Dr Ljubica Marjanovič Umek
Dr Urška Fekonja Peklaj,
Dr Anja Podlesek

Preschool and family environment as predictors of language comptenetce of 6 years old children

Abstract: This study examines different factors of children's language competence at 6 years of age, namely the duration of child's enrolment into preschool, parental education, characteristics of home environment and child's intellectual abilities. The sample included 147 Slovenian children, approximately 6 years old, who were attending first grade at the time of the assessment. Prior to primary school children attended preschool for 5, 3, or 0 years. The findings suggest that parental education and home environment along with child's gender and intellectual abilities represent important predictors of child's language competence as they explain a substantial share of variance in children's language comprehension, expression, meta-linguistic awareness and storytelling ability. The duration of child's enrolment into preschool explains only a small share of additional variance in language comprehension, expression and storytelling ability and an important share of variance in children's meta-linguistic awareness. The duration of child's enrolment into preschool is an important predictor of his/her storytelling ability. Children who, prior to entering primary school, attended preschool for three years, told stories on the highest developmental levels. The findings were interpreted in the light of the role of child's home environment and the opportunities offered by different preschool activities for supporting toddler's/child's language development.

Key words: language competence, storytelling, preschool curriculum, parental education, family environment.

UDK:

Dr Ljubica Marjanovič Umek, University of Ljubljana, Faculty of Arts, Department of Psychology; e-mail: ljubica.marjanovic@ff.uni-lj.si
Dr Urška Fekonja Peklaj, University of Ljubljana, Faculty of Arts, Department of Psychology; e- mail: urska.fekonja@ff.uni-lj.si
Dr Anja Podlesek, University of Ljubljana, Faculty of Arts, Department of Psychology; e- mail: anja.podlesek@ff.uni-lj.si

CONTEMPORARY PEDAGOGY 5/2008, 54–53

Introduction

As in the process of language learning children internalize different aspects of culture and it's symbolic system, it is important for child's language development, which develops rapidly in toddlerhood and early childhood, both from the quantitative and qualitative aspects, for a child to be exposed to a symbolically reach environment, which provides a quality support to the development of language, e.g. frequent social interactions between adults and infants/toddlers, responsive and sensitive communication and conversations with children, encouraging children to spontaneous storytelling, joint reading of children's books, watching the children's programme on TV with a child, encouraging children to involve in higher levels of symbolic play, providing suitable children's books, magazines and other written material. Child's language develops in a broader context of his/her cognitive and social abilities.

Language development and learning

Approximately by the age of 5 or 6 years the development of all the key aspects of child's language (comprehension, expression and meta-linguistic awareness) reaches the level which enables him/her to comprehend the speech of other persons as well as to communicate with peers and adults in such ways that his/her speech is understandable to them independently of a certain context (e.g. Clark and Clark, 1977; Marjanovič Umek, 1990).

In toddlerhood child's vocabulary develops very rapidly, while toddlers comprehend different words earlier than being able to use them. The toddler's and child's vocabulary, which develops in parallel with the development of syntax, already includes e.g. nouns, verbs, adjectives, copulas, auxiliary verbs (e.g. Karmiloff and Karmiloff Smith, 2001). Bates and Goodman (2001) established that the size of toddler's vocabulary at the age of 20 months, highly predicted (the correlations were between 0.70 and 0.84) the toddler's acquisition of the

syntax at the age of 28 months. To be able to combine several words into a sentence, children have to acquire the word-order of their language, while creating the questions or negative clauses, children have to learn how to combine words in different ways and through the period of incorrect generalization of syntax rules they progress in acquiring different syntax forms (Akhta, 2001; Karmiloff and Karmiloff – Smith, 2001).

From the age of four years onwards, children gradually develop their meta-linguistic awareness, which includes understanding of single units of the language system (words, syllables, sounds); understanding of the relation between the form of the words and the meaning which they represent as well as the understanding of the syntax (e.g. Astinton and Pelletier, 1996). The meta-linguistic awareness enables children to use language on the symbolic level or as Kress (1996) states, in the process of representation language takes on the role of inner »dialogue« or is used as a translation medium or semiotic solution.

