common Rasch scale. As Fischer (1981) has demonstrated, a common scale for an item bank may be

calibrated by administering different samples from an item domain given enough overlap of data. In equating the tasks, we made use of an algorithm which was developed by Glas & Verhelst (1984). With this method a incomplete data matrix can be calibrated in its entirety. As such, ability parameters for each informant could be estimated per moment of measurement which can validly be compared. Andersen's LR-test was again used to test Rasch model fit for the entire data matrices. Additionally, the latent abilities of the informants instead of their raw task scores were taken as an index of comprehension performance in the analyses of variance.

The final type of analysis concerned the subscores which were distinguished in advance. The question was whether the different types of subscores do indeed represent different levels of difficulty. If so, it would be interesting, from a structural point of view, to know whether the order of difficulty of subscores on each task is similar for each ethnic group. To test these assumptions, for each task a two-way analysis of variance was computed on the mean number of correct subscores of each subject. The between-subjects factor was ethnic group, and the within-subjects factor was type of subscore. On the Coherence Task, the latter factor concerned the initial/last sentence to be marked in the stories. On the Anaphora Task, this factor referred to the subscores for personal reference, spatial/temporal reference, verbal reference and clausal reference were involved, while on the Inference Task, the subscores explication, assertion, presupposition and implication were referred to. In the analysis of variance the interaction between ethnic group and types of subscores was thought to be of special interest. If no interaction appeared, both groups of subjects could be said to have used highly similar or intralingual comprehension strategies.

6.3.3 Results

General task statistics. In Table 6.9 the mean scores and standard deviations on the three reading comprehension tasks are presented at two moments of measurement. It can be seen that Dutch children generally obtain higher scores than Turkish children. From the means, no cellar or ceiling effects can be concluded. Moreover, the standard deviations show large variations in scores on all tasks.

	Turkish		Dutch	
	mean	sd	mean	sd
Coherence Task				
- grade 1 (20)	7.97	3.33	11.89	4.58
- grade 2 (20)	14.09	4.19	15.72	4.84
Anaphora Task				
- grade 1 (24)	12.45	5.06	16.22	5.45
- grade 2 (40)	28.93	7.49	33.60	5.62
Inference Task				
- grade 1 (16)	10.03	3.48	12.20	4.51
- grade 2 (24)	19.34	3.80	21.45	2.48

Table 6.9: Means and standard deviations on the Coherence Task, Anaphora Task and Inference Task of Turkish and Dutch children at the of the first and second grade (numbers of items are given between parentheses)

Table 6.10 presents information about the internal consistency of the present tasks. From the numerical values of both the KR-20 coefficients and the means of item-total-score correlations, it can be concluded that the scores on the tasks are reasonably consistent.

	First grade administration		Second grade administration	
	KR-20	Mean Rit	KR-20	Mean Rit
Coherence Task	.82	.47	.88	.56
Anaphora Task	.81	.50	.89	.46
Inference Task	.86	.56	.74	.36

Table 6.10: Numerical values of KR-20 coefficients and means of Rit's on the Coherence Task, Anaphora Task and Inference Task

The likelihood tests for differences in estimations of item parameters when using different samples of informants (in this case Turkish versus Dutch) turned out not to be significant for any task administered. In no case did the fit of the Rasch model have to be rejected. Thus, it can be concluded that the comprehension scores on coherence, anaphoric reference and inference of Turkish and Dutch children refer in both first and second grade to similar underlying abilities, based on highly intralingual strategies.

Progress of comprehension abilities over time. In order to vertically equate the scores on the three comprehension tasks from the first to the second grade, Rasch calibration of the entire (incomplete) data matrices was performed. None of the differences in estimations of item parameters using different

samples of children appeared to be significant. Thus the ability parameters of informants on each task can be taken as valid indices of comprehension performance. In Figure 6.6a to 6.6c the mean ability parameters of Turkish and Dutch children on the three comprehension tasks at the end of the first and second grade are graphically displayed.

Figure 6.6: Mean Rasch ability parameters of Turkish and Dutch children on the Coherence Task (a), Anaphora Task (b) and Inference Task (c) at the end of grade 1 and 2

It can be seen that Dutch children perform better than Turkish children, and that both groups of children gain in scores over time. By means of analysis of variance, these tendencies were tested for significance. 2 x 2 ANOVA on the Coherence Task indicated that the main effects of ethnic group ($F(1,118) = 8.90$, $p < .01$) and period of literacy instruction ($F(1,118) = 99.88$, $p < .001$) were significant, indicating that the gain in scores on the present task was equivalent in both ethnic groups. 2 x 2 ANOVA statistics on the Anaphora Task revealed significant main effects ethnic group ($F(1,148) = 7.82$, $p < .01$) and period of instruction ($F(1,148) = 121.65$, $p < .001$) and no significant interaction between the two factors. As with the two former tasks, 2 x 2 ANOVA statistics on the Inference Task revealed significant F-values for the main effects ethnic group ($F(1,73) = 6.26$, $p < .01$) and period of instruction, $F(1,73) = 49.68$, $p < .001$, but not for their interaction.

In conclusion, on all comprehension tasks the main factors ethnic group and period of instruction appear to be significant, while their interaction is not. Dutch children generally obtained significantly higher scores on each task than Turkish children. Furthermore, all children improved their comprehension ability as a result of literacy instruction. The relative progress turned out to be equal in both ethnic groups.

Differences in comprehension subscores. 2 x 2 ANOVA statistics were computed for the Coherence Task after one and two years of instruction respectively. The main effect ethnic group proves to be significant at the first moment of measurement ($F(1,176)=34.7$, $p<.001$), but not at the second ($F(1,150)=3.15$, $p<.07$). The main effect type of sequence is significant both after one year ($F(1,176)=28.1$, $p<.001$) and after two years of instruction ($F(1,150)=9.23$, $p<.01$), while the interaction between both main effects is not. The graphic display in Figure 6.7 shows that Dutch children perform better on the subtasks than the Turkish children, and that it is easier for both groups to find the initial sentence of a text than the last one.

Figure 6.7: Mean correct scores of Turkish and Dutch children on two sequential tasks after 10 and 20 months of literacy instruction (10 = maximum score; 2.5 = chance score)

The results of a 2 x 4 ANOVA on the Anaphora Task at the end of grade 1 indicated significant main effects of ethnic group ($F(1,169)=19.0$, $p<.001$) and type of reference ($F(1,69)=22.4$, $p<.001$), with no significant interaction between the two factors. A similar 2 x 4 ANOVA at the end of grade 2 yielded comparable results. Significant main effects were found for ethnic group ($F(1,153)=17.11$, $p<.001$) and type of reference ($F(3,153)=17.11$, $p<.001$), while the interaction between the two factors was not significant. As can be seen in Figure 6.8a and 6.8b, at both grade levels Dutch children obtain higher scores on the Anaphora Task than do Turkish children. Furthermore, there is a gradual and comparable increase in difficulty with respect to the four referential subtasks: reference to person and time/space is easier than clausal or verbal reference.

Figure 6.8a: Mean correct scores of Turkish and Dutch children on the referential subtasks after 10 months of literacy instruction (6 = maximum score; 1.5 = chance score)

Figure 6.8b: Mean correct scores of Turkish and Dutch children on the referential subtasks 20 months of literacy instruction (10 = maximum score; 2.5 = chance score)

2x4 ANOVA for the Inference Task at the end of the first grade revealed significant main effects of ethnic group ($F(1.03)=7.51$, $p<.01$) and of type of inference ($F(3.103)=6.62$, $p<.001$), with no significant interaction between the two factors. At the end of the second grade the results were highly comparable. Significant main effects were found for ethnic group ($F(3,94)=11.33$, $p<.001$). In Figure 6.9a and 6.9b these results are graphically displayed. Again similar effects are found: in both grade 1 and grade 2 the Dutch children obtain higher scores than the Turkish children, and there is a gradual and comparable increase

in task difficulty: presupposition items appear to be easier than implication items, assertion items easier than presupposition items, and explication items easier than assertion items.

Figure 6.9a: Mean correct scores of Turkish and Dutch children on the inferential subtasks after 10 months of literacy instruction (4 = maximum score; 2 = chance score)

Figure 6.9b: Mean correct scores of Turkish and Dutch children on the inferential subtasks after 20 months of literacy instruction (6 = maximum score; 3 = chance score)

From the results in this part of the study it can be concluded that Turkish and Dutch children display comparable features on each of the three reading comprehension tasks. Though the scores achieved by the Dutch children are higher than those of the Turkish children, the order of difficulty of semantic aspects within each of the tasks is the same.

6.4 Spontaneous production of written discourse

6.4.1 Data collection

Turkish and Dutch children were tested at the end of the second grade. By that time, literacy instruction in Dutch had been given for 20 months. Two compositions were administered with a one-week interval. In order to control for discourse type and topic, the children were asked to write about two topics: holiday activities and television programmes. These topics were chosen in order to elicit narrative text production which is emphasized in the early school curriculum.

The children were tested as a group in their own classrooms. There were no constraints regarding length of text, nor was there a time limit.

6.4.2 Data analysis

Only the data of the children who had participated on both occasions of discourse writing were subjected to further linguistic analysis. The data of 52 Turkish children and 48 Dutch children were analysed. The analysis of the discourse data assessed orthographic, lexical, morpho-syntactic and pragmatic aspects separately.

On the orthographic level, spelling was the subject of analysis. The misspellings in the two compositions were counted. The proportion of misspellings was computed by dividing the number of misspellings by the total number of words in the two compositions. Moreover, a determination was made of the extent to which the misspellings of the Turkish children were based on interference of Dutch with Turkish.

Lexical measures were planned as an indication of the diversity of the vocabulary used by children. Numbers of different content word types and function word types were computed. In computing the number of content word types, nouns, verbs and adjectives were distinguished. Besides, type/token

ratios were computed for content words and function words. In order to avoid problems with unequal sample length, all lexical measures were computed over the first 50 words occurring in the two compositions.

Several measures were computed on the morpho-syntactic level. First, as a global syntactic measure, mean length of utterances was computed by dividing the total number of words by the number of T-units in the sample. T-unit was defined as in Hunt (1970). False starts, self-corrections and repetitions were excluded from the analysis. Second, as a measure of complexity of productive syntax, the proportion of T-units containing a subordinated clause in the total sample was computed. Third, as an index of word order regularities, a ratio was computed with words in wrong position and number of words in the sample. Fourth, the proportions of correct scores were computed for the following morphological devices: determiner, pluralization of nouns, present tense conjugation of verbs and adjective-noun agreement.

On the pragmatic level, text length was computed in terms of the number of words and number of sentences written down. The graphic bases for segmenting text into sentences and sentences into words was also investigated. Furthermore, the appropriateness of pronominal reference in terms of correspondency between pronoun and referent was determined. Finally, we sought instances of code-switching.

Data were analysed to find out whether ethnic group differences occurred, and if so for which linguistic aspects. For each of the above linguistic measures t-test statistics were computed on the mean scores of both ethnic groups.

6.4.3 Results

Orthography. Table 6.11 presents the means, standard deviations and t-test statistics on the proportions of misspellings in both ethnic groups. Though Turkish children had proportionally more misspellings than Dutch children, the difference was not significant.

Closer inspection of the misspellings revealed that both groups of children generally based themselves on the graphonological regularities of Dutch. However, there were misspellings made by Turkish children that could be explained in terms of interference from Turkish orthography, such as in the following examples: *Turkiye* → *Türkye*, *terug* → *trüg*, *vriendje* → *vrience*, *thee* → *teey*, *garage* → *garace*, *stuur* → *stur*, *neefje* →

neevye. However, such spellings concerned only less than 5 percent of the total number of misspellings.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Proportion of misspellings	12.48	6.99	10.54	6.82	1.41	98	n.s.

Table 6.11: Means, standard deviations and t-test statistics of the proportion of misspellings by Turkish and Dutch children

Lexicon. In Table 6.12 the means, standard deviations and t-test statistics on several lexical measures are given. It can be seen that the difference in lexical diversity, as measured by type-token ratio, is significant for content words (TTRC), but not for function words (TTRF). Apparently, Dutch children are better than their Turkish peers in only one area: using content words. The results on the numbers of different word types point to the same conclusion. Moreover, from these numbers it can be seen that the difference in use of content words primarily concerns nouns. No significant differences between ethnic groups were found for the other categories of content words.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
TTRC	61.18	7.80	68.07	10.26	-3.24	75	<.01
TTRF	50.47	7.80	49.05	7.94	.79	75	n.s.
NDN	13.74	3.02	14.47	5.92	-2.62	65	<.01
NDV	11.53	2.93	11.00	3.03	.77	75	n.s.
NDA	1.94	1.61	1.60	1.33	1.00	75	n.s.
NDF	27.24	4.59	27.37	6.19	-.11	75	n.s.

Table 6.12: Means, standard deviations and t-test statistics of the type-token ratio for content words (TTRC) and function words (TTRF), and of the numbers of different types of nouns (NDN), verbs (NDV), adjectives (NDA), function words (NDF)

It is interesting to note that a limited number of lexical transfers were found in the compositions of the Turkish children, such as:

- (1) *Hij deed de televisie dicht*
(he closed the television)
- (2) *Toen ging de muis weer de radio open*
(then the mouse opened the radio again)

The verbs chosen in the above sentences show transfer from the Turkish verbs 'açmak' (to open) and 'kapatmak' (to close), which among others have the meaning of switching on and switching off apparatus.

Morpho-syntax. The means, standard deviations and t-test statistics on the syntactic measures mean length of utterances, proportion of subordinated clauses and proportion of word order deviations are presented in Table 6.13. It can be seen that with MLU and PSC, Dutch children obtained higher scores than Turkish children. However, the differences were not significant, although a tendency for significance was found for MLU ($p < .08$).

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
MLU	5.90	1.05	6.32	1.26	1.82	98	n.s.
PSC	3.54	4.96	4.33	6.46	-.69	98	n.s.
PWO	99.80	-.85	99.87	-.36	-.62	70	n.s.

Table 6.13: Means, standard deviations and t-test statistics of mean length of utterances (MLU), percentage of subordinated clauses (PSC) and percentage correct scores of word order (PWO)

The mean percentage correct scores on word order in the two ethnic groups reached 100. Both the Turkish and the Dutch children make almost no deviations on word order. The difference between ethnic groups on PWO) this measure was extremely small.

Table 6.14 presents the means, standard deviations and t-test statistics of the morphological measures under investigation. It can be seen that the mean proportion correct scores of the Turkish children were lower than those of Dutch children on all measures. For all measures but pluralization of nouns, the differences were statistically significant.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
Determiner	79.75	19.19	94.93	6.91	-5.08	63	<.001
Plur. Nouns	95.66	11.13	99.08	4.87	-1.68	46	n.s.
Pres. Tense	91.69	9.23	96.63	5.04	-3.35	80	<.001
Adj. - Noun	87.23	18.57	95.87	10.20	-2.20	43	<.01

Table 6.14: Means, standard deviations and t-test statistics on percent correct scores of determiner, pluralization of nouns, present tense conjugation of verbs and adjective-noun agreement.

Though the Turkish children made significantly more morphological errors than Dutch children, the error patterns of the former group turned out to be highly intralingual. First, omission and substitution of determiners have also been reported by Schaerlaekens (1981) with respect to the acquisition of Dutch as a first language. Second, many errors of conjugation of verbs were the result of an overgeneralization of rules, such as in the examples below (errors are underlined).

(3) *als ik komt*

(if I comes)

(4) *de ezel kreegt*

(the donkey gots)

(5) *dan neemde ik de krosfiets mee*

(then I taked the racing bike with me)

(6) *ik heb film gekijken*

(then I looked at the movie)

In a very limited number of cases we found morphosyntactic devices which could be accounted for by interference from Turkish, such as:

(7) *die meisje is van kendies heel goed vriendin*

(that girl is of Kendie's very good friend)

This example seems to be related to the Turkish genitive construction:

'su kız Kendi'nin çok hoş arkadaşı' (literally: that girl Kendie-GEN very good friend-Poss 3).

(8) wij gaan naar vakansi
(we go to holiday)

(9) we gaan naar visite
(we go and call to)

In both instances, the incorrect choice of preposition in Dutch seems be related to the use of the dative case in the Turkish expressions 'tatile gitmek' (literally: to go to holiday) and 'ziyarete gitmek' (literally: to call on someone).

Pragmatics. In Table 6.15 the means, standard deviations and t-test statistics of text length in terms of number of words and number of T-units over the two compositions are presented. It can be seen that the Dutch children produced longer texts than the Turkish children, though the differences in means were not significant.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
n of words	153.65	81.09	180.67	83.19	-1.64	98	n.s.
n of T-units	26.48	15.40	28.15	12.90	-.58	98	n.s.

Table 6.15: Means, standard deviations and t-test statistics of number of words an number of T-units over the two compositions.

With respect to segmentation of text into sentences, three types of markers were used by the children: initial capitals, periods and new lines. Within each ethnic group there was a rich variation in the use of these conventions. However, as is demonstrated in Table 6.16, the patterns of use in the two groups were scalable along the same dimension of acquisition.

Segmentation through			Turkish group	Dutch group
Periods	lines	capitals		
+	+	+	15	14
+	+	-	8	9
+	-	-	13	8
-	-	-	11	11
+	-	+	2	3
-	+	+	0	0
-	+	-	2	2
+	-	+	1	1

Table 6.16: Conventions in segmenting text into sentences by Turkish and Dutch children.

There is a strong indication that both Turkish and Dutch children start to segment text into sentences by using periods. In the next stage they also mark sentences by starting a sentence on a new line. In the third stage they also make use of capitals in segmenting text. About 91 percent of the segmentation strategies of the Turkish children and 88 percent of those of the Dutch children fitted into this pattern of acquisition.

With regard to errors in segmentation of sentences into words, no significant differences between ethnic groups were found. Table 6.17 presents the means, standard deviations and t-test statistics of segmentation errors.

	Turkish		Dutch		t	df	p
	mean	sd	mean	sd			
segmentation errors	1.17	1.77	1.08	1.38	.28	98	n.s.

Table 6.17: Means, standard deviations and t-test statistics of word segmentation errors.

Not only was the segmentation of sentences into words by the two ethnic groups comparable in a quantitative sense, but from a qualitative analysis of segmentation errors, it was found that Turkish and Dutch children use highly similar segmentation strategies. Three types of strategies could be distinguished. First, some children used a phonological strategy. While using this strategy, they sometimes failed to segment words, e.g.

- (10) *weetje dat*
(you-know that)

Such segmentation errors were especially frequent when in speech non-emphatic stress is used as in:

- (11) *ik zoekem wel*
(I will search-him)

- (12) *dan gaak*
(then I-go)

Other evidence for a phonological basis in segmenting of words was found in the segmentation of words into syllables, such as in the following examples: *va-kan-tie* (holidays), *kin-de-ren* (children), *ban-diet* (bandit).

The second strategy had a morphological basis. The use of this strategy results in the segmentation of complex words into morphemes. In some cases, nominal compositions were broken up into distinct nouns, such as in: *speel-tuin*, (playground), *zwem-bad* (swimmingpool), *stat-thuis* (city-hall). In other cases, grammatical morphemes were separated from word stems, such as in: *doot-ge-maakt* (killed), *danse-de beer* (dancing bear), *aan-kleden* (to dress).

The third strategy had a syntactic basis. While using this strategy children grouped words together which constitute a syntactic pattern. In most cases, nominal or prepositional constituents were grouped together, e.g.

DetN: *eenkeer* (one time)

AdjN: *grotevakansi* (summer holidays)

PrepN: *opstraat* (in the street)

PrepDetN: *opdebus* (on the bus).

In Table 6.18 the percentages of strategies derived from the segmentation errors are presented for both ethnic groups. It can be seen that in both ethnic groups segmentation errors were most frequently the result of a morphological strategy. About half of the errors had a morphological basis. Phonological strategies occurred in about thirty percent of the cases. Syntactic strategies were found in about fifteen percent of the segmentation errors.

	Turkish group	Dutch group
Phonological strategy	28	31
Morphological strategy	58	50
Syntactic strategy	14	19

Table 6.18: Distribution of strategies which underly children's errors in segmenting sentences into words.

With respect to the discourse structure, similar devices were applied in the two ethnic groups. Some children just enumerated mere facts they had been through. Others succeeded in binding episodes together in a story-like framework; in many cases the semantic connection between parts of the story was applied with the use of *dan* (then) as a temporal conjunction. Whereas the global discourse structure was highly comparable for the two ethnic groups, the texts of the Turkish children tended to be less cohesive than those of the Dutch children. A lesser degree of cohesiveness on the part of the Turkish children was evinced by an inferior use of discourse connectors. First, the incorrect use of determiners (see Table 6.14) obscured the theme-rheme progression of the text as is illustrated in the following example:

me oma hou van mij en ik hou van hem
 (my grandma loves me and I love him)

A second cohesive device which was problematic for the Turkish children concerned pronominal reference. We found 54 incorrect correspondences between pronoun and antecedent in the texts of Turkish children, as opposed to 2 in those of Dutch children.

A final pragmatic issue concerns code-switching in the Turkish children's texts. In earlier studies we found many instances of code-switching in the oral speech of the same children (Boeschoten & Verhoeven 1985, 1987; Verhoeven, 1987d). In the present study, however, we found written switchings to be very infrequent. This can be explained by the fact that writing involves more conscious planning than speech. Several instances were found in which the name of a country was used in Turkish, such as *Türkiye* (Turkey) and *Almanya* (Germany).

Quite incidentally, we found an instance of code-switching with an affective load such as in:

- (13) *in de vakantie kook mijn baba*
 (in holiday it is my father who prepares the food)

Only one child displayed intersentential switches between Turkish (underlined) and Dutch:

- (14) *Ik wil in de vaktie (vakantie) naar Türkaye gaan.*
Ben Türkiyede heb arkadaşlarıma okula giteceğim.
As(s) wij nog 39 nachtjes dan gaan wij naar Türkaye.
Al(s) wij vakansie heb ga ik naar zwembad en daar wil ik zwemmen
en ook mijn broer en zuz en mijn vader en ook oma.
Benimdayım ondansonra abim jüzmeye gitecez.
Mijn oma en opa is ale twee dood.

(This holiday I want to go to Turkey.

In Turkey I will go to school with my friends.

After 39 nights we will go to Turkey.

In our holiday I will go to a swimmingpool and I will swim right there,
 and also my brother and sister and my father and mother.

and also my brother and sister and my father and mother.

I am by myself and then we will go and swim with my brother.

My grandma and granddad both are dead.)

It appears that this child writes in Dutch when merely facts or plans are to be presented. However, when personal experiences in Turkey are to be expressed, a switch to Turkish is made. Thus the switches to Turkish could be seen as a stylistic device on the part of the child.

6.5 Conclusions and discussion

The results of the analyses of process constraints in reading aloud lead to the conclusion that both Turkish and Dutch children clearly make use of contextual information to facilitate word recognition. Moreover, a clear developmental

trend was found toward increased contextual facilitation. However, this trend was stronger for the Dutch children, indicating that with the progression of time Dutch children are more successful in using contextual cues than their Turkish peers. In addition to our earlier finding that Dutch children are more skilled in context-free word recognition (see 5.2), it can be concluded that Dutch children are also more efficient in using context. This fact of restricted use of context can be thought of as an important process characteristic in second language reading. With regard to first language reading, Stanovich, et. al. (1984) reported that the use of contextual information by less-skilled readers with a given level is fully commensurate with their context-free decoding skills.

In spite of the more limited efficiency of Turkish children in reading discourse, no substantial evidence of interlingual patterns in their misreadings came through. The analysis of misreadings revealed similar proportions of different types for Turkish and Dutch children. In general, it was found that children in both groups approach the text quite closely. Only slight differences in surface characteristics of reading processes appeared from their misreadings, indicating that Dutch children were more proficient in their use of context than their Turkish peers. Moreover, it was found that the level of text reading efficiency of the Turkish group correlated highly with the degree of contextual appropriateness of their misreadings. It can be tentatively argued that the ability of Turkish children to make use of context is dependent on the children's (oral) proficiency in Dutch. In the next chapter we will return to this argument.

With respect to self-corrections, it was found that Turkish children make more graphonological corrections than their Dutch peers. This fact can easily be explained from the larger number of decoding errors Turkish children make. No differences appeared in the numbers of grammatical and conceptual corrections made by the children. Apparently, the occurrence of such corrections has not yet become a productive means in reading behaviour in the initial stage of acquisition.

The results on reading comprehension development in Dutch as a second language can be summarized as follows. From a *temporal* point of view, Turkish children have a strikingly lower level of reading comprehension than Dutch children. Differences in scores on three different aspects of discourse comprehension measured at the end of the first grade appear to remain constant

over the second grade. From a *structural* point of view, the present part of the study shows that these differences can be explained by intralingual rather than interlingual developmental features on the part of the Turkish learners. First, on each task a fit of the Rasch model can be established. The estimations of item parameters on each task are equivalent in both ethnic groups. Furthermore, it is found that semantic complexity as measured in three different reading comprehension tasks does show comparable features in Turkish and Dutch children. Although Dutch children achieve higher scores on each of the tasks than Turkish children, the order of difficulty of semantic aspects within each of the three tasks is the same. The latter finding will now be discussed in more detail.

With respect to sequential principles of sentences in a text, the search for initial sentences proves to be easier than the search for final sentences for both groups of children. From a linguistic point of view, this can be explained by the fact that initial sentences in a text are generally marked by nominal reference, whereas in succeeding sentences often pronominal referents are used. From a cognitive point of view, it can be added that in the search for the last sentence of a text, the whole text must be understood. Initial sentences, on the other hand, can also be found on the basis of a partial understanding of the text.

Understanding reference to person, time or space proves to be easier than clausal and verbal reference for both Turkish and Dutch children. Linguistic devices that imply a relationship between anaphora and antecedent seem to have different impacts on the L1/L2 reading process. The fact that in the first stage of reading development clausal and verbal reference are relatively hard for children can tentatively be explained. In clausal reference it is necessary to understand which of the preceding events in the text forms the antecedent of an anaphoric term. This presupposes a high level of understanding of previous context. Verbal reference, on the other hand, can be seen as a specific syntactic device in the target language that is primarily used in written discourse. Owing to the high processing loads of the initial reading process, the association between this anaphoric type and its antecedent will only be learned with difficulty.

As to making inferences, both groups of children find presuppositions easier to understand than implications, and assertions easier than presuppositions. It seems that the more implicit items are harder to answer correctly than the more explicit ones. This finding corresponds to the more general finding that both

first and second language learners (Cummins, 1979) have more difficulty with reading as the text gets more decontextualized (see Scribner & Cole, 1981).

On the basis of these findings, it is claimed that in the initial stage of literacy acquisition L1/L2 reading comprehension processes have highly intralingual characteristics. In learning to read in a second language, it is the structure of the target language that accounts for various comprehension difficulties and *not* the structure of the source language.

With regard to the production of written discourse in Dutch by the end of the second grade, we found additional evidence of intralingual strategies on the part of the Turkish children. On the orthographic level, it was found that there were no significant differences in the number of misspellings in the compositions of Turkish and Dutch children. Moreover, the patterns of misspellings of the two ethnic groups turned out to be highly comparable. Only a very small proportion of the misspellings of Turkish children could be interpreted in terms of first language interference.

Furthermore, it was found that the lexical diversity in the texts of the Turkish children was somewhat smaller as compared with their Dutch peers. As regards the use of content words, especially nouns, the difference was significant. Only in a very limited number of cases did lexical transfer from the first language appear in the discourse of the Turkish children.

On the syntactic level, there was some evidence that the utterances produced by the Turkish children were somewhat shorter than those of the Dutch children. Striking differences were evidenced with respect to the children's use of morphological rules. It was found that the Turkish children produced significantly more deviations in the use of determiners, conjugation of verbs and adjective-noun agreement. However, there was good evidence that the deviations from the norm produced by the Turkish children are based on highly intralingual strategies. In many cases overgeneralization of rules occurred.

