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# Home literacy: Opportunity, instruction, cooperation and social-emotional quality predicting early reading achievement

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Be-coming literate is thought to start at an early age, long before formal instruction in reading and writing begins. Early introduction to books and participation in literate or literacy-related interactions with parents are seen as most important in preparing children for instruction in reading and writing at school. There are, however, large differences in the home literacy environment provided by families and, consequently, in the preparation of children for school learning. Several programs have been implemented to promote home literacy in families with children who are at risk for educational failure. Until now, despite recent promising initiatives (Arnold & Whitehurst, 1994), the results have not been encouraging (Darling & Paull, 1994; de Gloppe, 1993). This calls for further analysis of relationships between home literacy and school achievement.

This article begins with a brief overview of research dealing with the relationship between home literacy and literacy acquisition. Then we will posit the current study toward three issues in home literacy research that need further consideration. These issues are identified as particularly relevant for family literacy programs. The first part of the article concludes with an explication of the theoretical framework of the study and its main hypotheses. In the second part, we describe the research method and present the results. The article concludes with a general discussion.

## *Home literacy: Findings and issues*

### **Home literacy and literacy development: Research findings**

Home literacy has been defined and studied in various ways. Most common are frequency or exposure measures of some kind, varying from mere counting of the number of children's books in the home to more sophisticated attempts to estimate the amount of time spent on shared book reading and other literacy events. A smaller number of studies concentrated on qualitative characteristics of literacy and literacy-related interactions by using observation methods.

Several studies reported relationships between home literacy experiences, either measured by questionnaires or by naturalistic observations, and the development of vocabulary, conceptual knowledge, and language comprehension skills at different preschool ages (e.g., Beals, De Temple, & Dickinson, 1994; Dickinson & Tabors, 1991; Leseman, 1993; Watson, 1989; Wells, 1985a). A number of studies investigated the relationships between home literacy and the development of (pre)literacy skills. Associations have been found between book reading at home and, for example, phonemic skills, print concept knowledge, familiarity with decontextualized use of language, and positive attitudes toward literacy (Dickinson & Tabors, 1991; Mason, 1992; Wagner, Torgesen, & Rashotte, 1994; Warren-Leubecker

### ***Home literacy: Opportunity, instruction, cooperation, and social-emotional quality predicting early reading achievement***

IN THIS prospective study home literacy is considered a multifaceted phenomenon consisting of a frequency or exposure facet (opportunity), an instruction quality facet, a parent-child cooperation facet, and a social-emotional quality facet. In a multiethnic, partly bilingual sample of 89 families with 4-year-old children, living in inner-city areas in the Netherlands, measures of home literacy were taken by means of interviews with the parents and observations of parent-child book reading interactions when the target children were ages 4, 5, and 6 years. At age 7, by the end of Grade 1, after nearly 1 year of formal reading instruction, vocabulary, word decoding, and reading comprehension were assessed using standard tests. Vocabulary at age 4 and an index of the predominant language used at home were also measured in order to be used as covariates.

Correlational and multiple regression analyses supported the hypothesis that home literacy is multifaceted. Home literacy facets together predicted more variance in language and achievement measures at age 7 than each of them separately. Structural equations analysis also supported two additional hypotheses of the present research. First, the effects of background factors (SES, ethnicity, parents' own literacy practices) on language development and reading achievement in school were fully mediated by home literacy, home language, and early vocabulary. Second, even after controlling for the effects of early vocabulary and predominant home language, there remained statistically significant effects of home literacy, in particular, opportunity, instruction quality, and cooperation quality.

### ***Alfabetización en el hogar: Oportunidad, enseñanza, cooperación y calidad socio-emocional predicen el desempeño en lectura inicial***

EN ESTE estudio prospectivo, la alfabetización en el hogar está considerada un fenómeno multifacético que consiste en una faceta de frecuencia o exposición (oportunidad), una faceta de calidad de la enseñanza, una faceta de cooperación entre padres e hijos y una faceta socio-emocional. Se trabajó con una muestra multiétnica, y en parte bilingüe, de 89 familias con niños de 4 años, que vivían en áreas urbanas en los Países Bajos. Se tomaron medidas de alfabetización en el hogar mediante entrevistas con los padres y observaciones de la interacción padre-hijo en lectura de libros cuando los niños tenían 4, 5, y 6 años. A la edad de 7 años, al promediar 1º grado, luego de casi un año de enseñanza formal de la lectura, se tomaron medidas de vocabulario, decodificación de palabras y comprensión usando pruebas estandarizadas. También se obtuvieron una medida de vocabulario a los 4 años y un índice de la lengua predominante del hogar para usarlos como covariables. Los análisis cor-

relacionales y de regresión múltiple apoyan la hipótesis de que la alfabetización en el hogar es multifacética. Las facetas de la alfabetización en el hogar predijeron más varianza en las medidas de lenguaje y desempeño en lectura a la edad de 7 años en forma conjunta que cada una de ellas por separado. El análisis de ecuaciones estructurales también apoyó dos hipótesis adicionales del presente trabajo. En primer lugar, los efectos de los factores del entorno (NSE, raza, prácticas de alfabetización de los padres) sobre el desarrollo del lenguaje y el desempeño en lectura en la escuela estuvieron completamente mediados por la alfabetización en el hogar, la lengua del hogar y el vocabulario temprano. En segundo lugar, aún después de controlar los efectos de vocabulario temprano y lengua predominante del hogar, se hallaron efectos estadísticamente significativos de alfabetización en el hogar, en particular, oportunidad, calidad de la enseñanza y calidad de la cooperación.

### ***Lesen und Schreiben zu Hause: Möglichkeiten, Anleitung, Mitarbeit und sozial-emotionale Qualität, die frühe Leseleistungen voraussagen***

IN DIESER prognostizierenden Studie ist das Lesen und Schreiben zu Hause als ein vielschichtiges Phänomen zu betrachten, bestehend aus dem Aspekt der Häufigkeit oder des ständigen Ausgesetztseins (Opportunität), Gesichtspunkten in der Qualität der Unterweisung, Gesichtspunkten der Eltern-Kind Zusammenarbeit, und ein sozial-emotionaler Qualitätsaspekt. In einer Auswahl von 89 Familien mit vierjährigen Kindern von ethnisch vielfältigem, zum Teil zweisprachigem Hintergrund in innerstädtischen Wohngebieten Hollands, wurden die Bewertungen über Lesen und Schreiben zu Hause durch Interviews mit den Eltern und Beobachtungen der Eltern-Kind Zusammenarbeit beim Buchlesen vorgenommen, wobei die Zielgruppen Kinder im Alter von 4, 5 und 6 waren. Im Alter von 7 Jahren, am Ende der ersten Klasse, nach nahezu einem Jahr förmlichen Leseunterrichts, wurden Vokabular, Wortentschlüsselung und Leseverständnis unter Anwendung von Standardtests bewertet. Das Vokabular im Alter von vier und ein Index der vorherrschend zu Hause benutzten Sprache wurden ebenfalls bemessen, um als Zusatzvariablen genutzt zu werden. Korrelations- und Häufig-

keitsregressionsanalysen unterstützten die Hypothese, daß Lesen und Schreiben zu Hause vielfältige Gesichtspunkte hat. Alle Aspekte häuslichen Lesens und Schreibens zusammen genommen sagten mehr Abweichungen bei der Bemessung von Sprache und Leistungen im Alter von 7 voraus, als im Einzelfall jeder für sich getrennt. Strukturelle Vergleichsanalysen unterstützten ebenfalls zwei zusätzliche Hypothesen der gegenwärtigen Forschung: Erstens, die Einflüsse von Hintergrundfaktoren (SES, ethnische Zugehörigkeit, eigenständige Lese- bzw. Schreibpraxis der Eltern) auf die Sprachentwicklung und Leseleistungen in der Schule wurden durch häusliches Lesen und Schreiben, zu Hause gesprochene Sprache, und frühzeitiges Vokabular vollständig vermittelt. Zweitens, selbst nach Kontrollen über die Einflüsse früh erworbenen Vokabulars und der zu Hause vorherrschend benutzten Sprache blieben statistisch bedeutende Einflüsse des Lesens und Schreibens zu Hause, insbesondere Opportunität, Qualität der Unterweisungen und Qualität der Mitarbeit bestehen.

## 家庭での読み書き活動：初期段階の読みの能力を予測する 機会、指導、協力、社会的感情的特質

この先駆的研究では、家庭での読み書き活動は、その頻度や時間（機会）、指導の質、親子の協力、社会的感情的特質などから成る多面的な現象と考えられている。オランダの都市部に住み、多民族的また場合によってはバイリンガルといった環境にある4歳児を抱える89世帯において、その対象児童が4歳、5歳、6歳になった時点で、親にインタビューをし、親子の読書におけるやり取りを観察することによって家庭での読み書き活動が調査された。7歳の時、すなわち小学一年が終わり、学校で正規の授業を約1年間受けた後、標準テストを使って語彙力、単語の判読力、読解力の評価がなされた。また4歳児における語彙及び家庭で使われている主要言語といった要素も共変数として使用するために測定された。相関的複合的回帰分析による結果は、家庭での読み書き活動が多面的

的であるという仮説を支持するものであった。家庭での読み書き活動の側面を個々に捉えるより総合的に捉えた場合の方が7歳児における言語及び達成度の相違がより明らかになることが分かった。構造等数分析の結果もまた、本研究における2つの付随的仮説を支持するものであった。まず最初に、低所得者層、民族性、両親自身の読み書き活動といった背景的要素が学校での言語発達や読解力に及ぼす効果は、家庭での読み書き活動、家庭での言語、初期段階の語彙によって十分に予測可能であるということである。そして2番目に、初期段階における語彙や家庭での主要言語の影響を統制した場合でさえ、家庭での読み書き活動、特に機会、指導の質、協力の質による効果に関しては同様に統計的に有意なものであることが分かった。

## *Lire-écrire à la maison: occasions, pédagogie, coopération, et qualité socio-affective comme prédicteurs des premiers résultats en lecture*

DANS CETTE étude prospective, nous considérons la lecture-écriture à la maison comme un phénomène à plusieurs facettes comportant une facette de fréquence d'exposition (occasions), une facette de qualité de la pédagogie, une facette de coopération parent-enfant, et une facette de qualité socio-affective. Avec des enfants de quatre ans provenant d'un échantillon de 89 familles multiethniques, en partie bilingues, vivant dans des quartiers de centre ville des Pays Bas, on a mesuré la lecture-écriture à la maison au moyen d'entretiens avec les parents et d'observations des interactions parent-enfant pendant la lecture de livres, les enfants-cibles étant âgés de 4, 5, et 6 ans. À l'âge de 7 ans, vers la fin de la première année, après environ un an d'enseignement formel de la lecture, on a évalué avec des tests standards le vocabulaire, le décodage de mots, et la compréhension de la lecture. On a aussi mesuré le vocabulaire à l'âge de 4 ans et un indicateur de la langue dominante à la maison, pour s'en servir comme covariants. Des analyses de corrélation et de ré-

gression multiple soutiennent l'hypothèse que la lecture-écriture à la maison a plusieurs facettes. Prises ensemble les mesures de lecture-écriture à la maison prédisent plus de variance des mesures de langage et de réussite à 7 ans que chacune d'elles séparément. L'analyse des équations structurales soutiennent également deux autres hypothèses de cette recherche. Tout d'abord, les effets des facteurs de milieu (niveau socio-économique, ethnicité, pratique de lecture-écriture des parents eux-mêmes) sur le langage et la réussite en lecture à l'école sont entièrement médiatisés par la lecture-écriture à la maison, la langue parlée dans la famille, et le premier vocabulaire). D'autre part, après contrôle des effets du premier vocabulaire et de la langue parlée à la maison, il demeure des effets statistiquement significatifs de la lecture-écriture à la maison, en particulier, le nombre d'occasions, la qualité de la pédagogie, et la qualité de la coopération.