In toddlerhood and especially in the early childhood child's pragmatic ability of storytelling develops. The storytelling includes representational ability and the ability to decentralize and sustain thought, as well as the adoption of various perspectives, the use of diverse vocabulary and meta-language, and the ability to connect events, thoughts, and people's emotions in terms of time, space, and cause, as well as their social relationships (e.g., Fox, 2003; Karmiloff & Karmiloff, 2001; van Oers, 2007). Toddlers, aged approximately 2 years, tell their first stories using a simple structure or personal stories, in which they string together events from their everyday lives (e.g., Broström, 2002; Fein, 1995). Stories typical of 2 to 3 years old toddlers already include certain criteria of a structured story, such as a title, a beginning and conclusion, and the use of past tense (Broström, 2002). In early childhood children tell increasingly structured and conventional stories. They build the story at the representational level and include real and imaginary persons; the structure of a story, which they usually create around the main character, is conventional, they use logical temporal and causal connections, describe people's motives and emotions, build the story as a chain, use the past tense, imitate the speech of various characters using different intonation and voice colour, and use meta-language (e.g., Applebee, 1978; Winner, 1988). In one study, Marjanovič Umek, Fekonja and Kranjc (2004) designed and used criteria to assess the coherence and cohesion of stories told by children 4 to 8 years old (divided into three age groups: Group 1 = 4;0 to 4;6 years; Group 2 = 6;1 to 6;6 years; Group 3 = 7;6 to 8;2 years) based on the picture book *The Princess and the Pea*. They established significant differences between the children in the developmental level of the stories told in terms of coherence and cohesion. The youngest children most frequently told stories with a simple structure, using thematic leaps and a great deal of repetition (e.g., »Once a king went to look for a wife. Here he's sad.«). The 6-year-olds described events in chronological order significantly more often than the 4-year-olds, albeit still quite statically. In contrast, the majority of stories told by 8-year-olds were structured, containing descriptions of the characters' thoughts and feelings. These children established appropriate relationships and connections between the characters, and even incorporated

cause-and-effect relationships into their stories. The stories told by both 6- and 8-year-olds frequently contained a linear thematic organization without thematic leaps (e.g., »Once there was a prince that wanted a princess. And so he looked for her all over the world.«); these children also used frequent pronouns, hypernyms, and hyponyms.

The development of language is in the early childhood connected to child's cognitive development. Language as a symbolic system enables children to achieve the symbolic or abstract level of thinking which is more flexible and fluent as well as to develop higher levels of social cognition. The connection can be also vice-versa: the process of thinking on developmentally advanced levels encourages the use of more advanced language structures, diverse vocabulary, synonymous and metaphors as well as more complex utterances. Researchers (e.g. Hresko, Reid and Hamill, 1999) established moderate to high correlations ($r = 0.33 - 0.59$) between different measures of children's intellectual abilities and their general language competence.

The role of family environment and preschool in child's language development

One of the characteristics of the family environment most frequently and significantly connected with various aspects of children's development is parental education (Duncun & Magnuson, 2003). Findings of several studies confirm that toddlers and children of highly educated mothers start speaking earlier, have a larger vocabulary, use longer and more complex sentences when communicating with others, tell stories at higher developmental levels, and score higher on language development scales than toddlers and children of mothers with lower education (e.g., Apostolos & Napoleon, 2001; Bornstein & Haynes, 1998; Duncun & Magnuson, 2003; Fenson et al., 1994; Marjanovič Umek & Fekonja Peklaj, 2006). As a rule, maternal education is related to the quality of stimulating the development of children's language in the family environment. Mothers with higher education, who generally know more about children's developmental characteristics and early teaching, offer their children a higher-quality family environment regarding both the material environment (e.g., children's books and magazines, appropriate toys) and appropriate activities (e.g., joint reading, conversation, visiting cultural events for children) (e.g. Bornstein, Hahn, Suwalsky, & Haynes, 2003; Hoff, 2003a). Less educated mothers talk to toddlers and children less frequently, their vocabulary is not as diverse, they offer their children fewer opportunities for verbal expression and storytelling, their children have fewer books and other materials for early literacy development, and they participate less frequently in various activities with their toddlers and children (e.g., Bradley, Corwyn, McAdoo, & Coll, 2001; Butler et al., 2003; Hoff, 2003a, 2003b; McCartney, Dearing, Taylor, & Bub, 2007).

