

FAMILY LITERACY ENVIRONMENT AND PARENTAL EDUCATION IN RELATION TO DIFFERENT MEASURES OF CHILD'S LANGUAGE

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Abstract

The family literacy environment is reported to be an important predictor of a child's language and early literacy development. This study examined the relations between various aspects of family literacy environment and different measures of children's language, assessed in three different settings, namely in a structured test situation, at home and in preschool. The sample included 80 preschool children, randomly selected from 13 preschools, aged approximately 4 years. The quality of family literacy environment was estimated by mothers, using the Home literacy environment questionnaire. Children's language development and storytelling ability was assessed by a testator, while their spontaneous language was assessed by their mothers and preschool teachers. Family literacy environment was found to be an important factor of the child's storytelling ability and the complexity of his spontaneous language, used at home and in preschool. Maternal education proved to be associated with the quality of the family literacy environment and also related to all measures of the child's language except for maternal assessment. The findings have implications for understanding the role of family environment in the development of different aspects of a child's language and the importance of assessing the child's language in various settings thus obtaining a complete estimation of his language ability.

Key words: family literacy environment, parental education, child's language, mother's assessment, preschool teacher's assessment, storytelling, scales of language development

INTRODUCTION

Family environment is a likely source of a child's experiences that can enhance the development of his oral and written language (Crain, 2004; Sénéchal, LeFevre, Thomas, & Daley, 1998; Powell, 2004). The availability of learning materials at home, such as books, parental encouragement of learning through activities, such as joint book reading, and access to stimulating resources outside the home, such as libraries, play an important role in a child's literacy development and language achievements (Dearing & Taylor, 2007). Different opportunities which parents provide to support their children's development are most frequently influenced by parents' beliefs about the importance of encouraging a child's language and their knowledge of child development. These influence their choice of activities, during which they engage in verbal interactions with their child and the characteristics of language they use in child-directed speech (Foy & Mann, 2003; Rowe, 2008; Weigel, Martin, & Bennet, 2006). Foy & Mann (2003) emphasize three important aspects of family environment that are predictive of the child's language and early literacy development, namely joint book reading by parents and children, parental beliefs about the importance of joint book reading and the frequency of parental contacts with books. The quality of family literacy environment is most frequently associated with appropriate learning materials (e.g., drawing and writing materials, children's books), characteristics of parent's child-directed speech (e.g., extending and transforming child's utterances, encouraging a child to tell stories and recall events; asking eliciting questions), parental engagement in playing and conversing with a child (e.g., encouraging symbolic play, discussing picture books) and providing an appropriate learning model (e.g., parental reading in the presence of a child, doing crosswords) (Cairney, 2003; Crain & Lillo-Martin, 1999; Harris 1993; Rice, 1992; Snow, Burns, & Griffin, 1999).

Joint book reading

Book reading is part of a whole range of characteristics which are indicative of a literate environment, with book reading being the central aspect (Bus, vanI-Jzendoorn, & Pellegrini, 1995). The frequency and quality of joint book reading as well as the age at which children begin to be read to by their parents are strong predictors of a child's emergent literacy, language development and reading comprehension (Bus et al., 1995; DeBaryshe, 1995; Reese & Cox, 1999; Stadler & McEvoy, 2003). In a meta-analysis, which included 29 studies, a child's exposure to joint book reading in the preschool period accounted for 8% of variance in children's language outcomes, such as language growth, emergent literacy and reading achievements (Bus et al., 1995). Toddlers whose parents frequently read to them

between the first and third year of life and discussed the contents of a book with them, express a higher language competence between the ages of two and five years and a better understanding of the content of the book they have read at the age of seven, than children whose parents less frequently involved them in joint book reading (Crain-Thoreson & Dale, 1992; Wells, 1985). These toddlers also spoke their first words earlier, developed a larger vocabulary, used more complex utterances in their speech and learned to read earlier (Bus et al., 1995; Hewison & Tizard, 1980). Lyytinen, Laakso and Poikkeus (1998) found that shared book reading is related to the toddler's vocabulary comprehension and symbolic gestures at 14 months and to a child's vocabulary production, the length of his sentences and cognitive ability measured with the Bayley Mental Scales of Infant Development at 24 months. The frequency of book reading events in the home also accounted for significant portions of the variance in 4-year-old children's vocabulary (Sénéchal, Thomas, & Monker, 1995). Browne (1996) argues that parents encourage the development of children's language by joint book reading, listening to a child who reads the book aloud and by encouraging a child to read independently.