& Carter, 1988; Wells, 1985a, 1985b). Finally, home literacy measures have been found to be related to school literacy achievement (Mason, 1992; Purcell-Gates & Dahl, 1991; Wells, 1985b).

In a recent review, Scarborough and Dobrich (1994) concluded that there is a reliable relationship between home literacy and several outcome measures, although the size of the median correlation of .28 should be qualified as small. A similar conclusion is reached by Bus, van IJzendoorn, and Pellegrini (1995). Using statistical meta-analysis, these authors find correlations between home literacy and several outcome measures ranging from .27 to .33.

### Home literacy and beyond

Although reliable relationships of home literacy with developmental and educational outcomes have been demonstrated, a number of issues must receive further consideration. We will address three of these issues below. The issues selected here are considered to be particularly relevant for the general project of family literacy programs.

The first issue pertains to the effective ingredients or constructive processes that are responsible for the association between home literacy and the various developmental and educational outcomes (see also Scarborough & Dobrich, 1994, for an intriguing discussion concerning this issue). For the design of family literacy programs, an important question is whether mere exposure and modelling of certain behaviors are sufficient or whether coconstructive interaction leading to higher levels of knowledge is essential to obtain results. Another question in this respect is whether effective home literacy is primarily knowledge construction in the domain of language and literacy skills or (also) an affective experience, presumably somehow related to motivation regarding literacy learning in school.

Adopting a social constructivist theoretical framework, some researchers believe several facets of home literacy are important for young children's language development and literacy acquisition. First, there must be opportunities to participate in literate or literacy-related practices. Second, the processes of appropriation of knowledge, skills, and values involved in these practices can be promoted by more experienced others, for instance, by parents (Rogoff, 1990). Third, to the extent in which high involvement and good cooperation are prerequisites to appropriation processes, affective-motivational aspects are important as well.

Thus, social constructivist theory suggests that several facets of home literacy might influence language and literacy development. However, most studies into home literacy have been restricted to one facet at a time;

in general, either exposure (opportunity) or quality. Studies incorporating exposure and (instruction) quality measures in a single design are rare (e.g., Wells, 1985a). Studies covering both cognitive and social-emotional quality measures in one design are also rare (e.g., Bus & van IJzendoorn, 1995). The present study endeavors to extend home literacy research from this point. By including four different facets of home literacy that were deduced from social constructivist theory, we were able to examine their separate and joint contribution to children's language and literacy development.

A second issue to be addressed here concerns the contextuality of home literacy. Home literacy, seen as a social microsystem for young children to acquire language and literacy skills, cannot be separated from the immediately surrounding social and cultural contexts constituted by parents' education, work, social networks, and wider cultural and ethnic communities. For instance, illiteracy among parents, which is related to sociohistorical processes of the spread of formal schooling, strongly determines opportunities for literacy-related interactions. The relevance of this global statement for the project of family literacy programs is obvious. Changing one or more facets of the home literacy microsystem is deemed to be relatively ineffective unless context factors are in support of the intervention or, at least, do not provide a hindrance.

With notable exceptions (e.g., Heath, 1983; Purcell-Gates, 1996), home literacy research has often addressed the context of home literacy in a rather restricted way by reducing the family's social and cultural context to socioeconomic status, race, or ethnicity. This provides little insight into the functional and meaningful relationships of home literacy facets with other features of daily life connected with socioeconomic conditions and minority status.

In contrast, in a number of ethnographic studies, and especially in the study by Heath (1983) in the Piedmont Carolinas of the U.S., extensive and lively descriptions are given of the very rich contexts of home literacy. These studies have yielded a wealth of plausible hypotheses regarding the functions of literacy and the effects on language and literacy exchanges with young children, as related to contextual factors such as the family's or community's literacy traditions, religious practices, and lifestyle characteristics. Yet, testing of the hypotheses generated by the ethnographic accounts within a quantitative research paradigm is lacking.

Regarding the contextuality of home literacy, the present study tries to bridge part of the gap between ethnographic and quantitative approaches. The study involved a sample consisting of three ethnic-cultural groups with sociohistorically different relationships to

the culture of literacy. To deepen our insight into home literacy contexts, we explored the relationships between home literacy facets and socioeconomic, cultural, and ethnic background factors.

The third issue to be addressed here concerns the interpretation of the relationship between home literacy and language and literacy development. A basic presupposition of any family literacy program is that home literacy as a causal agent really matters for language development and literacy achievement. However, based on the presently available evidence, we cannot be sure that this presupposition is valid. This is due to the predominant correlational approach in home literacy research without adequate control for alternative explanations of associations between home literacy and developmental outcome.

A correlation, however, can be indicative of causal effects of home literacy on outcome measures but can equally point to the reverse. A longitudinal design is recommended here. A correlation can also point to a common third factor. To strengthen the causal conclusion validity of home literacy research, it is recommended to include developmental precursors of the outcome measures, such as language development at a prior time, as direct causes (or predictors) of the outcome measures in a longitudinal design (Gollob & Reichardt, 1987; Wagner et al., 1994).

The present study used a longitudinal design and included a measure of early language development to control for a third factor explanation of the expected correlations of home literacy with language and literacy development. More precisely, we examined to what extent the relationship between home literacy and language and literacy development was maintained after prior language development was statistically controlled.

### ***Theoretical framework and research questions***

To explicate the theoretical framework of the study, we begin with a global statement of our social constructivist position based on neo-Piagetian and neo-Vygotskian theorizing, to be elaborated upon in subsequent paragraphs.

We assume that young children's home environment can be characterized by opportunities for literacy-related activities and by processes of appropriation of knowledge, skills, and values involved in these practices through socially arranged forms of participation. This participation is called apprenticeship and is marked by interpersonal instruction and guidance by the parents (Rogoff, 1990; Rogoff, Mistry, Göncü, & Mosier, 1993). A

prototypical form of literacy apprenticeship for young children is joint picture book reading.

Further, we presuppose that differences in opportunities for participation and in characteristics of interpersonal instruction and guidance processes (other things being equal) determine differences in developmental outcomes.

Finally, we presuppose that there exist functional and meaningful relations between literacy practices on the microsocial plane and social and cultural practices on the community and society plane (Rogoff et al., 1993). Differences in microsocial home literacy arise from structures and practices in the encompassing social and cultural context. Of special interest here are differences arising from sociohistorically rooted differences in attitudes toward literacy.

### **Facets of home literacy**

Learning and development can be regarded as processes of knowledge construction and knowledge co-construction within the learner's zone of proximal development. To a certain extent, young children acquire knowledge and skills spontaneously in constructive interactions with their environment without explicit, intentional social mediation by a parent or teacher. Beyond this, however, the acquisition of decontextualized and culture-loaded knowledge in particular, needs to be mediated in co-constructive social interactions. Co-construction means essentially that the knowledge and skills concerned are first created or represented in an interpsychological form shared by the participants in a dialogue before being internalized (Leseman & Sijssling, 1996; Wertsch, 1985; Wertsch & Bivens, 1992).

In this connection, home literacy can be seen as a microsocial system of constructive and co-constructive processes in language and literacy learning that consists of essentially four facets that, in turn, are determined by context factors outside the system. These facets are, successively, literacy opportunity, instruction, cooperation, and social-emotional quality.

#### *Literacy opportunity*

In order for co-constructive processes to take place there must be at least some opportunity for interaction with literacy of whatever kind, in whatever form. Reference can be made here to studies showing the more or less spontaneous rise of concepts about the representational function of print, grapheme-phoneme correspondences, and the functions of written language (Ferreiro & Teberosky, 1982; Sulzby, 1986). Spontaneous construction of knowledge about print requires at least some contact with print. Opportunities to observe parents reading and writing, be it a TV schedule or a shop-

ping list, make literacy familiar and may foster positive attitudes towards literacy learning. Opportunities for joint book reading and similar events are essential to coconstructive learning. Literacy is in this respect a broad concept, concerning not only joint reading of high-quality books but also interaction with all kinds of environmental print and literacy technologies that pervade the home (Anderson & Stokes, 1984; Heath, 1983; Purcell-Gates, 1996). The degree to which the home environment provides opportunities to participate in interactions concerning written language is conceptually related to the frequency or exposure measures discussed above.

#### *Instruction quality*

To grasp meaning and understand what is told or read, and to develop skill in decontextualized language use, young children profit from guidance by an experienced reader (Snow, in press). In a recent study, Sulzby (1994) found that young children have several difficulties in understanding pictures, story structure, dramatic line, plot, and text wording. From the perspective of text comprehension (van Dijk, 1987), it would seem that the quality of instruction during literacy interactions concerns particular strategies that elicit deeper narrative-related information processing and scaffold the process of comprehension in order to construct a coherent mental model of the depicted situation.

Distancing theory (McGillicuddy-DeLisi & Sigel, 1991; Sigel, 1982) offers a model that relates parental interaction styles (strategies) to the demands put on presumed constructive cognitive-verbal processes on the part of the child, which fits into this view. Distancing theory has been successfully applied to book reading interactions (e.g., Sigel, 1982; Sigel & McGillicuddy-DeLisi, 1984; see also Pellegrini, Galda, Jones, & Perlmutter, 1995, and Sorsby & Martlew, 1991). Parents' behavior in reading with their children is evaluated according to its demandingness, that is to say, to the comprehension processes and thinking effort it presumably invokes and the related cognitive and language skills it thereby helps to develop.

#### *Cooperation*

Co-construction also requires cooperation and consensus between the participants about what has to be accomplished in the situation, for instance, when reading a book. A basic premise underlying distancing theory and related approaches—as an explanatory framework for social influences on verbal-cognitive development—is that the child understands and accepts the role he or she is expected to play, is familiar with this role, and is willing to respond to distancing strategies used by the parent. This is both a matter of making the task under-

stood (Wertsch, 1985) and of seeking a balance between the child's and the parents' motives and plans of action (Leseman & Sijling, 1996).