Evidence of intralingual strategies was also found on the pragmatic level. First of all, it appears that Turkish and Dutch children go through similar acquisitional patterns, both in segmenting discourse into sentences and in segmenting sentences into words. Segmentation of discourse into sentences proceeds from the use of periods, through the marking of separate rules to the application of capitals. On the other hand, segmentation of sentences into words seems to involve the mastery of operating principles regarding morphemic, phonological and syntactic boundaries in sentences. In addition, it was found

that the general discourse structure of the two groups is also highly comparable. However, two differences emerged. First, Turkish children had slight difficulties in using cohesive connectors. Second, in a very limited number of cases they made use of code-switching. If code-switching occurred, it seemed to be motivated by functional reasons such as giving emphasis.

In summary, in comparison with Dutch children, Turkish children appear to be less efficient in processing written discourse in Dutch. Especially in reading, Turkish children lag behind their Dutch peers. Turkish children are less efficient in using syntactic and semantic constraints for facilitating word recognition. However, the structure of processes of discourse comprehension and discourse production of Turkish and Dutch children appear to be highly comparable. There is little evidence of interlingual influences in the discourse processes of Turkish children. As such, the processes of discourse comprehension and discourse production in Dutch as a second language are based on highly intralingual strategies.

The results of the present part of the study conform to the results on lexical abilities in the former chapter. Both in lexical abilities and in discourse abilities in written Dutch, Turkish children generally show lower proficiency levels than Dutch children throughout the first two years of literacy instruction. However, the question remains how the less efficient literacy processes and the linguistic and socio-cultural background of the Turkish children interact during the different stages of acquiring literacy in Dutch as a second language. This question will be taken as a starting point in the next chapter.

Rate of Literacy Acquisition in a Submersion Context

The study described in the preceding chapters was designed to uncover differences between first and second language learners on a variety of literacy tasks. However, these findings contribute little information about the rate of literacy acquisition of ethnic minority children. In this chapter, an attempt is made to uncover the variables which determine the temporal variation in the literacy abilities of Turkish children during the first two grades of an L2 Dutch submersion approach to literacy instruction. As has been outlined in 4.1.3, in this context exclusive L2 literacy instruction is given starting in grade 1, with a maximum of 4 hours a week additional L1 literacy instruction starting in grade 2. Because writing instruction in the lower grades of Dutch primary schools is very limited, attention is given to the temporal variation of reading skills only.

In the first section, the present part of the study is introduced by discussing methodological considerations in the study of individual variation in literacy skills. The procedures of correlation analysis, multiple regression analysis and analysis of structural equation models, such as Lisrel, are compared. Moreover, the research questions and design of the present study are outlined. In section 2, a report is given of a study on temporal variation in reading comprehension in Dutch as a second language. In this study, the predictive power of various (meta)linguistic, social and nonverbal cognitive measures on L2 reading comprehension was determined by applying Lisrel. In the third section, the interdependency of L1 and L2 literacy skills is examined. Lisrel was used to find out to what extent reading skills which have been developed in L2 Dutch first, are transferable to comparable skills in L1. Section 4 presents a study on the background of first grade repeat in detail. In this study, the learner and background variables of the children who had to repeat the first grade was examined. In the final section, the results of the studies on literacy acquisition in a submersion context are discussed.

7.1 *Variation of literacy outcomes in a Dutch submersion context*

7.1.1 *Methodological considerations*

The temporal variation in literacy skills among minority children is examined by weighting the importance of underlying factors. In order to find out how different underlying factors explain the variation in literacy skills, several approaches are conceivable. Three approaches that are current in ongoing research are briefly discussed. Examples from earlier research are given as well.

One technique to uncover factors which explain temporal variation in complex skills such as reading and writing is correlational analysis. Evans (1979) and Carr & Evans (1982) reported on a study in which intercorrelations were calculated between first graders' reading comprehension in L1 and their results on various measures of verbal and nonverbal behaviour. They found that reading based measures (cloze-tests) and general cognitive measures revealed higher correlations with reading comprehension than oral proficiency measures. Correlational analysis was also used by Torrance & Olson (1984) in a study of the relationship between children's oral proficiency and their results on literacy tasks in L1. They found several aspects of oral proficiency to be related with the children's achievement in learning to read. However, in the studies just mentioned, two problems remain unsolved. First, a correlation only indicates a relationship between two variables without providing information about a causal direction in one way or the other. Second, temporal differences in literacy skills may well have multiple causes. The possibility of more complex multiple-factor theories must therefore be admitted.

2 A second technique in the study of temporal variation of literacy outcomes is multiple regression. This technique enables the user to predict literacy outcomes from a number of independent measures. Singer & Crouse (1981) collected independent measures of various operations of the L1 reading process in Turkish and Dutch fall strongly the direct measure of each operation related to a separate direct measure of overall reading skill on a criterion task. Inclusion of the subskill measures into a multiple regression equation indicated that vocabulary knowledge and cloze performance significantly contributed to the variance in reading comprehension scores. By examining how the remaining measures were related to the two direct predictors of comprehension, a hierarchically organized set of interdependencies among reading related skills was evinced. Furthermore, in many studies a multiple approach was followed to

determine the relative importance of various learner variables, learner background variables and educational variables. Williams (1981), Connor (1983) and Mace-Matluck, Hoover & Calfee (1984) did so with reference to the literacy outcomes of ethnic minority students. However, though in all of these studies the multiple regression technique was justified, two obvious limitations of multiple regression can be identified. One is that equations between dependent and independent variables can only be tested one by one and not as a hierarchical set. The other limitation concerns test selection. Because every variable is measured with one test only, the test to be selected must be valid.

3 A third technique in the study of temporal variation of literacy outcomes is analysis of structural equations. In this technique, hypotheses concerning the interaction between literacy measures and measures of other factors are formulated as a set of structural equations of covariances between variables which can be subsequently tested. Estimations of parameters of these equations as well as a test of goodness of fit can be done by application of Lisrel (Jöreskog & Sörbom, 1981). Lisrel not only offers the opportunity to evaluate the model's fit, it also enables the user to employ observed as well as latent variables. The latter argument makes it possible to measure the same underlying factor (component) with various tests. Thus, the approach allows one to include an unlimited number of tests so that an indication of the validity of the tests under consideration can be obtained. The theoretical principles of Lisrel will now be briefly described. For a more extensive account, see Jöreskog & Sörbom (1981).

In Lisrel the following second-order factor model is taken as a starting point:

$$\Sigma = \beta \Lambda \Phi \Lambda' \beta' + \theta^2$$

In this model, Σ represents the variance-covariance matrix for a set of componentially specific measures. β contains parameters of the measurement model, its rows corresponding to single measures, its columns to latent components. Λ represents the forms of component interaction through a set of structural equations, Φ the presence (or absence) of background correlations among components. Matrix θ^2 contains unique variance of the separate measures. By defining:

$$\Phi^* = \Lambda \Phi \Lambda'$$

the above equation can be stated as:

$$\Sigma = \beta \Phi^* \beta' + \theta^2,$$

being a first-order factor model that can be used in testing a hypothesized measurement model.

Frederiksen (1982) has outlined the above framework in a componential theory of L1 reading by analysing correlations among various subtasks of reading in a measurement model. According to Frederiksen, it is essential to specify the components or subskills of reading very accurately and, if possible, to make them operational in very specific tasks. Feenstra & Seegers (1985) conducted a Lisrel analysis on word reading by third graders, grouping 14 experimental tasks within 6 components. The model, based on Perfetti & Lesgold's verbal coding efficiency model, yielded a reasonable fit. Butler, Marsh, Sheppard & Sheppard (1985) claim that the time factor is extremely important in explaining differences in children's literacy behaviour. In a longitudinal analysis, they found fairly high path coefficients between a global reading factor through grades 1, 2 and 3. A similar conclusion was arrived at by Mommers, Van Leeuwe, Oud & Janssens (1986). They found that decoding speed, reading comprehension and spelling achievements at primary school are best predicted by the same achievements at an earlier stage.

7.1.2 Research questions and design

In section 7.2 a report is given of a study in which the reading comprehension results of Turkish children in Dutch at the end of the first and second grade are related to various learner and background variables. The Lisrel program was used. An attempt was made to uncover the reorganisation of predicting factors in L2 reading comprehension over time. First, groups of measures of the children's metalinguistic awareness, oral L1/L2 proficiency, cultural orientation and nonverbal cognitive skills were separately related to their L2 reading comprehension. Additionally, a multiple approach was followed, combining the predictors of L2 reading comprehension.

In section 7.3, the prediction of L1 reading skills at the end of the second grade is dealt with. By using Lisrel, it was first determined to what extent groups of measures of L2 reading skills, predict reading skills in L1 at the end of grade 2, after one year of additional instruction in L1 literacy (4 hours a

week) has been given.

In the next section (7.4), the background of first grade repeat classification was explored. By uncovering the factors which underly the fall-out of children at the end of grade 1, an attempt was made to evaluate the appropriateness of the submersion approach in teaching children how to read and write. Two research questions were posed. First, it was asked whether the classification of grade repeat relates to the children's cognitive growth or to their success in (oral and written) second language learning throughout the first grade. If the latter was the case, the L2 submersion approach could be judged inappropriate for at least a number of ethnic minority children under consideration. The second question asked to what extent first grade repeat could Turkish and Dutch fall onset of literacy instruction. This question aimed at discovering L2-related parameters which are strictly needed in order to be able to successfully pass the first grade in a L2 submersion context of literacy acquisition. As such, the minimum level of competence required for learning to read and write in a second language would be revealed.

In the final section (7.5) the results of the above mentioned studies are discussed.

In Figure 7.1 the design of the present study is given. Of the 74 Turkish children starting to learn to read and write in an L2 submersion programme, 11 were advised to repeat the first grade. Besides, 11 children left school by the end of grade 1 for other reasons (removal to another school, remigration). Thus, 55 children were under investigation during the second grade.

Figure 7.1: Schematic representation of the design of the study

7.2 Multiple predictors of Dutch reading comprehension

7.2.1 Materials

Reading measures. The scores of the Turkish children on the Coherence Task, the Anaphora Task and the Inference Task (see 6.3.1) were used as measures of reading comprehension in Dutch as a second language. Furthermore, word reading efficiency was measured by the scores of the children on the three lists of high frequency words derived from the Word Reading Task (see 5.2.1). Words with three different orthographic patterns were under consideration: monosyllabic CVC- and CC-words and bisyllabic words. Additionally, various independent measures were developed in order to assess the children's (meta)linguistic proficiency in Dutch and Turkish. For graphonological, lexical and morphosyntactic proficiency, separate measures were taken.

Graphonological measures. Graphonological proficiency in Dutch was measured by means of three tasks: phoneme discrimination, phonemic segmentation and knowledge of graphemes. The two latter tasks measure (meta)linguistic abilities which are closely related to literacy. In order to assess phoneme discrimination, a task was developed which requires children to distinguish between minimal pairs of Dutch phonemes. Word pairs had to be distinguished that differ in one phoneme, or in the position or number of phonemes (examples: *kas-kaas*, *dorp-drop*, *strik-stik*). After an aural presentation of a word pair by a native speaker on a taperecorder, children were asked to indicate whether the words are different or not. All together 50 word pairs were administered: 36 different and 14 identical word pairs. In the different word pairs, vowels were contrasted in 16 cases, and consonants in 10 cases; in the remaining 10 cases different phoneme distribution patterns were contrasted. The score on the Phoneme Discrimination Task was determined by the number of correctly discriminated items. An account of the reliability and validity of the task is given by Verhoeven & Vermeer (1984b, 1985).

For phonemic segmentation, a task was constructed in which 20 words of increasing orthographic complexity had to be split up into segments. A break-off was used after five words had been incorrectly segmented by the child. The score on the Phonemic Segmentation Task was based on the total number of correct items. The children's knowledge of graphemes was determined by means of the Dutch Grapheme Dictation Test (Caesar, 1975).

Appendix 5 gives a survey of all the items of the Dutch Phoneme Discrimination Task and of the Dutch Phonemic Segmentation Task.

Oral proficiency measures. On the lexical and morphosyntactic level, various elicitation tasks were used. Receptive and productive vocabulary tasks were given for measuring lexical proficiency and sentence imitation tasks were given for measuring morphosyntactic proficiency. An attempt was made to develop equivalent tasks for Turkish and Dutch. The use of the Turkish versions of these tasks will be discussed in Chapter 8.

The procedure for the construction of the vocabulary tasks was as follows. A corpus of 6785 Dutch words, evaluated by teachers on the criterion whether they thought that a particular word on the list, given in context, had to be understood by 6-year-old native Dutch children was taken as a starting point. This list was developed by Kohnstamm et al. (1981). First, the words on the list were placed in the order of teacher agreement ratings, from 100 to 30% agreement. For the first words nearly every teacher agreed that a 6-year-old should understand that word, whereas for the last words only 30% of the teachers thought so. Because the words are ordered according to a decreasing percentage of teacher agreement ratings, it is assumed that the words increase in difficulty. The second step was to randomly select 1 out of any 20 successive words on the list. Thus a shorter list, in terms of teacher agreement ratings also ranging from 100 to 30%, was arrived at. Moreover, culture specific words were excluded from the list, e.g. *kerk* (church), *kroket* (croquette). As a third step, Turkish equivalents were sought for all words on the final list. Dutch words which could only be expressed by a Turkish compound of two or more words were eliminated. A list of 326 Turkish words was the result. The fourth step was to hand this list to a group of 25 Turkish teachers working in Dutch schools with the request to mark the words they thought 6-year-old native Turkish children in The Netherlands could understand if presented in context. After the Turkish teachers had worked through the list, the words were ordered according to the their agreement ratings. Additionally, several words were removed from the list when they had a rating which was very different from the ratings of Dutch teachers. Most striking was the relatively high rating of tools by Dutch teachers in comparison with Turkish teachers. The final list of words was thought of as relatively culture-unbiased. Two samples of words were taken: 108 words for receptive vocabulary tasks and 80 words for productive vocabulary tasks in Turkish and Dutch. As a validity check, the ratings of Turkish and

Dutch teachers for the words in these samples were correlated. The correlations were .80 and .75 respectively. This result can be seen as support of the assumption that there was no strong cultural bias. As the final step, the tasks were constructed. For the receptive word tasks, four pictures were made for each word, one being the right referent of that word. The child was asked to point to the intended picture of the word presented. Because of the supposedly inscreasing difficulty of the items, a break-off point was used. For the productive vocabulary tasks, pictures of objects and actions were made which had to be referred to by the child. For each item to be completed by the child, the verbal stimulus "this is a" or "he is" was given by the test assistant. This procedure is similar to the Vocabulary Usage Test (Nation, 1972). In this task too, a break-off point was used. The internal consistency of the Turkish vocabulary tasks turned out to be reasonably good: KR-20 was .96 for the receptive task and .89 for the productive task. For information about the reliability of the Dutch version see Verhoeven & Vermeer (1984b, 1985). In Appendix 6 the words used in the receptive and productive vocabulary tasks in Turkish and Dutch are presented.

Morphosyntactic proficiency in Turkish and Dutch was measured by means of sentence imitation tasks. The content validity of such tasks has been claimed by Slobin (1970) and Van Helvert (1985). In each task, 24 sentences were offered in which a rich variation of grammatical morphemes and syntactic structures occurred. In order to control the relative complexity, the mean numbers of nominal and verbal groupings in the two tasks were held constant. In both tasks, any subsequent block of four sentences was semantically related to minimize artificiality. Moreover, sentence length was gradually increased in each block of four sentences. The child was asked to reproduce sentence by sentence. If no reaction was given, the sentence was repeated once. When a sentence was broken off half-way by the child, no repetition was given. After each block of four sentences, a short pause was provided. The morphosyntactic aspects under investigation in the two tasks were specified beforehand and fell into three subcategories: function words, word final markers and word order characteristics. The totals of correctly reproduced items determine the child's scores on the three categories. Both the items in the two sentence imitation tasks and the scoring method are presented in Appendix 7.

Besides the above tests, *spontaneous speech* was recorded and transcribed in Dutch by means of three different procedures: giving a spatial description and describing a series of events, both on the basis of pictures,

and some free conversation between the child and the interviewer. From the transcript, several parameters of Dutch language use were assessed. As a measure of lexical diversity in discourse the number of different content words occurring in 75 utterances was computed. The use of morphosyntactic devices was measured in two ways. First, the mean length of utterances (MLU) was computed by counting the number of words in the longest utterances (10% of each individual corpus) in Dutch. Second, the percentage of subordinating clauses over 150 utterances in Dutch was computed.

Socio-cultural measures. The children's *socio-cultural background* was assessed by a semi-structured interview with the parents which was done by the Turkish teacher in cooperation with the Dutch teacher in the children's homes. Two groups of questions were asked: questions about contact with Dutch in the family and questions about the parents' attitudes toward Dutch culture. The former questions concerned use of Dutch within the family (5), contact with Dutch-speaking persons outside the family (4) and use of Dutch media (2). The latter questions concerned the celebration of Dutch holidays (St. Nicholas, Christmas) and of birthdays, and the relevance of L2 acquisition. The questions in the interview and the scoring method are given in Appendix 2.1.

Three different procedures were developed to assess the *socio-cultural orientation* of the children. First, a scale was made for the teacher to rate four aspects of the children's contact with Dutch in and after school time. Second, a structured interview was done with the child in which the child's attitudes toward ten different aspects of daily life were examined: school, residence, food, language, play, music, books, television, friends at school and friends at home. Not only was the child asked whether he liked or disliked these aspects, but for each aspect, the relative preference of Dutch culture in comparison with Turkish culture was also asked for. All questions in the interview and the scoring method are also given in Appendix 2.2. Third, an attitude scale was used in which 12 stereotypes of Dutch culture had to be rated along a five-point-scale. This procedure was an adapted version of Broeder's (1984) Culture Attitude Scale. In this procedure, attitudes are measured by presenting children with graphic illustrations of symbols of every day life such as food, music instruments, famous persons in history, etc. The child reacts to these pictures by marking one of five faces on a 'happy-sad' Likert scale. In a booklet, Turkish and Dutch items were presented in random order by an experimenter outside the class. However, for this moment only the Dutch items

were scored. Previous research had shown that the cultural attitude scales are sufficiently reliable (de Bot, Broeder & Verhoeven, 1985; de Bot, Buster & Janssen-Van Dielen, 1985).

Cognitive measures. The Progressive Matrices Test of Raven (1965) was used to measure nonverbal cognitive skills.

7.2.2 Procedure

The Dutch Word Reading Task and reading comprehension tasks were administered at the end of grade 1 and at the end of grade 2. The administration of graphonological tasks took place at the start and at the end of grade 1. The oral L2 proficiency tasks and the measures for socio-cultural orientation were administered at the start and at the end of grade 1 and at the end of grade 2. The data on the children's socio-cultural background and the scores on the Raven test were collected at the end of the first grade only.

The Dutch reading comprehension tests were administered by the teacher in his classroom. The data about the children's socio-cultural background were collected by the Turkish teacher in cooperation with the Dutch teacher in the children's homes. All other data, except for the teachers' ratings, were collected outside the class by an experimenter, being a native speaker of Dutch. However, the instruction for the graphonological tasks was given in Turkish first by means of a tape-recorder.

A series of Lisrel programs, version VI (Jöreskog & Sörbom, 1981), was conducted in order to examine the temporal variation in Dutch reading comprehension during the first two grades. The differentiation of groups of factors which can be thought of as relevant in explaining variance in L2 literacy acquisition as discussed in Chapter 3 was taken as a starting point in designing the models. Two different options were taken. First, an evaluation was made of the extent to which the separate groups of factors could account for the variance in Dutch reading comprehension scores. As such, the determination of Dutch reading comprehension by ⁽¹⁾metalinguistic awareness, ⁽²⁾oral Dutch proficiency, ⁽³⁾socio-cultural factors and ⁽³⁾nonverbal cognitive skills was examined separately. With reference to oral proficiency in Dutch, two questions were investigated:

- (1) To what extent is reading comprehension predicted by lexical versus morphosyntactic abilities?
- (2) Do discourse related abilities add to the prediction of reading

comprehension by conceptual linguistic abilities as measured by tests?

The second option concerns the design of a general explanatory model of the variation in Dutch reading comprehension scores. Therefore a combination was made of the best predictors from the unifactor models mentioned before.

To run the Lisrel programs, the correlation matrices of the measured variables were taken as input. As far as possible, latent variables were used in the model designs. Furthermore, in designing the models, both cross-sectional and longitudinal effects were included. The factor time was of great influence in fixing the designs, because variables later in time cannot be presumed to influence variables earlier in time. Model fit was evaluated by means of the maximum likelihood method (Jöreskog & Sörbom, 1981; Saris & Stronkhorst, 1984). Given the relatively small number of informants in the light of the number of variables, the demand of non-significance of χ^2 -measures was not made. Instead, model fit is evaluated by a series of observations, such as:

- check of the ratio between the χ^2 -value and the number of degrees of freedom (2.0 is taken as a maximum value);
- control of the numerical values of the modification indices for the matrices of lambda y and of beta;
- check of the lambda values constituting the latent components;
- goodness-of-fit index for the model under consideration: a numerical value of .80 would be judged reasonable.

7.2.3 Results

In section 5.2, it was found that Turkish children at the end of grade 1 and grade 2 demonstrated a rich variation in Dutch word reading efficiency. The same conclusion was arrived at with regard to the children's Dutch reading comprehension scores in section 6.3. In the present part of the study an explanation is sought for this variation in L2 reading results. After examining the predictive power of separate factors, a general explanatory model of L2 reading results will be presented.

Metalinguistic awareness. In Table 7.1 the measurement model for the explanation of the variation in Dutch reading comprehension scores during the first two grades of primary school by the factor of metalinguistic awareness is given. The intended measures, the experimental tasks and the componential

specificity are presented.

Intended measure	Experimental task	Component
Dutch phoneme discrimination M1 (DPD1)	Phoneme discrimination (PD)	I
Dutch metalinguistic abilities M1 (DMA1)	Grapheme dictation (GD)	II
	Phonemic segmentation (PS)	II
Dutch phoneme discrimination M2 (DPD2)	Phoneme discrimination (PD)	III
Dutch metalinguistic abilities M2 (DMA2)	Grapheme dictation (GD)	IV
	Phoneme segmentation (PS)	IV
Dutch word reading efficiency M2 (DWRE2)	CVC-patterns (CVC)	V
	CC-patterns (CC)	V
	Bisyllabic patterns (BIS)	V
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	VI
	Anaphora comprehension (AC)	VI
	Inference comprehension (IC)	VI
Dutch word reading efficiency M3 (DWRE3)	CVC-patterns (CVC)	VII
	CC-patterns (CC)	VII
	Bisyllabic patterns (BIS)	VII
Dutch reading comprehension M3 (DRC3)	Coherence comprehension (CC)	VIII
	Anaphora comprehension (AC)	VIII
	Inference comprehension (IC)	VIII

Table 7.1: Intended measures, experimental tasks and specified components in a structural model of Dutch reading comprehension on metalinguistic awareness

The 18 experimental tasks in Table 7.1 constitute a measurement model in which 8 components are postulated: Dutch phoneme discrimination at M1 and M2, Dutch metalinguistic abilities at M1 and M2, Dutch word reading efficiency at M2 and M3 and Dutch reading comprehension at M2 and M3. The hypothesized componential structure was defined by fixing for each component the first experimental task mentioned in Table 7.1 at 1 and by giving the subsequent tasks a free parameter λ to be estimated.

The hypothesized intercorrelation matrix is expressed in the following set of structural equations:

$$MA1 = \beta_{21}DPD1$$

$$DPD2 = \beta_{31}DPD1$$

$$MA2 = \beta_{42}MA1$$

$$DWRE2 = \beta_{43}MA2$$

$$DWRE3 = \beta_{54}DWRE2$$

$$DRC2 = \beta_{65}DWRE2$$

$$DRC3 = \beta_{86}DWRE3 + \beta_{87}DRC2$$

Thus, it is hypothesized that besides the longitudinal effects on phonemic discrimination, metalinguistic abilities, word reading efficiency and reading comprehension in Dutch, several cross-sectional influences play a role as well. First, the development of metalinguistic abilities is considered to be influenced by the children's ability in phoneme discrimination. Furthermore, the development of word reading efficiency is expected to be influenced by the children's metalinguistic abilities. Word reading efficiency is likewise considered to be a predictor of reading comprehension.

The tests of fit of the present model yielded $\chi^2(128) = 176.18$, $p = .003$; the goodness-of-fit index is .75. Given the ratio between the χ^2 -value and the number of degrees of freedom, the fit can be called reasonable. We found one indication in the modification indices to change the model: by presuming an additional effect from DPD2 on DRC2. Incorporating this effect, we arrived at a goodness-of-fit value of .76 with $\chi^2(127) = 168.79$, $p = .008$. The final model is given in Figure 7.2. The circles represent the intended measures, the squares represent the experimental tasks. The arrows indicate causal direction in the relationship between intended measures. Along with the arrows, the resulting beta-coefficients are given.

It can be seen that the experimental tasks generally give a good indication of the measures intended. With respect to the causal relationships between intended measures, several striking findings appear. From a longitudinal point of view, it is clear that the children's metalinguistic abilities at the onset of literacy instruction have hardly any predictive power for similar abilities after one year of literacy instruction. The other longitudinal relationships of intended measures are moderate (for phonemic discrimination and reading comprehension) or strong (for word reading efficiency).

From a cross-sectional point of view, we find phonemic discrimination to be a substantial predictor of metalinguistic abilities, and of reading comprehension. Furthermore, metalinguistic abilities are strong predictors of the children's word reading efficiency, which in turn predicts reading comprehension. Given the present model, 64 percent of the individual variation in reading comprehension after one year of instruction is explained, 63 percent after two years of instruction.

Figure 7.2: Standardized solution for measurement and structural models specifying the relationship between metalinguistic abilities and reading comprehension in L2 Dutch

L2 oral proficiency. Several componential analyses were conducted in order to examine the causal relationship between oral Dutch proficiency and oral Dutch reading comprehension. First, it was necessary to determine whether the prediction of L2 reading comprehension by tests measuring knowledge-oriented aspects of L2 oral proficiency could be improved by adding parameters of L2 use-oriented aspects of the same proficiency in the structural analysis. Such analyses were separately done for lexical and morphosyntactic measures. With respect to lexical measures the intended measure of Dutch lexical use was examined to see if it would add any predictive value to the determination of Dutch reading comprehension by Dutch lexical knowledge. The measurement model

for this analysis is presented in Table 7.2.

Intended measure	Experimental Task	Component
Dutch lexical knowledge M1 (DLK1)	Receptive vocabulary (RV)	I
	Productive vocabulary (PV)	I
Use of Dutch lexicon M1 (UDL1)	N different content words (DCW)	II
Dutch lexical knowledge M2 (DLK2)	Receptive vocabulary Task (RV)	III
	Productive vocabulary Task (PV)	III
Use of Dutch lexicon M2 (UDL2)	N different content words (DCW)	IV
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	V
	Anaphora comprehension (AC)	V
	Inference comprehension (IC)	V
Dutch lexical knowledge M3 (DLK3)	Receptive vocabulary Task (RV)	VI
	Productive vocabulary Task (PV)	VI
Use of Dutch lexicon M3 (UDL3)	N different content words (DCW)	VII
Dutch reading comprehension M3 (DRC3)	Coherence comprehension (CC)	VIII
	Anaphora comprehension (AC)	VIII
	Inference comprehension (IC)	VIII

Table 7.2: Intended measures, experimental tasks and specified components in a structural model of Dutch reading comprehension on Dutch measures of lexical proficiency

For all intended measures, the first tasks mentioned were fixed at 1, while the other tasks were given the free parameter λ . The set of structural equations constituting the regression model is as follows:

$$UDL1 = \beta_{21}DLK1$$

$$DLK2 = \beta_{31}DLK1$$

$$UDL2 = \beta_{42}UDL1 + \beta_{43}$$

$$DRC2 = \beta_{53}DLK2 + \beta_{54}UDL2$$

$$DLK3 = \beta_{63}DLK2$$

$$UDL3 = \beta_{74}UDL2 + \beta_{76}DLK3$$

$$DRC3 = \beta_{85}DRC2 + \beta_{86}DLK3 + \beta_{87}UDL3$$

The fourth and the seventh equation are of special interest. From these equations evidence was sought for the additional predictive value of the measure of Dutch lexical use in the regression equation of Dutch reading comprehension on Dutch vocabulary knowledge. For the present model, a test of fit yielded

$\chi^2(81) = 118.93$, $p=.004$, with a goodness-of fit index of .79. The model is presented in Figure 7.3.