SES-related differences in family literacy environment and child's language competence

Family socioeconomic status (SES), particularly parental education and family income, shapes children's language learning environments and thus affects their development of language (Butler, McMahon, & Ungerer, 2003; Hoff, 2003; Marjanovič-Umek, Podlesek, & Fekonja, 2005; Rowe, 2008; Sénéchal et al., 1998). Children from low SES-families experience very different communicative environments (e.g. the number of utterances, the richness of vocabulary, the frequency of directive speech they hear) on average, than children from high-SES families (Rowe, 2008). It is documented that higher-SES parents spend more time reading books with their children, thus allowing them to hear a richer vocabulary and explicit object labelling (Hoff, 2003; Raikes et al., 2006; Sénéchal et al., 1998). DeBaryshe (1995) found that mother's education, income and her own reading habits were predictive of maternal beliefs about reading aloud, which in turn were related to the degree to which mothers exposed their children to joint book reading and the quality of mothers' book-reading interactions. Moreover, the characteristics of child-directed speech (e.g. number of word tokens, lexical diversity, proportion of directive and eliciting utterances) in naturalistic interactions relate to SES as measured by income and education, while this relation is mediated by parental knowledge of child development (Rowe, 2008). Hoff (2003) reports that high-SES mothers are more encouraging of and more responsive to their child's speech than are the mid-SES mothers, who in turn frequently use language to address their children for the purpose of directing the child's behaviour and less frequently for

the purpose of eliciting or continuing child's talk. High-SES mothers also sustain longer conversations with their children and use a richer vocabulary than the low-SES mothers (Hoff, 2003).

Several authors found that maternal education is positively related to toddlers' and children's outcomes on standardised scales of language development (Bee et al., 1982; Marjanovič-Umek & Fekonja, 2006) and their storytelling ability (Fekonja-Peklaj, Marjanovič-Umek, & Kranjc, 2010). However, Hoff (2003) reports that while high-SES children scored significantly higher on the test of productive vocabulary than did the mid-SES children, there was no difference between the two groups in their comprehensive vocabulary nor in the vocabulary used in narrative production, elicited by the researcher using the frog story procedure. The level of maternal education was also estimated (Silvén, Ahtola, & Niemi, 2003) to be in significant positive correlation with the frequency of a child's use of various verbs and the number of child's utterances at age two, as well as with the child's ability to conjugate or decline words at age three, as mothers with higher level of education used more complex strategies in reading books with children, teaching them new words and directing their attention to the text being read. Two-year-old toddlers from high-SES families also use a larger vocabulary in conversation with their mothers and produce more speech that immediately follows a maternal utterance than toddlers coming from mid-SES families (Hoff, 2003).

The following study considers possible relations of various aspects of family literacy environment and parental education to different measures of child's language (e.g. language comprehension, expression, unscaffolded storytelling, and spontaneous language use), obtained in three different settings, namely the test situation, home and preschool. Thus the purpose of our study was to establish the characteristics of family environment which are important for the development of different aspects of a child's language competence assessed by using different approaches, namely the assessment of spontaneous language, storytelling and the use of language development scale.

METHOD

Participants

The sample included 80 children (39 boys and 41 girls), aged 4.1 years ($SD = 2.7$ months) for which their parents gave written consent for the participation in the study. Children were randomly selected from the population of 4-year-old children included in each of the 13 preschools from different geographic regions of Slovenia. All the children were monolingual Slovenian speakers. Children's parents differed in their level of formal education (9% of mothers and 6.3% of fathers had a primary

education, 55% of mothers and 64.4% of fathers had a vocational or general secondary education, and 36% of mothers and 29.1% of fathers had at least a higher educational level). There were 31 preschool teachers, working in the preschool groups attended by children, included as the raters of child's spontaneous language (40% of preschool teachers had a secondary education and 60% had a higher education).