#### *Social-emotional quality*

Apart from instruction and cooperation, coconstructive interactions also have an affective aspect regarding the social-emotional bond between the participants and the affective experience they create together. Departing from an attachment theory point of view, Bus and van IJzendoorn (1995) presupposed that insecurely attached dyads will have less rewarding and satisfying interactions in general, and literacy interactions in particular, leading to a lower frequency of such interactions and less optimal learning experiences (see also Bus & van IJzendoorn, 1988; Denham, Renwick, & Holt, 1991; de Ruiter & van IJzendoorn, 1993; Erickson, Sroufe, & Egeland, 1985). Socially and emotionally less rewarding literacy interactions at home may also lead to a negative attitude toward school literacy and lower learning motivation, which in turn affects achievement (de Jong, Leseman, & van der Leij, 1997; Dweck, 1986).

#### **Contexts of home literacy**

Home literacy is embedded in social and cultural context. Drawing upon the seminal studies by Heath (1983, 1986), we presupposed that the opportunities provided for participation in literacy practices in the home environment are closely related to parents' own literacy use at home. The use of literacy by the parents, in turn, depends on their education, jobs, social networks, associated traditions, and their community and religious involvement.

Heath (1983) vividly pictured the effects of involvement in social (family) networks with their specific longstanding traditions of oral language and literacy use. She also found a strong influence of religious commitment on home literacy, exemplified by the central role of the Bible. Heath (1983) and Wells (1985a) pointed to the effects of a literate lifestyle characteristic of those who, in the words of Heath, "see themselves as being in the main stream of things..." (p. 236). This lifestyle is closely related to a high educational level, urban life, white-collar jobs, and associated social networks. Kohn and Schooler (1983) in their research on the relationship between job content, lifestyles at home, and pedagogical values found a correlation between the degree of literate-symbolic job content and the degree of reading and writing in leisure time.

The way in which parent-child literacy-related interactions are arranged and the kind of apprenticeships that are provided to young children are dependent upon the models or examples of literacy use and on the be-

havioral roles for the participants, offered in the diverse contexts of literacy use in which parents are involved. Heath (1983) described how white lower-class parents' questions and evaluations of children's answers during shared book reading reflect Bible-related interactions in the religious conferences they attend, with a strong emphasis on true interpretations and staying close to the printed word. Similar findings are reported by Zinsser (1986) who studied Bible lessons in a fundamentalist Protestant community.

In a different way middle-class parents also model their literacy interactions with young children on their own experiences, for instance, concerning use of literacy for educational purposes. However, these parents' models are reflected in the prompts for explanations and extensions of the story (Heath, 1983; see also Wells, 1985a).

### ***Overview of the present study and research questions***

The present study seeks to extend earlier studies on the relationship between home literacy and developmental and educational outcomes by addressing three issues concerning the effective facets, contextuality, and causality of home literacy. To examine these issues we carried out a longitudinal study of children from the beginning of kindergarten at the age of 4 to the end of first grade when the children were approximately 7 years of age. The children in the sample differed with respect to the socioeconomic status of their families and their ethnic group. The first group were indigenous Dutch children and their families. The other two groups were first- and second-generation immigrants from Surinam and Turkey, respectively.

The three ethnic groups have, from a sociohistorical perspective, quite different attitudes toward the culture of literacy. Attitudes are dependent upon the country of origin and the formal education provided there, the present socioeconomic status, predominant lifestyles in family and community, and their religious traditions. All Turkish parents and about one quarter of the Surinamese parents are Islamic and actively involved in their religion. An additional quarter of the Surinamese parents are Hindi. The remaining Surinamese parents are members of Protestant and Roman Catholic churches. About one third of the Dutch group is not involved in any religion, the remaining part are Protestants and Roman Catholics. Further, almost the whole Turkish group and part of the Surinamese group are bilingual. (For a more extensive description of present day multicultural society in the Netherlands, see Eldering, 1995.)

On several occasions we obtained information about home literacy practices of the families. Besides exposure measures, we made observations of parents and their children during joint book reading. These observations were used to measure instructional quality, cooperation, and affective quality in parent-child interactions. In addition, we included measures of context variables (i.e., parents' education, jobs, literacy practices, and predominant home language). Finally, at the beginning of this longitudinal study, we measured early vocabulary as an indicator of language development, which was included in subsequent analyses as a control variable.

Following the preceding considerations, the research reported in the next sections set out to answer the following questions:

- 1) Is home literacy a multifaceted phenomenon, consisting of distinct facets representing literacy opportunity, instruction, cooperation, and social-emotional quality; that is, do these facets in combination predict language and literacy development better than each facet separately?
- 2) Does home literacy, together with early language development and home language, mediate the effects of background factors on language and literacy development in school?
- 3) If effects of prior language development and home language are taken into account, does home literacy still have statistically significant effects on language and literacy development?

## ***Method***

### **Participants and design**

Participants were 89 children from 28 inner-city primary schools. The children came from families with varied ethnic backgrounds and socioeconomic status. Of the 89 children, 47 were from native Dutch families, 23 came from immigrant Surinamese families, and 19 children were from immigrant Turkish families. Children were considered to belong to one of these ethnic groups if both parents of the mother were born in the Netherlands, Surinam, or Turkey.

The families were recruited from primary schools that had agreed to take part in a large longitudinal study on young children's school careers (for more details about the entire study, see van der Leij, Meijnen, & Leseman, 1994). In the Netherlands, primary school begins at the age of 4. The first 2 years encompass kindergarten. Formal instruction in reading, writing, and mathematics usually does not start before the third year, that is, first grade in U.S. primary schools. The families were approached in several ways. First, the schools distributed a letter among the families that was written in

collaboration with the researchers. In the letter information about the study and its importance was given, and parents were asked to take part in the study. Second, parents of Turkish and Surinamese origin were visited by the investigators because it was assumed that a number of them were not likely to respond to the written request. Third, in a few schools parents were invited to attend a meeting in which information about the study was given by the researchers.

The research started with 32 schools and 166 families. Two schools dropped out in the first year of the research for reasons of workload induced by the research and unforeseen organizational problems (government policy required many smaller schools to merge in these years). Although the families related to these schools were still willing to participate, the fact that data collection in the schools could not be completed meant a loss of 6.5% (or 11) of the families. Additionally, every year families dropped out mainly because they moved to other districts and changed schools. Many families lived in areas where the government had started a program of renovation of old 19th-century condominiums, so that moving to other areas was quite frequent. The total loss of families over the 4-year research period was 27% (or 45 families). Further, upon transition to first grade about 13% (or 21) of the children were retained in kindergarten. Retention in kindergarten was more frequent in the Surinamese and Turkish subsamples. Although these children were not entirely lost, there are no reading achievement data available on them so they had to be excluded from the present study.

The first visit to a family was scheduled around the time that the child was expected to enter school. The mean age of the children at the first visit was 4 years and 3 months. Subsequent visits were made at the end of the first and at the end of the second year in kindergarten. Each family was visited by a female researcher of the same ethnic origin. At each visit the primary caretaker of the child (in all cases the mother) was interviewed about her own literacy habits and about literacy activities that were done with the child. In addition, mother and child were invited to read jointly a newly released picture book brought along by the researcher. The resulting interactions were recorded on videotape and coded in the laboratory. Home visits were repeated when the children were on average about 5 and, again, when they were about 6 years of age. Oral language development was assessed at ages 4 and 7, and literacy achievement was measured at age 7 by the end of first grade after roughly 1 year of formal reading instruction. Testing was done in school.

## Measurements

### *Background characteristics*

Background characteristics of the child included ethnic origin of the family, socioeconomic status of the family, characteristics of parents' jobs, parents' own literacy activities, and language used in the home.

*Socioeconomic status (SES).* SES was computed on the basis of both parents' educational attainment level. Educational attainment was measured by using a 9-point scale ranging from 1 *a few years of elementary education* to 9 *university degree*. The intercorrelation of both parents' educational level is .45. The SES index was computed as the mean educational level of the parents. In the case of single parent families, the SES score is solely based on the educational level of the remaining parent.

*Symbolic job content.* The symbolic or literate content of the parents' most recent job was determined by using a questionnaire, asking the interviewee about the degree of literate and symbolic content of daily job activities. Answers were rated by the interviewer on a 4-point scale ranging from 1 *never* to 4 *very often/every day*. The questionnaire was derived from Kohn and Schooler (1983) and listed nine work content items, for instance, use of manual tools and heavy machines versus paper and pencil, written reports, and computers. The internal consistencies of the job content measures were satisfactory. Cronbach's  $\alpha$ s were .81 and .84 respectively. Symbolic job content was computed as the mean of both parents' job content scores. In the case of mothers who had never had a job (13% in all), the job content score was solely based on the husband's job. (A translation of the job content questionnaire is included in Appendix A.)

*Home language.* The items in the questionnaire referred to seven normally occurring situations in family life such as mealtime conversations, family visits, and singing lullabies and nursery rhymes with the child. Parents were asked to indicate which language was used in each of the seven situations. Their answers were recorded on a scale with three scale points: 1 *Dutch*, .5 *a mixture of Dutch and their own (first) language*, and 0 *their own language*. The questionnaire was administered on all occasions. For every occasion, home language was computed as the mean of the scores on the seven items. Cronbach's  $\alpha$  of the home language scale in the complete sample was .95 at the first occasion and .91 and .93 at the second and the third occasions, respectively. Reliabilities within the Surinamese and Turkish subsamples were similar. As the intercorrelations of the home language measures obtained on every occasion appeared to be about .90, further data reduction was indicated. Therefore, the three measures were pooled into

one index, being the average home language score of three measurement occasions.

*Parents' literacy.* Two scales were constructed to assess two different genres of literacy use. The first scale consisted of a list of 14 activities concerning the reading of a genre of books, magazines, and newspaper articles referred to as didactic-critical/educational (Heath, 1986) and informative and epistemological (Wells, 1987) literacy use. Parents were asked how often, as part of their job, education, or during leisure time, they read literary novels, history books, textbooks, international political news articles, popular science articles, or used an encyclopedia and so forth. Answers were rated by the interviewer on a 3-point scale ranging from 1 (*almost never*) to 3 (*often*). Cronbach's  $\alpha$  of the parents' informational literacy scale was .86. The scale score was computed as the mean of 14 ratings. (A translation of the parents' informational literacy questionnaire is included in Appendix A.)

The second scale referred to parents' use of literacy for (primarily) recreational goals. A list of 16 activities was presented, and subjects were asked to indicate how often they engaged in the activity mentioned. Conceptually the scale was related to the type of literacy use referred to as social-interactional/recreational by Heath (1986) with emphasis on the recreational aspect, but the scale also reflects the notion of contextualized as opposed to decontextualized discourse topics. Exemplary literacy activities mentioned in this questionnaire were the reading of police stories, romance, books on holiday destinations, fashion magazines, newspaper eyewitness reports on crime and accidents, local neighborhood news, TV schedules, and gossip stories. Answers were again rated on a 3-point scale. Cronbach's  $\alpha$  of parents' recreational literacy was .76. The scale score was the mean of the 16 ratings. (A translation of the parents' recreational literacy questionnaire is included in Appendix A.)