Various researchers (e.g., Sénéchal & LeFevre, 2002; Silvén et al., 2003) have dedicated special attention to the role of joint reading by parents and children. Their findings indicate that this contributes significantly to the development of children's language competence. By frequently reading children's literature out

loud and through their manner of reading, parents influence the development of children's storytelling and their later development of reading skills; during joint reading children also learn the language and basic elements typical of a story, and they tell their own stories based on the book. Toddlers whose parents often read them stories out loud between ages 1 and 3, talk with their parents about the story read, and use a large vocabulary, reflect more advanced verbal skills even later on (i.e., between ages 2 and 5) and understand the text read better at age 7 than children whose parents only rarely include them in joint reading (Crain-Thoreson & Dale, 1992).

According to Cairney (2003), the ongoing cooperation between the parents and preschool teachers is important for the development of child's language as it encourages children to tell stories about home and preschool events, to describe various social situations and their participants, and to recall stories in children's books that their parents or their preschool teachers read to them.

Various preschool activities: planned, routine, or transitional activities, and free play differ in terms of the structure level or the set goals, the inclusion of an adult and peers in social groups, and thus also their use of language. Fekonja, Marjanovič Umek, and Kranjc (2005) studied the speech of 4- to 5-year-old children during various preschool activities – that is, during a routine activity (breakfast), free play, and a planned language-related activity (reading a children's book with a group of children). They established that the characteristics of children's speech differed significantly according to which of the three preschool activities was taking place. During free play the children talked more frequently than at breakfast and during joint reading of a story; in addition, they used significantly more multi-word, interrogative, and negative sentences than during the other two activities. In addition, children used a greater variety of language functions during free play (e.g., regulatory, imaginative, personal, and interactive functions) than at breakfast and during the planned activity. While interpreting the results, the authors highlighted certain weaknesses connected with preschool teachers reading to children, such as: after the book had been read, preschool teachers often constructed questions that demanded short answers and merely fact-based language use from the children; preschool teachers paid too little attention to whether the children were listening and following the story; they included only a few children from the group in the discussion during and after joint reading. These weaknesses may have well influenced the significant difference between the use of language during planned activity and free play. Similarly Baldock (2006) suggests that joint reading of stories at preschool is often done inappropriately and preschool therefore cannot sufficiently make up for a lower-quality family environment. He establishes that preschool teachers frequently used reading and telling stories merely to focus the children's attention and as an introduction to more »serious« planned activities, such as learning the alphabet and colors, getting to know printed material, developing basic mathematical concepts, and learning about animals, or as an activity that relaxes children or lulls them to sleep. He agrees that reading stories can be used as an introduction to other activities, but he also draws attention to the

fact that joint reading at preschools is often over-simplified. Joint reading at preschool has a positive effect on children's storytelling only if it is high-quality and also includes (for example) discussion involving the book, asking open questions, and seeking various ways to present literature (e.g., symbolic play or drawing) (Anning, 2003; Pellegrini & Galda, 1998; Silvén, Ahtola, & Niemi, 2003). Meek (1985) established that joint reading by teachers and children at preschool is effective only if the preschool teacher reads to the children out loud, with appropriate intonation and changes in voice, and appropriate stresses. Anning (2003) places special emphasis on the significance of forming smaller groups in which children listening to a fairytale or a story discuss its content and convey their thoughts, views, and feelings in a way that their peers can understand them.