Materials

The *Language development scale* (Marjanovič-Umek & Fekonja, 2006) was used to assess the level of child's language development. The scale consists of two subscales, namely the *Language comprehension subscale* and the *Language expression subscale*. The *Language comprehension subscale* includes 22 tasks which assess a child's comprehension of words labelling spatial relations, attributes, agents, and actions. The *Language expression subscale* consists of 44 tasks which assess a child's vocabulary, and her ability to form inflections (third person, past tense, dual and plural) and to correctly repeat complex utterances. The tasks are presented to a child using different materials, e. g. cubes, cars, and pictures. The points are summed (a) within the scale which results in the final score and (b) within the two subscales which results in two subscores. The split-half coefficients of reliability range between 0.68 (calculated on a sample of 269 3-year-old Slovene children) and 0.67 (calculated on a sample of 298 4-year-old Slovene children).

Children's storytelling ability was assessed using a *Storytelling test* (Marjanovič-Umek, Fekonja & Kranjc, 2004). Each child spontaneously told a story while looking at *Rambling Maruška*, a picture book without text (Amalieti, 1987). The illustrations in the picture book were realistic and logically connected. Children's stories were recorded, transcribed and classified in one of five developmental levels, considering their level of coherence: (1) A story without a structure (1 point); (2) A story with a structure containing simple descriptions of characters, objects, or illustrations (2 points); (3) A story with a structure containing a simple chronology of events (3 points); (4) A story with a structure containing descriptions of the characters' thoughts and feelings, and the relationships between them (4 points); (5) A story with a structure containing descriptions of cause-and-effect relationships (5 points).

Children's spontaneous language was assessed using the *Child's language competence questionnaire for parents and preschool teachers* (Fekonja & Marjanovič-Umek, 2008). The questionnaire consists of 10 groups of items, describing different aspects of child's language, namely his vocabulary, the use of multi-word utterances, questions and negatives, inflections and conjugations. Parents and preschool teachers assess a child's vocabulary by indicating a child's comprehension and/or use of separate words, stated in the questionnaire. They answer the items, describing other aspects of the child's language, by indicating whether they are charac-

teristic of a child's spontaneous language or not (e.g. "The child uses negatives in his speech"). The maximum score on the questionnaire is 44 points. The split-half coefficients of reliability range between 0.70 for mothers' assessment and 0.73 for preschool teachers' assessments of language produced by 4-year-old Slovene children. The correlations between parental and preschool teachers' assessments range between 0.39 (for 3-year-old children) and .10 (for 4-year-old children).

The quality of family environment was assessed using the *Home literacy environment questionnaire (HLEQ)* (Marjanovič-Umek et al., 2005). The questionnaire contains 32 statements describing the ways in which parents talk to their children (e.g., "When talking to my child I use grammatically correct sentences" or "I try to explain things which I believe my child understands") and involve in different literacy activities with them (e.g. "I visit the library with my child" or "I read to my child whenever she wants me to"). Parents use a 6-point scale to mark the frequency of the behaviour described or activity performed with the child. Adverbs indicating the frequency with which the parent exerts certain behaviour towards the child are also written above numbers of the scale, each of them being applied to a pair of numbers (1–2: never or rarely, 3–4: frequently, 5–6: very frequently or always). The items in the questionnaire are combined into 5 factors of family literacy environment, obtained by the principal-axis factor analysis: *Stimulation to use language, explanation (F1)*, *Reading books to the child, visiting library and puppet theatre (F2)*, *Joint activities and conversation (F3)*, *Interactive reading (F4)*, and *Zone-of-proximal development stimulation (F5)*. A higher score on each of the factors indicates a higher quality of a child's home literacy environment. The reliability coefficients of the five factors are relatively high ($\alpha = 0.77$ to 0.85 for different factors) with intercorrelations ranging from 0.19 to 0.61 between different factors.

Data on parental and preschool teachers' education was obtained using two separate *Demographic questionnaires*.