#### *Home literacy*

Measures were used to represent opportunity for literacy-related interactions (in short, literacy opportunity), and the socioemotional, procedural, and instructional quality of the relationship between mother and child during joint book reading. Literacy opportunity was measured with a scale that was administered during the interview.

*Literacy opportunity.* The items in this scale referred to literacy-related activities such as parents reading books or newspapers in the child's vicinity, reading story books to the child at bedtime, reading environmental print (e.g., advertising magazines) with the child present, writing letters or shopping lists with the child

present, and acknowledging spontaneous pretend-reading and pretend-writing by the child. Twelve situations and activities were briefly depicted by the interviewer. Parents were asked how often the depicted situations and activities normally occurred. Answers were rated on a 7-point scale ranging from 1 *never* to 7 *several times a day*. The scale was administered at each occasion. For every occasion, opportunity was computed as the mean score of the 12 items. Cronbach's  $\alpha$  of the scales for the three occasions were .65, .76, and .73, respectively. (A translation of the opportunity questionnaire is included in Appendix A.)

Socioemotional, procedural, and instructional quality were assessed by observations of parent-child interactions during joint book reading. Observations of joint book reading were carried out on three occasions, i.e., at the beginning and the end of the first year in kindergarten and at the end of the second year in kindergarten. On each occasion, a different picture book was used. However, the book was always of the same genre. The genre can be described as realistic narratives with a main plot, and with young children as protagonists. The books were available in Dutch and Turkish, and the Turkish families almost always used the Turkish version of the picture book. All joint book reading interactions were recorded on videotape.

*Social-emotional quality.* Rating scales of Erickson et al. (1985) were used to evaluate the social-emotional quality of the mother-child relationship during book reading. The scales referred to the degree to which mothers supported an emotionally positive and instructive experience during joint book reading. Mother's behavior toward the child was evaluated on a 7-point scale. We used four subscales: supportive presence, respect for the child's autonomy, effective structuring and limit setting, and confidence in the success of the ongoing interaction.

The interobserver reliability of the scales was determined at the first occasion of measurement. Two observers independently rated 15 mother-child pairs on each scale. The ratings of the observers were deemed to agree if their ratings did not differ more than one point. Percentages of agreement ranged from 70% to 90%. The mean percentage of agreement was 83%, which is well above the percentage of agreement of 38% that was to be expected by chance.

On every occasion of measurement the four scales were highly intercorrelated. Therefore, single measures of social-emotional quality were computed as the mean score of four subscales. Cronbach's  $\alpha$  of this measure across the three occasions ranged from .78 to .86.

*Procedural and instruction quality.* We distinguished several categories of utterances by the mother,

including nonverbal pointing to pictures, during book reading. In order to construct procedural and instruction quality indexes the distinguished categories were pooled into three main categories. The first main category was denoted as procedural utterances. These were utterances by the mother referring to the ongoing procedure or interaction process as such. The second main category consisted of low distancing utterances. The acts and utterances in this category were related to the narration, but either were close to the pictures, such as pointing, "See that?" questions, and labeling, or were literal repeats of the text and completions of read sentences. The third main category reflected high distancing utterances comprising explanatory, evaluative, narrative extending, and topical extending utterances.

The videotaped book reading interactions were coded directly from tape. Questions were coded as to the kind of answer they presumably were intended to elicit, for example, a "What is that?" question by the mother calls for labeling.

Low procedural quality was defined as the amount of nonnarrative-related procedural talk during joint book reading. Conceptually, procedural talk represents a measure of difficulties encountered in cooperating. However, the duration of book reading interactions varied considerably, which was mostly due to difficult cooperation as indicated by much procedural negotiation. Therefore, we took the absolute number of procedural utterances by the mother as an indicator of frictions during book reading.

Instruction quality was defined as the proportion of higher distancing level utterances out of all coded narrative-related utterances. Thus, procedural utterances were *not* included here. By computing instruction quality as a proportion, the measure was made independent from the duration of book reading interactions.

The interobserver reliability of the scales was determined at the first occasion of measurement. Two observers coded independently 15 mother-child interactions. The interobserver correlations computed for every subcategory ranged between .55 and .89; the mean interobserver correlation was .69.

#### *Language and literacy development*

Oral language development was assessed at the age of 4 and the age of 7 by a test for receptive vocabulary. Tests for word decoding and reading comprehension were selected to evaluate literacy development at the end of Grade 1 (i.e., approximately the age of 7).

*Dutch receptive vocabulary.* Due to the longitudinal design of the study three tests for receptive vocabulary, which differed in the mean difficulty of their items, were administered. The tests had a similar format to the Peabody Picture Vocabulary Test. On each item the child

was required to choose (from four alternatives) the picture that represented a given word. The easiest test was administered at the age of 4. The items of the test were derived from the word base of a specific language teaching program (Schoonen & Damhuis, 1992). The test had 48 items. The reliability of this test was .80. Two additional, more difficult tests were administered at the age of 7. The easier of these two tests was part of a widely used battery of language tests (Verhoeven & Vermeer, 1986) developed for kindergarten children. This test consisted of 98 items. The administration of the test was stopped when the child failed on six or more of the last eight items. The maximum score was 98. The most difficult test was a test of 50 items, which is regularly used to measure the development of receptive vocabulary in Grade 1 of elementary school (Verhoeven, 1993b). The maximum score of the test was 50. Both tests administered at the age of 7 are known to have good psychometric qualities. Linear equating was used to translate the scores of these tests to one scale (Angoff, 1971).

*Word decoding.* The One Minute Test (Brus & Voeten, 1979) was used as an indicator of word decoding speed. The test is very often used in Dutch elementary schools to measure achievements in early reading. The test consists of 116 single words of increasing difficulty. The children were instructed to read the words correctly and as quickly as possible. The score was the number of words read correctly in one minute. (A translation of exemplary words of the One Minute Test is included in Appendix B.)

*Reading comprehension.* We used a test that has been developed by the Netherlands National Institute for Educational Measurement (Verhoeven, 1993a). The test is widely used in the Netherlands to evaluate reading comprehension at the end of the first grade. The test consisted of six stories containing 8 to 11 sentences followed by multiple choice questions about the story. The items mainly measured the ability to understand connections between sentences as expressed by referral words. The test had 24 items. The reliability of the test was .89.

## **Results**

The results are presented in two main sections. In the first section we give descriptive information about book reading interaction patterns in the three subsamples on two occasions of measurement. Next, we consider the stability of home literacy facets across time. Finally, we present descriptive statistics for all the variables that were included in subsequent analyses. In the second section we deal with the relationships among background characteristics, home literacy, and language and literacy development.

## Descriptive information

### *Book reading interactions in the three groups*

Figure 1 shows the main types of talk (including pointing to pictures) that were observed during book reading interactions on the first and third measurement occasion (for reasons of brevity the findings of the second measurement have not been included here; they are highly similar). The distributions for the three subsamples show some remarkable differences as well as similarities. We will first note some similarities.

In all groups picture labelling is a frequently occurring activity on both measurement occasions (up to nearly 25% of all coded utterances). Also, in all groups the percentages of higher distancing level utterances—the sum of the percentages of explaining, evaluating, and extending utterances—are considerable (up to 38% or more on the third measurement occasion), and in all groups they rise from first to third measurement time. Complementary to this increase, in all groups the percentages of nonverbal pointing to pictures (including “See that?” questions), considered the lowest distancing level, clearly decrease from first to third measurement.

The groups differ in a number of aspects. Proportions of procedural utterances indicative of difficult cooperation are relatively high in the Turkish sample on the first measurement occasion. Also, at the end of the research period, Turkish mothers make more procedural remarks, although cooperation seems to have improved with time.

A peculiar finding is that in the Turkish group, relative to both other groups, mothers point far less to the pictures in the book and also utter (slightly) fewer picture labels and picture descriptions. Turkish mothers seem to make less use of pictures in the picture book to scaffold their young children’s understanding of the story.

Another remarkable finding is that the percentages of utterances that ask for literal repeating and completing of read sentences are very high in both the Surinamese and the Turkish group as compared to the Dutch group. This pattern is consistent across all measurement occasions.

A final observation is that the percentages of higher level utterances—which are the sum of the percentages of explaining, evaluating, and extending utterances—differ rather strongly between the Dutch group and both immigrant groups. It is, however, interesting to note that the pattern seems to change with time. On the first measurement occasion the differences in high-level utterances are mainly due to the differential use of extending utterances. On the final observation occasion, it is the use of (story and book reading) evaluations that causes the difference.

With respect to the social-emotional quality of the book reading interactions, a comparable analysis of behavioral profiles was done, based on the four subscales—supportive presence, respect for the child’s autonomy, effective structuring and limit setting, and confidence in the interaction. The Turkish and Surinamese mothers get lower ratings than the Dutch mothers on all scales and on all measurement occasions. The Turkish mothers get lower ratings than the Surinamese mothers on the first and the second occasions, but roughly equal ratings on three of the four scales on the final measurement occasion.

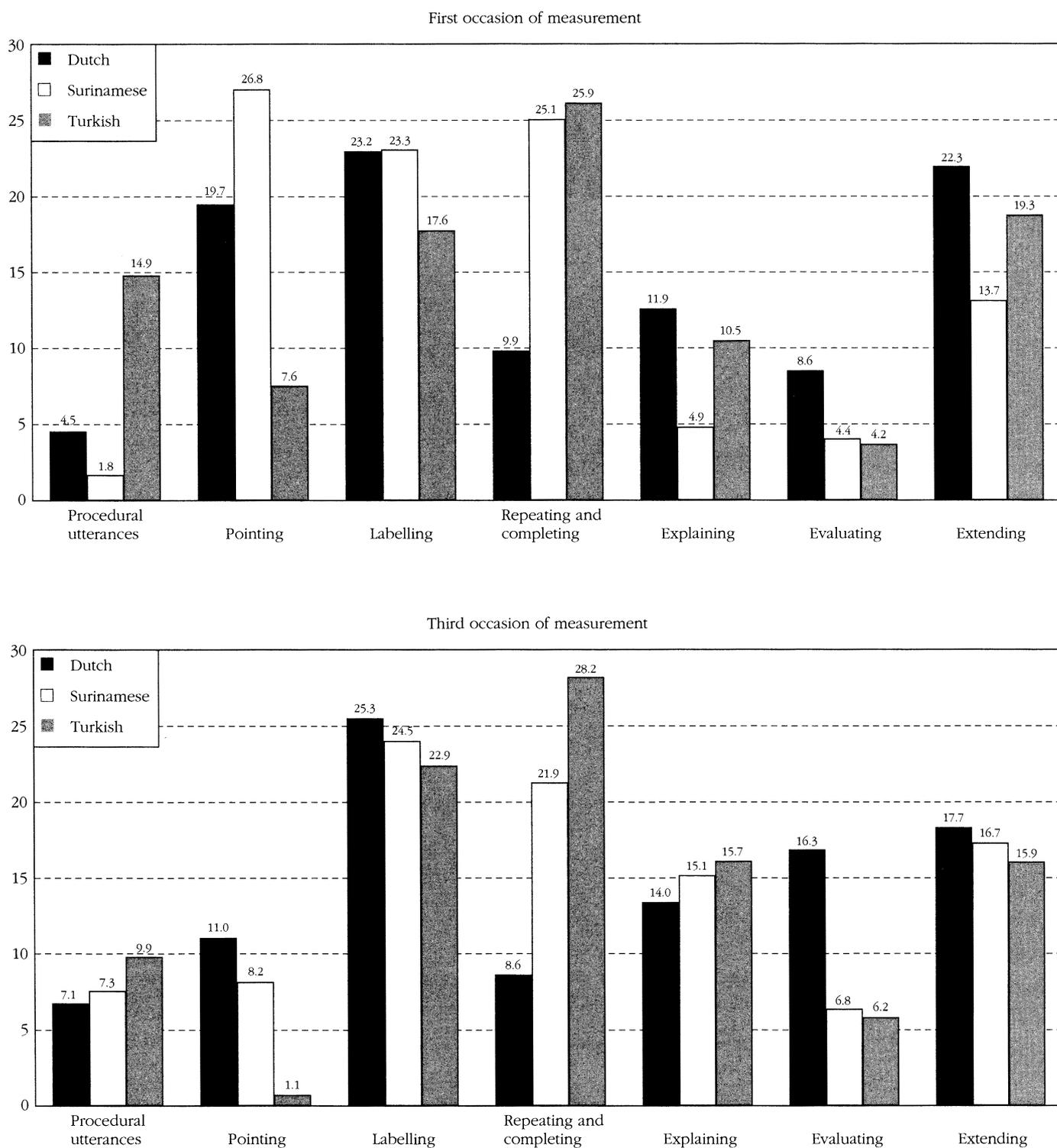
Besides these general trends, Turkish mothers differ strongly from both Dutch and Surinamese mothers in one dimension. They show much less confidence in the success of the ongoing interaction on all occasions. The latter finding corresponds with the relatively high rates of procedural utterances found in this group.