One of the key activities within the preschool setting which supports the development of language comprehension, expression and meta-linguistic awareness is symbolic play. One study by Pellegrini and Galda (1993) confirmed the important role of symbolic play, also in comparison with some other preschool activities, for the development of cognitive and linguistic abilities of children of various age. The study sample included three age groups: Group 1 averaged 5;9 years old; Group 2 averaged 7;3 years; and Group 3 averaged 8;0 years. Each group was divided into a further three subgroups based on whether – after reading fairytales or stories (e.g., *The Three Billy Goats Gruff*, and *The Three Bears*) to children on a daily basis as part of a special program – the preschool teachers encouraged children to draw the stories, discuss the stories while reading, or use symbolic (socio-dramatic) play. After the four-week program was concluded, the test administrator read *Little Red Riding Hood* to the children and then asked them to tell the story by themselves. The analysis of the stories told by the children revealed that the highest developmental level of the story was achieved by the children in the subgroups in which symbolic play was performed; they were followed by the children in the subgroups in which they talked about a story read, whereas the children in the subgroups in which they drew the stories achieved the lowest developmental level. The stories differed in terms of both social and linguistic criteria. Symbolic play provided children a context within which they decided upon and negotiated about various roles and sought logical cognitive and linguistic transformations, which they also »transferred« to storytelling. Thus their stories were coherent, containing many cognitive and linguistic turns and transformations. As a rule, children in subgroups in which they talked about the stories read »saw« and understand the story merely from their own personal viewpoint, which was also reflected in the stories they told. They contained few cognitive and linguistic turns requiring children to assume another child's perspective; in addition, their stories were static and relatively simple. Similar one-dimensional stories were also told by children in the subgroups in which they drew the stories read. The stories told primarily represented a short summary of the story read and only rarely contained a social and cognitive perspective; in addition, these stories were simple in terms of surface structure and language use. The results, which show a significant role of symbolic play in the development of children's storytelling, were the same in all three age groups of children included in the study.

The findings of other studies also show a significant positive correlation between symbolic play and language development, especially in the use of language and meta-linguistic awareness (e.g., Jarrold, Carruthers, Smith, & Boucher, 1994; Marjanovič Umek, Lešnik Musek, & Kranjc, 2001). According to Korat, Bahar, & Snapir (2003), symbolic play is a suitable context in which preschool teachers can encourage the development and learning of symbolic expression of preschool children in a zone of proximal development. The authors report that 5;6- to 6;6-year-old children played at higher developmental levels during symbolic play when their preschool teachers followed the principles of teaching and learning in a zone of proximal development (e.g., used questions to create cognitive dissonance in children, indirectly oriented children to seek various symbolic ways of recording transmitted information, or created situations in which players had to decide on the activities, as well as explain and plan them). This was primarily connected with greater language competence, more explicit use of language, use of language in cognitive transformations, and use of various symbolic means (drawings, letters, and numbers).

Several authors (e.g., Caughy, DiPietro, & Strobino, 1994; Lamb, 1998; McCartney, Dearing, Taylor, & Bub, 2007) have established that the effect of a high-quality preschool is a protective factor in the language development of children from families with less favorable demographic factors. One Slovenian longitudinal study (Marjanovič Umek & Fekonja, 2006) included 155 children 3 to 6 years old and monitored the effect of preschool on children's verbal understanding and expression. Its findings showed that the effect of mere inclusion of children in preschool on their language development is small and insignificant and, at the same time, it is also connected with other factors, especially maternal education. The authors report that maternal education had a significant effect on the language competence of 3- and 5-year-olds that entered preschool at the age of three, whereas it had no significant effect on the group of children that entered preschool when they were one year old. Based on the findings, the authors conclude that early enrollment in preschool primarily encourages the development of language (e.g., vocabulary, acquisition of grammatical rules, and meta-language) in children of mothers with a low education, or may make up for certain shortfalls in language development probably connected with a lower-quality family environment.

This study examines the role of preschool, characteristics of home environment (maternal and paternal education, quality of the support for language development) and child's intellectual abilities in different aspects of language competence (language comprehension, expression, meta-linguistic awareness and storytelling) of 6year old children.

Method

Participants

Data of the present study was collected in a broader longitudinal study

on the effect of preschool on child's development, namely in the last year of the study, when children were six years old and have already entered the primary school. The primary sample included children aged approximately three years from 17 different preschools. The preschool institutions were selected taking into account different Slovenian regions. When children were approximately six years old and have entered the first grade of primary school, all the schools attended by the children from the primary sample, were included into the study. An additional sample of children, who did not attend preschool prior to entering primary school, was also collected at these schools. The sample of the present study included 147 children, 73 boys and 74 girls. 52 children were included into preschool from their first year of life (they attended preschool for five years prior to the assessment), 49 children were included into preschool from their third year of life (they attended preschool for three years prior to the assessment) and 46 children were not included into preschool before entering primary school. All the children were monolingual Slovenian speakers. Mothers of the children had on average 13.0 years of formal education (SD = 2.4 years) and fathers had on average 12.2 years of formal education (SD = 2.3 years).