Figure 7.3: Standardized solution for the measurement and structural models specifying the relationship between lexical abilities and reading comprehension in L2 Dutch

It can be seen that the present model does not allow Dutch vocabulary use to play any significant role in the prediction of Dutch reading comprehension after Dutch vocabulary knowledge as a predictor has been fixed.

With regard to syntactic measures, the additional predictive value of (morpho)syntactic parameters in Dutch language use to the regression of Dutch reading comprehension on syntactic knowledge parameters was sought. In Table 7.3 the measurement model for this analysis is presented.

Intended measure	Experimental Task	Component
Dutch syntactic knowledge M1 (DSK1)	Function words (FW)	I
	Word-final markers (WFM)	I
	Word order (WO)	I
Use of Dutch syntax M1 (UDS1)	Prop. subordinated clauses (PSC)	II
Dutch syntactic knowledge M2 (DSK2)	Function words (FW)	III
	Word-final markers (WFM)	III
	Word order (WO)	III
Use of Dutch syntax M2 (UDS2)	Prop. subordinated clauses (PSC)	IV
	MLU	IV
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	V
	Anaphora comprehension (AC)	V
	Inference comprehension (IC)	V
Dutch syntactic knowledge M3 (DSK3)	Function words (FW)	VI
	Word-final markers (WFM)	VI
	Word order (WO)	VI
Use of Dutch syntax M3 (UDS3)	Prop. subordinated clauses (PSC)	VII
	MLU	VII
Dutch reading comprehension M3 (DRC3)	Coherence comprehension (CC)	VIII
	Anaphora comprehension (AC)	VIII
	Inference comprehension (IC)	VIII

Table 7.3: Intended measures, tasks and specified components in a structural model of Dutch reading comprehension on Dutch syntactic proficiency

For all intended measures, the first tasks mentioned were fixed at 1; the other tasks were given the free parameter λ . The structural model is expressed by the following set of equations:

$$UDS1 = \beta_{21}DSK1$$

$$DSK2 = \beta_{31}DSK1$$

$$UDS2 = \beta_{42}UDS1 + \beta_{43}DSK2$$

$$DRC2 = \beta_{53}DSK2 + \beta_{54}UDS2$$

$$DSK3 = \beta_{63}DSK2$$

$$UDS3 = \beta_{74}UDS2 + \beta_{76}DSK3$$

$$DRC3 = \beta_{85}DRC2 + \beta_{86}DSK3 + \beta_{87}UDS3$$

Again, the fourth and the seventh equation are of primary concern. These equations may give an answer to the question of additional predictive value of parameters of syntactic use to the determination of Dutch reading comprehension by parameters of syntactic knowledge. The present model yielded a test of fit

with $\chi^2(177) = 340.67$, $p < .001$, with a goodness-of-fit of .65.

Figure 7.4: Standardized solution for measurement and structural models specifying the relationships between syntactic abilities and reading comprehension in L2 Dutch

It is clear that use of Dutch syntax contributes little to the prediction of Dutch reading comprehension after knowledge of Dutch syntax as a predictor has been considered.

From the analyses conducted so far, it can be concluded that proficiency measures of oral Dutch are significant predictors of Dutch reading comprehension. However, if knowledge-oriented parameters of oral proficiency are taken as initial predictors, use-oriented parameters of the same proficiency do not add to the prediction in any substantial way. Therefore, in the structural analysis of the multiple contribution of lexical and syntactic abilities on Dutch reading comprehension, a restriction will be made to the parameters mentioned first. The measurement model for this analysis is presented in Table 7.4.

Intended measure	Experimental Task	Component
Dutch lexical knowledge M1 (DLK1)	Receptive vocabulary (RV)	I
	Productive vocabulary (PV)	I
Dutch syntactic knowledge M1 (DSK1)	Function words (FW)	II
	Word-final markers (WFM)	II
	Word order (WO)	II
Dutch lexical knowledge M2 (DLK2)	Receptive vocabulary (RV)	III
	Productive vocabulary (PV)	III
Dutch syntactic knowledge M2 (DSK2)	Function words (FW)	IV
	Word-final markers (WFM)	IV
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	V
	Anaphora comprehension (AC)	V
	Inference comprehension (IC)	V
Dutch lexical knowledge M3 (DLK3)	Receptive vocabulary (RV)	VI
	Productive vocabulary (PV)	VI
Dutch syntactic knowledge M3 (DSK3)	Function words (FW)	VII
	Word-final markers (WFM)	VII
	Word order (WO)	VII
Dutch reading comprehension M3 (DRC3)	Coherence comprehension(CC)	VIII
	Anaphora comprehension(AC)	VIII
	Inference comprehension(IC)	VIII

Table 7.4: *Intended measures, experimental tasks and specified components in a structural model of Dutch reading comprehension on Dutch knowledge-oriented measures of Dutch oral proficiency*

For all intended measures, the first tasks mentioned were fixed at 1, while the other tasks were given the free parameter λ . The set of equations constituting the structural model is presented below.

$$DLK2 = \beta_{31}DLK1$$

$$DSK2 = \beta_{42}DSK1$$

$$DRC2 = \beta_{53}DLK2 + \beta_{54}DSK2$$

$$DLK3 = \beta_{63}DLK2$$

$$DSK3 = \beta_{74}DSK2$$

$$DRC3 = \beta_{85}DRC2 + \beta_{86}DLK3 + \beta_{87}DSK3$$

For the present model, the test of fit yielded $\chi^2(177) = 263.72$, $p < .001$, with a goodness-of-fit index of .70. Given the ratio between the χ^2 -value and the number of degrees of freedom, the model fit can be called reasonable. The causal

relationships between oral L2 proficiency parameters and L2 reading comprehension is given in Figure 7.5.

Figure 7.5: Standardized solution for measurement and structural models specifying the relationships between oral language proficiency and reading comprehension in L2 Dutch

Several striking results emerge. First, it is clear that the longitudinal effects of the parameters of lexical knowledge and syntactic knowledge are very strong. The longitudinal effect of L2 reading comprehension, on the other hand, is only moderate. At the second moment of measurement, 27 percent of the variance in L2 reading comprehension ability is explained by the variables lexical knowledge ($\beta=.21$) and syntactic knowledge ($\beta=.36$). At the final moment of testing the total percentage of variance explained is .69. By that time the predictive power of syntactic knowledge is very high ($\beta=.59$), which seems to be at the cost of the predictive power of lexical knowledge ($\beta=.05$).

It can be concluded that L2 oral proficiency is a significant predictor of L2 reading comprehension. Knowledge-oriented parameters of L2 oral proficiency

appear to function as the basic predictors of L2 reading comprehension. After these parameters have been taken into account in the regression equation, the predictive power of use-oriented parameters of oral proficiency is zero. Knowledge of syntax appears to be the best predicting oral proficiency measure of L2 reading comprehension at the two moments of measurement; lexical knowledge is only a significant predictor of L2 reading comprehension at moment 2.

Social factors. Table 7.5 presents the measurement model accompanying the componential analysis with social factors as predictors of Dutch reading comprehension.

Intended measure	Experimental task	Component
Socio-cultural background (SCB)	Language contact family (LCF)	I
	Parent cultural attitudes (PCA)	I
Cultural orientation M1 (CO1)	Language contact school (LCS)	II
	Child attitudes daily life (CAD)	II
Cultural orientation M2 (CO2)	Language contact school (LCS)	III
	Child attitudes daily life (CAD)	III
Dutch reading comprehension (DRC2)	Coherence comprehension (CC)	IV
	Anaphora comprehension (AC)	IV
	Inference comprehension (IC)	IV
Cultural orientation M3 (CO3)	Language contact school (LCS)	V
	Child attitudes daily life (CAD)	V
Dutch reading comprehension (DRC3)	Coherence comprehension (CC)	VI
	Anaphora comprehension (AC)	VI
	Inference comprehension (IC)	VI

Table 7.5: *Intended measures, experimental tasks and specified components in a structural model of Dutch reading comprehension on social factors*

The hypothesized componential structure was set by fixing the first task at 1 for each component; subsequent tasks were given the free parameter λ . The set of equations constituting the structural model is presented below.

$$CO1 = \beta_{21}SCB$$

$$CO2 = \beta_{31}SCB + \beta_{32}CO1$$

$$DRC2 = \beta_{43}CO2$$

$$CO3 = \beta_{51}SCB + \beta_{53}CO2$$

$$DRC3 = \beta_{64}DRC2 + \beta_{65}CO3$$

In other words, it is hypothesized that the orientation of children toward Dutch culture is influenced by the children's socio-cultural background. At the same time, it is expected that the cultural orientation of children is more or less stable over time and influences the acquisition of Dutch reading comprehension.

For the present model, the test of fit yielded $\chi^2(69) = 79.32, p=.19$ with a goodness-of-fit of .84. However, the β -coefficient for the relationship between socio-cultural background and socio-cultural orientation at moment 3 and for the one between cultural orientation and reading comprehension at moment 2 were near 0. The resulting causal model for the relationship between social factors and Dutch reading comprehension in which the above mentioned relationships are left out is represented in Figure 7.6. The model $\chi^2(71) = 79.93, p=.22$ with a same goodness-of-fit measure (.84).

Figure 7.6: Standardized solution for measurement and structural models specifying the relationships between socio-cultural factors and reading comprehension in L2 Dutch

The experimental tasks express the intended measures reasonably well. Furthermore, it can be seen that the longitudinal effects for the variables cultural orientation and reading comprehension are quite strong. Moreover,

socio-cultural background has a moderate influence on the children's socio-cultural orientation at the moments 1 and 2. At the same time, the children's socio-cultural orientation moderately affects their reading comprehension in Dutch at moment 3 only. The conclusion is that the socio-cultural orientation of children, being partly influenced by their background, starts to be a causal factor of Dutch reading comprehension at the end of the second grade.

Nonverbal cognitive skills. In Table 7.6 the measurement model for the prediction of L2 Dutch reading comprehension is given in terms of the children's nonverbal cognitive skills.

Intended measure	Experimental task	Component
Nonverbal cognitive skill (IQ)	Progressive Matrices (PM)	I
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	II
	Anaphora comprehension (AC)	II
	Inference comprehension (IC)	II
Dutch reading comprehension M3 (DRC3)	Coherence comprehension (CC)	III
	Anaphora comprehension (AC)	III
	Inference comprehension (IC)	III

Table 7.6: *Intended measures, experimental tasks and specified components in a structural model of Dutch reading comprehension on nonverbal cognitive skill*

For the components of reading comprehension, the first experimental task was fixed at 1; subsequent tasks were given the free parameter λ . The set of structural equations constituting the present model is as follows:

$$DRC2 = \beta_{21}IQ$$

$$DRC3 = \beta_{31}IQ + \beta_{32}DRC2$$

The present model assumes nonverbal cognitive skill to be a causal factor in the acquisitional process of Dutch reading comprehension. Its tests of fit yielded $\chi^2(12) = 20.39$, $p=.06$ with a goodness-of-fit of .91. The β -coefficient for the relationship between nonverbal skills and reading comprehension at moment 3 was negligible low. Leaving this relationship aside, the model can be expressed as follows (see Figure 7.7).

Figure 7.7: Standardized solution for measurement and structural models specifying the interrelationship between nonverbal cognitive skill and reading comprehension in L2 Dutch

For this model we found $\chi^2(13) = 20.56$, $p = .08$ with the same goodness-of-fit index (.91). Besides the strong longitudinal effect of Dutch reading comprehension from moment 2 to moment 3, nonverbal cognitive skill was found to be a moderately strong predictor of Dutch reading comprehension at moment 2 with no substantial additional influence of the same factor at moment 3.

Towards a general explanatory model. So far an indication has been given about the causal relationship between separate groups of learner and background variables and Dutch reading comprehension in Dutch as a second language. In the present section, an attempt will be made to examine the relative contribution of all previously mentioned factors to the variation of the children in Dutch reading comprehension. However, in order to reduce the total number of variables, two measures were taken. First, the intended measures which in the preceding analyses only displayed an indirect influence on L2 reading comprehension were left aside. As such, the measures of L2 phoneme discrimination, L2 metalinguistic abilities and socio-cultural background were skipped. Second, for all intended measures, except for L2 reading comprehension, the maximum number of experimental tasks was fixed at 2. In Table 7.7 the measurement model for the multiple prediction of L2 reading comprehension is presented.

For all intended measures the first task mentioned was fixed at 1, the remaining tasks were given the free parameter λ . The set of structural equations constituting the explanatory model is presented below.

$$DSK1 = \beta_{24}SCO1$$

$$DLK1 = \beta_{34}SCO1$$

$$DRC2 = \beta_{61}IQ + \beta_{65}DWRE + \beta_{67}DSK2 + \beta_{68}DLK2$$

$$\text{DSK2} = \beta_{72}\text{DSK1}$$

$$\text{DKL2} = \beta_{83}\text{DLK1}$$

$$\text{SCO2} = \beta_{94}\text{SCO1}$$

$$\text{DWRE3} = \beta_{10'5}\text{DWRE2} + \beta_{10'13}\text{DLK3}$$

$$\text{DRC3} = \beta_{11'6}\text{DRC2} + \beta_{11'10}\text{DWRE3} + \beta_{11'12}\text{DSK3} + \beta_{11'14}\text{SCO3}$$

Intended measure	Experimental task	Component
Nonverbal cognitive skill (IQ)	Progressive Matrices (PM)	I
Dutch syntactic knowledge (DSK1)	Function words (FW)	II
	Word-final markers (WFM)	II
Dutch lexical knowledge M1 (DL1)	Receptive vocabulary (RV)	III
	Productive vocabulary (PV)	III
Socio-cultural orientation M1 (SCO1)	Language contact school (LCS)	IV
	Child attitudes daily life (CAD)	IV
Dutch word reading efficiency M2 (DWRE2)	CVC-patterns (CVC)	V
	Bisyllabic patterns (BIS)	V
Dutch reading comprehension M2 (DRC2)	Coherence comprehension (CC)	VI
	Anaphora comprehension (AC)	VI
	Inference comprehension (IC)	VI
Dutch syntactic knowledge M2 (DSK2)	Function words (FW)	VII
	Word-final markers (WFM)	VII
Dutch lexical knowledge M2 (DLK2)	Receptive vocabulary (RV)	VIII
	Productive vocabulary (PV)	VIII
Socio-cultural orientation M2 (SCO2)	Language contact school (LCS)	IX
	Child attitudes daily life (CAD)	IX
Dutch word reading efficiency M3 (DWRE3)	CVC-patterns(CVC)	X
	Bisyllabic patterns (BIS)	X
Dutch reading comprehension M3 (DRC3)	Coherence comprehension (CC)	XI
	Anaphora comprehension (AC)	XI
	Inference comprehension (IC)	XI
Dutch syntactic knowledge M3 (DSK3)	Function words (FW)	XII
	Word-final (WFM)	XII
Dutch lexical knowledge M3 (DLK3)	Receptive vocabulary (RV)	XIII
	Productive vocabulary (PV)	XIII
Socio-cultural orientation M3 (SCO3)	Language contact school (LCS)	XIV
	Child attitudes daily life (CAD)	XIV

Table 7.7: Intended measures, experimental tasks and specified components for the general explanatory model of Dutch reading comprehension

Figure 7.8: Standardized solution for measurement and structural models specifying the general explanatory model of reading comprehension in L2 Dutch

The present model examines the combined influence of word reading efficiency, oral L2 proficiency and socio-cultural attitudes on L2 reading comprehension throughout the first two grades. Model test yielded $\chi^2(356) = 454.39$, $p < .001$ with a goodness-of-fit index of .69.

The modification indices gave no indication of a need to alter the present model. Given the ratio between number of degrees of freedom and the numerical χ^2 -value, the model fit can be called quite reasonable. The relatively low goodness-of-fit index can be explained by the large number of variables included. In Figure 7.8 the final model is represented.

It can be seen that the intended measures are represented very well by the experimental tasks under consideration. With respect to the causal relationships involved, it can be seen that the longitudinal effects for the measures of word reading efficiency, oral L2 proficiency and socio-cultural orientation are very strong. Furthermore, it can be seen that reading comprehension at the two moments of measurement are differentially explained. At the end of first grade, 67 percent of the variance in L2 reading comprehension abilities is explained by the factors L2 word reading efficiency and L2 oral proficiency, as expressed by the intended measures of Dutch syntax knowledge and Dutch lexical knowledge. However, the influence of the former measure is highest. At the end of grade 2, again two-thirds of the variance of L2 reading comprehension abilities is explained. By this time the explanatory power of L2 word reading efficiency is somewhat lower as a result of the inclusion of some other variables. First, the influence of L2 oral proficiency measures becomes more important. There is a strong direct effect of syntactic knowledge whereas there is an indirect effect of lexical knowledge, which influences L2 word reading efficiency. In addition, L2 reading comprehension is influenced by the attitudes children have developed towards the majority language and the majority culture. It seems that at the end of grade 2 children have reached a sufficient level of automaticity in word reading so that attention can be freed for top-down processing and social factors can become more influential.

7.3 Interdependency between L1/L2 reading skills

7.3.1 Materials

In order to investigate the children's reading comprehension in Turkish, a task was developed which is comparable to the Coherence Task in Dutch (see

6.3.1). Twenty mini-stories consisting of four Turkish sentences were written. In the Turkish Coherence Task, the sentences in the mini-stories are presented in an illogical sequence. In half of the 20 mini-stories, children are asked to point to the initial sentence of the story; in the other half, the last sentence is asked for. In Figure 7.9 two examples of items of the Turkish Coherence Task are given.

<p>1. Hangi cümle başa gelmeli?</p> <p>A Pencere kırıldı.
B Oğlanlar kaçtı.
C Kızgın bir adam evinden çıktı
D Oğlanlar sokakta top oynuyordu.</p> <p>2. Hangi cümle sona gelmeli?</p> <p>A Nenesine mektup yazıyor
B Ayşe masa önünde oturuyor.
C Posta kutusuna atıyor.
D Mektubu zarfa koyuyor.</p> | <p>1. Cross the initial sentence of this story.</p> <p>A A window was broken
B The boys ran away
C An angry man came out of his house
D The boys were playing football down the street.</p> <p>2. Cross the last sentence of this story</p> <p>A She is writing a letter to her granny.
B Ayşe is sitting at the table
C She throws it in the mailbox
D She puts a stamp on the envelop</p> |
|---|---|

Figure 7.9: Two items of the Turkish Coherence Task (on the right an adapted version in English is given)

In order to assess the children's word reading efficiency in Turkish, a word reading task was developed to be read out loud. The task included three lists of 20 isolated Turkish words which were presented on separate cards. The words on the lists were all meaningful, but differed in length and orthographic complexity. A distinction was made between three distributional patterns: monosyllabic CVC-patterns, monosyllabic CC-patterns and bisyllabic words. The selection was restricted to the domain of nouns. For the selection of CVC-patterns the occurrence of all vowels in Turkish was taken as a starting point. These vowels were combined with consonants in all word initial and word final positions. In the selection of words with consonant clusters, words with word final clusters prevailed. However, several current loan words with word initial clusters were added as well. In the list of bisyllabic words, we also included the grapheme *g* in word medial position. A complete survey of the words on the three lists is given in Appendix 3.2.

Reading comprehension in Dutch was assessed by the children's scores on the Coherence Task, the Anaphora Task and the Inference Task (see 6.3.1).

Dutch word reading efficiency was measured by the children's scores on the three lists of high-frequency words from the Word Reading Task, i.e. monosyllabic CVC- and CC-patterns and bisyllabic words.

7.3.2 Procedure

All data were collected at the end of the second grade. By that time the children had received Turkish literacy instruction in Dutch for two years and additional literacy instruction in Turkish (3-4 hours a week) for one year.

The Turkish reading comprehension task was administered by the Turkish teacher in his classroom. He used a Turkish version of the instructions for the Dutch Coherence Task (see 6.6.2). The reading comprehension tasks in Dutch were administered by the Dutch classroom teacher (see 6.6.2). The Turkish Word Reading Task was administered by a Turkish-speaking experimenter. The administration procedure of the task conformed to that of the Dutch Word Reading Task (see 5.2.2). After the Turkish Word Reading Task had been conducted, word reading efficiency measures were calculated by computing per word list the number of words which had been correctly read in one minute. Similar measures were calculated for the word lists read from the Dutch Word Reading Task.

To investigate the interdependency of L1 and L2 reading skills Turkish reading at the end of grade 2, Lisrel was used. It was hypothesized that literacy skills acquired in L2 would be transferable to comparable skills in L2. Thus, causal effects of L2 word reading efficiency to L1 word reading efficiency and of L2 reading comprehension to L1 reading comprehension were expected to be the case.

7.3.3 Results

Table 7.8 presents the means and standard deviations of the Turkish children on the Turkish Word Reading Task and the Turkish Coherence Task administered at the end of grade 2. The internal consistency of the Turkish Coherence Task proved to be reasonable: KR-20 had a numerical value of .80, whereas all item-total correlations exceeded .30.

	mean	sd
Turkish Word Reading Efficiency		
- CVC-patterns	36.23	17.79
- CC-patterns	23.52	13.36
- bisyllabic patterns	24.88	14.28
<hr/>		
Turkish Coherence Task	14.10	4.15

Table 7.8: Means and standard deviations of the Turkish children on word reading efficiency and reading comprehension in Turkish at the end of grade 2

An attempt will now be made to find an explanation for the variance in the children's scores on the Turkish literacy tasks in terms of their scores on comparable tasks in Dutch. It was hypothesized that the underlying (metalinguistic) abilities in L2 literacy skills acquired by the Turkish children during the first two grades would be transferable to L1 literacy skills. As such, L1 and L2 literacy skills were thought to be interdependent. This interdependency was expressed in a measurement model of Lisrel which is presented in Table 7.9.

Intended measure	Experimental task	Component
Dutch word reading efficiency (DWRE)	CVC-patterns (CVC)	I
	CC-patterns (CC)	I
	Bisyllabic patterns (BIS)	I
Turkish word reading efficiency (TWRE)	CVC-patterns (CVC)	II
	CC-patterns (CC)	II
	Bisyllabic patterns (BIS)	II
Dutch reading comprehension (DRC)	Coherence comprehension (CC)	III
	Anaphora comprehension (AC)	III
	Inference comprehension (IC)	III
Turkish reading comprehension (TRC)	Coherence comprehension (CC)	IV

Table 7.9: Intended measures, experimental tasks and specified components in a structural analysis of word reading efficiency and reading comprehension in Turkish and Dutch

The hypothesized componential structure was set by fixing for each component the first task mentioned at 1, the subsequent tasks at λ . Furthermore, the set of structural equations constituting the expected model is as follows:

$$TWRE = \beta_{21}DWRE$$

$$DRC = \beta_{31}DWRE$$

$$TRC = \beta_{42}TWRE + \beta_{43}DRC$$

In Figure 7.10 the structural model as specified for the interdependency between L1 and L2 literacy skills is represented. The circles denote the intended measures, the squares denote the experimental tasks. The β -coefficients are given along with the arrows denoting causal direction. The test of fit of the present model yielded $\chi^2(32) = 45.66$, $p = .06$, with a goodness-of-fit index of .86. It can thus be concluded that the model has a reasonable fit. Moreover, no

indications in the modification indices could be discovered to change the model in such a way that the fit would be better and theoretically more acceptable at the same time.

Figure 7.10: Standardized solution for measurement and structural models specifying the interrelationships between L1 and L2 reading skills at the end of grade 2.

It can be seen from Figure 7.10 that the experimental tasks under investigation have high correlations with the intended measures. Furthermore, there is good evidence that word reading efficiency in Turkish and Dutch is a strong predictor of reading comprehension in the two languages. It is also clear that there is a strong transfer of reading skills acquired in Dutch to comparable skills in Turkish. At the level of word reading efficiency, the degree of transfer is extremely high.

7.4 Background of first grade repeat

7.4.1 Materials

Several groups of variables were used in the examination of the background of first grade repeat of Turkish children in the L2 Dutch submersion context. First, demographic and educational variables, i.e. age in months, number of years of residence in The Netherlands, number of months spent in kindergarten,

number of hours of L1 instruction in grade 1, and percentage of Dutch children in grade 1 were collected in a questionnaire for the Dutch classroom teacher. Second, variables concerning the children's socio-cultural background in terms of the majority culture (see 7.3.1) were used. Third, the (meta)linguistic variables measuring the children's second language abilities (see 7.2.1) were considered. Finally, the variable (nonverbal) general cognitive skills as measured by Raven's Progressive Matrices was taken into account.

7.4.2. Procedure

The teacher's decision to have a child repeat the first grade was taken as a starting point. Out of the 74 children who started literacy instruction in a L2 Dutch submersion programme, 8 children left school for reasons of removal to another school or for reasons of remigration. Of the remaining 66 cases, 11 children were advised to repeat the first grade. With regard to the teacher's decision of first grade repeat, two questions are posed:

- (1) Is first grade repeat classification primarily related to cognitive growth or to achievement in second language learning?
- (2) How far can the classification of first grade repeat be predicted from various L2-related learner and background variables at the onset of literacy instruction?

To arrive at an answer to the first question several measures of the children advised to repeat the first grade were compared with those of the other Turkish children at the end of the first grade. Cognitive growth was assessed by means of the variables age and general cognitive ability as measured by the nonverbal Raven Test. As an index of achievement in second language learning, the children's scores on various tests of oral and written Dutch were considered. Oral proficiency was measured by means of the knowledge-oriented tasks for phonemic discrimination, receptive and productive vocabulary and sentence imitation and the use-oriented parameters of spontaneous speech: number of different words (NDW), mean length of the 10% longest utterances (MLU) and proportion of subordinated clauses (PSC). Moreover, the results on the metalinguistic tasks for phonemic segmentation and knowledge of graphemes were taken into account. Reading proficiency was measured by means of the high frequency word reading tasks (CVC, CC and bisyllabic patterns) and the three text reading tasks (Coherence Task, Anaphora Task, Inference Task). The differences between the two groups of children on all these tasks were tested

for significance by means of t-test statistics. Furthermore, the tests yielding significant differences were entered into a discriminant analysis. This type of analysis attempts to make a mathematical combination of discriminating variables. Such 'discriminant functions' are of the form:

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + \dots + d_{ip}Z_p$$

where D_i is the score on discriminant function i , the d 's are weighting coefficients and the Z 's are the standardized values of the p discriminating variables used in the analysis (see Klecka, 1980). A stepwise procedure was used for selection of variables, minimizing Wilks' lambda as a measure of group discrimination.

With regard to the second question, a similar approach was followed. The scores of the children in the two groups on two types of variables assessed at the onset of literacy instruction were compared. The first type concerned social factors which may influence L2 learning. A distinction was made between demographic and educational variables (length of residence, period of kindergarten instruction, time of L1 instruction during grade 1 and percentage of Dutch children in grade 1), child variables (Dutch language contact at school, attitudes toward Dutch daily life and attitudes toward Dutch cultural stereotypes), and background variables (Dutch language contact in the family and parent attitudes toward Dutch culture). The second type of variables concerned the oral proficiency tasks and metalinguistic awareness tasks mentioned above. Again t-test statistics were computed and the tests yielding significant differences were entered in a stepwise discriminant analysis to select the best set of variables predicting first grade repeat.

7.4.3. Results

Grade repeat and children's abilities. In Table 7.10 the means, standard deviations and t-test statistics of the children's ages and their scores on Raven's Progressive Matrices are presented as a function of the teacher's decisions regarding school progress. It can be seen that on both measures the mean scores of the children in the progressgroup are somewhat higher than those of the children in the repeatgroup. However, the differences are not significant. It can thus be concluded that cognitive growth is not a major variable in explaining the children's classification.

	Progress		Repeat		t	df	p
	mean	sd	mean	sd			
Age	78.98	5.53	76.27	5.14	1.50	65	n.s.
Raven Test	20.28	3.82	18.00	3.00	1.87	65	n.s.

Table 7.10: Means, standard deviations and t-test statistics on the variables age and Raven Test as a function of school progress

Table 7.11 presents the means, standard deviations and t-test statistics on the variables of (meta)linguistic proficiency in Dutch of the two groups of children at the end of grade 1.