### *Stability across time and intercorrelations of home literacy facets*

Each home literacy facet was measured on three occasions with time lags of about 1 year. The mean intercorrelation among the scores obtained on the three occasions was .69 for literacy opportunity, .53 for instruction quality, .53 for low procedural quality, and .46 for social-emotional quality. These mean intercorrelations indicate a fairly stable home environment. In support of this conclusion it is also interesting to note that the pattern of intercorrelations among the measures of each facet did not conform to a so-called simplex model. According to the simplex model the correlation between two repeated measures decreases as the number of time lags between the two measures increases. For each of the facets of home literacy, however, the intercorrelations among the three occasions of measurement did not differ systematically, suggesting that each of the facets of home literacy reflects a general characteristic or *trait* of the home environment (Steyer & Schmitt, 1994). The measurements obtained on each occasion can be regarded as independent indicators of this general trait. Therefore, to reduce the number of variables in subsequent analyses, the measures for every facet were combined into a single index representing the mean of the scores obtained on the three measurement occasions. Cronbach’s  $\alpha$ s of these indexes are .87 for literacy opportunity, .74 for instruction quality, .72 for low procedural quality, and .70 for social-emotional quality.

The intercorrelations of the four facets of home literacy are presented in Table 1. The correlations can be qualified as small to moderate in the whole sample and small in the subsample of Dutch children. The home literacy facets are sufficiently distinct to include them as

**Figure 1** Patterns of joint reading in three subsamples (first and third occasion of measurement); percentages of utterances by the mother



separate predictors of language and literacy outcomes in the analyses to be reported in the next section.

#### *Descriptive statistics and ethnic group comparison*

Table 2 lists the means and standard deviations of background, home literacy, home language, and language/literacy development variables for the Dutch, Surinamese, and Turkish mother-child pairs. One-way analysis of variance was used to test the significance of the mean differences between the groups and to determine the amount of variance ( $R^2$ ) that can be predicted by the fixed factor ethnic group.

Home background and home literacy differ moderately strongly between the three groups ( $R^2$  ranging from .18 to .39). On all measures, Turkish children occupy the least favorable position, while Surinamese children occu-

py an intermediate position between Dutch and Turkish children. Not surprisingly, the use of Dutch as home language shows a very strong effect of ethnicity ( $R^2 = .88$ ).

There are two remarkable findings regarding the background characteristics. First, socioeconomic differences as indicated by both parents' educational level are less important a distinction than symbolic job content and parents' own literacy practices. Second, parents' use of literacy for recreational purposes makes the biggest difference between the three groups.

Children's receptive vocabulary at ages 4 and 7 also differs strongly between the groups ( $R^2 = .47$  and  $R^2 = .52$ ). Turkish children's receptive knowledge of Dutch words is two to three standard deviations below Dutch children's vocabulary.

**Table 1** Intercorrelations of the home literacy facets

Facet	Literacy opportunity	Social-emotional quality	Instruction quality	Low procedural quality
Literacy opportunity	1.00	.11	-.12	-.27
Social-emotional quality	.26*	1.00	.33*	.11
Instruction quality	.24*	.59**	1.00	-.07
Low procedural quality	-.32**	-.11	-.21	1.00

*Note.* Correlations below the diagonal are based on the whole sample of 89 children. Correlations above the diagonal refer to the subsample of 47 Dutch children.

\*  $p < .05$ . \*\*  $p < .01$ .

**Table 2** Means and standard deviations (between parentheses) and proportion of variance ( $R^2$ ) described by ethnic group for the family background characteristics, the home literacy and language scales, and the measures of language and literacy development

Measure	Max	Dutch	Surinamese	Turkish	$R^2$
<i>Background characteristics</i>					
Socioeconomic status	<sup>a</sup>	.20 (.78)	.10 (.76)	-.59 (.97)	.13**
Symbolic job content	4	2.75 (.62)	1.93 (1.12)	1.57 (.86)	.28**
Parents' informational literacy	3	1.83 (.47)	1.63 (.47)	1.32 (.37)	.17**
Parents' recreational literacy	3	1.97 (.39)	1.73 (.28)	1.31 (.26)	.35**
<i>Home literacy/language</i>					
Literacy opportunity	7	3.66 (.70)	3.37 (.71)	2.63 (.81)	.24**
Social-emotional quality	7	5.82 (.48)	5.09 (.87)	4.70 (1.02)	.30**
Instruction quality	1	.43 (.19)	.23 (.19)	.17 (.12)	.31**
Low procedural quality	<sup>b</sup>	1.35 (1.08)	2.12 (2.03)	5.92 (4.10)	.39**
Home language (Dutch)	1	.98 (.05)	.83 (.21)	.12 (.14)	.88**
<i>Language/literacy development</i>					
Vocabulary age 4	48	37.4 (4.1)	33.3 (5.7)	23.7 (8.5)	.47**
Vocabulary age 7	98	79.6 (9.3)	70.0 (10.8)	49.2 (16.6)	.52**
Word decoding age 7	116	44.9 (24.4)	37.4 (11.5)	31.3 (11.8)	.08*
Reading comprehension age 7	24	15.0 (6.6)	15.7 (4.5)	11.2 (5.5)	.08*

*Note.* Max is maximum score. For the Dutch children  $n = 47$ , for the Surinamese children  $n = 23$ , and for the Turkish children  $n = 19$ .

<sup>a</sup> z scores. <sup>b</sup>Raw number of procedural utterances.

\*  $p < .05$ . \*\*  $p < .01$ .

**Table 3** Correlations and  $R^2$ s of the family background characteristics with home literacy and home language in the full sample ( $n = 89$ ) and in the Dutch subsample ( $n = 47$ )

Background characteristics	Sample	Literacy opportunity	Social-emotional quality	Instruction quality	Low procedural quality	Home language
Socioeconomic status	Full	.35**	.52**	.50**	-.11	.32**
	Dutch	.06	.50**	.33*	.06	--
Symbolic job content	Full	.41**	.58**	.57**	-.11	.44**
	Dutch	.24*	.53**	.33*	.05	--
Parents' informational literacy	Full	.61**	.31**	.40**	-.22*	.36**
	Dutch	.50**	.17	.12	.09	--
Parents' recreational literacy	Full	.58**	.27**	.51**	-.38**	.51**
	Dutch	.35**	-.05	.31*	-.19	--
Surinamese group <sup>a</sup>	Full	.01	-.47*	-.61*	-.19	.26
Turkish group <sup>a</sup>	Full	-1.13**	-1.02**	-.93**	-1.49**	-2.23**
$R^2$	Full	.45**	.49**	.51**	.44**	.88**
	Dutch	.27*	.41**	.25*	.10**	--

Note. Dashes indicate that the correlations were not computed for this group.

<sup>a</sup> For the Surinamese and the Turkish groups, the indices in the table indicate the difference expressed in number of standard deviations between the group (Surinamese or Turkish) and the Dutch group.

\*  $p < .05$ . \*\*  $p < .01$ .

It is remarkable that only small differences between the groups were found in literacy achievement measures taken by the end of first grade, after almost 1 year of formal instruction ( $R^2 = .08$  in both cases). Noteworthy is that Surinamese children outperform Dutch children on reading comprehension and Turkish children are not as far behind as could have been expected based on their oral Dutch language proficiency.

### Correlational and structural equation analyses

In this section we consider the relationship between the background characteristics of the families and their home literacy practices and the relationship between the latter and children's language and literacy development. Finally, we present a model in which the relationship between background characteristics and children's language and literacy development is assumed to be mediated by home literacy practices. This model was tested using structural equation analysis.

#### Correlations of background and home literacy

Table 3 presents the correlations of background variables with home literacy/language and language/literacy development. Background characteristics include (dichotomous) dummy variables indicating ethnic group membership for Surinamese and Turkish children (being Dutch is implicit). Correlation coefficients of dichotomous variables are difficult to compare to correlation coefficients of continuous variables. Therefore, Table 3 presents the raw regression coefficients of each of these

dummy variables, predicting standardized ( $z$ -transformed) home literacy measures. The presented coefficients are now easily interpretable in standard deviation units of the predictor variables.

Socioeconomic status (indicated by educational level) is related to literacy opportunity, social-emotional quality, and instruction quality. Parents' symbolic job content is rather strongly related to social-emotional quality and instructional quality. Parents' informational and recreational literacy practices are specifically associated with the literacy opportunity facet but are also correlated with the quality facets. Interesting is that recreational literacy has stronger correlations with instruction quality and low procedural quality than parents' informational literacy. Ethnicity is also strongly associated with home literacy and home language.

Also presented are the  $R^2$ s. The results show that home language and literacy measures are rather strongly related to background characteristics. The predicted variance,  $R^2$ , ranges from .44 to .51.

Table 3 also gives the Pearson correlations for the Dutch subsample only ( $n = 47$ ). The dummy variables indicating ethnic group membership and home language were, of course, excluded as they have almost no variance in the Dutch group. Generally, correlations in the Dutch subsample are smaller than in the full sample due to restriction of range, but the pattern of correlations is similar. Socioeconomic status is particularly associated with the social-emotional and instruction quality facets, symbolic job content is related to social-emotional quality

ty, and parents' own literacy practices are particularly associated with the literacy opportunity facet. Again, parents' recreational literacy is more strongly related to instruction quality than parents' informational literacy. The amount of predicted variance is smaller but still statistically significant and substantial.