Procedure

After gaining the consent of the selected preschools to participate in the study, the parent's written consents were collected allowing their children to participate in the study. Each child was tested individually in a separate, quiet room in the preschool by a trained psychology student. The children's language development was assessed using the *Language development scale* by a standard procedure, using different testing material. Children's storytelling ability was assessed using the *Storytelling test*. The test administrators asked the children to look at illustrations in the picture book and tell a story. Children were allowed to begin their stories using any of the illustrations; during storytelling they were not interrupted or directed by any additional questions. Their stories were recorded, transcribed and analyzed using the criteria for assessing the stories' coherence.

The coded *Home literacy environment questionnaires*, *Child's language competence questionnaires for parents and preschool teachers* and *Demographic questionnaires* were sent to preschool teachers, who were asked to pass the selected materials to the mothers of children, included in the sample. Each mother received an envelope with one copy of the coded *HLEQ*, *Child's language competence questionnaire for parents and preschool teachers* and *Demographic questionnaire*. The mothers completed the materials at home and within three days returned them in the sealed envelopes to their child's preschool teachers, who later gave them to one of the researchers. The preschool teachers themselves also completed the *Demographic questionnaire* and the coded *Child's language competence questionnaire for parents and preschool teachers*, assessing the spontaneous language of those children, who attended their preschool group.

Results

Descriptive statistics for different measures of a child's language and mothers' estimations of family literacy environment are presented in Table 1. The Kolmogorov-Smirnov test was used to test the normality of the distribution for the differ-

Table 1. Descriptive statistics and test of normality of the distribution for different measures of child's language and mothers' estimations of family literacy environment

| | <i>M</i> | <i>SD</i> | Kolmogorov-Smirnov <i>Z</i> | <i>p</i> |
|--------------------------------|----------|-----------|-----------------------------|----------|
| LDS | 51.49 | 5.50 | 0.73 | 0.66 |
| LDS-comprehension | 14.71 | 3.06 | 0.89 | 0.41 |
| LDS-expression | 36.77 | 3.50 | 1.01 | 0.26 |
| Story's coherence | 3.17 | 1.17 | 2.32 | 0.00 |
| Mother's assessment | 49.50 | 5.94 | 2.00 | 0.00 |
| Preschool teacher's assessment | 50.21 | 4.06 | 1.71 | 0.01 |
| HLEQ | | | | |
| F1 | 54.72 | 7.49 | 1.27 | 0.08 |
| F2 | 36.05 | 7.69 | 0.94 | 0.34 |
| F3 | 28.41 | 4.70 | 1.07 | 0.20 |
| F4 | 15.14 | 4.46 | 1.01 | 0.26 |
| F5 | 13.02 | 3.23 | 1.17 | 0.13 |

Note. LDS = Language development scale; LDS-comprehension = Language comprehension subscale; LDS-expression = Language expression subscale; Story's coherence = Storytelling test; Mother's assessment = Mother's assessment on the Child's language competence questionnaire for parents and preschool teachers; Preschool teacher's assessment = preschool teacher's assessment on the Child's language competence questionnaire for parents and preschool teachers; F1 = Stimulation to use language, explanation; F2 = Reading books to the child, visiting library and puppet theatre; F3 = Joint activities and conversation; F4 = Interactive reading; F5 = Zone-of-proximal development stimulation.

ent measures of child's language as well as for the mothers' estimations of family literacy environment. The results indicate that the children achievements on the *Storytelling test*, mothers' and preschool teachers' assessments of child's spontaneous language do not distribute normally. Among the stories children told by a picture book prevailed those on the second, third and fifth developmental level of coherence. The assessments of children's spontaneous language, given by their mothers and preschool teachers were relatively high, with their distribution being negatively-skewed.

Relations between different measures of child's language

Table 2 summarizes the correlations between different measures of a child's language, obtained by three raters. The results show that children's achievements on *LDS* were statistically significantly and positively related to their outcomes both on the *Language comprehension subscale* and the *Language expression subscale* as well as to their storytelling ability, assessed with a *Storytelling test* and the assessments of children's spontaneous language, given by their mothers and preschool teachers. Children's storytelling ability also significantly and positively correlated with their achievements on the *Language expression subscale*, indicating that children who told more coherent stories also expressed a higher ability of language expression in the test situation. Furthermore, the maternal assessments of children's spontaneous language were significantly and positively related to children's achievements on the *Language comprehension subscale*. There were positive and significant relations found between the preschool teachers' assessments of children's language and the scores they achieved on both of the subscales of *LDS* as well as their storytelling ability.