	Progress		Repeat		t	df	p
	mean	sd	mean	sd			
Phoneme discrimination	41.50	3.31	35.36	4.59	5.26	65	<.001
Receptive vocabulary	38.66	14.49	26.00	10.83	2.75	65	<.01
Productive vocabulary	13.34	5.08	9.27	4.15	2.49	65	<.05
Sentence imitation	169.80	41.45	118.82	53.05	3.56	65	<.01
NDW	111.36	24.45	103.00	28.50	1.01	65	n.s.
MLU	7.45	1.23	6.49	1.11	2.63	65	<.05
PSC	2.95	3.09	2.18	1.99	.72	63	n.s.
Phonemic segmentation	14.91	3.81	7.73	4.08	5.66	65	<.001
Knowledge of graphemes	32.18	1.53	27.27	7.24	4.66	64	<.001
Reading CVC-words	16.46	11.43	4.90	4.77	3.14	64	<.01
Reading CC-words	13.45	8.29	2.67	2.60	3.85	63	<.001
Reading bisyllabic words	7.25	6.25	.89	1.27	6.80	60	<.001
Coherence Task	7.75	3.38	5.10	2.08	2.41	60	<.05
Anaphora Task	13.24	4.80	6.70	2.45	4.17	57	<.001
Inference Task	10.25	3.69	5.45	3.42	3.99	64	<.001

Table 7.11: Means, standard deviations and t-test statistics on (meta)linguistic measures of oral and written Dutch of children in the progress and repeat group at the end of grade 1

It can be seen that, except for the measures of NDW and PSC, all measures yield significant differences between the two groups. Oral and written proficiency in Dutch at the end of grade 1 appears to be a crucial factor in the teacher's decisions about the progress of second language learners. To find out the best discriminating variables, the above measures yielding significant differences between the two groups of children were entered into a discriminant analysis. The results are given in Table 7.12.

The four variables yielded a canonical correlation of .59. The canonical discriminant function resulted in Wilks' lambda = .64 with $\chi^2(4) = 22.69$,

	Wilks' lambda	Discr. function	Canonical correlation
Phonemic discrimination	.79	.62	
MLU	.77	.29	
Phonemic segmentation	.66	.29	
Knowledge of graphemes	.65	.53	.59 ^{xxx}

Table 7.12: Wilks' lambda coefficients, standardized canonical discriminant function coefficients and canonical correlation coefficient in the discriminant analysis with L2 measures at the end of grade 1 as predictors.

$p < .001$. It can be seen from Table 7.12 that primarily metalinguistic measures which are related to L2 literacy are relevant predictors of the children's school progress. MLU, being a global measure of Dutch language use, can be seen as an additional predictor. It can tentatively be concluded that the teacher's decision on the school progress of children at the end of grade 1 is primarily based on the children's (meta)linguistic proficiency in Dutch as a second language. Apparently, the children in the repeat group have difficulty in grasping the alphabetical principle from second language instruction.

L2-related predictors of first grade repeat. In Table 7.13 the means, standard deviations and t-test statistics on social factors related to second language learning are presented as a function of teacher's classification of school progress. It can be seen that for the demographic factors length of residence, period of kindergarten, time of L1-instruction in grade 1 and proportion of Dutch children in grade 1 no differences are evinced for the two classified groups. With regard to the learner and background variables, two factors are relevant in discriminating the two groups. The first one is parent attitudes toward Dutch culture. The parents of the children in the progress-group have more positive attitudes toward Dutch culture than the parents of the children in the repeat-group. The second factor is the degree of contact children have with Dutch. The children in the progress group have more contact with Dutch than the children in the repeat group.

In Table 7.14 the means, standard deviations and t-test statistics on the (meta)linguistic measures in Dutch as a second language are given for the children in the progress group and the repeat group. It can be seen that the children in the former group obtained significantly better scores on the knowledge-oriented tests for oral proficiency. No significant differences were found for the use-oriented aspects of oral proficiency or for metalinguistic

abilities related to Dutch literacy.

	Progress		Repeat		t	df	p
	mean	sd	mean	sd			
Residence in NL	5.48	1.19	5.82	.98	-.88	65	n.s.
Kindergarten	26.27	6.97	25.27	5.90	.44	64	n.s.
L1-instruction	1.50	1.01	1.64	.92	-.41	65	n.s.
Prop. Dutch children	52.88	16.18	57.73	16.84	-.90	65	n.s.
L2 contact in the family	13.05	5.78	10.64	6.19	1.25	64	n.s.
Parent attitudes toward Dutch culture	3.25	1.68	2.09	1.64	2.09	61	<.05
L2 contact at school	1.88	2.18	.45	.82	.13	42	<.01
Child attitudes toward Dutch daily life	16.50	4.42	15.45	5.13	.70	63	n.s.
Child attitudes toward Dutch stereotypes	32.54	8.77	33.73	6.38	-.42	63	n.s.

Table 7.13: Means, standard deviations and t-test statistics on social factors related to L2-learners of children in the progress group and repeat-group at the onset of literacy instruction

	Progress		Repeat		t	df	p
	mean	sd	mean	sd			
Phoneme discrimination	34.95	5.51	29.36	5.95	3.03	64	<.01
Receptive vocabulary	25.00	11.73	17.00	9.82	2.11	64	<.05
Productive vocabulary	9.07	4.81	5.00	3.49	2.67	64	<.01
Sentence imitation	123.29	47.78	81.18	46.36	2.68	64	<.01
NDW	93.91	24.94	83.64	23.04	1.26	64	n.s.
MLU	6.57	1.66	6.34	1.68	.41	64	n.s.
PSC	1.83	1.93	3.13	4.21	-1.53	63	n.s.
Phonemic segmentation	3.07	2.25	2.27	2.20	1.08	64	n.s.
Knowledge of graphemes	4.60	4.89	3.09	2.07	1.00	64	n.s.

Table 7.14: Means, standard deviations and t-test statistics on the (meta)-linguistic measures in Dutch of the progress and repeat group at the onset of literacy instruction

Additionally, a discriminant analysis was conducted to discover the best predictors of first grade repeat. The results are presented in Table 7.15. It can be seen that the variables phonemic discrimination and productive vocabulary together yield a canonical correlation of .36. The canonical discriminant function resulted in Wilks' lambda = .87 with $X^2(2) = 8.06$, $p < .05$. From the discriminant function coefficients in Table 7.15 it is clear that phonemic discrimination is the best predictor of teachers' classification of school

progress. From the present analysis it can be concluded that the children's failure to understand the alphabetical principle in an L2 submersion context can partly be explained by their level of oral L2 proficiency at the onset of literacy instruction. It seems that a minimum competency level in phoneme discrimination and vocabulary size is prerequisite in order to succeed in acquiring literacy in a second language.

	Wilks' lambda	Discr. function	Canonical correlation
Phonemic discrimination	.89	.76	
Productive vocabulary	.87	.47	.36 ^x

Table 7.15: Wilks' lambda coefficients, standardized canonical discriminant function coefficients and canonical correlation coefficient in the discriminant analysis with L2-related measures at the onset of literacy instruction as predictors

7.5 Conclusions and discussion

Several conclusions can be drawn from the structural analyses of components in L2 Dutch reading comprehension. With respect to bottom-up influences, it can be concluded that they tend to decrease as children become more experienced. Word reading efficiency, a highly consistent factor during the first two grades, is a very strong predictor of reading comprehension in grade 1, while in grade 2 its predictive value is only moderate. In turn, word reading efficiency is highly predicted by the children's metalinguistic awareness and by their phonemic discrimination ability. From a longitudinal point of view, it was found that the metalinguistic abilities of children at the onset of literacy instruction are poor predictors of similar abilities after one year of instruction. This finding contradicts the findings in most studies with first language learners (see Valtin, 1984). A possible explanation for this finding is that the metalinguistic L2-related abilities of the children in the present study are initially rather poor. Thus, such abilities must primarily be acquired through literacy instruction. The pace at which such abilities are acquired may thus be expected to depend on such factors as cognitive skills, oral Dutch proficiency or motivation.

With regard to top-down influences on L2 reading comprehension, oral L2 proficiency measures were found to be significant predictors. Knowledge-oriented

proficiency measures appeared to be especially relevant. At the end of grade 1, lexical and morphosyntactic measures contributed moderately to the prediction of L2 reading comprehension. At the end of grade 2, the predictive power of the latter measures strongly increased, while the direct prediction of L2 reading comprehension from lexical skills is almost absent. However, it was found that by the end of grade 2 the children's vocabulary becomes a significant predictor of word reading efficiency. It can thus be concluded that children succeed better in building visual word representations if lexical entries are available. Similar conclusions had been arrived at by Frederiksen (1981) and Seidenberg et al. (1984) with reference to determinants of reading comprehension in a first language. Moreover, this conclusion is in line with our finding in Chapter 5 that with progression of time, word recognition will proceed more directly. Besides (meta)linguistic variables, other variables appear to influence the temporal variation in L2 reading comprehension as well. At the end of the second grade the children's socio-cultural orientation was found to be a moderate predictor. A possible explanation for the fact that the influence of this factor is relatively late is that in the first grade, where bottom-up factors play a role of individual variation. Indeed we found the scores on the Raven test to be a moderate predictor of L2 reading comprehension in the first grade. It is interesting to note that the socio-cultural orientation of children is influenced at the first two moments of measurement, but not at the end of grade 2. Apparently, by that time children start to develop their cultural attitudes more or less on their own.

From the general explanatory model of temporal variation in L2 reading comprehension, it can be concluded that during the first two years of instruction bottom-up influences are partly replaced by top-down influences in combination with socio-cultural influences. In comparison with research on L1 reading acquisition it seems that this transition passes relatively fast. Juel, Griffith & Gough (1986) found a low correlation (.20) between the abilities in listening comprehension and reading comprehension with monolingual children in the second grade. The early influential role of top-down processes in L2 reading can tentatively be ascribed to the large individual variation of learners as regards their oral L2 proficiency and their socio-cultural orientation. Oral proficiency appears to be a strong predictor of reading comprehension. The children's socio-cultural orientation does not influence until the end of grade 2. Finally, L2 reading comprehension success is determined to a lesser extent by the nonverbal cognitive skills of children.

From the structural analysis of components in L1 reading comprehension there is good evidence that reading skills which were earlier acquired in L2 are highly interdependent. Both at the word level and text level L1 reading skills appeared highly predictable from similar skills in L2. Especially the efficiency of word reading in L1 was highly predicted by the word reading efficiency acquired in L2. This finding is in accordance with the theoretical network of Cummins. The high level of abstractness of the tasks, together with their decontextualized contents, explain the large degree of transfer of skills from one language to the other.

The study of Turkish children who repeated first grade revealed that the children's cognitive growth is not the primary factor which motivates the teacher to decide that the child should repeat first grade. The teacher's classification of second language learners was much better explained from the children's (meta)linguistic proficiency in L2 at the end of the first grade. On a variety of oral and written proficiency tasks in L2 Dutch, the children who were advised to repeat first grade scored significantly lower than the other children. In a discriminant analysis, metalinguistic measures related to literacy, together with global L2 oral proficiency measures, were the most crucial factors in distinguishing between the two groups of children.

Additionally, it was found that the classification of first grade repeat of second language learners can already be predicted from several L2-related measures at the onset of literacy instruction. Among these, phonemic discrimination and (productive) vocabulary size in L2 Dutch turned out to be the best predictors. A minimum level of competence in these two variables seems to be a prerequisite at the onset of literacy instruction for grasping the alphabetical principle in an L2 submersion context.

Summarizing our study on the acquisition of literacy by Turkish children in a L2 Dutch submersion context, several conclusions can be drawn. With respect to the acquisition of L2, it was found that oral and written language parameters were highly interrelated. Moreover, there was evidence of a gradually increasing influence of socio-cultural orientation. With regard to the interdependency of first and second language skills, it was found that literacy skills are highly transferable from one language to another. The study of first grade repeats makes it clear that the children's failure in an L2 submersion context is not so much based on a lag in general cognitive growth, but, on their achievement in

second language learning throughout the first grade. Moreover, a minimum level of competence in L2 oral proficiency at the onset of literacy instruction seems to be needed to acquire the alphabetical principle in L2. A transitional approach to literacy acquisition seems more appropriate, at least for those children who lack a minimum level of oral L2 proficiency. In the next chapter the outcome of literacy acquisition in an L2 submersion context will be compared with those of literacy acquisition in two transitional programmes.

Success of Literacy Acquisition in a Transitional Context

In the present chapter the temporal variation of literacy acquisition in a transitional context is dealt with. First of all, the linguistic and socio-cultural background of Turkish children enrolled in literacy instruction in various educational programmes in The Netherlands is examined. The main purpose of this study was to find out whether a strong emphasis on L1 in initial literacy instruction was to be recommended given the children's background. In addition, the outcomes on several linguistic and socio-cultural measures of children in transitional versus submersion programmes are compared. Finally, the question of orthographic interference in bilingual literacy instruction is discussed.

In the first section, the educational approach in the transitional literacy programmes under investigation is briefly explained. Moreover, the research questions and the research design are outlined. In section 2, a determination is made of the extent to which the linguistic and socio-cultural background variables of children to be enrolled in submersion and transitional literacy programmes give rise to a strong emphasis on initial literacy instruction in L1. The oral proficiency of children in L1 and L2 and the children's orientation toward the minority culture are compared. In the same section, the effectiveness of the transitional approach is evaluated by comparing the linguistic and socio-cultural development of children in the transitional approach with that of children in the L2 submersion approach of literacy instruction. In the third section, the individual variation of children's literacy outcomes in the transitional approach is examined. The reading results of children in both L1 and L2 are related to various linguistic, social and educational variables. Moreover, transfer of literacy skills from L1 to L2 is investigated. Section 4 deals with the degree of orthographic interference in transitional literacy instruction programmes as compared with submersion programmes. The spelling results of children in the two acquisitional contexts are compared in order to discover the role of intralingual and interlingual strategies. In the final section, the results of the studies mentioned above are discussed.

8.1 Transitional literacy instruction in The Netherlands

8.1.1 Educational practice

As mentioned in Chapter 4, two schools were found with transitional literacy instruction. The educational approach in the two schools will now be outlined briefly. In school E (located in Enschede), Turkish children are taught in their mother tongue roughly half the week up to the second grade. Literacy skills are first taught in L1 in separate monolingual mother tongue classes. At the same time, oral instruction in L2 is given along with Dutch children. After a period of about two months, simultaneous literacy instruction in L1 and L2 takes place. At the end of the second grade, the Turkish children follow L2 literacy instruction together with their Dutch peers with additional literacy instruction in the mother tongue for some hours a week in special classes. With reference to the instructional models distinguished in Figure 1.1 (p. 11), the literacy programme at school E can best be defined as model E. The literacy curriculum used for Dutch was based on 'Letterstad', a method which is slightly different from VLL (see 4.1.3). However, in a study by Reitsma, Komen & Kapinga (1981) it was found that the two curricula do not lead to differential literacy outcomes on the part of the learner.

The team in school A (located in Arnhem) followed the Jena-plan which was initiated by Petersen (1980). Within this plan children are organized in homogeneous groups for expressive and social activities, whereas curricular subjects such as reading and maths are presented in differential groups. At the moment they start learning to read, Turkish children at school A are tested for oral proficiency in Turkish and Dutch. Testing is based on global estimates of the children's oral production at kindergarten. For children who are judged to be dominant in Dutch, literacy instruction is given in Dutch from the beginning, with additional instruction in Turkish. However, if children are judged to be dominant in Turkish, literacy instruction during the first grade is given in Turkish only. Not until the second grade is additional literacy instruction in Dutch started. So far, all Turkish children at school A have been judged dominant in Turkish. The instructional programme at school A can best be typified by model D (see p. 11).

8.1.2 Research questions and design

In section 8.2 the evaluation of the transitional literacy approach is

considered. Two research questions were taken as a starting point. The first one is whether the linguistic and socio-cultural background of Turkish children leaving kindergarten gives rise to a strong emphasis on initial literacy instruction in L1. An attempt was made to answer this question by comparing children's oral proficiency in L1 and L2 and their cultural orientation in the minority and the majority culture. This analysis was done both for the children enrolled in a transitional literacy programme and those enrolled in a submersion literacy programme. Because the former group had received some (oral) L1 education at kindergarten, the analysis of the children's background was conducted separately for the two types of programmes. With respect to the children's linguistic background, our hypothesis was that Turkish children at the moment they start to read have a relative dominance of oral skills in Turkish. No specific expectations regarding the children's socio-cultural orientation were set beforehand.

The second research question was related to an evaluation of the linguistic and socio-cultural outcomes of the traditional literacy approach during the first two years of instruction. With respect to literacy outcomes, both oral and written skills in L1 and L2 were under consideration. The socio-cultural measures concerned cultural orientation and motivation toward literacy tasks. In line with earlier research (e.g. Appel, 1984; Teunissen, 1986), it was hypothesized that the transitional approach would not lead to any retardation of L2 skills, while enforcing L1 literacy skills.

In section 8.3, the learner variables which account for temporal differences in literacy outcomes in L1 and L2 in a transitional literacy context after two years of instruction are identified. In choosing relevant learner characteristics, linguistic variables were highly emphasized. Not only were the children's literacy outcomes in L1 and L2 related to oral proficiency in the two languages, but the extent to which traditional literacy instruction results in the transfer of literacy skills from L1 to similar skills in L2 was also examined. From a socio-cultural point of view, it was determined how the children's reading results were related to cultural orientation and motivation toward literacy. The expectation was that the motivation of children to read and write in L1 and L2 would be a function of their success on literacy tasks at school. Furthermore, an attempt was made to evaluate the two traditional programmes separately. The extent to which the different moments of starting literacy instruction in L2 in the two schools would lead to different results on the part of the learner was also explored.

Section 8.4 goes into a comparison of the degree of orthographic interference displayed by children enrolled in the transitional context and children enrolled in the submersion programmes. One of the focal issues in the discussion about instructional alternatives in bilingual literacy instruction concerns the children's success in separating the two orthographic codes in question. According to Van Parreren (1961), concurrent cognitive systems such as orthographies can be acquired, if instruction helps children to bring about a separation of systems. In Van Parreren's theory, cognitive information is coded in memory traces which are organized in a psychological field. If such memory traces belong to more than one system or field, information can easily be transferred from one system to another. However, reactivation of a system can also lead to interference, if a separation of systems is not under the processor's control. In the light of Van Parreren's theory, it has been argued by several authors (e.g. Meyer-Ingwersen, 1977) that in order to avoid interference in bilingual literacy instruction a successive approach is preferable. According to Cummins (1981), a successive approach to bilingual literacy instruction, starting with the dominant language of the child, will yield the best biliteracy results with a minimum of interference.

In the present part of the study the degree of orthographic interference in transitional versus submersion programmes of literacy instruction for Turkish children is examined. Moreover, a comparison is made between a simultaneous and successive approach to transitional literacy instruction in terms of degree of interference.

In the final section (8.5), the results of the above studies on transitional literacy instruction are discussed.

The general design of the study is given in Figure 8.1. Of the 24 children enrolled in transitional literacy instruction, 16 were at school E, 8 at school A. In the course of the first two grades, 7 children of the former group dropped out of the study because of class repeats (3) or remigration (4). During a two-year period, the linguistic skills and cultural attitudes of these children were compared with those of 74 children enrolled in a L2 submersion context.

Figure 8.1: Schematic representation of the research design

8.2 Evaluation of the transitional approach

8.2.1 Materials

In order to measure oral proficiency the Dutch phonemic discrimination task and the receptive and productive vocabulary tasks and sentence imitation tasks for Turkish and Dutch described in 7.2.1 were used. Moreover, analogous to the Dutch phonemic districimation task. The procedure was the same as in the Dutch version. In the task 30 word pairs were administered: 22 different and 8 identical word pairs. In the different word pairs vowels were contrasted in 8 cases, consanants in 10 cases and different phoneme distribution patterns in 4 cases. The internal consistency of the task turned out to be reasonable (KR-20 = . 83). The items of the Turkish phonemic discrimination task are given in Appendix 5. Children's cultural orientation was measured with the culture attitude scales described in 7.2.1. An additional measure was developed in order to assess the children's motivation toward literacy in L1 and L2. This measure involved a combined questionnaire for Turkish and Dutch in which questions were asked concerning the following topics: preference of school subjects, free-time activities, library visits, birthday presents and reading turns. All questions were scored according to pre-established criteria. A complete version of the questionnaire is presented in Appendix 2.2.

Literacy skills were measured through word reading tasks, word spelling tasks and text reading tasks in Turkish and Dutch. The word reading task in Turkish was the same as the one described in 7.3.1; the word reading task in

Dutch consisted of the three lists of high-frequency words taken from the Word Reading Task described in 5.2.1. Verbal efficiency measures displaying the mean numbers of words correctly read per minute were taken as a global index of word reading skill. The children's comprehension scores on the Coherence Tasks for Turkish (see 7.3.1) and Dutch (see 5.3.1) were used as a measure of reading comprehension. For word spelling in Turkish and Dutch, two word spelling tasks were developed. Those word features were selected in the two tasks which contrast between Turkish and Dutch orthography. In each task, a distinction was made between consonants (15 items) and vowels (17 items). For word spelling in Turkish, the consonants /ç/, /ç̣/, /ş/, /x/, /g/, /v/, /j/, /ğ/ and the vowels /ı/, /i/, /u/, /y/, /ø/, were considered. The category of vowels was extended with grapheme combinations which are more or less equivalent to Dutch diphthongs, i.e. the digraphs AY, EY and ÖY. For word spelling in Dutch, the consonants /γ/, /g/, /x/, /j/, /v/ and /w/ and the consonant clusters /sj/, /tj/ and /tsj/, which more or less correspond to Turkish consonants not occurring in Dutch, were considered. Next, the vowels (diphthongs included) /e/, /I/, /i/, /œ/, /ø/, /u/, /y/, /ə/, /ei/ and /au/ were taken into account. The words of the two spelling tasks are presented in Appendix 4.2 and 4.3.

8.2.2 Procedure

The first research question related to the children's linguistic and sociocultural background at the onset of literacy instruction. In order to arrive at an answer to this question, the results on the tests for oral proficiency in Turkish and Dutch were compared for the children in the transition approach and the children in the submersion approach of literacy instruction. Because the number of items in the phonology tasks and in the sentence imitation tasks in the two languages were not equal, the scores on these tasks were converted to percent correct scores. By means of t-test statistics, it was determined whether oral proficiency was dominant in L1 or L2. Furthermore, the differences in mean scores on the attitude scales regarding minority and majority culture were tested. Again, the mean testing occurred separately for the children in the transition and submersion approach.

In order to compare the outcomes of the transition and submersion approach, differences in scores on various linguistic and socio-cultural measures of children in the two contexts were tested for significance by means of multivariate analysis of variance. Two-way Manovas with repeated measures were

conducted in order to contrast the acquisition of oral proficiency in Turkish and Dutch in the two types of programmes. Moreover, a 2x2 Manova with repeated measures and with (majority versus minority) culture as a main factor was conducted in order to compare the children's development of cultural preference. The children's attitudes towards literacy were composed by means of simple t-test statistics. Additionally, Manovas were conducted on the literacy results of children after two years of literacy instruction. In order to rule out differences in literacy results which are a result of differences in children's oral proficiency at the onset of literacy instruction, the oral proficiency measures taken at the first moment of testing were taken as a covariate in several analyses.

8.2.3 Results

Entrance situation. The means, standard deviations and t-test statistics on the linguistic and socio-cultural tasks assessed with the children to be enrolled in a transitional programme of literacy instruction are presented in Table 8.1. At the onset of literacy instruction, children obtained significantly higher scores in Turkish than in Dutch on all tasks of oral proficiency. Moreover, the children have a clear preference for symbols of the Turkish minority culture as compared with the Dutch majority culture.

Task		Mean	Sd	t	df	p
Phoneme discrimination	L1	73.33	18.88	4.27	23	<.001
	L2	63.75	14.28			

Receptive vocabulary	L1	44.83	17.45	5.74	23	<.001
	L2	20.50	12.04			

Productive vocabulary	L1	20.42	6.06	6.38	23	<.001
	L2	8.46	5.79			

Sentence imitation	L1	79.19	11.95	5.46	23	<.001
	L2	54.87	21.52			

Table 8.1: Means, standard deviations and t-test statistics on linguistic and socio-cultural tasks of children to be enrolled in a transitional literacy programme

Table 8.2 presents the means, standard deviations and t-test statistics on the same linguistic and socio-cultural measures for the children to be enrolled in a submersion programme. The results are more or less the same as with children in the transitional context. On all measures the children obtained significantly higher scores for Turkish as compared with Dutch. It can thus be tentatively concluded that, whatever the instructional context, the linguistic and socio-cultural background of Turkish children at the moment when they start to read is more closely related to the minority language/culture than to the majority language/culture.

Task		Mean	Sd	t	df	p
Phoneme discrimination	L1	79.58	13.91	12.17	72	<.001
	L2	67.67	12.19			
Receptive vocabulary	L1	34.10	14.66	5.23	72	<.001
	L2	23.79	11.97			
Productive vocabulary	L1	15.44	6.38	8.36	72	<.001
	L2	8.36	4.67			
Sentence imitation	L1	69.87	18.88	8.66	72	<.001
	L2	46.99	19.40			

Table 8.2: Means, standard deviations and t-test statistics on linguistic and socio-cultural tasks of children to be enrolled in a submersion literacy programme

Linguistic development. Table 8.3 presents the means and standard deviations of the scores of children enrolled in transition and submersion literacy programmes on the oral proficiency tasks in Turkish at the onset of and after 10 and 20 months of literacy instruction. Two-way Manova indicated that the main effects of Group ($F(1,70) = 14.74$, $p < .001$) and Period (Wilks' $\lambda = .16$, Approximate $F = 174.60$, $p < .001$) were both significant. However, the Group $\times$ Period interaction was not significant. It can be concluded that the children in the transitional context obtained generally higher scores in oral proficiency in Turkish than the children in the submersion context. Both groups appear to have made significant progress in oral Turkish with the progression of time, the amount of progress being similar in the two instructional contexts.

In Table 8.4 the means and standard deviations of the transition and submersion groups on the oral proficiency tasks in Dutch at the three moments of testing are given.

L1 oral proficiency		Submersion group		Transitional group	
		Mean	Sd	Mean	Sd
Phoneme discrimination	M1	23.88	4.17	22.00	5.67
	M2	27.05	2.89	27.00	2.22
	M3	28.78	.96	28.56	1.20
Receptive vocabulary	M1	34.10	14.66	44.38	17.45
	M2	44.80	16.21	56.75	15.26
	M3	58.36	17.78	75.17	9.93
Productive vocabulary	M1	15.44	6.38	20.42	6.06
	M2	16.95	7.18	25.08	8.76
	M3	21.27	8.52	27.28	9.75
Sentence imitation	M1	127.18	34.37	144.13	21.75
	M2	138.53	29.99	158.75	14.00
	M3	153.37	20.05	168.44	9.49

Table 8.3: Means and standard deviations on L1 oral proficiency tasks of children in the submersion and transitional groups at the onset of and after 10 and 20 months of literacy instruction

Two-way Manova revealed no difference in scores between groups, whereas there was a significant increase of scores over time (Wilks' lambda = .81, Approximate $F = 8.11$, $p < .01$). The Group x Period interaction was not significant, indicating that the increase in oral proficiency over time was similar in the two groups.

L2 oral proficiency		Submersion group		Transitional group	
		Mean	Sd	Mean	Sd
Phoneme discrimination	M1	33.84	6.10	31.88	7.14
	M2	40.30	4.44	39.79	3.34
	M3	42.82	2.55	43.44	2.28
Receptive vocabulary	M1	23.79	11.97	20.50	12.04
	M2	36.47	14.64	31.58	11.81
	M3	52.11	16.16	50.44	16.30
Productive vocabulary	M1	8.36	4.67	8.46	5.79
	M2	12.54	4.95	10.75	4.61
	M3	15.62	5.32	15.78	6.12
Sentence imitation	M1	117.48	48.49	137.17	53.80
	M2	163.47	46.25	158.63	44.30
	M3	194.40	36.21	200.67	31.31

Table 8.4: Means and standard deviations on L2 oral proficiency tasks of children in the submersion and transitional groups at the onset of and after 10 and 20 months of literacy instruction

Figure 8.2 presents the mean scores of the children in the two instructional contexts on word recognition in Turkish and Dutch after two years of literacy education. A 2x2 Multivariate analysis was conducted with Group, Language and Word patterns as main factors. The main factor of Group turned out not to be significant, while the factors of Language ($F(1,69) = 38,94$, $p < .001$) and of Word type (Wilks' $\lambda = .19$, Approximate $F = 149.57$) were. The Group x Language interaction was also significant ($F(1,69) = 31.53$, $p < .001$), the Group x Word type interaction, however, was not. It can thus be concluded that there is no general difference in decoding efficiency between children in the transition context and children in the submersion context. However, the children in the former group appear to be better in decoding Turkish, whereas the latter group appears to be better in decoding Dutch. No group differences were found as regards the decoding of words of different patterns.