Materials

Children's language competence was assessed with the *Scales of General Language Development – LJ* (*SGLD – LJ*) (Marjanovič Umek, Fekonja, Podlesek, Kranjc , & Bajc, 2004). The language development scales include three scales: *Language Comprehension Scale* (*LCS*), *Language Expression Scale* (*LES*) and *Meta-linguistic Awareness Scale* (*MAS*). They are intended to assess the language development of children from 2 to 7 years old. The *LCS* is composed of sets of tasks that relate to comprehension of instructions; words signifying parts of the body, spatial concepts, quantity, relations between persons or objects, qualities, persons and their property, colours; understanding time sequence in stories; negation; understanding the use of objects and understanding actions and the results of actions.

The *LES* is composed of sets of tasks that relate to children's vocabulary; pronoun use; the use of words signifying qualities; expressing actions and states in the present; past and future; use of the plural and dual; the use of words signifying spatial relations; quantity; negation; questions; story narration; hypernyms; explaining words; the use of words signifying social relations; compounding and subordination; the use of direct and reported speech; declension. The *MAS* includes 5 groups of tasks that relate to verbs of speaking; children's ability to correct errors, distinguishing between long and short words, supplying the last word in a sentence, and supplying the first and last sounds in a word. The test administrator conducts the tasks on all three subscales with the help of various play items, pictures or presents the tasks verbally. Correct answers are given various numbers of points (from 1 to 5) on various tasks, and the points within individual subscales are added together. Thus three partial results are achieved: an assessment of children's language comprehension, language expression, and

meta-linguistic awareness. *SGLD – LJ* is standardized on a sample of Slovene toddlers and children and have suitable psychometric characteristics.

Children's storytelling was assessed using the *Storytelling Test*. Children told stories based on six illustrations from the children's picture book *Snežaki v vrtcu* (The Snowmen in Preschool, 1994; written by Branka Jurca, illustrated by Ančka Gošnik Godec). The illustrations were realistic and logically connected. The stories told by the children were analyzed in terms of coherence and cohesiveness using criteria that enable a valid and objective assessment of the story's developmental level (Marjanovič Umek, Kranjc, & Fekonja, 2006).

The criteria used for analyzing the story's coherence were the following: a story without a structure (1 point); a story with a structure containing simple descriptions of characters, objects, or illustrations (2 points); a story with a structure containing a simple chronology of events (3 points); a story with a structure containing descriptions of the characters' thoughts and feelings, and the relationships between them (4 points); a story with a structure containing descriptions of cause-and-effect relationships (5 points).

The criteria used for analyzing the story's cohesiveness were divided into two groups:

A. Thematic organization – linear organization with thematic leaps (1 point) and linear organization without thematic leaps (2 points);
B. Preserving reference – full repetition (1 point) and the use of pronouns, hypernyms, hyponyms, and so on (2 points).

In assessing the story's coherence and defining its developmental level, the highest developmental level achieved by children in telling their stories was taken into account (e.g., if children used cause-and-effect relationships in their stories, their stories were ranked the highest in terms of their developmental level, even if they also used a simple chronology of events and descriptions of characters' thoughts and feelings that belong to a lower developmental level). In assessing the story's cohesiveness and ranking the story in terms of its developmental level, the predominant method of storytelling used was taken into account (e.g., if throughout the story children used a predominantly linear organization of consecutive events without thematic leaps, their stories scored at the second developmental level in thematic organization).