Table 2. Correlations (Spearman *Rho*) between different measures of child's language

| | LDS- comprehension | LDS- expression | Story's coherence | Mother's assessment | Preschool teacher's assessment |
|---------------------|-----------------------|--------------------|----------------------|------------------------|-----------------------------------|
| LDS | 0.84** | 0.82** | 0.31** | 0.26* | 0.29* |
| LDS-comprehension | | 0.40** | 0.15 | 0.28* | 0.14 |
| LDS-expression | | | 0.36** | 0.13 | 0.31** |
| Story's coherence | | | | 0.14 | 0.28* |
| Mother's assessment | | | | | 0.10 |

Note. LDS = Language development scale; LDS-comprehension = Language comprehension subscale; LDS-expression = Language expression subscale; Story's coherence = Storytelling test; Mother's assessment = Mother's assessment on the Child's language competence questionnaire for parents and preschool teachers; Preschool teacher's assessment = preschool teacher's assessment on the Child's language competence questionnaire for parents and preschool teachers.

* $p < 0.05$; ** $p < 0.01$.

Relations between parental education,
family literacy environment and different measures of child's language

Table 3 presents the relations between different measures of child's language, parental education and the five factors of family literacy environment, as estimated by a child's mother. The results indicate significant and positive relations between maternal education and several measures of child's language. Children whose mothers had a higher level of education scored higher on the *LDS* and expressed a higher ability of language expression in the test situation as well as told more coherent stories by a picture book. Their spontaneous language was also rated as higher by the preschool teachers. However, maternal education did not correlate significantly with children's language comprehension assessed within the test situation or with the mothers' assessments of children's spontaneous language. Paternal education did not correlate significantly with any of the measures of child's language.

Presented results indicate that children whose mothers estimated that they more frequently stimulated their use of language and used explanations in child-directed speech, engaged in joint book reading, visited the library and puppet theatre and stimulated their children's language within the zone-of-proximal development, expressed a more advanced language competence at home and in the preschool setting. In addition, preschool teachers rated the language of those children whose

Table 3. Correlations (Spearman *Rho*) between different measures of child's language, parental education and the five factors of family literacy environment

| | Maternal education | Paternal education | Home literacy environment questionnaire | | | | |
|--------------------------------|--------------------|--------------------|---|--------|-------|-------|--------|
| | | | F1 | F2 | F3 | F4 | F5 |
| LDS | 0.34** | -0.06 | 0.01 | 0.15 | -0.10 | 0.08 | 0.04 |
| LDS-comprehension | 0.18 | -0.13 | -0.03 | 0.12 | -0.12 | -0.03 | -0.07 |
| LDS-expression | 0.36** | 0.01 | 0.01 | 0.10 | -0.08 | 0.15 | 0.12 |
| Story's coherence | 0.33** | 0.16 | 0.06 | 0.22* | -0.09 | 0.24* | 0.10 |
| Mother's assessment | 0.15 | -0.11 | 0.26* | 0.25* | 0.17 | 0.21 | 0.26* |
| Preschool teacher's assessment | 0.36** | 0.14 | 0.27* | 0.23* | 0.30* | 0.18 | 0.26* |
| Maternal education | | 0.46** | 0.32** | 0.33** | 0.20 | 0.12 | 0.25** |
| Paternal education | | | 0.25* | 0.34** | 0.24* | 0.10 | 0.42** |

Note. LDS = Language development scale; LDS-comprehension = Language comprehension subscale; LDS-expression = Language expression subscale; Story's coherence = Storytelling test; Mother's assessment = Mother's assessment on the Child's language competence questionnaire for parents and preschool teachers; Preschool teacher's assessment = preschool teacher's assessment on the Child's language competence questionnaire for parents and preschool teachers; F1 = Stimulation to use language, explanation; F2 = Reading books to the child, visiting library and puppet theatre; F3 = Joint activities and conversation; F4 = Interactive reading; F5 = Zone-of-proximal development stimulation.