#### *Correlations of home variables with outcome measures*

Correlational and multiple regression analyses were performed to answer the first question of the study, concerning whether home literacy is a multifaceted phenomenon. Table 4 gives the Pearson correlations of background characteristics and home literacy measures with language and literacy development. Also listed are the measures of total predicted variance,  $R^2$ 's, by background variables alone (in the upper part), home literacy variables alone (in the middle part), and by home literacy and home language variables together (bottom line). Most correlations are of small size, with the exception of correlations with vocabulary, which are moderately strong.

Table 4 also gives the Pearson correlations for the Dutch subsample only. The correlations of background variables with vocabulary measures are now almost zero. However, the correlations with word decoding and reading comprehension are higher overall. The same holds for the correlations of the home literacy measures. The correlation coefficients of home literacy with vocabulary are overall much lower as compared to the full sample (there is even an unexpected negative correlation of the literacy opportunity facet with vocabulary at age 7), whereas the correlations with word decoding are overall slightly higher and with reading comprehension only slightly lower.

The  $R^2$ 's presented in Table 4 indicate the prediction of language and literacy development by background characteristics, home literacy, and home literacy including home language. For the vocabulary measures substantial amounts of variance can be predicted by background variables (.53 and .55 respectively), home literacy (.37 and .38), and home literacy together with home language

**Table 4** Correlations and  $R^2$ 's of background characteristics, home literacy, and home language with language and literacy development

	Sample	Vocabulary at age 4	Vocabulary at age 7	Word decoding at age 7	Reading comprehension at age 7
<i>Background characteristics</i>					
Socioeconomic status	Full	.41**	.30**	.30**	.27**
	Dutch	.12	.11	.46**	.35*
Symbolic job content	Full	.48**	.43**	.27**	.24*
	Dutch	.20	.15	.36**	.25*
Parents' information literacy	Full	.23*	.23*	.15	.16
	Dutch	.01	-.01	.16	.13
Parents' recreational literacy	Full	.38**	.37**	.27**	.20*
	Dutch	.10	.11	.22	.18
Surinamese group <sup>a</sup>	Full	-.04	-.05	-.19	.30
Turkish group <sup>a</sup>	Full	-1.63**	-1.65**	-.55*	-.65*
$R^2$	Full	.53**	.55**	.17*	.13
	Dutch	.06	.06	.29**	.16
<i>Home Literacy</i>					
Literacy opportunity	Full	.46**	.30**	.35**	.28**
	Dutch	.20	-.16	.32*	.13
Social-emotional quality	Full	.41**	.47**	.24*	.10
	Dutch	.30*	.19	.29*	.14
Instruction quality	Full	.33**	.43**	.24*	.04
	Dutch	.06	.29*	.28*	.02
Low procedural quality	Full	-.41**	-.40**	-.28**	-.38**
	Dutch	-.36**	-.06	-.36**	-.37**
$R^2$	Full	.37**	.38**	.18**	.17**
	Dutch	.26*	.13	.33**	.18*
<i>Home Language</i>					
Home language	Full	.70**	.72**	.25*	.27*
$R^2$ (Home literacy + Home language)	Full	.52**	.54**	.19*	.17**

<sup>a</sup> For the Surinamese and the Turkish groups the indices in the table indicate the difference expressed in number of standard deviations between the group (Surinamese or Turkish) and the Dutch group.

\*  $p < .05$ . \*\*  $p < .01$ .

(.52 and .54). Word decoding is less well predicted, but the amount of predicted variance is still statistically significant and substantial (.17 for background, .18 for home literacy, and .19 for home literacy and home language together). Reading comprehension is least well predicted. The predicted variance by background variables is not statistically significant. Prediction by home literacy is statistically significantly better ( $R^2 = .17$ ).

In the Dutch subsample, the predicted variance in both vocabulary measures by background characteristics (SES, parents' literacy) is close to zero. Home literacy measures predict vocabulary levels better, but compared to the full sample the  $R^2$ s are small. The prediction of word decoding and reading comprehension by both background and home literacy variables is, however, slightly better than in the full sample.

As regards the first question of the survey, whether home literacy is a multifaceted phenomenon, the conclusion is that the combined effects of the home literacy facets on the dependent variables are much stronger than single effects. In the full sample the combined effects of home literacy facets predict vocabulary less well than background characteristics, which points to the role of home language. Reading achievement measures are, however, predicted better by home literacy facets. In the Dutch subsample all outcome measures are better predicted by home literacy facets. In the full sample the combined effects of home literacy and home language predict outcome measures equally well as (vocabulary), or even better than (word decoding and reading comprehension), background variables.

### Structural equation models

The relationships between background, home literacy, and children's language and literacy outcomes were further investigated to answer the second and third research questions introduced before. These questions concerned, respectively, whether home literacy, together with home language and language development, mediates effects of social and ethnic background on school literacy, and whether statistically significant effects of home literacy on school literacy remain after controlling for early oral language level.

Using the LISREL-8 program, we analyzed structural equations models on the matrices of covariances with vocabulary, word decoding, and reading comprehension as dependent variables, respectively, based on the full sample. The size of the Dutch subsample was considered too small to carry out a parallel structural equations analysis with only indigenous Dutch subjects. Figure 2 shows the basic model. Background characteristics were considered exogenous variables determining home literacy and home language as measured in the period be-

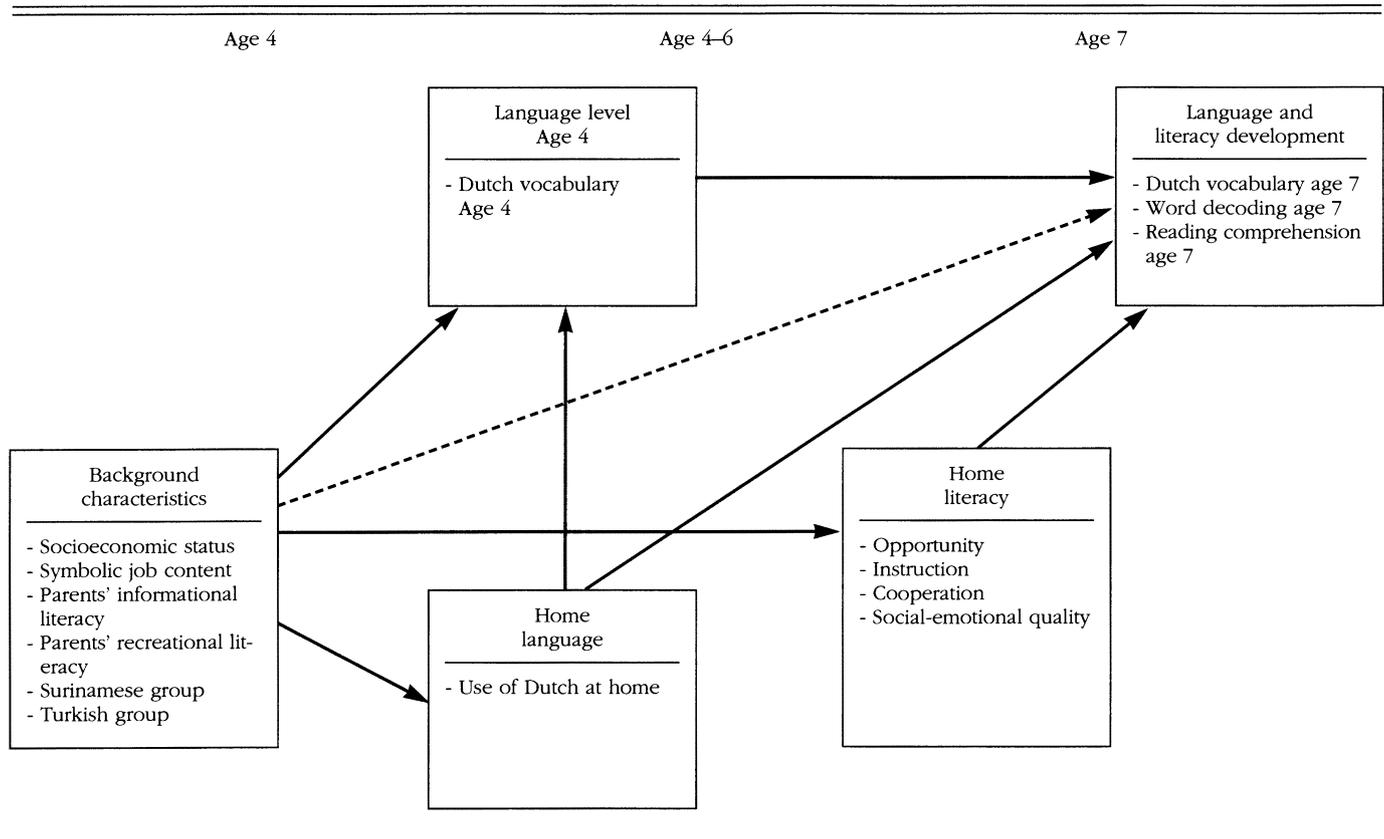
tween ages 4 and 6 and Dutch vocabulary as measured at age 4. Besides indirect effects mediated by home literacy, home language, and early vocabulary, there might also be *direct* effects of background on age 7 language and literacy measures, contrary to our thinking. This is indicated in Figure 2 by the dashed arrow running directly from background characteristics to the dependent variables.

Home literacy, home language, and age 4 vocabulary were considered mediating variables determining language and literacy levels at age 7. Furthermore, we assumed a direct effect of home language (being there before the child's fourth birthday) on age 4 vocabulary. This is symbolized by the arrow running from the home language variable to the age 4 vocabulary variable. By including both home language and early vocabulary in the models, confounding of the effects of two other plausible causes of language and literacy development was controlled.

Separate models were fitted for each outcome measure (vocabulary, word decoding, and reading comprehension). The first step was to test the basic model, including all possible direct effects of background on language and literacy development. Neither of the three models proved to be satisfactory (no acceptable fit was found). As a second step, all small and statistically not significant effects of background factors were fixed, that is, assumed to be zero. This resulted in a clear improvement of the models due to a big increase of degrees of freedom with only a small increase in  $\chi^2$  statistic. As a final step, all remaining statistically insignificant effects of home literacy and home language variables were set to zero leading to a further improvement of the model fit. The fit of the resulting models is satisfactory (Vocabulary Model:  $\chi^2(41, N = 89) = 55.85, p = .06$  (CFI = .98, RMSR = .041); Word Decoding Model:  $\chi^2(40, N = 89) = 55.01, p = .06$  (CFI = .98, RMSR = .042); and Reading Comprehension Model:  $\chi^2(42, N = 89) = 57.51, p = .05$ , CFI = .98, RMSR = .047).