In order to find out whether intergroup differences in word decoding in Turkish versus Dutch still would appear if the children's oral proficiency in the two languages at the onset of literacy instruction was taken into account,

Figure 8.2: Mean word reading efficiency scores in Turkish and Dutch of Turkish children in submersion and transitional programmes after two years of literacy instruction

additional Manovas were conducted. In a one-way Manova with the Turkish word decoding tasks as dependent variables, and the Turkish oral proficiency tasks at the onset of literacy instruction as covariates, the main factor group was found to be significant (Wilks' $\lambda = .80$, Approximate $F = 5.36$, $p < .01$). On the other hand, one-way Manova with Dutch word decoding tasks as dependent variables and the children's oral proficiency in Dutch at the onset of instruction as covariates also yielded a clear tendency towards significance of the main factor of Group (Wilks' $\lambda = .89$, Approximate $F = 2.66$, $p < .06$). Thus we may conclude that children in the transitional context attain better decoding results in Turkish, the children in the submersion context better results in Dutch.

In Figure 8.3 the mean scores of the children in the transition and submersion context on word spelling in Turkish and Dutch are given. Within each language a distinction is made between the spelling of consonants and of vowels. 2x2 Manova with Group, Language and Type of spellings as main factors revealed no significant for the factors of Group and of Language. The main factor Type of spellings was significant ($F(1,67) = 6.58$, $p < .05$). The interactions between Group and Language, on the one hand ($F(1,67) = 52.41$, $p < .001$), and between Group and Type of spellings on the other ($F(1,67) = 3.90$, $p < .05$), turned out to be significant as well. The conclusion so far is that, in general, there is no difference between groups in spelling abilities: though children in transition programmes obtained higher spelling scores in Turkish, the children in submersion programmes had higher scores in Dutch.

As with the study on word decoding, we conducted additional Manovas in order to examine intergroup differences in word spelling after taking into account existing differences in oral proficiency at the onset of literacy instruction. One-way Manova with children's scores on Turkish word spelling as the dependent variable and their oral proficiency scores in Turkish at the onset of instruction as covariates resulted in a significant main factor of group ($F(1,64) = 13.43$, $p < .01$). However, a similar analysis for Dutch yielded no significant factor of Group. It can thus be concluded that the children in the transition group did significantly better in word spelling in Turkish than the children in the submersion context, while no intergroup differences were found for word spelling in Dutch.

The mean scores of the children in the two instructional contexts on reading comprehension in Turkish and Dutch are presented in Figure 8.4. It can be seen

Figure 8.3: Mean percent correct scores for the spelling of consonants and vowels in Turkish and Dutch of the Turkish children in the submersion and transitional programmes after two years of literacy instruction

Figure 8.4: Mean scores on reading comprehension in Turkish and Dutch of Turkish children in submersion and transitional programmes after two years of literacy instruction

that the children from transitional classes obtained slightly higher scores on reading comprehension in both languages. However, one-way Manova with pre-existing differences in oral proficiency at the start of literacy instruction indicated that the differences in comprehension scores in both Turkish and Dutch were not significant.

Socio-cultural development. Table 8.5 presents the means, standard deviations and t-test statistics of children's scores on the attitude scales at the onset of and after 10 and 20 months of literacy instruction. It can be seen that at the onset of instruction there are no significant differences in attitude scores between the transitional and submersion context of literacy acquisition. However, after 10 and 20 months of instruction the attitude scores of the children in transitional programmes towards the minority culture appear to be significantly higher than those of the children in submersion classes. With respect to attitudes towards the majority culture, no significant differences between the two groups of children were found.

Cultural Attitudes	<u>Submersion group</u>		<u>Transitional group</u>		t	df	p
	Mean	Sd	Mean	Sd			
Minority Culture M1	37.01	8.69	40.38	7.03	- 1.71	94	n.s.
M2	41.44	6.19	44.54	3.27	- 3.13	76	<.01
M3	43.70	4.56	45.50	2.46	- 2.11	55	<.05
Majority Culture M1	32.68	8.69	32.83	8.98	- .08	94	n.s.
M2	33.78	10.37	31.79	9.36	.83	94	n.s.
M3	38.28	10.35	35.44	6.73	.39	70	n.s.

Table 8.5: Means, standard deviations and t-test statistics on the Culture Attitude Scales of children in the submersion and transitional programmes at the onset of and after 10 and 20 months of literacy instruction

The means, standard deviations and t-test statistics of the children's scores on the scales of attitudes towards literacy in Turkish and Dutch after 20 months of literacy instruction are given in Table 8.6. It can be seen that the children in the transitional context of literacy acquisition obtained significantly higher scores on the scale of attitudes towards literacy in Turkish in comparison with the children in the submersion context. As regards attitudes towards literacy in Dutch, the scores of the children in the transitional group were somewhat higher than those of the children in the submersion group. However, the intergroup differences turned out to be not significant.

	<u>Submersion group</u>		<u>Transitional group</u>		t	df	p
	Mean	Sd	Mean	Sd			
L1 literacy attitudes	11.66	2.73	12.89	1.53	-2.25	54	<.05
L2 literacy attitudes	10.91	3.54	12.00	2.40	-1.56	60	n.s.

Table 8.6: Means, standard deviations and t-test statistics on scales of attitudes towards literacy in Turkish and Dutch

8.3 Temporal variation in transitional literacy instruction

8.3.1 Procedure

In order to examine the temporal variation of literacy acquisition in a transitional context, the children's literacy results were related to some of the variables discussed in Chapter 3. Three types of variables were thought to be highly relevant: linguistic, social and instructional variables. From a linguistic point of view the study aimed at two goals. The first goal was to relate components of children's oral proficiency and decoding efficiency in L1 and L2 to their results in L1 and L2 reading comprehension. The second goal was to investigate to what extent the variation in L2 reading comprehension and L2 word reading skill can be explained from pre-established differences in L1 reading comprehension and L1 word reading skill. As such, the question of *interdependencies* between literacy skills from L1 to L2 was under consideration.

In order to attain these goals, the multiple regression technique was applied at the end of the first and the second grade. In addition, the relationship between L1 and L2 literacy skills and social factors was studied by correlating the children's scores on the culture attitude scales and on the questionnaires for motivation toward literacy with their reading comprehension scores in Turkish and Dutch. The literacy approaches in the two transitional programmes were contrasted from an instructional point of view. The primary difference between the two programmes was found in the moment at which literacy instruction in L1 was followed up by literacy instruction in L2. In school E, L2 literacy instruction started after two months of instruction in L1, whereas in School A, L2 instruction did not start until grade 2. Differences in literacy success between the two instructional approaches were analysed by means of t-test statistics.

8.3.2 Results

Linguistic variables. With respect to the individual variation of L1 reading comprehension among children at school E after one year of transitional literacy instruction, both L1 word reading skill and L1 morpho-syntactic skill turned out to be a significant predictor. As can be seen in Table 8.7, the two factors explained more than two-thirds of the variance in L1 reading comprehension scores.

Dependent variable	Independent variable	Beta	Multiple R
L1 reading comprehension	L1 word reading efficiency	.36	
	L2 morpho-syntactic skill	.68	.82**
L2 reading comprehension	L1 reading comprehension	.67	
	L2 receptive vocabulary	.48	.81**
L2 word reading efficiency	L1 word reading efficiency	.82	.82**

Table 8.7: Multiple regression statistics on oral and written skills in L1 and L2 after one year of L1/L2 literacy instruction (** $p < .01$)

With regard to the individual variation in L2 reading comprehension, it was found that L1 reading comprehension was found to be a substantial predictor. Together with L2 vocabulary, again about two-thirds of the variance in L2 reading comprehension could be explained. Finally, it was found that the individual variation in L2 word reading ability was highly predicted by pre-established word reading ability in L1.

Table 8.8 presents the multiple regression statistics with reference to temporal variation in the two transitional literacy programmes after two years of instruction. It can be seen that about half of the variance in L1 reading comprehension is explained by L1 word decoding skill. Furthermore, the variation in L2 reading comprehension is highly predicted by the degree of L1 reading comprehension; L2 word reading ability and L2 vocabulary turned out to be additional predictors. The three variables account for more than 70 percent of the variance in L2 reading comprehension. As regards L2 word reading skill, word reading skill in L1 was found to be the relevant predictor.

From the above analyses it can be concluded that interdependencies in literacy skills indeed take place in transitional instruction: pre-established reading skills at the word and discourse level turn out to be highly transferable from L1 to L2.

Dependent variable	Independent variable	Beta	Multiple R
L1 reading comprehension	L1 word reading skill	.70	.70**
L2 reading comprehension	L1 reading comprehension	.55	
	L2 word reading	.23	
	L2 productive vocabulary	.53	.85***
L2 word reading	L1 word reading	.67	.67***

Table 8.8: Multiple regression statistics on oral and written skills in L1 and L2 after two years of transitional instruction (** $p < .01$, *** $p < .001$)

Socio-cultural variables. The correlations between the children's scores on the Culture Attitude Scales on the one hand, and their scores on the reading comprehension tasks in L1 and L2 turned out to be very low ($-.01$ and $.11$ respectively). The correlations between the scores on the literacy motivation scales and reading comprehension in the two languages were low as well ($.01$ and $-.23$ respectively). However, it is interesting to note that the children's reading comprehension scores at the end of grade 1 correlated positively with their motivation scores at the end of grade 2 ($.50$ and $.27$ respectively). It can be tentatively concluded that a low reading comprehension level in a language at a certain moment will result in low motivation to read and write in that language in the future.

Instructional variables. The test scores on phoneme discrimination, receptive and productive vocabulary and sentence imitation in Turkish obtained by the children at school E and school A at the three moments of testing were only slightly different. Manova with School, Task and Period as main factors indicated that only Period was significant (Wilks' $\lambda = .10$, Approximate $F = 69.48$, $p < .001$). None of the interactions between School and the other factors were significant. Thus, the acquisition of L1 for the children at the two schools can be judged highly comparable.

A similar Manova was conducted for the children's scores on phoneme discrimination, receptive and productive vocabulary and sentence imitation measures in Dutch at the three moments of testing. The factor Period was again found to be significant (Wilks' $\lambda = .11$, Approximate $F = 57.47$, $p < .001$). Though the factor School was not significant, the School $\times$ Period interaction was (Wilks' $\lambda = .61$, Approximate $F = 4.70$, $p < .05$). The conclusion is that the children at both schools make substantial progress in oral proficiency in L2 Dutch, the rate of acquisition being somewhat faster for the children at

school A.

Several Manovas were conducted with respect to the children's acquisition of literacy skills. Two-way Manova on the word reading efficiency scores with School, Language and Word Type as main factors revealed a significant outcome for the factor Language ($F(1,15) = 11.69, p < .01$) and for the School x Language interaction ($F(1,15) = 12.46, p < .01$). It can be concluded that the children at the two schools attained a similar level of word reading efficiency. Furthermore, in general, the children are better in word reading in Turkish than in Dutch; this effect appeared to be stronger for the children at school E.

A one-way Manova on the Word Spelling scores with School and Language as main factors revealed both factors to be significant ($F(1,16) = 4.86, p < .05$ and $F(1,16) = 56.66, p < .001$), with no significant interaction between the two factors. The conclusion here is that the children at school E are generally better in word spelling than the children at school A, whereas at both schools children obtained higher scores for spelling in Turkish than spelling in Dutch.

Another one-way Manova on the Reading Comprehension scores with School and Language as main factors revealed a tendency towards significance for the factor School ($F(1,16) = 4.46, p < .06$), indicating that the children at school E generally did better in reading comprehension than the children at School A. The factors of Language and the School x Language interaction were not significant.

With reference to the children's development of cultural attitudes a two-way Manova with School, Cultural Attitude (i.e. minority versus majority culture) and Period as main factors revealed no significant effects. Thus, it can be concluded that the differences in instructional approach in the two schools did not lead to any differences in the children's cultural orientation. Comparison of the children's scores on the scales of attitudes towards literacy did not reveal any differences for the two types of programmes either.

Summarizing the effects of instructional variation in transitional literacy education, it can be concluded that the approach at school A tends to lead to better progress on Dutch oral proficiency, whereas the approach at school E tends to lead to better literacy outcomes. Although, given the small numbers of informants, these results must be interpreted with caution, a tentative explanation can be given. The approach at school A with differentiated homogeneous groups of learners may have led to a relative emphasis on oral L2 instruction during the first two grades. In the second grade such emphasis may have been at the cost of instruction in word decoding and word spelling in L2. Given the fact that in the initial stage of acquisition word decoding skills can

easily be transferred from one language to another, and that in the initial stage of acquisition word decoding is the best predictor of reading comprehension, the relative retardation in literacy scores on the part of the children at school A can be explained.

8.4 Orthographic interference in bilingual literacy programmes

8.4.1 Procedure

In order to study the degree of orthographic interference in transitional and submersion programmes of literacy instruction, the children's results on the Turkish and Dutch version of the word spelling tasks described in 8.2.1 were analyzed in more detail. The analysis started with a listing of possibly interlingual misspellings in the transitional versus submersion programmes. The aim was to find out whether the different order of introduction of orthographies of Turkish and Dutch in the two types of programmes would lead to structural peculiarities of the children's spelling behaviour. Interlingual misspellings were presumed to be a sign of inability on the part of the children to separate the two writing systems. Misspellings in the Turkish version of the word spelling task were defined as interlingual if they had a graphonological base which can be understood from a Dutch pronunciation of Turkish graphemes; in the Dutch version interlingual misspellings were thought of as understandable from a Turkish pronunciation of Dutch graphemes. Proportions of interlingual misspellings were expressed in terms of totals of misspellings and of spellings in the two languages. A separate analysis was done for misspellings of consonants and vowels. In addition, the degree of orthographic interference in the two transitional programmes was compared. The aim of this part of the study was to find out whether the point at which Dutch orthography was introduced affected the children's ability to separate both. The analysis involved the calculation of proportions of interlingual misspellings, followed by a qualitative examination of the misspellings found in the two instructional conditions.

8.4.2 Results

Transition versus submersion. Figure 8.5 presents a classification of

the (mis)spellings made by the children in the transitional and submersion programmes as a function of language (Turkish versus Dutch).

Figure 8.5: Classification of (mis)spellings of children enrolled in transitional and submersion programmes

It can be seen that on Turkish spelling the children from the transitional classes not only obtained better scores than the children from the submersion classes, they made proportionally fewer interlingual misspellings as well. Out of the total numbers of misspellings in the transition group, 33 percent had an interlingual source of explanation; in the submersion group, this percentage was 49. This effect was found for both consonants and vowels.

With regard to Dutch spelling, it can be seen that the scores on consonants were more or less similar in the two groups, whereas the children in the submersion group obtained better scores for vowels. However, the proportions of interlingual misspellings were highly comparable in the two groups: in the transition group, 22 percent and in the submersion group, 18 percent of the total numbers of misspellings were interlingual.

In Table 8.9 a complete list of interlingual misspellings in Turkish made by

the children in the two types of literacy programmes is given. It can be seen that the children in the submersion group not only make more misspellings, they also demonstrate a larger variation in types of misspellings. The main problems for the children in the latter group concern the spelling of consonants G, H and V, the vowels I and Ö, and the Dutch diphthong 'equivalents' AV, EY and ÖY.

Target grapheme	Stimulus word	Learner variety	
		transition group	submersion group
C	GECE	-	GETE (1), GEJE (1)
Ç	ÇAM	-	TAM (1)
G	GEMİ	-	KEMİ (11)
	GEREK	-	KEREK (8)
H	SABAH	SABAG (2)	SABAG (9)
	TAHTA	TAGTA (3)	TAGTA (12)
V	DEV	-	DEW (11)
	HAVA	-	HAWA (8)
	VAKİT	-	WAKİT (13)
Y	TAY	-	TAAİ (1), TAJ (2)
	YEM	-	JEM (6)
Ğ	AĞAÇ	-	AAÇ (1), AHAÇ (5)
I	ARI	ARU (1)	ARE (1), ARİ (10)
	HALI	HALU (1), HALI (9)	HALE (1), HALİ (9)
İ	KİR	-	KIER (2)
Ö	DÖRT	DURT 81)	DEURT (2), DURT (13)
	GÖL	-	DURD (3)
			GUL (9), KUL (2)
U	PUL	-	POEL (2)
AV	HAVLU	-	HAULÜ (1), HAWI (1)
	TAVUK	-	TAWIK (3), TAUWUK (7)
EY	BEY	BEEY (1)	BE (2), BEE (2), BEJ (2)
	LEYLEK		BEEY (2), BIJ (2)
			LEELEK (2), LELEK (9),
			LELLEK (1), LEYLEK (1)
ÖY	BÖYLE	BUYLE (1)	BULE (8), BUYLE (6)
	KÖY	-	KU (1), KEY (1), KUJ (4)
			KEUY (2), KUY (6)

Table 8.9: Interlingual misspellings in Turkish of the children enrolled in transition and submersion programmes

Table 8.10 presents a complete list of the interlingual misspellings in Dutch made by the children in the transition and submersion programmes of literacy

instruction. It is clear that the children in the transitional programmes have relatively more difficulty with the spelling of Dutch diphthongs. On the other hand, the children in the submersion context tend to use relatively more Turkish graphemes for the spelling of Dutch consonant clusters such as TJ, TSJ, STJ or SJ.

Target grapheme	Stimulus word	Learner variety	
		transition	submersion
J	JAS TAAĭ	YAS (2), TAY (3) TAY (3)	- TAY (4), TAAY (2)
V	VEL	WEL (1)	WEL (5), WOL (4), WOOL (1), WUĭL (1)
W	DUW	DUV (1)	DUVW (1), DĭEV (1), DIVW (1)
SJ	SJAAL MESJE	JAAL (2) MEJE (1)	CAAL (5), CAL (1), JAAL (1), JAL (1), SAL (1) MESE (2)
TJ	BEETJE PETJE	BEJE (1) PEŞ (1)	BEEC (1), BECE (1), BEECE (2), BEJE (1) PECE (2), PEJE (1)
TSJ	FIETSJE	-	FĭECE (1), VĭECE (1)
STJ	KĭSTJE	-	KĭJE (1), KĭSE (1)
IE	VĭEL WĭEL	VĭL (1) -	- WĭL (5)
OE	DOEK HOEK	DUK (4) HUK (1)	DUK (2) HUK (1)
UU	MUUR STUUR	- -	MIVR (1) STIVR (1)
AU	BLAUW	BELAW (1)	BLAW (2)
OU	TOUW	TAV (2) TAW (2) TAAV (1), TAAW (1)	TAV (1), TAW (3)
Eĭ	WEĭ	WEY (6)	WEJ (1)
ĭJ	BLĭJ	BLEJ (2)	BLEJ (1)

Table 8.10: Interlingual misspellings in Dutch of the children enrolled in transition and submersion programmes

Simultaneous versus successive transition. In Figure 8.6 the diagrams displaying the proportions of correct spellings and misspellings are presented for the children in school E (simultaneous transition) and in school A (successive transition). The classification of (mis)spellings is made as a

function of language (Turkish versus Dutch) and graphemes (consonants versus vowels). It can be seen that the spelling results for the two transitional programmes are highly comparable.

Figure 8.6: Classification of (mis)spellings of children enrolled in transition and submersion programmes

8.5 Conclusions and discussion

Several conclusions can be drawn from the present part of the study. First, it was found that the background of the Turkish children under consideration at the moment when they start to read and write is oriented more toward the minority language and minority culture than to the language and culture of the majority group. Even after two years of kindergarten, where Dutch was the exclusive medium of instruction, children appear dominant in their first language as regards the linguistic subskills of phonology, lexicon and morpho-syntax. At the same time, they show a clear preference for items in the minority culture. L2 submersion literacy instruction which is generally favoured in Dutch schools, does not seem very suitable given the children's linguistic and socio-cultural

background. In order to arrive at a better connection between the children's background and the literacy curriculum, a transitional approach seems more appropriate. The results of two small-scale experiments in transitional literacy instruction demonstrated that such an approach may have beneficial effects. Although the experiments under consideration had no professional literacy materials for a transitional programme available, their pattern of linguistic and social development can be called promising. With respect to linguistic measures, it was found that a strong emphasis on instruction in L1 does not lead to any retardation of oral and written language proficiency in L2. In comparison with children enrolled in a submersion programme, the children in the transitional classes tended to obtain better literacy results in L1, whereas the L2 literacy results in the two groups were highly comparable. Moreover, it was found that the transitional approach tended to develop a more positive orientation toward the minority culture and a stronger motivation toward literacy in general. The latter result seems to be quite relevant. The fact that transitional literacy instruction not only enhances motivation toward literacy in the minority language, but toward the majority language as well can be regarded as evidence for the socio-psychological suitability of the transitional approach.

The present conclusions are more or less in line with earlier research. The fact that transitional education of ethnic minority children in The Netherlands does not lead to any retardation of L2 Dutch was earlier found by Appel (1984) and Teunissen (1986). As has been noted in 3.1.1, in earlier studies abroad it was found that a transitional approach of literacy instruction generally leads to better literacy skills in L1, better reading skills in L2 and more positive attitudes toward the minority and the majority culture. The absence of better L2 reading results in the transitional classes in our study may be due to the relatively short period of instruction evaluated.

Data from the study on individual variation of literacy results in the transitional programmes under consideration indicate that literacy related skills which are acquired in L1 are easily transferred to comparable skills in L2. This finding supports Cummins' interdependency hypothesis as far as literacy skills are concerned (see 3.2.3). Both in grade 1 and grade 2 word decoding and reading comprehension skills in L1 were found to be significant predictors of comparable skills in L2. Furthermore, we found motivation toward literacy at the end of grade 2 to be related with literacy results at the end of grade 1. It seems that the initial success children obtain in literacy related tasks is a

strong predictor of motivation towards literacy in the future.

The instructional design is another relevant factor in predicting literacy outcomes in a transitional approach. It was found that more or less simultaneous literacy instruction in L1/L2 leads to better progress in oral L2, whereas successive L1-L2 instruction leads to better literacy outcomes. A tentative explanation for this result is that the application of differentiated groups in the former context has led to an emphasis on oral L2 instruction at the expense of L2 literacy instruction. However, further research is needed to find out to what extent the variation in linguistic outcomes in the instructional alternatives is due to organizational principles such as the application of differentiated groups or to the approach of literacy instruction alone.

With regard to the question of orthographic interference in bilingual literacy instruction, we found that such interference plays a minor role. Analysis of children's misspellings of words in each of the instructional approaches under consideration revealed that in some cases children tend to transfer orthographic rules from one language to the other. However, in view of the total number of (mis)spellings made by the children, the number of interlingual misspellings is relatively low. A slight difference was found as regards the number of misspellings made by the children in the different instructional contexts. The children in the transitional programmes displayed proportionally fewer interlingual misspellings in L1 than the children in the submersion programmes. Regarding the proportion of misspellings in L2, no differences between the two types of programmes were found.

The final conclusion with respect to instructional alternatives in bilingual literacy instruction is that an L2 submersion approach is not very suitable for children with the linguistic and socio-cultural background of Turkish children in The Netherlands. Even after a two-year period of kindergarten with exclusive attention for L2, children appear to be dominant in oral L1 with a clear preference for items of the minority culture. Small-scale experiments in transitional education show that a stronger emphasis on L1 in initial instruction will lead to better motivation for literacy tasks and to slightly better literacy results in L1 without retarding literacy results in L2.

Part 3: Epilogue and Summaries

Epilogue

The present chapter starts with a retrospective view on the acquisition of literacy in a second language and on the success of bilingual literacy instruction. In addition, several educational recommendations of the present study on literacy acquisition of Turkish children in The Netherlands are outlined. Finally, a more general perspective is given on literacy education for ethnic minority children in the future.

Acquisition of literacy in a second language. From the present study it is clear that Turkish children acquiring literacy in Dutch as a second language are less efficient in various subprocesses of reading and writing than their monolingual Dutch peers. Differences in efficiency were evinced both at the lexical level and at the discourse level of literacy tasks. There is ample evidence that in the acquisition of both lexical abilities and discourse abilities Turkish and Dutch children rely on highly comparable intralingual strategies. With respect to word reading efficiency, it was found that for both groups of learners the factors word length and word frequency play a significant role: word reading efficiency increases as words are shorter and more familiar. Moreover, both groups of learners displayed in their word reading strategies a gradual shift from mediated to direct word recognition. Additional evidence for universal strategies in the acquisition of lexical abilities comes from the children's word spelling behaviour. It was found that the invented spellings of Turkish and Dutch children in the initial stage of acquisition were based on highly comparable phonological judgments; it was found that the spellings of Turkish children in Dutch at the end of the second grade were only slightly influenced by the introduction of the Turkish alphabet during that grade.

Universal characteristics were also found with regard to the children's reading of discourse. A processual analysis of oral reading revealed no evidence of interlingual patterns regarding comprehension processes. It was found that semantic complexity does show comparable developmental features in Turkish and Dutch children as regards sequential principles of sentences in text, and understanding of anaphoric and inferential devices. Interlingual patterns rarely

occurred in the children's production of written discourse. In many cases the deviations from the norm in the writings of the Turkish children could be explained in terms of overgeneralization of rules of the target language Dutch.

Given the intralingual nature of L2 literacy processes, it can be suggested that Turkish children will be less competent in the target language than Dutch children are. Verhoeven & Vermeer (1985) found convincing evidence for this claim. 4-, 6- and 8-year-old Turkish children scored substantially lower than their Dutch peers on a variety of oral Dutch proficiency tasks. Especially in vocabulary size Turkish children had lower scores. As has been outlined in 2.2.3, such a fact may influence the acquisition of literacy in two ways: the understanding of instructions may be difficult, and/or the grasping of (meta)linguistic patterns of the target language may be hampered. It seems most likely that in the present study both principles play a role. With respect to the second principle, it is interesting to note that at different moments of measurement the explanatory background of differences in literacy behaviour in terms of proficiency of the target language diverged. Differences in word reading efficiency after five months of instruction could primarily be explained in terms of differences in processes of phonic mediation. By that time, the Turkish children seemed to have more difficulty recoding graphemic strings phonemically. It can be tentatively argued that a lack of full auditory discrimination of Dutch phonemes will hamper the assignment of correct grapheme-phoneme correspondences. After ten months of literacy instruction there was evidence that the differences in word reading efficiency between Turkish and Dutch children relate to different abilities in using orthographic constraints. A restricted awareness of phoneme distribution rules in the target language on the part of the Turkish children may underlie these differences. From the end of the first grade, Turkish children also appear to profit to a lesser extent from direct lexical access of written words. It appears that Turkish children have difficulty filling their visual word representation system as a consequence of a restricted availability of lexical meanings in Dutch. With respect to the efficiency in reading discourse, it was found that Dutch children were more successful in using contextual cues than Turkish children. It can tentatively be argued that due to their limited proficiency in Dutch, Turkish children have difficulty using context. As a result, decoding speed will decrease and the 'spreading content' of accessed words will be limited. Controlled attentional processes in memory with relatively strong inhibitory effects can then be expected.