* $p < 0.05$; ** $p < 0.01$.

mothers reported that they frequently engaged with their children in joint activities and conversation with higher assessments. Furthermore, children whose mothers reported that they frequently read books to them, visited the library and the puppet theatre and engaged in interactive reading, told more coherent unscaffolded stories by a picture book.

Highly educated mothers estimated that they more frequently stimulated their children to use language and used more explanations in the child-directed speech, engaged with their children in reading books, visiting the library and puppet theatre and stimulated children's language within the zone-of-proximal development than less educated mothers. Also, mothers with more educated partners estimated that they more frequently stimulated their children to use language and used more explanations, engaged in reading books with their children, visiting library and puppet theatre with them, involved themselves in joint activities and conversation with children as well as stimulated their language within the zone-of-proximal development than mothers with less educated partners.

DISCUSSION

The findings of our study are in part consistent with several previous findings of a relationship between the family literacy environment, including the number of available children's books, the frequency of joint book reading, visiting various children's events and the child's language outcomes, such as vocabulary, the use of complex sentences as well as the child's narrating ability (e.g. Bus et al. 1995; Cairney, 2003; Hoff, 2003; Lyytinen et al., 1998; Marjanovič-Umek et al., 2005; Rowe, 2008; Wray & Medwell 2002). The obtained results suggest that joint book reading between mother and child and engaging in children's cultural events, such as puppet theatre or cinema, represent important factors of a child's ability to tell a coherent unscaffolded story by a picture book. Namely, the frequency of joint book reading at home (e.g. the reading of books when the child initiates it), the activities involving books and storytelling (e.g. buying books for the child's birthday, visiting the library, puppet theatre and cinema with a child and talking about it) and interactive reading (e.g. allowing a child to interrupt and ask questions during the book reading, talking about the content of the book with a child) seem to play an important role in the development of child's storytelling ability. Furthermore, the findings indicate that various aspects of family literacy environment are related to the complexity of the child's spontaneous language, including the richness of vocabulary, use of multi-word utterances, questions, negatives, inflections and conjugations, used within the home and preschool setting. Also, the spontaneous language of children, whose mothers reported that they frequently stimulated the child's use of language and used explanations in child-directed speech (e.g. completing and expanding the child's utterances, using grammatically correct sentences, answering child's ques-

tions and offering explanations), engaged in joint book reading and scaffolded the child's language development within the zone-of-proximal development (e.g. encouraging a child to learn letters or read a few words, using longer and complex sentences) was rated with higher assessments by mothers and preschool teachers. In addition, the joint activities and conversation between a mother and a child (e.g. the frequency of playing and watching TV with a child, talking about what he would like to do) were related to the complexity of the child's spontaneous language assessed in the preschool setting.

It seems that within the *HLEQ* measures, various factors of family literacy environment do not have the same effect on different measures of child's language. The quality of family literacy environment only related to the children's storytelling ability and the use of spontaneous language in naturalistic settings. Similarly, Lonigan and Whitehurst (1998) found that by engaging in dialogic reading parents appear to be more influential in increasing their children's descriptive use of language than their vocabulary, assessed using a standardised test. In addition, not all aspects of family literacy environment in our study proved to be equally important for supporting the child's storytelling ability or the complexity of spontaneous language. Sénéchal et al. (1998) argue that not all aspects of family literacy environment as estimated by parents represent a stable predictor of a child's language. This may be due to social desirability biases of parental reports on family literacy environment, difficulties parents have in estimating frequencies or interpreting the intent of the questions and statistical limitations arising from the constrained distributions of parental responses. However, the lack of relationship between different factors of *HLEQ* and children's achievements on the *LDS* was surprising as several other studies have shown significant relations between the quality of home environment and children's achievements on the standardized scales of language development (e.g. Lyytinen et al., 1998; Sénéchal et al., 1995). As Lonigan and Whitehurst (1998) emphasise, the standardised test might sample a relatively small pool of items, while within different activities of the home environment, children may acquire specific vocabulary or language skills that are not measured by the test, which may to a greater extent be expressed through storytelling or the spontaneous use of language. The effect of the family literacy environment on language development, assessed with the *LDS*, might also be diminished as a consequence of the fact that all children were included in the preschool institution for at least a year prior to participation in this study. The findings of our previous studies suggest that early entry to preschool can compensate for the lack of appropriate stimulation to child's language development within the home environment. While this compensatory role of preschool was evident in children's achievements on a language development scale, it did not prove to be important for the development of their storytelling ability (Fekonja et al., 2010; Marjanovič-Umek & Fekonja, 2006).