Table 5 lists the path-coefficients and  $R^2$ s of the final models for vocabulary, word decoding, and reading comprehension at age 7. The part of the models concerning the relation between background, home literacy, home language, and early vocabulary is the same for all three models and, for the sake of brevity, presented here only once. The conclusion with respect to this part of the models is that the variance in home literacy facets can be rather well explained by background characteristics. Further, there is no indication that there are direct effects of background characteristics on language and literacy development in school. As an answer to the second research question, whether home literacy mediates effects of background on school literacy, the findings in-

**Figure 2** A causal model of the relationships between background characteristics, home literacy, home language, and literacy acquisition in school



indicate that effects of background are fully mediated by home literacy.

The results further show that there are modest, though statistically significant, effects of two of the home literacy facets and of home language, even if previously existing differences between the children as regards their oral language skills are statistically controlled. This is an answer to the third question of the present study. There remain small but statistically significant effects of home literacy facets.

To summarize the results:

*Vocabulary at age 7* is most strongly determined by age 4 vocabulary. However, apart from early vocabulary, there remain statistically significant effects of Dutch as home language and instruction quality. Contrary to our expectations, opportunity for literacy interactions has a small, but statistically significant, *negative* effect on vocabulary.

*Word decoding at age 7* is also most strongly determined by early vocabulary. However, literacy opportunity, instruction quality, and low procedural quality also

have statistically significant effects on word decoding. The negative effect of home language may reflect the fact that the bilingual children in the sample do rather well in school, taking into consideration the very low levels of home literacy, the unfavorable socioeconomic position of their families, and their low Dutch oral language level.

*Reading comprehension at age 7* as well is strongly determined by vocabulary at age 4. This leaves only one statistically significant effect of home literacy, namely the rather substantial negative effect of low procedural quality—the more friction in parent-child book reading interactions, the lower the reading comprehension scores. This is also a negative effect of home language.

Finally, it can be noted that the social-emotional quality facet has no additional effects on language and literacy development. Although this facet is related to all three dependent variables (see Table 4), the associations disappear in the context of other home literacy facets, home language, and age 4 vocabulary.

### Discussion

In this study we investigated the relationships between sociocultural and ethnic-cultural background, home literacy, home language, and early language and literacy learning in school. The sample consisted of three subsamples that covered a wide range of families with young children, representative of student populations of inner-city elementary schools in the Netherlands. Home literacy was examined with respect to four facets: (a) the degree of opportunities for literacy-related interactions offered to the child, (b) the social-emotional quality, (c) the procedural quality (indicating mother-child cooperation), and (d) the instruction quality of the mother-child book reading interactions. Furthermore, because the sample consisted partly of bilingual families, a measure of the use of Dutch (versus the family's own language) as conversational language in diverse situations in daily family life was added to assess effects of bilingualism on (Dutch) language and literacy development. In this final section we will review the findings, offer some further interpretations and explanations, and conclude with a brief statement on the implications of the present findings for family literacy programs. Before that, we will consider the major limitations of the present study.

### Limitations

The present study has several limitations. A major limitation concerns the ways in which home literacy was measured. The literacy opportunity facet was based on self-reports and measured by means of a questionnaire. There is a risk that the tendency to give socially desirable answers, in favor of a high degree of literacy involvement, has influenced the findings. How this may have affected the present findings is not immediately clear. If the parents gave a large number of socially desirable answers, we would expect a significant decrease of systematic variance (and a concomitant increase of error variance). However, as the correlations with independently measured variables such as, for instance, children's language and literacy development or ethnicity are rather strong, there is no indication that such an effect was present.

The quality measures were based on observations of parent-child interactions in the home environment. Although we are confident that the choice of home environment as the setting enhanced ecological validity as compared to laboratory studies, the presence of a researcher with a video camera no doubt influenced the parent's behavior and probably elicited a tendency to

**Table 5** Interrelationships among background characteristics, home literacy, home language, and literacy development: Standardized regression coefficients and  $R^2$ s of the final structural equations model

Variables	Literacy opportunity	Social-emotional quality	Instruction quality	Low procedural quality	Home language	Vocabulary at age 4
Socioeconomic status	–	.31	.35	–	–	.21
Symbolic job content	–	.19	–	.24	–	–
Parents' informational literacy	.50	–	–	–	–	–
Parents' recreational literacy	–	–	.31	–	–	–
Surinamese group	–	–.29	–.31	.21	–.19	–
Turkish group	–.28	–.33	–.18	.77	–.98	–
Home language	–	–	–	–	–	.61
$R^2$	.44	.47	.49	.43	.88	.53

Variables	Vocabulary at age 7	Word decoding at age 7	Reading comprehension at age 7
Age 4 vocabulary	.58	.43	.57
Literacy opportunity	–.15	.21	–
Social-emotional quality	–	–	–
Instruction quality	.15	.19	–
Low procedural quality	–	–.20	–.33
Home language	.30	–.21	–.15
$R^2$	.70	.27	.30

Note. The top part of the table shows the statistically significant effects of background variables on home literacy, home language, and vocabulary. The bottom part of the table shows the effects of the mediating variables home literacy, home language, and vocabulary on the language and literacy outcomes (see also Figure 2). A dash indicates that the regression coefficient was fixed to zero.

display socially desirable behavior. However, this apparently did not restrict systematic variance substantially, because we found remarkably different interaction patterns between the subsamples and rather strong correlations with both background and dependent variables.

An even more fundamental problem might be that on every measurement occasion only one book reading event was recorded concerning only one literacy genre (a picture book containing a realistic narrative). However, there is no clear indication that this limited and selective sampling of literacy events has had a major influence on the findings. We found rather stable interaction patterns across measurement occasions suggesting sufficient reliability (particularly when considering the fact that different books were read and that the time lag between the measurements was 1 year). We also found rather strong correlations with both background and dependent variables indicating that the observation measures had sufficient construct validity.

A final limitation to be discussed concerns the control for alternative causes of our outcome measures. At the beginning of the study we assessed vocabulary acquisition. This measure is most suited as a precursor of vocabulary development at the end of first grade, but perhaps less so regarding the acquisition of word decoding and reading comprehension. Although vocabulary has regularly been found to be related to word decoding and reading comprehension (for a review, see de Jong & van der Leij, *in press*), there is a lot of evidence to suggest that phonological skills, especially phonemic awareness, are also good predictors of reading acquisition (Wagner & Torgesen, 1987).

For two reasons, however, we did not include measures of phonological skills. One reason was that it is hardly possible to obtain reliable measures of phonemic awareness at the age of 4, that is to say, 2 years before official reading instruction begins. In general, most tasks for phonemic awareness are too difficult, indicating that phonemic awareness has hardly developed yet. Another reason was that at an early age phonological skills are highly associated with more general verbal skills. As a result, at this early age phonological skills will hardly add to the prediction of early reading achievement or more general verbal abilities (de Jong & van der Leij, *in press*; see also the reanalysis of data by Wagner, Torgesen, Laughon, Simmons, & Rashotte, 1993).

#### *Literacy interaction*

The three subsamples differed considerably in background characteristics and home literacy, with the Turkish group always in the least, and the Dutch group in the most favorable position. It is interesting to note that socioeconomic differences as indicated by both par-

ents' educational level seemed less important a distinction than cultural lifestyle differences as represented by measures of symbolic job content and parents' own literacy practices. A possible explanation is that educational level is a static characteristic, while the other measures reflect actual daily involvement in economic (job) and cultural activities (leisure time, social intercourse). A further intriguing finding is that parents' use of literacy for recreational and related instrumental goals (e.g., using the TV schedule in the newspaper) made the biggest difference between the three groups. Based on the ethnographic studies cited in the theoretical part of this article we expected, contrarily, literacy use for informational and educational goals to differ most between the groups.

The three subsamples also differed considerably on home literacy facets, with again, the Turkish group in the least, and the Dutch group in the most favorable position. The differences were strongest with regard to quality measures based on observations of book reading interactions. For instance, the proportion of high-level distancing utterances by the Turkish mothers was on average about one standard deviation below that of the Dutch mothers. A detailed look at book reading interactions, however, revealed a more subtle pattern of similarities and differences. Mothers in all groups used higher level utterances (explanations, evaluations, and narrative extensions) to a considerable degree. The same holds for picture labeling and picture describing utterances, which were defined as lower distancing on theoretical grounds. Differences between the groups mainly concerned the use of certain types of high- and low-level activities. Asking the child to repeat or complete read sentences in a literal way was characteristic for book reading interactions of Surinamese and Turkish mother-child pairs, whereas evaluating the narration and extending the narrative or topics introduced by the narrative was more characteristic for Dutch mother-child pairs.

Turkish mothers differed in other typical ways from both Dutch and Surinamese mothers. They made far less use of the pictures in the picture book to support the book reading and story comprehension process. And related to this, they also had more difficulties in dealing with the child's spontaneous reactions to the book reading event. Turkish children, like Dutch and Surinamese children, wanted to look at the pictures, turn the pages, and grasp the book, but their mothers apparently regarded this quite often as inappropriate. This can explain the relatively large amount of procedural talk during book reading found in the Turkish subsample.

Regarding language development and literacy achievement in school, we again found (strong) differences between the groups as was expected on the basis of recent Dutch research on young children's school ca-

reers. The rather strong differences in the Dutch vocabulary measures came as no surprise. They reflected a strong effect of bilingualism that puts the Turkish children at a disadvantage. Surprisingly, we did not find such marked differences in word decoding and reading comprehension. This points to the equalizing effects of reading instruction in primary school.

Reading instruction in the Netherlands focuses strongly on the technical aspects of reading, that is, learning to decode, whereas oral language development, including development of vocabulary and text comprehension skills, is (in most schools) not an explicit part of the early-years' curriculum. The fact that we found similar results for reading comprehension may reflect that reading comprehension at this stage (end of first grade) is still largely dependent upon decoding skill. Indeed, we found a correlation between word decoding and reading comprehension of .65. Thus, reading comprehension at this stage of reading acquisition hardly seems to reflect skills in decontextualized language use.

#### *Multifaceted home literacy*

The correlations of home literacy measures with vocabulary and word decoding were all in the .24 to .47 range in the full sample. In the Dutch subsample there were two unexpected low (negative) correlations, but most were in the .19 to .36 range. These results correspond reasonably well with the average correlations of .27 to .33 reported in reviews by Bus et al. (1995) and Scarborough and Dobrich (1994) referred to in the beginning of this article. The results of the multiple regression analyses gave an impression of the combined effects of different facets of home literacy. Based on the Dutch subsample only, multiple correlations  $R$  (square root of  $R^2$ ) with vocabulary at age 7 and school literacy achievement ranged from .36 to .57 (word decoding). In the full sample the multiple correlation with age 7 vocabulary was much stronger, .62, but this is partly due to the confounding effects of home language. Multiple correlations with word decoding and reading comprehension were slightly lower, .41 and .42, respectively. We conclude that the present results on single facets of home literacy are essentially in accordance with findings in other studies. However, we can also conclude that a combined, multiple correlation of different literacy facets (apart from home language effects) with language and literacy development is generally stronger than single associations. Home literacy seems to be a multifaceted phenomenon. Besides mere opportunity (i.e., exposure), measures of the coconstructive quality of literacy interactions also add to the prediction. The results fit in well with the social constructivist theory outlined in the first

part of this article. Studying different facets integrally is recommendable.