Additional evidence about the role of limited (meta)linguistic proficiency in Dutch on Dutch reading processes comes from the structural analysis of components in Dutch reading comprehension. This analysis revealed that during the first two grades both word reading efficiency and reading comprehension in L2 Dutch are strongly influenced by (meta)linguistic skills in that language. Word reading efficiency at the end of grade 1 was moderately predicted by phonemic discrimination and metalinguistic abilities in Dutch. At the end of grade 2, word reading efficiency was significantly predicted by Dutch lexical knowledge. Reading comprehension, on the other hand, was strongly influenced by word reading efficiency in both grades. At the end of the first grade, both lexical and syntactic knowledge were additional predictors; at the end of grade 2, the predicting power of syntactic knowledge increased, while that of lexical knowledge was only indirect (via word reading efficiency). The fact that L2 reading comprehension difficulties at the end of the second grade are primarily related to syntactic knowledge can be explained by the fact that lexical knowledge is minimal. It is hypothesized that rapid reading is possible if sentence analysis is conceptually guided (see Ulijn, 1980). However, the chance of success for conceptually guided reading is minimal if lexical knowledge is lacking. It is in such cases that syntactic processing becomes extremely relevant.

It is important to note that the oral and written language proficiency of Turkish children in Dutch should not be qualified as deficient. The language differences in comparison with monolingual Dutch peers can at best be interpreted as a consequence of a mismatch between the educational context and the children's linguistic and socio-cultural background (see Shuy, 1979). In this light the reasons for children's repeat of first grade can also be explained. In 7.5 we found (meta)linguistic measures in Dutch and not the children's cognitive growth to be the primary explanation factors in the teacher's decisions on grade repeat. Moreover, first grade repeat could to a significant degree be predicted from several L2-related measures at the onset of literacy instruction. In 7.2 it was shown that the large variation in oral L2 skills could by that time be strongly predicted by socio-cultural factors. Contact with and attitudes toward the target language appeared the most relevant factors.

Effectiveness of bilingual literacy instruction. In the present study the acquisition of literacy by Turkish children in two types of bilingual

instructional programmes was examined. The effectiveness of these programmes was evaluated in several ways. First, the socio-cultural and linguistic background of the children at the onset of literacy instruction was determined. The children appeared to show a clear preference for the minority culture, while their oral skills were dominant in Turkish. As such, the background of the children favoured a transitional approach to literacy instruction. Second, the linguistic and socio-cultural development of children in the two types of programmes were considered. It was found that a transitional approach with a strong emphasis on L1 literacy instruction from the beginning does not lead to a retardation of acquiring oral and written L2 proficiency. In L1, the literacy results for the children in the transitional classes were slightly better, whereas in L2 no differences were evinced. The latter result is in contrast with findings from earlier research. However, the study was carried out for a relatively short period of time. As McLaughlin (1985: 257) has pointed out, it takes years for children to learn a second language and for the results of this learning to show up in tests administered in that language. Long-term longitudinal research is needed to determine the cumulative impact of participation in a particular bilingual programme. In our study we did find that the children in a transitional programme developed a more positive orientation toward the minority culture and a better motivation toward literacy in general. The latter fact can be regarded as evidence for the socio-psychological suitability of the transitional approach. This conclusion is in line with the results in the study by Teunissen (1986).

The third way of evaluating the bilingual literacy instruction models under consideration was to compare the degree of orthographic interference occurring. It was found that the introduction of two orthographies did not lead to any serious learning problems in any of the programmes. In each programme the proportion of interlingual misspellings appeared very low. The proportion of interlingual misspellings in L1 was slightly lower for the children from the transitional classes; in L2 no differences were found.

The final question in our discussion of the effectiveness of bilingual literacy education concerns the degree of interdependency between acquisitional processes in L1/L2. From the study on individual variation of literacy results in the transitional programmes, it was found that L2 literacy skills develop from literacy skills which had been developed earlier in L1. Both in grade 1 and grade 2, word reading efficiency and reading comprehension in L1 turned out to be significant predictors of comparable skills in L2. At the same time, it was

found from the study of individual variation in literacy results in the submersion programmes that word and text reading skills in L1 were highly predicted from similar skills in L2. These findings can be explained in terms of the last version of Cummins' interdependency hypothesis (see 3.1). The interdependency of word reading efficiency can be explained from the cognitively demanding nature of metalinguistic insights required. For reading comprehension, the decontextualized nature of text handling seems to be the best explanation.

Educational recommendations. The discovery of the alphabetical principle is an abstract task. Given the claim that it is easier for children to build up elementary literacy skills in a language in which they have acquired basic phonological, lexical and syntactic skills, schoolteams should carefully consider the question of instructional alternatives. In the light of such curricular planning, including student and faculty assignment, Fletscher et al. (1978) recommended language dominance testing. However, language dominance is not a unitary concept; it ranges across a large number of domains, roles and linguistic subskills. Burt & Dulay (1978) argue that instead of relying on a selected set of formal measures for language dominance, it is more valid to evaluate the construct by assessing a broad range of parameters of proficiency in the two languages independently. A critical factor in the school setting is the ability of children to grasp instructions in the two languages. Integrative measures seem to be the most appropriate means to assess such abilities.

Whatever instructional alternative is chosen, it is important to link the instruction in L1 and L2 as much as possible. During the kindergarten years children can be helped to learn to understand the purposes and mechanisms of literacy from a multicultural and multilingual perspective. In later years, an attempt should be made to develop an integrated literacy curriculum, encompassing the languages under consideration, in order to profit from a transfer of literacy skills from one language to another. For such an approach in the languages Turkish and Dutch we refer to Babacan, Eker, Nalbantoglu, Schelfhout, Verhoeven & Van der Zouw (1986), Verhoeven & Van der Zouw (1987).

With reference to literacy instruction in L2 Dutch, children should be helped to build up oral skills before literacy instruction is started. The better oral skills are developed, the greater the chance for a child to make correct inferences from literacy instruction. From the present study we have seen that phonemic discrimination and lexical knowledge are crucial conditions for successful literacy acquisition in L2. At a more advanced stage of

acquisition, syntactic skills proved to be quite relevant. In order to adjust the instruction to the individual needs of children, teachers should have diagnostic language tests at their disposal. Verhoeven, Vermeer & Van der Guchte (1986) developed such a test for the assessment of children's L2 Dutch proficiency. Following Canale & Swain (1980), they focussed on the following aspects of communicative competence in Dutch: grammatical competence, sociolinguistic competence and strategic competence. Grammatical competence is assessed by means of both comprehension and production tasks on the phonological, lexical, syntactic and textual levels. The two other aspects are assessed by means of an observation scale.

Finally, some basic didactic principles can be held to stimulate literacy acquisition in L1/L2. First, it is important to relate the various tasks of reading and writing directly to the children's experiences. In order to avoid ambiguities and misunderstandings in reading, texts should be selected which are culturally relevant. Writing activities should be encouraged which aim at communication in the child's daily environment. Furthermore, reading texts should link up with the oral skills of children. Only with graded text materials will children be able to use syntactic and semantic constraints while reading. In order to overcome the transition from the use of oral language in social context to decontextualized context in written texts, prereading teacher activities, such as telling the content of a story or explaining hard lexical items can be recommended. Finally, the writing products of children can be used as diagnostic tools for the teacher. In the initial stage of acquisition, spontaneous spellings will demonstrate how children analyse phonemic structures. At a more advanced stage, the children's text production can be analysed along such dimensions as diversity of vocabulary, grammatical competence and quality of text structure.

Perspective. From a sociolinguistic point of view, it is clear that the acquisition of biliteracy can have a great impact on the ethnic minority child and its community. Literacy in the native language provides a major socialization channel into the ethnic community and a means to get to know one's ethnicity. The acquisition of literacy in the native language can be viewed as a prerequisite for the optimum attainment of both intragroup communication and ethnic continuity. In addition, literacy in the second language can fulfil an important role in intergroup communication in the wider society and in schooling in higher educational sectors.

From an educational point of view, it can be concluded that the direct acquisition of literacy skills by ethnic minority children in their second language, in a context where L1 is the minority language and L2 the majority language, generally has negative effects. The present study has clearly shown that, though the structure of literacy processes in L1 and L2 is highly comparable, the acquisition of literacy in an L2 takes more time than in the mother tongue. Moreover, great individual variation in second language literacy results was evidenced. It can tentatively be concluded that, at least for some children, an L2 submersion approach of literacy instruction does not fit very well with their linguistic and socio-cultural background. On the other hand, transitional literacy programmes have proved to be feasible. Such programmes appear to be capable of improving students' academic proficiency and motivation and appear not to result in any retardation of second language literacy skills. Cognitive, socio-psychological and political arguments speak in favour of the latter type of instruction. However, educational practice in various countries throughout the world makes it clear that at school ethnic minority children mostly learn to read and write in the majority language. Especially in Western European countries bilingual literacy programmes are very rare. Moreover, in all countries the output of experiments of bilingual literacy instruction is most commonly measured on the basis of obvious and supposed effects on second language literacy results, rather than on the basis of literacy results in two languages. *It is claimed that in order to evaluate the outcomes of bilingual literacy instruction long-term longitudinal studies are needed in which the development of literacy skills in both the native language and the second language is followed.*

Fishman (1980: 59) claimed that successful acquisition of biliteracy requires nothing more than two 'cultures of literacy' to institute, implement and reward it. According to Fishman, children learn to read by being immersed in a world that reads, that enjoys reading, that benefits from reading, that values reading, that supports reading, and that demands reading for full-fledged membership. However, it can be argued that functional biliteracy will only be acquired when the language needs of ethnic minority groups are seriously taken into account by the responsible authorities. With respect to language and educational planning, policy makers are recommended to analyse the literacy needs of various minority groups by means of ethnographic interviews of teachers, parents and students. Such an analysis of literacy needs should yield guidelines for the determination of final objectives in literacy education to

minority children. If in a minority community there is a need for two at least partially separate sets of literacy functions, bilingual literacy instruction which aims at functional biliteracy should be supported by the authorities. In such a case not only legal measures must be taken, but also adequate information and instructional materials in both languages and qualified teachers must be made available.

Summaries

10.1 Summary (English)

In this book an attempt is made to arrive at a better understanding of the processes by which ethnic minority children acquire literacy. The book consists of three parts.

Part I deals with theoretical issues concerning literacy acquisition by ethnic minority children. In the first chapter, relevant aspects related to literacy instruction for minority children are considered. Previous research has made clear that most minority children, as do most majority children, acquire literacy through education. Though some children learn to read and write with little or no instruction, most children need a rather long period of formal instruction. An important issue concerns the language(s) used in the literacy curriculum for minority children. Taking language use as a starting point, six different models of literacy instruction are distinguished. Two of these represent a monolingual approach, one a transitional approach and three a functional biliteracy approach. After a presentation of these education models, several arguments in monolingual and bilingual literacy education are summed up. Attention is paid to educational, linguistic, psychological, socio-cultural, and political arguments. In addition, literacy programmes for ethnic minority children in various places are surveyed. This survey includes Canada, the United States, Sweden and several West European countries. Finally, the need for a theory of literacy acquisition by ethnic minority children in both the first and the second language is discussed. In this connection, two research paradigms regarding structural and temporal aspects of processes of literacy acquisition respectively are put forward.

In Chapter 2, the processes of literacy acquisition in a first and second language are compared. After a summary of research evidence on literacy acquisition in a first language, a hypothetical account of similarities and differences between the two types of processes is given. With respect to processual differences, a model of the bilingual language user of written is introduced. Taking this model as a starting point, three factors are discussed

which may hinder performance in reading and writing in a second language: interference from L1, limited proficiency in L2 and restricted background knowledge. Furthermore, a review of previous studies in L2 literacy processes is given. A distinction is made between studies on the various linguistic components, i.e. word recognition, reading comprehension, word spelling and discourse writing. From this review, it is concluded that the state of affairs concerning acquisitional processes in L2 literacy is far from clear-cut. It is unclear how linguistic and socio-cultural differences in background between L1-learners and L2-learners affect the course of literacy processes in the early stages of acquisition. Moreover, several critical comments could be made. First, studies on L2 literacy acquisition have been one-sidedly devoted to reading, especially to miscue analysis. In the vast majority of cases a developmental view on L2 literacy processes is lacking. Finally, the generalizability of data can often be characterized as questionable.

Chapter 3 deals with previous research on to the temporal variation in literacy acquisition in a bilingual context. Three groups of variables determining individual variation in literacy achievement were the object of study: educational variables, learner variables and background variables. The language(s) used in the literacy curriculum appeared to be among the most relevant educational variables. From a review of studies investigating the effectiveness of several instructional alternatives, described in Chapter 1, positive effects of bilingual literacy programmes for L1 as well as L2 literacy achievement could be demonstrated. The same was true for the children's self-concept. School characteristics, such as the instructional approach and teacher attitudes, also had an influence on the children's literacy results. With regard to learner variables, the following characteristics were found to be relevant: metalinguistic awareness, oral proficiency in L1/L2, intellectual skills and cultural orientation. An important issue in relation to the acquisition of written skills is the extent to which L1 and L2 skills are interdependent. From a number of studies, it was concluded that cognitively demanding skills in L1 and L2 are at least partially interdependent. This conclusion permits considerable transfer of literacy skills from one language to another, given sufficient exposure (instruction) and motivation to learn. With reference to the learner's background, socio-economic class, language input in the home and in the community and parent attitudes appeared to be relevant variables. In the final section, an interaction model was presented explaining individual differences in literacy success in two languages in which all of the

above-mentioned variables are taken into account.

In part II a report is presented of a longitudinal study on the acquisition of literacy by Turkish children in The Netherlands. Turkish children were chosen because they belong to the largest minority group in The Netherlands. The present practice of literacy programmes in Dutch schools made it possible to examine the processes of literacy acquisition in ethnic minority children extensively. In most schools literacy instruction is L2-based from the first year with a few hours set aside each week for additional literacy instruction in L1, usually starting in the second grade. This mainstream condition might provide insight into the structural, and temporal aspects of literacy acquisition in an L2 submersion context. In a few schools transitional literacy programmes have been initiated. In these programmes instruction is started in L1, but after some time, instruction in L2 is added. The effectiveness of such literacy programmes could be compared with those of the L2 submersion approach.

In Chapter 4, a detailed outline of the present study is given. A group of about 100 Turkish children and 40 Dutch children was followed during a two year period of initial literacy instruction. Data collection took place at the onset of and after 5, 10 and 20 months of literacy instruction. The study aimed at answering three focal questions:

- (1) What are the differences between the learning behaviours of Turkish children involved in L2 literacy processes and Dutch children involved in literacy acquisition in L1?
- (2) What learner variables and background variables account for temporal differences in the acquisition of literacy by Turkish children in a submersion context?
- (3) Is there a difference between the literacy processes and literacy outcomes of Turkish children in submersion context?

The first question deals with structural aspects of L2 literacy acquisition, the next two questions deal with temporal aspects of literacy acquisition in different acquisitional contexts.

In Chapter 5, structural aspects of L2 literacy acquisition at the word level are under consideration. In order to discover the strategies Turkish children use while reading and spelling isolated words, their learning behaviour in L2 was compared with that of Dutch children in L1. After 5, 10 and 20 months of literacy instruction a word reading task was administered to the two groups of children. In this task, several series of words, varying in word length and

word frequency, were presented to be read out loud. It was found that in both groups there is a sharp increase in successful direct access over time. Though the strategies used by Turkish and Dutch children were highly comparable, the Turkish children were relatively slower in their rate of acquisition of verbal efficiency. The differences in word reading efficiency scores were largest on those word patterns which had just been taught. In the initial stage acquisition the differences could be interpreted as a result of restricted knowledge of grapheme-phoneme correspondency rules on the part of the Turkish children. At the end of the first grade, it was found that the Turkish children had relatively more difficulty in reading larger words. Apparently, at that stage of acquisition they were not equally able to make use of orthographic constraints as their Dutch peers. At the end of the second grade, Turkish children were less successful in direct lexical access. The latter conclusion was also arrived at from the analysis of the children's word attack strategies. The spelling behaviour of the Turkish children in Dutch turned out to be based on highly universal strategies as well. Half-way through the first grade Turkish and Dutch children appeared to apply more or less similar principles on a word spelling task. Both groups of children appeared to make use of two distinct systems. On the one hand, they made use of a invented spelling system of their own which is based on a set of phonological judgements. On the other hand, they gradually learned to apply the conventions of Dutch standard orthography.

Chapter 6 deals with the acquisition of discourse abilities by Turkish children in Dutch as a second language. A comparison of the features of learning behaviour of Turkish children in L2 with those of Dutch children in L1 was made to discover the intralingual versus interlingual strategies used. First, the processes involved in reading discourse aloud were analysed. A clear developmental trend was found toward increased contextual facilitation. However, this trend was stronger for the Dutch children, indicating that with the progression of time, Dutch children were more successful in using contextual cues than their Turkish peers. In spite of the more limited efficiency of Turkish children in reading discourse, no substantial evidence of interlingual patterns in their misreadings was found. In addition, the reading comprehension results in the two groups of children were investigated. From a temporal point of view, Turkish children had a strikingly lower level of reading comprehension than Dutch children. Differences in scores on three different aspects of reading comprehension measured at the end of the first grade remained constant over the second grade. From a structural point of view, these differences could be

explained by intralingual rather than interlingual developmental features on the part of the Turkish learner. Finally, the products of written discourse in Dutch by Turkish and Dutch children at the end of the second grade were investigated. Analyses of the discourse data at the orthographic, lexical, morpho-syntactic and pragmatic level revealed additional evidence of intralingual strategies on the part of the Turkish children.

In Chapter 7, an attempt was made to uncover the variables which determine the individual variation in the literacy abilities of Turkish children during the first two grades of an L2 Dutch submersion approach to literacy instruction. First, the temporal variation in reading comprehension in L2 Dutch was examined. In this study, the predictive power of various (meta)linguistic social and nonverbal cognitive measures on L2 reading comprehension was determined by applying Lisrel. It was found that during the first two grades bottom-up influences were partly replaced by top-down influences in combination with socio-cultural influences. In comparison with research on L1 reading acquisition, this transition went relatively fast. The early role of top-down influences in L2 reading was tentatively ascribed to the large variation of learners as regards their oral L2 proficiency and their socio-cultural orientation. Only to a very small extent were L2 reading comprehension scores predicted by the nonverbal cognitive skills of children. Finally, the learner and background variables of the children who had to repeat the first grade was examined in detail. It was found that the children's cognitive growth was not the primary factor which motivates the teacher to have the child repeat first grade. Metalinguistic measures related to literacy, together with global L2 oral proficiency measures, appeared the most crucial factors in classifying first grade repeaters. Furthermore, it was found that the classification of first grade repeat could already be predicted from several L2-related measures at the onset of literacy instruction.

In Chapter 8, the results of literacy acquisition in the L2 submersion context were compared with those of literacy acquisition in two transitional programmes. First of all, the linguistic and socio-cultural background of Turkish children to be enrolled in various literacy programmes in The Netherlands was examined. It was found that the background of Turkish children under consideration at the moment when they start to read and write is oriented more toward the minority language and minority culture than to the language and culture of the majority group. Even after two years of kindergarten, where Dutch was the exclusive medium of instruction, children appeared dominant in their

first language. At the same time, they showed a clear preference for items in the minority culture. As such, L2 submersion literacy instruction, which is generally favoured in Dutch schools, was not judged very suitable given the children's background. In addition, the results of two small-scale experiments in transitional literacy instruction were examined. It was found that a strong emphasis on instruction in L1 did not lead to any retardation of oral and written language proficiency in L2. In comparison with the children in a submersion programme, the children in the transitional classes tended to obtain better literacy results in L1, whereas the L2 literacy results in the two groups were highly comparable. Moreover, the transitional approach tended to develop a more positive orientation toward the minority culture and a stronger motivation toward literacy in general. The latter result was regarded as evidence for the socio-psychological suitability of the transitional approach. With regard to the individual variation of literacy results in the transitional programmes, it was found that literacy related skills which had earlier been acquired in L1 were easily transferred to comparable skills in L2. Moreover, the literacy results at the end of grade 1 were related to the children's motivation towards literacy at the end of grade 2. Finally, the role of orthographic interference in bilingual literacy instruction was investigated. Analysis of children's misspellings of words in each of the instructional approaches under consideration revealed that in some cases children tended to transfer orthographic rules from one language to another. However, in view of the total number of (mis)spellings made by the children, the number of intralingual misspellings was relatively low.

In Part III of the book, the theoretical and practical implications of the present study are discussed (Chapter 9). A retrospective view on literacy acquisition in a second language and on the success of bilingual literacy instruction is given. Moreover, several educational implications of the present study are presented. Finally, a perspective is given on literacy education for ethnic minority children in the future. Summaries of the book in English, Dutch and Turkish are supplied in Chapter 10.

10.2 *Samenvatting (Dutch)*

Het boek beoogt theorievorming inzake de verwerving van lees- en

schrijfvaardigheid door kinderen van etnische minderheden. Drie delen worden onderscheiden. Deel I schetst de theoretische achtergrond van het onderzoekterrein. In het eerste hoofdstuk komen uiteenlopende aspecten van schriftelijke taalverwerving van kinderen die van huis uit een minderheidstaal spreken aan bod. Allereerst worden de contexten waarin dit verwervingsproces kan plaatshebben besproken. Incidenteel blijkt sprake van spontane verwerving; in hoge mate echter worden lezen en schrijven via onderwijs geleerd. Al naar gelang de taal (talen) die in het lees- en schrijfonderwijs worden gehanteerd, kunnen uiteenlopende onderwijsmodellen worden onderscheiden. Kinderen kunnen monolinguaal worden onderwezen in ofwel de moedertaal ofwel de tweede taal. Daarnaast kunnen zij een tweetalig instructiemodel volgen, gericht op taaltransitie dan wel op functionele tweetaligheid. Bij de keuze voor een van deze opvangmodellen kunnen verschillende argumenten een rol spelen. Op een aantal onderwijskundige, linguïstische, psychologische, sociaal-culturele en politieke argumenten wordt ingegaan. Vervolgens wordt een beschrijving gegeven van de feitelijke praktijk van lees- en schrijfonderwijs aan kinderen van etnische minderheden in Canada, de Verenigde Staten, Zweden en enkele West-Europese landen. Tenslotte wordt een theoretische onderbouwing geboden van de processen die zich afspelen bij het leren lezen en schrijven door kinderen in een tweetalige context. Daarbij wordt onderscheid gemaakt tussen structurele en temporele kenmerken van leerprocessen, respectievelijk gericht op de wijze waarop en de snelheid waarmee kinderen leren lezen en schrijven.

In Hoofdstuk 2 wordt de structuur van processen bij het leren lezen en schrijven in een eerste en tweede taal vergeleken. Na een beknopte samenvatting van onderzoeksresultaten bij het leren lezen en schrijven in een eerste taal, worden overeenkomsten en verschillen tussen processen bij verwerving in een eerste en tweede taal besproken. Met het oog op processuele analyse wordt een model van de tweetalige gebruiker van schrift gepresenteerd. Uitgaande van dit model worden drie mogelijke factoren genoemd die de aard van lees- en schrijfprocessen in een tweede taal kunnen beïnvloeden: interferentie vanuit T1, geringe beheersing van T2 en beperkte achtergrondkennis. Vervolgens wordt een beknopte samenvatting gegeven van tot dusver uitgevoerd onderzoek naar het leren lezen en schrijven in een tweede taal. Daarbij wordt onderscheid gemaakt tussen studies al naar gelang de linguïstische componenten die als uitgangspunt nemen: woordherkenning, begrijpend lezen, woordspelling en schrijven van tekst. Onderzoek heeft zich tot dusver bijna uitsluitend op lezen gericht. In het overgrote deel van de studies is uitgegaan van een analyse van schendingen

(miscues) die T2-leerders maken in vergelijking met T1-leerders. Over de precieze invloed van de linguïstische en sociaal-culturele achtergrond van T2-leerders op processen van schriftelijke taalverwerving is nog maar weinig bekend. Opvallend is dat studies met een longitudinaal karakter vrijwel ontbreken.

Hoofdstuk 3 gaat in op eerder onderzoek naar de temporele variatie van schriftelijke taalverwerving in een tweetalige context. Drie groepen variabelen blijken van invloed op het tempo waarin kinderen van etnische minderheden lees- en schrijfvaardigheden verwerven: onderwijskundige variabelen, leerlingvariabelen en achtergrondvariabelen. De meest relevante onderwijskundige variabele lijkt de taal (talen) die in het lees- en schrijfonderwijs wordt (worden) gehanteerd. Eerdere studies naar de effectiviteit van eentalig versus tweetalig onderwijs wijzen erop dat tweetalige lees- en schrijfonderwijs doorgaans een positief effect heeft op de ontwikkeling van zowel T1- als T2-vaardigheden en op de ontwikkeling van het zelf-concept van kinderen. Schoolkenmerken, zoals de didactische aanpak en de attitudes van leerkrachten, blijken eveneens op genoemde ontwikkelingen van invloed. Verder blijken de volgende leerlingkenmerken van belang: metalinguïstisch bewustzijn, mondelinge vaardigheden in T1 en T2, intellectuele vaardigheden en sociaal-culturele oriëntatie. Een belangrijke vraag met betrekking tot het leren van lezen en schrijven in twee talen is in hoeverre sprake is van afhankelijkheden tussen T1- en T2-leerprocessen. Een aantal studies blijkt empirische evidentie te geven voor dergelijke afhankelijkheidsrelaties. Wat de achtergrond van leerlingen betreft blijken de volgende variabelen relevant voor het tempo van schriftelijke taalverwerving in T1/T2: socio-economische achtergrond, taalaanbod en attitudes van ouders. Aan het eind van het hoofdstuk wordt een interactioneel model gepresenteerd van waaruit temporele verschillen in lees- en schrijffresultaten van kinderen in een tweetalige context kunnen worden verklaard.

In Deel II van het boek wordt verslag gedaan van een longitudinale studie naar schriftelijke taalverwerving van Turkse kinderen in Nederland. De huidige praktijk van het lees- en schrijfonderwijs op basisscholen in Nederland maakt het mogelijk leerprocessen in uiteenlopende verwervingscontexten te onderzoeken. Op de meeste scholen leren kinderen van etnische minderheden lezen en schrijven in het Nederlands, waarbij na één jaar onderwijs gedurende een beperkt aantal uren eveneens lees- en schrijfonderwijs in de moedertaal kan worden gegeven. Deze onderwijsconditie kan inzicht verschaffen in structuur en tempo van

leerprocessen bij het lezen en schrijven in een tweede taal. Op enkele scholen in Nederland wordt verder geëxperimenteerd met een transitionele onderwijsaanpak waarbij met lezen en schrijven in T1 wordt begonnen, met na enige tijd aanvullend lees- en schrijfonderwijs in T2. Op basis van vergelijking met de gangbare onderdompelingsconditie kan de effectiviteit van dergelijke experimenten worden getoetst.

In Hoofdstuk 4 wordt opzet van de onderhavige studie beschreven. Een groep van ongeveer 100 Turkse en 40 Nederlandse kinderen werd gedurende een periode van twee jaar aanvankelijk lees- en schrijfonderwijs. Verzameling van gegevens had plaats bij de aanvang en na verloop van 5, 10 en 20 maanden lees- en schrijfonderwijs. In het onderzoek stonden drie onderzoeksvragen centraal:

- (1) Welke leergedragsskenmerken inzake lezen en schrijven vertonen Turkse kinderen bij T2-leerprocessen, in vergelijking met Nederlandse kinderen bij T1-leerprocessen?
- (2) Vanuit welke leerlingkenmerken en achtergrondvariabelen kunnen temporele verschillen in lees- en schrijffresultaten van Turkse kinderen in een onderdompelingscontext worden verklaard?
- (3) Is er sprake van een verschil tussen de lees- en schrijfprocessen van Turkse kinderen in een transitionele context in vergelijking met een onderdompelingscontext?

De eerste vraag gaat in op structurele aspecten van het leren lezen en schrijven in een tweede taal, de beide andere vragen hebben betrekking op temporele aspecten van schriftelijke taalverwerving in uiteenlopende onderwijscondities.