Our findings replicated those of several previous studies (e.g. Butler et al., 2003; Hoff, 2003; Raikes et al., 2006; Rowe, 2008) in which positive relations between the

quality of family literacy environment and parental education were found. Highly educated mothers estimated that they more frequently stimulated their child to use language and used more explanation in a child-directed speech, engaged with their child in joint book reading, visited the library and puppet theatre and supported child's language within the zone-of-proximal development than less educated mothers did. These positive relations may reflect the beliefs of highly educated mothers about the appropriate activities for supporting a child's language (e.g. DeBaryshe, 1995; Rowe, 2008), their knowledge about the characteristics of child's language development (e.g. Rowe, 2008) and more favourable SES factors of their families, which enable them to provide more books, appropriate materials or afford visits to children's events. The findings may also reflect differences between mothers with higher and lower educational level in child-directed speech (Rowe, 2008; Hoff, 2003). Furthermore, the results support some well documented positive relations between maternal education and a child's language outcomes (e.g. Bee et al., 1982; Hoff, 2003; Bornstein & Haynes, 1998). Children of more educated mothers achieved higher scores on the *LDS*, expressing a higher level of language expression, told more coherent stories by a picture book and expressed a more complex spontaneous language in preschool as assessed by the preschool teachers. However, the relation between mother's education and her assessment of child's spontaneous language did not prove to be significant, suggesting that more and less educated mothers did not differ in their assessments of child's spontaneous language. A possible explanation of these findings might be that because of their subjectiveness and the lack of linguistic knowledge, less educated mothers overestimated their children's language thus assessing it with higher scores (e.g., Feldman et al. 2003; Reese and Read, 2000).

Surprisingly, although the father's education had no significant effect on either of the measures of child's language, we found positive relations between paternal education and several factors of family literacy environment, estimated by mothers. Our findings might suggest the presence of an indirect effect of paternal education on a child's language. It might be that highly educated fathers earn a higher income thus providing a better quality literacy environment (e.g. more children's books and toys) and more possibilities for mothers and their children to engage in different literacy activities (e.g. visiting a puppet theatre). The obtained results may also suggest that there are positive relations between mother's and father's behaviour concerning the stimulation of a child's language with highly educated fathers engaging more frequently in literacy activities than less educated fathers. These suggestions could be confirmed by including fathers as estimators of the quality of family literacy environment. Similarly, Tamis-LeMonda, Shannon, Cabrera, & Lamb (2004) found that fathers' level of education was significantly associated with parenting in both mothers and fathers. In their study, the demographic characteristics of fathers were more consistently related to measures of maternal than paternal behaviour. The authors argue that more educated fathers can affect children's development by en-

hancing mother-child engagements. Although Tamis-LeMonda and her colleagues (2004) found significant relations between paternal education and child's outcomes measured by a standardised test, we failed to do so.