#### *Contexts of home literacy*

Results of the structural equation analysis supported the hypothesis that effects of socioeconomic and cultural background on early reading achievement are completely mediated by home literacy, home language, and early language level. From the results it can be concluded that home literacy is rather strongly determined by socioeconomic, cultural, and ethnic factors. Socioeconomic status, computed as the mean of parents' educational attainment, determined social-emotional and instruction quality. Schooling particularly seemed to influence the instruction quality of book reading and to foster also the child-centered guidance reflected in the higher level of social-emotional support of the child's involvement in book reading. Home literacy was also influenced by the kind of jobs parents held (Kohn & Schooler, 1983; Leseman, 1994).

Similarly, parents' own literacy practices appeared to determine specifically the opportunities for young children to be involved in literacy-related interactions. Noteworthy here was that literacy use for recreational goals seemed to be more important for the instruction quality facet than informational literacy. A possible explanation is that the way in which instruction quality was defined in this study—as narrative-focused explanations, evaluations, and extensions—presupposes narrative interest on the part of the parent.

Parents' own literacy practices were, of course, strongly related to their educational biography, job content, and ethnicity. This is indicative of the profound influence of social context factors (see also Leseman, 1994). Interesting was that recreational literacy use was more strongly related to ethnic background than informational literacy. Historically, the relationships of the two immigrant populations sampled in the present study to the culture of literacy are quite different from that of the Dutch population as we briefly discussed in the first part of this article. Although the spread of schooling in the countries of origin and the enhanced opportunities for schooling in the new country (including adult basic literacy programs) have decreased illiteracy rates among the present generation of young Surinamese and Turkish parents to near zero (Doets, 1992), there seems to remain a division line between indigenous and immigrant groups concerning the everyday use of literacy for informal, entertaining, and instrumental functions as a lifestyle characteristic.

Effects of ethnicity overlapped partly with socioeconomic status, job content, and parents' literacy practices. However, lower levels of formal education,

symbolic job content, and adult literacy in both the Surinamese and the Turkish subsamples alone are probably not sufficient to explain the relatively low social-emotional quality and difficult cooperation in book reading interactions that were found. We suppose that different views in the Surinamese and Turkish communities of how to interact with young children are basically at the root of the observed lower social-emotional quality and difficult cooperation. In both groups, parents' child-rearing beliefs are reported to be predominantly authoritarian, whereas in the average Dutch population authoritative beliefs prevail (Eldering, 1995; Leseman, Sijlsing, Jap-A-Joe, & Sahin, 1995).

Referring to the patterns of book reading interactions in the three ethnic subsamples discussed above, we suppose also that literacy models from religious practices and religious education influenced book reading with young children. The typical book reading style of the mother reading a sentence and the child being requested to repeat it verbatim can be thematically related to religious memorization practices and to the tendency to keep to the literal wording of the text found in several religious communities (Gregory & Williams, 1996; Heath, 1983; Wagner, Messick, & Spratt, 1986; Zinsser, 1986; for an overview, see Tabors & De Temple, 1996). Religious literacy was often the most important kind of literacy for Surinamese and Turkish parents. Also, the tendency to avoid the pictures in the picture book, noticed in the Turkish group, can be seen as related to a perception of literacy, in particular its printed form, as sacred.

#### *Home literacy determining reading achievement*

Home literacy was found to determine school literacy achievement after controlling for effects of early language level and home language. However, the remaining effects were small and not overly consistent. Interpreting the results, we tentatively conclude the following.

The degree of opportunity for literacy interactions is important for literacy learning in school (word decoding). The social-emotional quality of literacy interactions is apparently not a direct determinant of children's language and literacy development but may be indirectly related to literacy development by affecting both opportunity and instruction quality (Bus & van IJzendoorn, 1995). However, this needs to be studied in future research. Apparent difficulties of the dyad in cooperating, as signaled by a relatively large number of procedural utterances by the mother, is negatively associated with literacy learning. The quality of instruction favors vocabulary development and word decoding learning and may represent a more general feature of language exchange at home (Beals, De Temple, & Dickinson, 1994; Leseman, 1995).

The fact that the remaining net effects were small may be due to different causes. Regarding oral language development, indicated in this study by receptive vocabulary development, it may be that the basis for differential development is largely laid earlier in the children's life course. It may also be that at least part of the variance is genetic. The structural equation analysis controls for these sources of variance by partialling out the early variance. The remaining effects of home language and book reading instruction quality, especially, indicate that environmental sources still cause additional differential development, to a modest degree. With respect to reading achievement in school the argument runs somewhat differently. The fact that the remaining net effects of home literacy on reading achievement were also small can be partly explained by the fact that the systematic variance in the reading measures is restricted as compared to vocabulary measures. This, in turn, may have been caused by literacy instruction in Dutch primary schools. Another possibility to be considered here is that the measurement instruments used to assess literacy levels did not adequately measure children's literacy skills, at least not the type of skills that become important in later grades when reading is more dependent on comprehension skills (Snow, 1991; in press).

#### *Implications for family literacy programs*

Summarizing, the theoretical framework of this study offers tools to detect, describe, and interpret the multifaceted differences in families' relationships to literacy. It also presents a framework to consider potential benefits of programs to promote home literacy as a means to enhance children's literacy development in school.

The present results point to problems that need to be overcome when designing and implementing a program. The strong connection of home literacy facets to parents' educational biography, job content, and literate lifestyles, and the difficulties with cooperative interaction required by home literacy programs raises the question whether a narrow focus on promoting children's literacy activities is sufficient to bring about lasting effects. Attention should be paid to changing these aspects of the broader sociocultural context of home literacy interactions as well. Particularly regarding ethnic minority groups, it seems necessary to work with parents and other significant adults in the child's environment and to deal with influences of lifestyles, prevailing child-rearing beliefs, and available endogenous literacy models. Combinations with adult literacy programs, adult basic education, and family support systems may be needed to obtain long-term effects (Darling & Paull, 1994; Delgado-

Gaitan, 1995; Weiss & Kagen, 1989). Special attention should be paid to enhancing literacy use for pleasure.

A second problem follows from structural equations analysis of home literacy as related to language and literacy development in school. Although correlations with vocabulary, word decoding, and reading comprehension were found that are rather similar to the mean associations reported in recent reviews, *net* effects of home literacy on the dependent language and literacy measures are small if controlled for earlier existing variance in language development. These results caution against too much optimism with regard to the potential effects of enhancing home literacy, especially when the program aims at only one facet, for instance, literacy opportunity.

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**APPENDIX A****Parent questionnaires***Items on the Job Content questionnaire*

How often in your job do you have to work or deal with...

1. Mechanical tools such as broom, brush, floor-cloth, wrench, hammer,...?
2. Electrical tools such as vacuum cleaner, food-blender, welding-electrode,...?
3. Big, heavy machines such as a truck, crane, harvesting machine,...?
4. Paperwork such as letters, tickets, cash-book,...?
5. Conference minutes and written reports?
6. Written analytical reports, policy documents?
7. Modern computer technology?
8. Professional magazines, journals, or books?
9. Additional courses (with written materials) to keep up with job requirements?
6. War, adventure novels?
7. Local newspaper articles on your town or neighborhood?
8. Little ads in your newspaper or free advertising magazine?
9. Gossip articles on TV stars and other celebrities?
10. Sports news?
11. Advertisements of the local supermarket?
12. Newspaper or magazine articles about fashion?
13. Newspaper reports on crime and accidents?
14. Articles about TV programs?
15. TV schedule in the newspaper or TV guide?
16. Information on opportunities for leisure activities?

*Items on the Parents' Informational Literacy questionnaire*

How often do you usually (in a year) read ...

1. Books about scientific subjects?
2. Books about animals and plants?
3. (Auto-)biographies?
4. Textbooks, educational books?
5. Books about art?
6. Books about history?
7. Modern (literary) literature or poetry?
8. Encyclopedia?
9. Books about other countries?
10. Magazine or newspaper articles about international politics?
11. Economical news?
12. Book reviews?
13. Art reviews?
14. Articles about scientific topics?

*Items on the Parents' Recreational Literacy questionnaire*

How often do you usually (in a year) read ...

1. Espionage novels?
2. Police, private investigator novels?
3. Romantic novels, romance?
4. Books about holiday countries?
5. Regional novels?

*Items on the Opportunity for Literacy Interactions questionnaire*

How often has it occurred during the past months that...

1. You were reading a book, textbook, or report in the child's presence?
2. You, together with the child, read the instructions or brand name on food packings?
3. You read a children's book to the child at bed time?
4. You were reading a magazine or newspaper in the child's presence?
5. You and the child were going jointly through a glossy magazine?
6. Your child was playing with books or magazines, pretending to read?
7. You were writing a postcard or letter in the child's presence?
8. You were making notes on paper to plan an activity in the child's presence?
9. You were writing a shopping list in the child's presence?
10. You read a children's book to the child in the daytime?
11. You were looking through free advertising papers in the child's presence?
12. Your child was scribbling, attempting to write, or pretending to write?

**APPENDIX B****First two columns of the One Minute Test by Brus and Voeten (1979)**


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1. waar	(where)	30. zijpad	(side-path)
2. kar	(cart)	31. inham	(inlet)
3. been	(leg)	32. stoutheid	(boldness)
4. min	(minus)	33. proefstuk	(specimen)
5. vos	(fox)	34. lapje	(piece of cloth)
6. net	(net)	35. doch	(but)
7. bruin	(brown)	36. vegen	(to sweep)
8. hand	(hand)	37. koplamp	(headlight)
9. morgen	(morning)	38. koelte	(coolness)
10. eten	(to eat)	39. rekenen	(arithmetic)
11. mak	(tame)	40. verdieping	(floor)
12. voorbij	(past/beyond)	41. geknoei	(bungling)
13. hamer	(hammer)	42. genieten	(to enjoy)
14. ziekte	(illness)	43. paffen	(to pop/to puff)
15. luiak	(lazy-bones)	44. warenhuis	(department store)
16. trekken	(to pull)	45. aanzitten	(to touch)
17. verlaten	(to leave)	46. stelen	(to steal)
18. verhuizen	(to move house)	47. treurig	(sad)
19. worden	(to become)	48. voorstaan	(advocate)
20. dichten	(to close/to make verses)	49. overlaten	(to leave it over)
21. uithuilen	(to cry out)	50. afwissen	(to wipe off)
22. kruid	(herb)	51. groeve	(pit)
23. grootmoeder	(grandmother)	52. verdwijnen	(to disappear)
24. roeping	(vocation)	53. dichtwerpen	(to slam)
25. laan	(avenue)	54. hozen	(bail)
26. kruimel	(crumb)	55. zorgvol	(careful)
27. heenlopen	(to run away)	56. spiegelen	(to mirror)
28. fietsbel	(bicycle-bell)	57. stamtafel	(habitués table)
29. schroeven	(to screw)	58. houtvlot	(timber-raft)

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