Hoofdstuk 5 gaat in op de structuur van T2-lees- en schrijfprocessen op woordniveau. Daartoe zijn de strategieën die Turkse kinderen hanteren bij het lezen en spellen van geïsoleerde woorden in T2 vergeleken met die van Nederlandse kinderen in T1. Een nadere analyse van het leergedrag van Turkse en Nederlandse kinderen liet zien dat zowel bij het lezen als het spellen vooral intralinguale principes een rol spelen. De rol van interferentie in het leergedrag van Turkse kinderen was minimaal. Bij de ontwikkeling van woordleesvaardigheid bleken temporele verschillen in efficiëntie tussen beide groepen leerders een uiteenlopende verklaringsgrond te hebben. Na 5 maanden onderwijs konden de verschillen worden geïnterpreteerd als resultaat van een beperkte kennis van grafeem/foneem-relaties bij de Turkse kinderen. Na een jaar onderwijs hadden Turkse kinderen relatief grote problemen met het lezen van langere woorden. Blijkbaar waren zij op dit tijdstip minder vaardig in het gebruik van orthografische kennis dan hun Nederlandse leeftijdgenoten. Na twee

jaar onderwijs waren Turkse kinderen minder goed in staat tot het vormen van visuele woordrepresentaties dan de Nederlandse kinderen. Dit lijkt het gevolg van de geringere T2-woordenschat waarover Turkse kinderen beschikken. Ook bij het spellen was sprake van in hoge mate vergelijkbare leerstrategieën bij Turkse en Nederlandse kinderen. Beide groepen kinderen hanteerden twee typen systemen. Aanvankelijk maakten zij vooral gebruik van een zelf geconstrueerd spellings-systeem dat vooral gebaseerd lijkt op fonologische oordelen. Daarnaast leerden zij geleidelijk de conventies van de Nederlandse standaardspelling.

In Hoofdstuk 6 komt de ontwikkeling van tekstuele vaardigheden van Turkse kinderen in het Nederlands als tweede taal aan bod. Allereerst zijn proceskenmerken van hardop-leesgedrag van Turkse en Nederlandse kinderen vergeleken. Daarbij bleek voor beide groepen leerders sprake van een toenemende invloed van contextuele kenmerken. Deze trend was echter sterker voor Nederlandse kinderen. In de loop van het leerproces waren Nederlandse kinderen beter in staat om van de context gebruik te maken bij het lezen dan Turkse kinderen. Uit een analyse van de schendingen van Turkse kinderen tijdens het lezen bleek echter vrijwel geen sprake van interlinguale patronen. Vervolgens is voor uiteenlopende tekstattaken nagegaan in hoeverre het begrijpen van Nederlandstalige teksten beide groepen kinderen voor vergelijkbare dan wel verschillende problemen plaatst. Daarbij bleek dat de Turkse kinderen op alle taken in vergelijking met Nederlandse kinderen laag scoren. De ordening van syntactisch/semantisch gemarkeerde subscores op de tekstattaken bleek echter uniform voor beide onderzoeksgroepen. Deze ordening was primair gerelateerd aan de structuur van de doeltaal (Nederlands). Tenslotte zijn de schrijfproducten van Turkse en Nederlandse kinderen in het Nederlands vergeleken. Analyse van de geschreven data op orthografisch, lexicaal, morfo-syntactisch en pragmatisch niveau wezen opnieuw op een overwegend gebruik van intralinguale strategieën door de Turkse kinderen.

In Hoofdstuk 7 is een verklaring gezocht voor temporele verschillen in leesresultaten van Turkse kinderen in een onderwijsconditie waarin vanuit het Nederlands begonnen wordt. Daarbij is Lisrel toegepast om zowel longitudinale als cross-sectionele verbanden tussen uiteenlopende leerling- en achtergrondvariabelen te kunnen verklaren. De variabele mondelinge T2-vaardigheid bleek in grote mate van invloed op de vaardigheid begrijpend lezen in T2. Op verschillende tijdstippen bleken echter verschillende causale factoren in het geding. Een tweede belangrijke voorspeller van begrijpend lezen in T2 was T2-woordleesvaardigheid. In de loop van de eerste twee leerjaren wordt

de invloed van deze factor echter geleidelijk minder groot. Sociaal-culturele oriëntatie en in mindere mate nonverbale intelligentie waren additionele voorspellers van T2-tekstbegrip. Vervolgens is met behulp van Lisrel nagegaan in hoeverre de leesleerresultaten van Turkse kinderen in het Turks door eerdere leesleerresultaten in het Nederlands konden worden voorspeld. Dit bleek in hoge mate het geval. Daarmee is evidentie gevonden voor de afhankelijkheidshypothese die stelt dat min of meer abstracte vaardigheden van de ene taal naar de andere kunnen worden overgedragen. Tenslotte is onderzocht in hoeverre het uitblijven van leersucces van Turkse kinderen na een jaar onderwijs in het onderdompelingsmodel aan linguïstische en sociaal-culturele variabelen is gerelateerd. Daartoe zijn de leerresultaten van zittenblijvers nader onderzocht. Linguïstische factoren bleken in hoge mate bij te dragen aan de beslissing van de leerkracht tot doublure. Bovendien werd gevonden dat deze beslissing reeds op basis van linguïstische factoren bij de aanvang van het lees- en schrijfonderwijs kan worden voorspeld.

In Hoofdstuk 8 zijn de leerresultaten van Turkse kinderen in een onderdompelingsmodel vergeleken met die van kinderen in twee transitionele modellen. Allereerst is de beginsituatie van alle Turkse kinderen nader geanalyseerd. Daarbij bleek dat de achtergrond van de kinderen op het moment dat zij gaan leren lezen en schrijven sterker aansluit bij de eigen taal/cultuur dan bij de Nederlandse taal/cultuur. Zelfs na twee jaar Nederlandstalig kleuteronderwijs waren Turkse kinderen dominant in hun moedertaal en hadden ze een voorkeur voor kenmerken van de eigen cultuur. Als zodanig lijkt het onderdompelingsmodel waarbij kinderen van meet af aan lees- en schrijfonderwijs in het Nederlands krijgen niet goed aan te sluiten bij de linguïstische en sociaal-culturele achtergrond van deze kinderen. Vervolgens zijn de resultaten van transitioneel lees- en schrijfonderwijs nader onderzocht. Daarbij bleek dat een grote mate van nadruk op T1 in het lees- en schrijfcurriculum niet leidt tot het achterblijven van leerresultaten in T2. In vergelijking met de kinderen in het onderdompelingsmodel behaalden de kinderen in het transitie-model betere leerresultaten in T1 en min of meer vergelijkbare resultaten in T2. Bovendien ontwikkelden de kinderen in de transitie-klassen een relatief meer positieve houding ten opzichte van de eigen cultuur en een sterkere motivatie ten opzichte van lezen en schrijven in het algemeen. Het transitie-model lijkt daarmee vooral in sociaal-psychologisch opzicht adequaat. Inzake de temporele variatie in lees- en schrijfvaardigheden binnen de transitie-klassen bleek verder dat leesvaardigheden die eerder in T1 waren ontwikkeld gemakkelijk overdraagbaar

zijn naar vergelijkbare vaardigheden in T2. Tenslotte is de rol van orthografische interferentie binnen tweetalig lees- en schrijfonderwijs onderzocht. Uit de analyse van spelfouten van Turkse kinderen in alle onderzochte condities kwam naar voren dat kinderen in een aantal gevallen orthografische regels van het Turks en het Nederlands met elkaar verwisselden. Op het totaal aantal geschreven woorden bleek het percentage interlinguale spelfouten echter verwaarloosbaar klein.

In Deel III van het boek worden theoretische en praktische implicaties van de onderhavige studie besproken (Hoofdstuk 9). Er wordt een retrospectief gegeven op de verwerving van lees- en schrijfvaardigheid in een tweede taal. Daarnaast worden enkele onderwijskundige aanbevelingen gedaan. Tenslotte wordt een toekomstperspectief geschetst op het lees- en schrijfonderwijs aan kinderen van etnische minderheden. Hoofdstuk 10 geeft samenvattingen van het boek in de talen Engels, Nederlands en Turks.

10.3 Özet (Turkish)

Üç kesimden oluşan bu tezle dilsel azınlık çocuklarının okuma yazma becerilerini nasıl kazandıkları alanında teori gelişimi amaçlanmıştır. Kesim 1'de araştırma alanının dayandığı teorik bağlam tartışılmaktadır. İlk bölümde bir azınlık diliyle büyüyen çocukların okur-yazarlaşmalarının çeşitli yönleri söz konusu edilmektedir. Önce, hangi ortamlarda sözü geçen becerilerin edinilebileceği konuşulmaktadır. Genellikle öğretimle gelişen okur-yazarlığın kendiliğinden edinildiğine çok az rastlandığı görülmektedir. Okur-yazarlık öğretiminin oturtulduğu dil yada dillere dayanarak birbirinden farklı birçok öğretim modelleri ayırt edilebilir. Sık rastlanılan bir modele göre, çocuk tek bir dilde, ya anadilinde yada çoğunluk dilinde, öğretim görür. Kimi modellerde, çocuğa anadilinden çoğunluk diline geçişini sağlamak için, yada işlevsel ikidilliliği edindirmek için iki dilde okuma yazma öğretilir. Model seçiminde çeşitli tezlerin rol oynadığı görülmektedir. Bunlardan eğitimsel, dilbilimsel, psikolojik, sosyal-kültürel, ve politik tezlerin birkaçı tartışıldı. Sonra ABD, Kanada, İsveç, ve birkaç batı avrupa ülkelerindeki gerçekteki öğretim durumu özetlendi. Bu özeti, iki dilli bir ortamda okur-yazarlaşmayı oluşturan süreçlerin teorik olarak nasıl temellendirilebileceği izlemektedir. Burada, öğrenimi belirleyen süreçlerin

Özellikleri yapısal ve zamansal olarak iki boyutta toparlanmıştır.

Bölüm 2'de, anadilde ve bir ikinci dilde okur-yazarlaşmaya götüren süreçlerin bir yapı karşılaştırılması yapıldı. Somut olarak, anadilde okur-yazarlaşmayı konu eden araştırma sonuçlarının kısa bir özetinden sonra, anadilde ve ikinci dilde gözlenen süreçlerin benzerlikleri ve farklılıkları ele alınıp ikidilli çocuğun yazıyı kullanışı bu süreçlerin yer aldığı bir modele bağlanmıştır. Bu modeli çıkış noktası olarak, ikinci dilde okur-yazarlaşmaya götüren süreçleri belirleyebilecek üç etken sınırlandırılmıştır: anadilden girgi (= interference), ikinci dil yetersizliği, ve sınırlı arka-alan bilgileri. Sonra ikinci bir dilde okur-yazarlaşmayı konu alan bugüne kadar yapılmış araştırmalar kısaca özetlenmektedir. Bu incelemeler öte yandan ele aldıkları dilsel bileşenlere göre, sözcük tanıma, anlayarak okuma, yazım, ve metin düzenleme olarak, ayrı ayrı gözden geçirilmektedir. Sonuç olarak sayısız eleştirilerin kaçınılmaz olduğu ortaya çıkmıştır. Örneğin, bu araştırmaların çoğu yalnız okumaya yönelik olup ikinci dilde gözlenen yanlıgıları o dili anadil olarak edinenlerinki ile karşılaştırmakla yetinmektedir. Üstelik, ikinci dil (D2) edinim süreçlerini koşullandırdığı düşünölen dilsel, sosyal, ve kültürel öğelerin söz konusu süreçleri nasıl ve ne yönde etkilediği konusunda çok az kesin bilgi vardır. İlginç sayılması gereken bir nokta da süremlı araştırma metodunun hemen hemen hiç kullanılmamış olmasıdır.

Bölüm 3'de ikidilli bir ortamda D2'yi öğrenenler arasında gözlenen D2'de okur-yazarlaşmaya ilişkin çocuklar arası süresel farklılıkları inceleyen araştırmalar söz konusu edildi. Etnik azınlık çocuklarının okur-yazarlaşma hızını etkileyen üç değişkenler grubu saptanmıştır: eğitimsel değişkenler, kişilik değişkenleri, ve arka-alan değişkenleri. Eğitimsel değişkenlerin en önemlisinin okur-yazarlaşmada kullanılan dil yada diller olduğu ortaya çıkmaktadır. Tek dil öğretimini iki dil öğretimi ile karşılaştıran araştırmalar, sonuncu öğretim biçiminin çocukların hem anadil (D1) hem de D2 becerilerini ve de kimliklerini (öz-kavramlarını) olumlu yönde etkilediğini göstermektedir. Yine, öğretim metodu, öğretmenin tutumu gibi okul özelliklerinin de sözü geçen gelişimleri etkilediği görölmektedir. Kişilik değişkenlerinden dilötesi bilincin, D1 ve D2'de varolan konuşma becerilerinin, ve sosyal-kültürel yönelimin önem taşıdığı ortaya çıkmaktadır. İki dilde birden okur-yazarlaşmada ilk akla gelen soru, D1 ve D2'de gözlenen süreçlerin ne ölçüde birbiri ile bağımlılık ilişkileri gösterdikleridir. Kimi araştırmalar bu süreçlerin birbirine bağımlı olduğunu gösteren veriler getirmiştir. Öte yandan, arka-alan değişkenlerinden sayılan anne-babanın

sosyo-ekonomik konumunun, tutumlarının, ve çocuğun işittiği dil oranının da onun D1 ve D2'de okur-yazarlaşma hızını belirlediği gösterilmiştir. Bu bölümün sonunda, çocuklar arası okur-yazarlaşma hızı farklılıklarını açıklayabilecek bir etkileşim modeli sunuldu.

Kesim 2'de, Hollanda'daki türk çocukların okur-yazarlaşmasını konu alan bir süremlili araştırma tartışıldı. Hollanda'daki ilköğretimdeki bugünkü durumun gözlemek istediğimiz okur-yazarlaşma süreçlerini değişik öğretim modelleri altında incelenmesine elverişli olduğu saptanmıştır. Anaokulu ile ilkokulun birleştirildiği temel okulların çoğunda etnik azınlık çocukları doğrudan doğruya çoğunluk dilinde, yani hollandacada, okur-yazarlaştırılmaktadır. Bu batırma metodunda çocuğa bir yıllık bir öğretimden sonra kendi anadilinde de kısıtlı sayıda okuma yazma dersleri verilmektedir. Sözü geçen öğretim koşullarının, ikinci bir dilde okur-yazarlaşmayı güden süreçlerin yapı ve hızını aydınatabilecek türden bir deney oluşturduğu bellidir. Kimi temel okullarda okuma yazma önce anadilde öğretilmekte ve bir zaman sonra ikinci dilde okuma yazma dersleri başlatılmaktadır. Bu türden denemelerin ne derece etkin oldukları daha önce sözü edilen batırma metodu ile karşılaştırılarak saptanabilir.

Bölüm 4'de bu tezin konusunu oluşturan araştırma tanıtılmaktadır. Okuma yazma öğrenmeye yeni başlayan 100 türk, 40 hollandalı çocuk iki yıllık bir süre boyunca izlenilmiş, veriler öğretimin başlangıcında, 5.ci, 10.cu, ve 20.ci aylarında toplanılmıştır. Araştırmada aşağıdaki üç temel soruya yanıt aranmıştır:

- (1) Türk ve hollandalı çocukların hollandaca okuma-yazmayı öğrenirken gösterdikleri öğrenme benzerlikleri ve farklılıkları nelerdir?
- (2) Batırma koşulları altında okuma-yazma öğrenen türk çocukları arasında gözlenen okur-yazarlaşmadaki süresel farklılıklar hangi etmenlerin katkısı ile açıklanabilir?
- (3) Geçiş (Önce D1 giderek D2) modeli batırma (yalnız D2) modeli ile karşılaştırıldığında bu iki öğretim biçimi arasında özgün bir farklılık söz konusu mudur?

İlk soru belirli bir D2'de okur-yazarlaşmanın yapısal yönlerini vurgularken, son iki soru bu sürecin değişik öğretim ortamlarındaki süresel yönlerine eğilmektedir.

Bölüm 5'de yapısal inceleme sözcük düzeyinde yoğunlaştırılmaktadır. Tümce dışı sözcük okuyup yazmada türk çocukların hollandalı çocuklar gibi bu dile

Özgün işlemleri kullandıkları saptanmış, davranışlarında anadillerinden kaynaklanan yok denecek kadar az girgiye (= interference) rastlanılmıştır. Öte yandan, iki grup arasında sözcük okumada gözlenen beceri gelişimi farklılıkları çok yanlı bir açıklama biçimi gerektirmiştir. Beş aylık bir öğretimden sonra gözlenen farklar, türk çocukların yazıbirimleri ve sesbirimleri arasındaki ilişkileri yeterince bilmemelerine bağlanmıştır. Bir yıllık bir öğretimin sonunda türk çocukların uzun sözcükleri okumada çok güçlük çektikleri gözlenilmiştir. Hollandalı yaşitlarına göre türk çocukları demekki yazım alanında becerilerini daha yeterince geliştirememişlerdir. İki yıllık bir öğretim sonunda türk çocuklarının sözcük yazmada geri kaldıkları görülmüştür. Buna neden olarak türk çocuklarının hollandacada edindikleri sözcük dağarcığının kısıtli olması gösterilebilir. Sözcük yazmada da türk ve hollandalı çocuklarda geniş ölçüde birbirine benzeyen öğrenim biçimlerine tanık olundu. Çocukların bir yandan giderek hollandaca standard yazımını öğrenirken, bir yandan da sessel yargılara dayandığına inandığımız kendilerine özgü bir yazım sistemi kullandıkları gözlemlenmiştir.

Bölüm 6'da türk çocuklarının ikinci dillerindeki (yani hollandacadaki) metinsel becerileri ele alınmaktadır. İlkönce türk ve hollandalı çocukların yüksek sesle okumaları karşılaştırılmış olup çocukların dönemden döneme gittikçe bağlamdan yararlandıkları görülmüştür. Öte yandan, hollandalı çocukların türk çocuklarından daha çok bağlam özelliklerinin güdümü altında okudukları saptanmıştır. Bu gözlemden hollandalı çocukların bağlamdan daha iyi türk çocuklardan daha iyi yararlandıkları ortaya çıkmaktadır. Türk çocuklarının okumalarında rastlanılan yanılğaların anadillerinin güdümü altında oluşmadığı bir kez daha ortaya çıkmıştır. Daha sonra, hollandaca metinleri anlamada rastlanılan sorunlar incelenmiş, türk çocuklarının testlerde her boyutta daha az puan aldıkları gözlemlenmiştir. Sözdizimsel ve anlambilimsel alanlarda her iki grubun puanlarının istatistiksel dağılımının birbirine benzer olduğu bulunulmuş olup, sonucun öğrenilen dilin yani hollandacanın içyapısını yansıttığı çıkarımına varılmıştır. Son olarak, türk ve hollandalı çocukların hollandacada yazdıkları metinler karşılaştırılmış olup, verilerin yazımsal, sözlüksel, sözdizimsel (sözcük yapısı), ve pragmatik analizi her iki grubun öğrendikleri dilin (yani hollandacanın) gerektirdiği işlemleri kullandıklarını göstermiştir.

Bölüm 7'de batırma koşulları altında okuma-yazma öğrenen türk çocukları arasında görülen farklılıklar açıklanılmaya çalışılmıştır. Verilerin analizinde LISREL olarak bilinen istatistiksel yazılımdan yararlanıldı. Kişilik

değişkenleri ile arka-alan değişkenleri arasındaki bağıntılar hem süremliyönden çapraz kesimli olarak incelendi. Hollandaca konuşma becerisinin hollandacada anlayarak okuyabilmeyi büyük ölçüde etkilediği saptanmıştır. Buna karşın, dönemden döneme ayrı ayrı etkenlerin bir rol oynadığı görülmüştür. İlk yılın sonunda sözdizimsel ve sözlüksel beceriler, ikinci yılın sonunda sözdizimsel ve dolaylı olarak sözlüksel (sözcük okuyabilme becerisi aracılığı ile) beceriler anlayarak okumayı etkilemektedir. Sözcük okuma öte yandan iki yıllık süre içinde gittikçe önemini yitirmektedir. Sözü geçen becerilerin yanı sıra, sosyal-kültürel yönelimin ve bir ölçüde de çocuğun zekasının anlayarak okumada gösterebileceği başarıyı belirlediği saptanmıştır. Üstelik LISREL'le yaptığımız analiz sonucu, türk çocuklarının hollandacada elde ettikleri öğrenim düzeyinin anadillerinde yani türkçede kazandıkları beceri düzeyini yansıttığı gösterilmiştir. Bununla daha önce sözünü ettiğimiz dillerarası bağımlılık tezine kanıt getirilmiştir. Yani herhangi dilde kazanılmış soyut beceriler bir başka dile geçildiğinde yararlı olmaktadır. Son olarak, türk çocukların batırma koşulları altında gösterdikleri başarısızlığın ne ölçüde dilsel ve sosyal-kültürel değişkenlere bağlanabileceği incelendi. Bunun için, sınıfta kalan çocukların elde ettikleri öğrenim sonuçları gözden geçirilmiştir. Öğretmenlerin bu çocukları dilsel becerilerini göz önünde tutarak sınıfta bıraktıkları saptanmıştır. Üstelik kimin sınıfta kalacağı daha okumayazmaya başlamadan çocuğun gösterdiği dilsel becerilerin ışığında öndenebilmiştir.

Bölüm 8'de batırma koşulları altında okur-yazarlaşan çocukların elde ettikleri sonuçlar iki geçiş modelinde okuma-yazma öğrenen çocukların elde ettikleri sonuçlarla karşılaştırıldı. Türk çocuklarının okuma-yazmaya başlarken daha çok kendi dil/kültür ortamının özelliklerini taşıdıkları saptanıldı. Hatta okulda geçirdikleri iki öğretim yılının sonunda bile türk çocukların kendi anadillerinde daha baskın oldukları ve kendi kültürlerini tercih ettikleri görüldü. Burada saptanması gereken nokta batırma metodunun çocuğun dünyasından uzak kaldığıdır. Geçiş modelinde, yani önce anadilde giderek ikinci dilde okuma-yazma öğretme metodu altında çocukların hollandacada geri kalmadıkları gözlemlenmiştir. Gerçekte, bu metotla çocukların anadillerinde daha iyi sonuçlar elde ettikleri, hollandacada aşağı yukarı batırma metoduyla aynı düzeye vardıkları saptanıldı. Üstelik, çocuklar kendi kültürlerine karşı daha olumlu bir tutum geliştirmekte, okuma-yazmaya karşı olan ilgileri de genel olarak artmaktadır. Yapılan çözümleme, geçiş öğretim modelinin sosyal-psikolojik olarak daha uygun olduğunu göstermektedir. Anadilde edinilen

becerilerin kolayca yararlı olduđu yerlerde ikinci dile taşındığı uygulandığı görölmüştür. Geçiş metodu ile okuma-yazma öğrenen türk çocuklarının hollandaca yazımda yaptıkları yanlışların analizinde, çocukların kimi zaman türkçenin yazım kurallarını ikinci dile uyguladıkları görölmüşse de, bunların yüzdesi önemsiz derecede bir sayıdır.

Tezin Bölüm dokuzu katsayan son kesiminde ise, yapılan incelemenin teorik ve pratik önemi tartışılmıştır. İkinci bir dilde okur-yazarlaşmaya yeniden bakılmış olup eğitime dönük bazı yargılara varılmıştır. Ek olarak, gelecekte etnik azınlık çocuklarına okuma-yazma öğretiminin nasıl verilmesini ele alan bir taslak sunulmuştur. Son bölümde tezin İngilizce, Hollandaca, ve Türkçe özetleri verilmiştir.

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Appendix 1: Teacher Attitudes

Instruction

Rate the following statements with reference to education for ethnic minority children (1 = strongly agree, 2 = more or less agree, 3 = no opinion, 4 = more or less disagree, 5 = strongly disagree). Avoid 3 as much as possible!

1.1 Attitudes towards bilingualism

Statements

Lessons in minority language/culture for ethnic minority children takes up valuable time which can better be used for reading and maths in L2 Dutch

1	2	3	4	5
AGREE			DISAGREE	

The diversity of cultural orientation among minority children enriches education at primary school

1	2	3	4	5
AGREE			DISAGREE	

Initial literacy instruction for ethnic minority children should start in their mother tongue and only later on in L2 Dutch

1	2	3	4	5
AGREE			DISAGREE	

A positive orientation toward minority language/culture stimulates the pace of L2 acquisition

1	2	3	4	5
AGREE			DISAGREE	

In order to be able to learn to read in a language a threshold of oral proficiency is required

1	2	3	4	5
AGREE			DISAGREE	

In order to help minority children retain their ethnic identity mother tongue education should be continued through the school curriculum

1	2	3	4	5
AGREE			DISAGREE	

Achievement in Dutch is more dependent on the quantity and quality of input of Dutch than on children's monolingualism versus bilingualism

1	2	3	4	5
AGREE			DISAGREE	

Elementary literacy skills for minority children can best be built up in the language in which they have dominant proficiency

1	2	3	4	5
AGREE			DISAGREE	

When the minority language/culture of minority children is neglected, the acquisition of L2 Dutch may be hindered

1	2	3	4	5
AGREE			DISAGREE	

The more proficient minority children are in L1, the faster they will acquire an L2

1	2	3	4	5
AGREE			DISAGREE	

Minority children should be taught how to read and write in L1/L2 simultaneously

1	2	3	4	5
AGREE			DISAGREE	

When a child grows up with two languages, the disadvantages outweigh the advantages

1	2	3	4	5
AGREE			DISAGREE	

The more proficient minority children are in L1, the less proficient they will be in L2 Dutch

1	2	3	4	5
AGREE			DISAGREE	

Initial literacy instruction for minority children should start in L2 Dutch with additional instruction in the L1

1	2	3	4	5
AGREE			DISAGREE	

Instruction in minority language/culture is important to bridge the distance between home language and school language

1	2	3	4	5
AGREE			DISAGREE	

Scoring

First, the statements 2 to 11 and 15 are recoded by reversing the scores from 1 to 5. Additionally a scale score is computed by adding all items scores.

*1.2 Attitudes towards reading instruction**Statements *)*

When reading a text out loud a child's oral reading errors should be corrected as soon as a mistake is made

1	2	3	4	5
AGREE				DISAGREE

Fluent and expressive reading indicates good comprehension

1	2	3	4	5
AGREE				DISAGREE

In the initial stage of literacy instruction children should not be allowed to read aloud in their own dialect

1	2	3	4	5
AGREE				DISAGREE

The repetition of words or phrases indicates a decrease in comprehension

1	2	3	4	5
AGREE				DISAGREE

If the child does not know to read a particular word, it should be recommended to sound out its constituent parts

1	2	3	4	5
AGREE				DISAGREE

Reading errors are indicative for a low level of comprehension

1	2	3	4	5
AGREE				DISAGREE

In order to be able to understand the meaning of a text a child need not know all the letters

1	2	3	4	5
AGREE				DISAGREE

Children should be corrected if they chance the word order in a sentence to be read out loud

1	2	3	4	5
AGREE				DISAGREE

The teaching of sight words is an essential stage of initial reading instruction

1	2	3	4	5
AGREE				DISAGREE

Phonemic analysis and word synthesis are the most relevant techniques when new words are encountered in written text

1	2	3	4	5
AGREE				DISAGREE

The occurrence of pauses in oral reading indicates ineffective reading strategies

1	2	3	4	5
AGREE				DISAGREE

Initial literacy instruction should focus on meaning, not on literal graphic representation

1	2	3	4	5
AGREE				DISAGREE

Reading problems are often caused by children's deletion of word final markers (i.e. walk instead of walked)

1	2	3	4	5
AGREE				DISAGREE

If a child reads 'papa' for the written word 'father' the word substitution should not be corrected

1	2	3	4	5
AGREE				DISAGREE

The occurrence of pronunciation and intonation deviations is a huge problem in initial reading

1	2	3	4	5
AGREE				DISAGREE

Scoring

First, the statements 12 and 14 are recoded by reversing the scores from 1 to 5. A scale score is then computed by adding all item scores.

*) For the Turkish version the items 9 to 13 were left out.