The obtained results indicate several significant relations between the different measures of a child's language, given by the three raters. Children's achievements on *LDS*, their storytelling ability and the assessments of their spontaneous language given by preschool teachers were significantly and positively related. However, mother's assessment of child's spontaneous language proved to be the least valid among the obtained measures of child's language as it was only related to child's achievements on the *LDS*, namely his ability of language comprehension. These findings only partly support the findings of significant relations between different standardised measures and parental reports of child's language (e.g. Dale, Bates, Reznick & Morisset, 1989; Feldman et al. 2005; Fenson et al. 2004; Rescorla and Alley 2001). The obtained results might reflect a certain level of subjectivity of mothers' assessments of children's language and raise the question of mother's ability to remember words and sentences that her child uses in various situations (e.g. Dale et al. 1989; Pellegrini and Galda 1998; Marjanovič-Umek, Fekonja, Podlesek & Kranjc, 2011). Pellegrini and Galda (1998) also emphasise the problems with developing checklists for preschool children, who already use an extensive vocabulary and have diverse language competence, which might be the case in our study as the assessment given by mothers and preschool children were high, reflecting in the left-skewed distribution. On the other hand, the findings might suggest that children who expressed a higher language competence during verbal interactions at home did not necessarily express a higher language competence in the test situation or in preschool, thus indicating the importance of assessing various aspect of a child's language within different settings to obtain a complete and complex picture of his language ability (e.g. Bornstein and Haynes 1998; Fekonja, Marjanovič-Umek & Kranjc, 2005; Pellegrini and Galda 1998). As in test situations, children are often aware that the administrator is assessing their language, which may result in some of them speaking less than in natural situations (Pellegrini and Galda 1998), several authors combine the use of standardized tests of language development with assessing child's language during everyday situations (e.g., Bornstein & Haynes 1998; Hoff, 2003; Fekonja et al., 2005).

The results of the present study must be interpreted in the light of several limitations. First, our sample was relatively small and the parents with a low level of education were underrepresented. Thus, the results do not inform us about the relations between the quality of family literacy environment and child's language in children, coming from extremely unsupportive home environments. A more precise and wholesome estimation of family literacy environment should also be gained by the inclusion of fathers as estimators of family literacy environment and also of child's language. Second, our measure of family literacy environment was based on the maternal self-estimations, which can be, as several authors argue (e.g. Sénéchal

et al., 1998) to some extent subjective and socially desired, thus possibly lowering the correlations with different measures of a child's language. Furthermore, as mothers both, estimated the quality of family literacy environment and assessed a child's language, there is the possibility of the effect of the same rater on the established relations between maternal education, self-estimations of the family literacy environment and the assessments of a child's language. These limitations somewhat restrict the generality of our findings and could in further studies be improved by direct observations of family literacy environment and recordings of a child's language within home and preschool settings.

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OBITELJSKA PISMENOST I OBRAZOVANJE RODITELJA U ODNOSU NA RAZLIČITE MJERE JEZIČNIH SPOSOBNOSTI DJETETA

Sažetak

Obiteljska pismenost važan je pokazatelj djetetova jezičnog razvoja i razvoja pismenosti. Ovo je istraživanje proučavalo odnose između različitih aspekata obiteljske pismenosti i različitih mjera dječjeg jezika, procijenjenih u tri okruženja, tj. u strukturiranoj testovnoj situaciji, kod kuće i u vrtiću. Uzorak je uključivao 80 predškolske djece, odabranih slučajnim odabirom u 13 vrtića, u dobi od 4 godine. Kvaliteta okruženja obiteljske pismenosti procijenjena je od strane majki pomoću Upitnika o okruženju obiteljske pismenosti. Ispitivač je procijenio jezični razvoj i sposobnost prepričavanja priča, dok su majke i predškolske odgajateljice procijenile spontani jezik. Okruženje obiteljske pismenosti važan je faktor u razvoju djetetove sposobnosti prepričavanja priča i složenosti spontanog jezika koji se koristi u dobi i u vrtiću. Obrazovanje majke povezano je s kvalitetom okruženja obiteljske pismenosti i s mjerama dječjeg jezika, osim s procjenama majke. Rezultati su korisni za razumijevanje uloge obiteljskog okruženja u razvoju različitih aspekata dječjeg jezika i važnosti procjene dječjeg jezika u raznim okruženjima, na taj način pružajući kompletnu procjenu njegovih jezičnih sposobnosti.

Glavne riječi: okruženje obiteljske pismenosti, obrazovanje roditelja, dječji jezik, majčina procjena, procjena odgajateljice u vrtiću, prepričavanje priča, ljestvice jezičnog razvoja

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