Appendix 2: Socio-cultural interviews

2.1 Parent interview

(a) Language contact

1	What language do parents speak to each other?	Turkish	Dutch
		1 2 3 4 5	
2	What language does father speak to the children?	Turkish	Dutch
		1 2 3 4 5	
3	What language does mother speak to the children?	Turkish	Dutch
		1 2 3 4 5	
4	What language do children speak to each other?	Turkish	Dutch
		1 2 3 4 5	
5	What language do children speak with friends at home?	Turkish	Dutch
		1 2 3 4 5	
6	What is the nationality of friends in neighbourhood?	Turkish	Dutch
		1 2 3 4 5	
7	What language does child speaks with these friends?	Turkish	Dutch
		1 2 3 4 5	
8	Who does the father have contact with during the day?	Turkish	Dutch
		1 2 3 4 5	
9	Who does the mother have contact with during the day?	Turkish	Dutch
		1 2 3 4 5	

To what degree make parents use of:

10	Dutch books	both parents read/one parent reads/ no reading
	Turkish books	both parents read/one parent reads/ no reading
11	Dutch television	daily/now and then/never
	Turkish video	daily/now and then/never
12	Dutch radio	daily/now and then/never
	Turkish radio	daily/now and then/never
13	Dutch newspapers	daily/now and then/never
	Turkish newspapers	daily/now and then/never

(b) Parent cultural attitudes

Do parents celebrate:

1	Birthdays?	yes/no
2	St. Nicholas?	yes/no
3	Christmas?	yes/no
4	Do parents think it important that the child learns Dutch	yes/no

2.2 Child interview

(a) Attitudes toward daily life

1	Do you like to go to school?	like/neutral/dislike
	Would you like to be in school in Turkey?	like/neutral/dislike
	What school do you prefer?	Turkey/Netherlands/both
2	Who are your friends in class?	
	In case of one nationality:	
	Do you also like Turkish/Dutch friends?	yes/no
	Who is your best friend in class?	
3	What food do you like?	
	In case of a one-sided picture:	
	Do you also like Turkish/Dutch food?	yes/no
	What food do you prefer?	Turkish/Dutch/both

4	Do you like to be in Dutch class?	like/neutral/dislike
	Do you like to be in Turkish class?	like/neutral/dislike
	What class do you like most?	Turkish/Dutch/both
5	Do you like Dutch television?	like/neutral/dislike
	Do you like Turkish video?	like/neutral/dislike
	Which of these do you like most?	Turkish/Dutch/both
6	Do you like Turkish holidays?	like/neutral/dislike
	Do you like Dutch holidays?	like/neutral/dislike
	What holidays do you like most?	Turkish/Dutch/both
7	Do you like Turkish music?	like/neutral/dislike
	Do you like Dutch music?	like/neutral/dislike
	What music do you like most?	Turkish/Dutch/both
8	Who are your playmates at home?	
	In case of one nationality:	
	Do you also play with Turkish/Dutch friends?	yes/no
	Who is your best friend?	
9	Do you like to speak Turkish	like/neutral/dislike
	Do you like to speak Dutch?	like/neutral/dislike
	What language do you like to speak most?	Turkish/Dutch/both
10	Would you like to stay in The Netherlands?	like/neutral/dislike
	Would you like to live in Turkey?	like/neutral/dislike
	Which place do you prefer?	Turkey/Netherlands/both

(b) Attitudes toward literacy

1	In school you have Turkish and Dutch classes.
	What do you like most in Turkish class?
	What do you like most in Dutch class? like/neutral/dislike
	Do you like reading in Turkish? like/neutral/dislike
	Do you like writing in Turkish? like/neutral/dislike
	Do you like reading in Dutch? like/neutral/dislike
	Do you like writing in Dutch?
2	What do you like to do most in your free time?.....
	Do you like reading a Dutch book at home? like/neutral/dislike
	Do you like reading a Turkish book at home? like/neutral/dislike
3	How often do you take a Turkish book with every week/incidentally/never
	you?
	How often do you take a Dutch book with you? every week/incidentally/never
4	Say you may choose a present. What would you choose?
	Would you like to get a Dutch book? like/neutral/dislike
	Would you like to get a Turkish book? like/neutral/dislike
5	Do you like reading aloud in Turkish class? like/neutral/dislike
	Do you like reading aloud in Dutch class? like/neutral/dislike

Scoring

The attitude measures under consideration were scored by adding the scores on the relevant items. For questions with two alternatives the scores would range from 0 to 1, for questions with three alternatives from 0 to 2, etc. The items referring to Turkish language/culture, were not counted for the socio-cultural measures presented in chapter 7.

Appendix 3: Word Reading Tasks

3.1 Dutch Word Reading Task

(a) CVC-patterns

high-frequency	low-frequency	pseudo-words
hoop (hope)	hoef (horseshoe)	loch
ruit (pane)	mep (blow)	joek
gil (scream)	huur (rent)	fruit
zeur (bore)	biet (beet)	peun
duw (push)	vijl (file)	noom
reis (trip)	rib (rib)	mip
lach (laughter)	luis (louse)	heif
tong (tongue)	dooi (thaw)	raus
jeuk (itching)	kuch (cough)	kuw
keel (throat)	geur (smell)	zoor
fout (mistake)	dauw (dew)	loud
boor (drill)	gong (gong)	dijm
web (web)	pook (poker)	vooi
naam (name)	zeis (scythe)	teng
vijs (five)	teer (tar)	baag
hooi (hay)	wak (hole)	geer
saus (sauce)	zeem (shammy leather)	sies
lied (song)	woud (forest)	nuur
buur (neighbour)	naad (seam)	zeed
zoen (kiss)	beuk (beech)	wab

(b) CC-clusters in words

high-frequency	low-frequency	pseudo-words
bloem (flower)	spleet (cleft)	darst
dorst (thirst)	kust (coast)	dwees
hemd (shirt)	ernst (earnest)	schilp
scheur (tear)	schok (shock)	spuur
mut (cap)	braam (blackberry)	slep
sprong (jump)	zalm (salmon)	kest
vlecht (pigtail)	hengst (stallion)	horfst
gras (grass)	dwaas (fool)	schoer
strik (knot)	gips (plaster)	bruk
rups (caterpillar)	scherm (screen)	rips
slaap (sleep)	trouw (faithfulness)	spreng
herfst (autumn)	pond (pound)	mots
knoop (knot)	vilt (felt)	stool
vuist (fist)	vracht (load)	jark
tand (tooth)	spier (muscle)	vrecht
schelp (shell)	kamt (combs)	struk
jurk (robe)	strijd (fight)	hamd
stoel (chair)	rots (rock)	bliem
hals (neck)	staal (steel)	tund
zweet (sweat)	pluim (plume)	veult

(c) Bisyllabic words

high-frequency	low-frequency	pseudo-words
hapjes (snacks)	vreemde (stranger)	rogen
gulden (guilder)	bloesem (blossom)	kaaïen
regen (rain)	gokje (gamble)	geetjes
tante (aunt)	haaien (sharks)	luigen
maandag (Monday)	gesprek (conversation)	geklits
riempje (leather thong)	zetel (seat)	vroomde
hemden (shirts)	leiding (leadership)	wesmund
geluid (noise)	rijmpjes (short rhymes)	goertjes
kooien (cages)	klapraam (folding window)	grandel
rommel (lumber)	geraas (roar)	tonte
geknoei (bungling)	middel (means)	gesnaap
gaatje (small hole)	reiger (heron)	guiter
sleutel (key)	vaatje (small barrel)	roempje
gesnoep (eating sweets)	wandrek (wall bars)	leuding
wasmand (laundry-basket)	hoogte (height)	girkje
gieter (watering-can)	geklets (claptrap)	wundrik
banden (ties)	leugen (ly)	geleud
bliksem (lightning)	kiertje (narrow opening)	rummel
boertje (burp)	grendel (bolt)	bunden
leuning (rail)	wanden (walls)	bleusem

3.2 Turkish Word Reading Task

CVC-patterns	CC-clusters	bisyllabic words
kol (arm)	dört (four)	akşam (evening)
şiş (meat)	çift (couple)	peynir (cheese)
can (soal)	yurt (cradle)	ışık (light)
dış (outside)	kalp (heart)	vapur (boat)
gök (firmament)	fert (individual)	camı (mosk)
çay (tea)	grup (group)	ayna (mirror)
buz (ice)	harp (war)	sebze (fruit)
dev (camel)	genç (young)	hafta (week)
kül (ash)	köşk (pavilion)	bavul (suitcase)
hap (pill)	şark (east)	gözlük (glasses)
yer (place)	fren (brake)	kulak (ear)
bir (one)	kürk (fur)	köpek (dog)
yıl (year)	cilt (skin)	yaprak (leave)
köy (village)	fark (difference)	kardeş (brother)
raf (shelf)	mart (march)	çiftçi (farmer)
mum (candle)	semt (neighbourhood)	yağmur (rain)
süt (milk)	spor (sport)	güneş (sun)
fil (elephant)	taht (throne)	sağlık (health)
dağ (mountain)	sırt (back)	agaç (tree)
top (ball)	borç (debt)	pirinç (rice)

Appendix 4: Word Spelling Items

4.1 Word Spelling Task 1

Target phoneme	Words
/ø/	keus (choice), deuk (dent), heup (hip), beuk (beech)
/oe/	zus (sister), gum (gom), put (well), rug (back)
/e/	zeep (soap), zeef (sieve), week (week), been (leg)
/I/	pil (pill, fit (fit), wil (will) sik (goat)
/y/	duim (thumb), duif (pigeon), buis (tube) vuil (dirty)
/ø/	geur (smell), zeur (bore)
/er/	veer (feather), weer (weather)
/or/	boor (drill), koor (choir)
/l/	appel (apple), ezel (donkey), ketel (kettle), lepel (spoon)
/r/	beker (cup), boter (butter), kater (cat), suiker (sugar)
/ /	jong (young), wang (cheek)
/k/	bank (bank), pink (little finger)
/sx/	schaap (sheep), schil (peel)
Initial CC-cluster	brug (bridge), droom (dream), knoop (button), plas (puddle), slot (lock), snoep (candy), spin (spider), stam (stem)
Final CC-cluster	berg (mountain), hals (neck), hert (deer), post (post), rits (zipper), rups (caterpillar), wesp (wasp), wolf (wolf)
Preconsonantal nasals	dans (dance), kamp (camp), kind (child), lamp (lamp), bonzen (to thump), ganzen (geese), handen (hands), monden (mouths), droomt (dreams), hemd (shirt), kamt (combs), remt (brakes)

4.2 Word Spelling Task 2 (Dutch)

Target phoneme	Words (target graphemes in <i>italic></i>)
Vowels	deuk (dent), doek (cloth), geluid (noise), geluk (luck), gulden (guilder), hoek (corner), muur (wall), peer (pear), pil (pill), stuur (steer), suiker (sugar), wiel (wheel), zeurt (nags)
Diphthongs	blauw (blue), blij (glad), touw (cord), wei (meadow)
Consonants	duw (push), heg (hedge), jas (jacket), lachte (laughed), taai (tough), vel (skin), vol (full), week (week), zakdoek (handkerchief), beetje (bit), fietsje (small bike), kistje (small box), mesje (small knife), petje (cap), sjaal (shawl)

4.3 Words Spelling Task 2 (Turkish)

Target phoneme	Words (target graphemes in <i>italic></i>)
Vowels	ağaç (tree), arı (bee), dört (four), fil (elephant), göl (lake), halı (karp ^{et}), kum (sand), kül (ash), kır (wood), oğlu (his sun), pul (stamp)
Diphthong equivalents	bey (sir), böyle (like this), haylu (towel), köy (village), leylek (stork), tavuk (chicken)
Consonants	dev(giant), gemi (boat), gerek (necessary), hava (air), sabah (morning), tahta (wooden), tay (colt), vakit (free time), yem (forage), cam (glass), çam (pine), gece (night) keçi (goat), meşe (oak), şarap (wine)

Appendix 5: Metalinguistic Tasks

5.1 Phonemic discrimination (Dutch)

1 boer-buur (farmer-neighbour)	26 veel-viel (much-fell)
2 vel-veel (skin-much)	27 rus-reus (Russian-giant)
3 kan-kan (can-can)	28 haas-gaas (hare-gauze)
4 beer-peer (bear-pear)	29 pen-pen (pencil-pencil)
5 kwast-kast (brush-cabinet)	30 dorp-drop (village-liquorice)
6 brak-barak (broke-chain)	31 koets-koest (coach-quiet)
7 stoel-stoel (chair-chair)	32 buik-buik (belly-belly)
8 dik-tik (thick-tick)	33 vol-wol (full-wool)
9 rit-riet (ride-reed)	34 praat-piraat (talk-pirate)
10 kous-kus (sock-kiss)	35 gil-geel (shout-yellow)
11 bel-bel (bell-bell)	36 tak-tak (branch-branch)
12 zoon-zoen (sun-kiss)	37 zijn-sein (his-sign)
13 kas-kaas (cash-cheese)	38 lat-rat (slat-rat)
14 pijn-pijn (pain-pain)	39 muis-mus (mouse-sparrow)
15 ton-tong (ton-tongue)	40 raam-raam (window-window)
16 luik-leuk (hatch-nice)	41 bon-boon (bill-bean)
17 kurk-kruk (cork-stool)	42 wijk-week (district-week)
18 aap-aap (ape-ape)	43 bos-bos (wood-wood)
19 stang-tang (stave-tongs)	44 trein-terrein (train-terrain)
20 goud-goot (gold-gutter)	45 kast-kas (cabinet-cash)
21 koe-koe (cow-cow)	46 deur-duur (door-duration)
22 maan-naam (moon-name)	47 vis-vis (fish-fish)
23 groep-geroep (group-calling)	48 mat-nat (mat-wet)
24 kaars-kaas (candle-cheese)	49 vel-fel (skin-fierce)
25 rug-rug (back-back)	50 bang-bank (afraid-bank)

5.2 Phonemic segmentation

1 koe (cow)	6 iets (something)	11 dorp (village)	16 worst (saucise)
2 rij (row)	7 knie (knee)	12 trein (train)	17 struik (bush)
3 oor (ear)	7 klei (clay)	13 bips (bottom)	18 sprong (jump)
4 uit (out)	9 echt (real)	14 dorp (village)	19 worst (saucise)
5 gum (gom)	10 iets (something)	15 krant (paper)	20 laatst (latest)

5.3 Phonemic discrimination (Turkish)

1 dal-dar (branch-narrow)	16 baş-boş (head-empty)
2 çan-şan (bell-glory)	17 kol-kol (arm-arm)
3 pul-pul (stamp-stamp)	18 kalp-kalip (heart-form)
4 ilk-ilik (first-narrow)	19 saman-zaman (haystack-time)
5 kış-kuş (winter-bird)	20 çay-çay (tea-tea)
6 boz-poz (gray-pose)	21 kil-kül (day-ash)
7 saç-saç (hair-hair)	22 toz-tuz (dust-salt)
8 gül-kül (rose-ash)	23 var-far (is-headlamp)
9 kürk-kürek (fur-showel)	24 taş-taş (stone-stone)
10 kız-kız (girl-girl)	25 kırk-kırık (forty-broken)
11 geç-göç (late-move)	26 kul-kül (slave-ash)
12 dam-tam (roof-exact)	27 aç-aş (hunger-disk)
13 gol-göl (goal-lake)	28 zil-zil (bell-bell)
14 dün-dün (yesterday-yesterday)	29 mal-nal (goods-horseshoe)
15 cam-çam (glass-pine)	30 gül-gül (lake-rose)

Appendix 6: Lexical Tasks

6.1 Receptive vocabulary

	Turkish	Dutch	English
1	kelebek	vlinder	butterfly
2	çivi	spijker	nail
3	koşmak	rennen	to run
4	kova	emmer	bucket
5	bavul	koffer	suitcase
6	süpürmek	vegen	to sweep
7	taramak	kammen	to comb
8	kürek	schep	scoop
9	yüzük	ring	ring
10	üfleme	fluiten	to blow
11	davul	trommel	drum
12	kuyu	put	well
13	kilit	slot	lock
14	kesmek	snijden	to cut
15	minder	kussen	pillow
16	çekmece	la	drawer
17	dikmek	planten	to plant
18	çalılık	struik	bush
19	kapatmak	sluiten	to close
20	armut	peer	pear
21	baston	wandelstok	walking-stick
22	dirsek	elleboog	elbow
23	delmek	boren	to drill
24	söndürmek	blussen	to extinguish
25	lavabo	wastafel	wash-stand
26	çayır	weiland	meadow
27	aşçı	kok	cook
28	inmek	uitstappen	to get out
29	plâk	plaat	record
30	keman	viool	violin
31	damlamak	druppelen	to drip
32	çatlak	barst	crack
33	sabunlamak	inzeppen	to soap
34	kaya	rots	rock
35	kravat	stropdas	tie
36	cetvel	lineaal	ruler
37	fırçalamak	schrobben	to scrub
38	mürekkep	inkt	ink
39	samanlık	hooiberg	haystack
40	kemirmek	knagen	to gnaw
41	kılıç	slot	sword
42	zarf	envelop	envelop
43	yığmak	opstapelen	to stack
44	ırmak	rivier	river
45	toka	gesp	buckle
46	iplik	garen	thread
47	biçmek	maaien	to mow
48	yaya	wandelaar	walker
49	yarmak	hakken	to chop
50	kirpik	wimper	eyelash
51	demiryolu	spoorweg	railway

52	germek	uitrekken	to stretch
53	eşik	drempel	threshold
54	çelenk	krans	garland
55	kariştirmek	mengen	to mix
56	gülümsemek	glimlachen	to smile
57	far	koplamp	headlamp
58	cihaz	apparaat	apparatus
59	ada	eiland	island
60	post	vacht	pelt
61	yoğurmak	kneden	to knead
62	kavşak	kruispunt	intersection
63	çerçeve	lijst	list
64	makara	klos	bobbin
65	süzme	zeven	to sift
66	nal	hoefijzer	horseshoe
67	garson	ober	waiter
68	yüklemek	laden	to load
69	sel	overstroming	flood
70	sürü	kudde	herd
71	çamurluk	spatbord	mudguard
72	kurmak	opwinden	to wind up
73	hindi	kalkoen	turkey
74	demirci	smid	smith
75	otlamak	grazen	to graze
76	buhar	stoom	steam
77	yular	teugels	rein
78	dümen	roer	rudder
79	aşılama	inenten	to inoculate
80	ameliyat	operatie	operation
81	dilenmek	bedelen	to beg
82	silâh	wapen	weapon
83	şahlanmak	steigeren	to prance
84	cambaz	acrobaat	acrobat
85	oklava	deegrol	rolling-pin
86	eğme	vijl	file
87	rendelemek	schaven	to plane
88	kepenk	luik	shutter
89	yemlemek	voederen	to feed
90	saban	ploeg	plough
91	saldırı	overval	raid
92	hekim	arts	physician
93	kutlamak	gelukwensen	to congratulate
94	hitabetmek	toespreken	to address
95	dalgıç	duiker	diver
96	üzülmek	treuren	to grieve
97	kıyı	over	shore
98	kas	spier	muscle
99	ova	vlakke	plain
100	hendek	sloot	ditch
101	plâka	kenteken	mark
102	bitiştirmek	verbinden	to bandage
103	ehlileştirmek	temmen	to tame
104	iskelet	geraamte	skeleton
105	sürgü	grendel	bolt
106	bitkin	uitgeput	dead-beat
107	huni	trechter	funnel
108	sübap	ventiel	valve

6.2 Productive vocabulary

	Turkish	Dutch	English
1	bayrak	vlag	flag
2	tüy	veer	feather
3	okumak	lezen	to read
4	musluk/çeşme	kraan	tap
5	gözlük	bril	glasses
6	sallanmak	schommelen	to swing
7	kafes	kooi	cage
8	fare/siçan	rat/muis	rat/mouse
9	kayış/kemer	riem	belt
10	atlamak	springen	to jump
11	köprü	brug	bridge
12	kesmek	snijden	to cut
13	armut	peer	pear
14	zıplamak	hinken	to limp
15	mantar	kurk	cork
16	deve	kameel	camel
17	delmek	boren	to drill
18	dirsek	elleboog	elbow
19	inmek	uitstappen	to get out
20	fırça	borstel	brush
21	şişirmek	oppompen	to pump up
22	kül	as	ash
23	göbek	navel	navel
24	sele/oturak	zadel	saddle
25	zarf	envelop	envelope
26	batmak	zinken	to sink
27	daktilo	typemachine	typewriter
28	mürekkep	inkt	ink
29	yığmak	opstapelen	to pile up
30	kemik	been/bot	bone
31	meme	uier	udder
32	yarmak	hakken	to cut/chop
33	basamak	tree	tread
34	sarmak	verbinden	to connect
35	çelenk	krans	garland
36	eşik	drempel	threshold
37	tampon	bumper	bumper
38	çerçeve	lijst	list
39	yoğurmak	kneden	to knead
40	çöp	vuilnis	rubbish
41	ada	eiland	island
42	uçurmak	vliegeren	to fly a kite
43	çapa/demir	anker	anchor
44	süzmeke/elemek	zeven	to sift
45	çeşme/fıskiye	fontein	fountain
46	kılçık	graat	fish-bone
47	nal	hoefijzer	horse-shoe
48	süzülmek	zweven	to glide
49	dümen	roer	rudder
50	gişe	loket	ticket-office
51	otlamak	grazen	to graze
52	buhar/buğu	damp	steam
53	dilenmek	bedelen	to beg

54	çağlayan	waterval	waterfall
55	yüksük	vingerhoed	thimble
56	rendelemek	schaven	to plane
57	pençe	klauw	claw
58	kalkan	schild	shield/buckler
59	şahlanmak	steigeren	to rear
60	kulp	hengsel	handle
61	sarmal	spiraal	spiral
62	sakat	invalide	invalid
63	yıpratmak	rafelen	to fray
64	zırh	harnas	armour
65	nöbetçi	schildwacht	sentinel
66	sıvamak	opstropen	to tuck up
67	binici	ruiter	rider
68	kalamak	kaften	to cover
69	fitil	lont	fuse
70	pervane	propeller	propeller
71	eğirmek	spinnen	to spin
72	menteşe	scharnier	hinge

Scoring

Because of the supposedly increasing difficulty of the items, a break-off point was used in the two tests. The Receptive Vocabulary Task was broken off after a child responded in only two of eight successive items; for the Productive Vocabulary Task the break-off point was at five successive incorrect items. The score on the Productive Vocabulary Task was given as the total number of correct items. The score on the Receptive Vocabulary Task was corrected for error by subtracting the number of items responded to with 1.33 times the number of incorrect items.

Appendix 7: Sentence Imitation Tasks

7.1 Dutch version (aspects to be scored are in italic)

- 1 Deze boer *schijn-t* veel koe-*ien* te heb-*ben*.
(This farmer seems to own a lot of cows.)
- 2 Hij heeft-*t* geen hond-*en* of kat-*ten*.
(He has neither dogs nor cats.)
- 3 Bij zijn boerderij-*tje* loop-*t* een mooi-*ø* paard.
(Near his little farm a beautiful horse is running about.)
- 4 Weet-*en* jullie of er ook mooi-*e* kip-*pen* loop-*en*?
(Do you know if there are chickens running about as well?)
- 5 Gisteren fiets-*te* mijn zus naar de markt.
(Yesterday my sister went to the market place.)
- 6 Zij haal-*de* appel-*s*, ei-*eren* en groente-*n*.
(She bought apples, eggs and vegetables.)
- 7 Toen ze thuiskwam, maak-*te* ze het eten klaar.
(When she came home she prepared dinner.)
- 8 Omdat ik geen honger had, heb ik niet veel geg-*eet-en*.
(Because I was not very hungry, I did not eat too much.)
- 9 Mijn vriend-*je* wil-*de* naar de stad fiets-*en*.
My little friend wanted to ride to town by bike.)
- 10 Toen hij buiten kwam, begon het te regen-*en*.
(When he came outside, it started to rain.)
- 11 Omdat het regen-*de*, is hij met de bus ge-*gaan*.
(Because it was raining, he went by bus.)
- 12 Bij zijn oom heeft-*t* hij een glas-*je* melk ge-*dronk-en*.
(At his uncle's house he drank a glass of milk.)
- 13 De tuin waarin zij speel-*en*, is niet groot.
(The garden in which they played is not very large.)
- 14 Waarom speel-*de* jij gisteren niet met hen mee?
(Why did not you play with them yesterday?)
- 15 Morgen gaan we spel-*letje-s* doen in het park.
(Tomorrow we will play games in the park.)
- 16 Als je het leuk vindt, kun je met ons meedoen.
(If you like you may play with us.)
- 17 In de druk-*ste* straat van de stad woon-*t* Ali.
(In the busiest street of town lives Ali.)
- 18 In die straat *schijn-t* en ongeluk gebeur-*d* te zijn.
(In that street an accident seems to have occurred.)
- 19 Er zijn twee auto-*'s* tegen elkaar ge-*bots-t*.
(Two cars crashed into each other.)
- 20 Ali zeg-*t* dat hij het ongeluk niet heeft-*t* ge-*zien*.
(Ali says that he did not see the accident.)
- 21 In deze klas zijn niet alle kind-*eren* even groot.
(In this class not all children are the same height.)

- 22 Fatma is groot, maar Gül is nog groot-er.
(Fatma is tall, but Gül is even taller.)
- 23 Is Piet het klein-ste jong-etje van de klas?
(Is Piet the smallest boy in class?)
- 24 Ik denk dat Jan nog klein-er is dan Piet.
(I think that Jan is even smaller than Piet.)

7.2 Turkish version (aspects to be scored are in *italic*)

- 1 Anne-m-le köşe-de-ki dükkân-a git-ti-k.
(We went with my mother to the shop around the corner.)
- 2 Köy-ümüz-ün dükkân-lar-ın-dan bu en büyüğ-ü.
(Of the shop in our village this one is the biggest.)
- 3 Dükkân-dan çık-tığ-ımız zaman çay içmek iste-di-k.
(As we left the shop we wanted to drink some tea.)
- 4 Dükkân-ın arka-sın-da bir lokanta var mıy-dı?
(Is there a restaurant at the back of the shop?)
- 5 Bizim ev-den şehir-e otobüs-le yarım saat sür-er.
(From our house to time it takes half an hour by bus.)
- 6 Otobüs-ün kalk-acag-ı zaman-ı bil-m-iyor-du-k.
(We did not know the town the bus would depart.)
- 7 Bir saat bekle-dik-ten sonra otobüs-ümüz gel-di.
(After we had waited for one hour our bus arrived.)
- 8 Otobüs-te otur-ur-ken Ayşe biz-i gör-ünce el salladı.
(When Ayşe who was sitting in the bus saw us, she waved.)
- 9 Gerçekten iyi bir kalem-iniz yok mu?
(Do not you really have a good pen?)
- 10 Öğretmen bu ders-e gel-ip oku-ma yaz-ma öğret-ecek.
(In this lesson the teacher will come and teach us how to read and write.)
- 11 Okul-da çok kitap oku-yacağ-ımız-ı bil-iyor-um.
(I know that in school we will read a lot of books.)
- 12 Bil-diğ-im kadar Ahmed iki gün-den beri okul-a gel-me-di.
(As far as I know, Ali has not come to school for two days.)
- 13 Babam erken kalk-tı çünkü çok iş-i var.
(My father woke up early, because he has a lot of work to do.)
- 14 Çalış-tığ-ı yer otur-duğ-umuz ev-den uzak değil.
(The place where he works is not very far from the house we live.)
- 15 Onun kardeş-i hasta ol-duğ-u için çalış-m-ıyor.
(His brother is not working, because he is ill.)
- 16 Bir ay sonra Türkiye'ye dön-ecek ve orada kal-acak.
(After one month he will return to Turkey and stay there.)
- 17 Orada gid-en araba komşu-muz-un değil.
(The car over there is not our neighbour's.)

- 18 Mehmed'in araba-sı bizim-kin-den büyük.
(Mehmed's car is bigger than ours.)
- 19 Şehir-e araba-yla git-me-me-ye karar ver-di-k.
(We decided not to go to town by car.)
- 20 Çocuk-lar otobüs-te şarkı söyle-yip gül-erek gid-iyor-lar-dı.
(The children passed in the bus while they were singing and laughing)
- 21 Okul-dan sonra park-a git-mek ist-iyor-um.
(After school time I want to go to the park.)
- 22 Arkadaş-lar-ım-a benim-le gel-me-sin-i gel-in diy-eceğ-im.
(I will say to my friends that they should come with me.)
- 23 Ali-nin gel-ip gel-me-yeceğ-i-ni bil-iyor mu-sun?
(Do you know whether Ali will come or not?)
- 24 İste-r-se-n Ali-ye bizim-le gel-me-sin-i söyli-yeyim.
(If you want, I will ask Ali to come with us.)

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