Children's intellectual abilities were assessed using the Raven's *Coloured Progressive Matrices Test (CPM)* (Raven, Raven, & Court, 1999), a test of general intellectual abilities. *Coloured Progressive Matrices Test (CPM)* includes a set of nonverbal multiple choice tasks. Children complete a matrix by selecting the appropriate missing pattern from a set of six alternatives. The *CPM* comprises 36 items divided into three sets of 12, ordered in terms of increasing difficulty. The test can be administered individually or to a group, and was designed specifically for children between ages 5 and 11.

The children's family environment was assessed using the *Home Literacy Environment Questionnaire: 5–6 years (HLEQ: 5– 6)* (Marjanovič Umek, Fekonja, & Bajc, 2006). This questionnaire contains 34 statements describing the ways in which parents talk to their children (e.g., *When talking to my child*

I use grammatically correct sentences) and how parents encourage their children's language development (e.g., *I visit the library with my child.*). Parents used a 6-point scale to mark the frequency of the behaviour described or activity performed with the child, on which 1 indicated »never or very rarely,« and 6 indicated »very frequently or always.« The items in the questionnaire were combined into 3 factors of family environment quality: *Reading and Conversation (F1)*, *Academic Skills (F2)*, and *Correct Use of Language (F3)*.

Data on maternal education (years of formal education completed) and on the age at which their children entered preschool were obtained using the *Demographic Questionnaire*.

Procedure

The parents of all the children gave their written consent allowing their children to participate in the study. Children were tested twice by specially trained testators at the primary schools they attended. They were individually tested with the *SGLD – LJ*, *Storytelling test* and *CPM*. The testators transcribed the stories told freely by the children while looking at the pictures. *HLEQ: 5–6* and the *Demographic Questionnaire* were distributed to primary school teachers and preschool teachers at primary schools, who then forwarded them to the children's mothers. Mothers assessed their behaviour and different ways of supporting child's language development. Both questionnaires were returned a sealed envelope to the school, where the test administrators collected them.

Results

First we examined the shape of the distributions. Among the criterion variables, scores on the *Storytelling test* were normally distributed, whereas scores on all *SGLD – LJ* scales had non-normal distributions (with negative asymmetry and leptocurtosis), which is why the scores on *SGLD – LJ* were normalized. After that, all the bivariate relations between different predictors (child's gender, mother's and father's education level, duration of child's preschool education, quality of home literacy environment, and child's score on *CPM*) and criteria became linear (normality of criterion's distribution and linearity of bivariate relations between predictors and criteria are necessary conditions for the correct interpretation of the results of regression analysis). The only exception was duration of child's preschool education, which showed a non-linear relation to all four criteria. This is why two dummy variables were introduced in the analysis, *preschool1* and *preschool2*. If the child did not attend preschool, both dummy variables had a value of 0. Value 0 on dummy variable *preschool1* indicated that the child did not attend preschool, and value 1 indicated that the child attended preschool. If the child obtained value 1 also on the second dummy variable, *preschool2*, she had attended preschool for five years, whereas the value 0 indicated three years of preschool education or less.

All interval predictors were entered into regression analysis in the first block (model *Enter*), and the two dummy variables addressing duration of preschool education were entered in the second block. This enabled us to assess the proportion of the criterion variance explained by the characteristics of children and their home (literacy) environment, and the proportion of the criterion variance explained by children's preschool education.

Girls did not significantly differ from boys in any of the criteria (see Table 1), so we subsequently analysed data from both genders together.

	M	*SD*	*t (145)*	*p*
Storytelling test				
boys	6.21	1.04	0.61	.55
girls	6.31	1.08		
LCS				
boys	–0.05	1.01	0.54	.59
girls	0.04	0.95		
LES				
boys	–0.09	0.96	1.02	.31
girls	0.08	1.00		
MAS				
boys	–0.09	0.89	0.91	.37
girls	0.05	1.00		

Table 1: Comparison of girls and boys in criterion variables

Note: LCS – Language comprehension scale, LES – Language expression scale, MAS – Meta-linguistic awareness scale. Scores on LCS, LES and MAS were normalized.

Correlations between variables are shown in Table 2. Correlations between predictors and criteria were mainly low to moderate. Mother's education (in years) correlates positively with all four criteria. The correlation of father's education (in years) with scores on *SGLD – LJ* is positive, but somewhat lower than the correlation of mother's education with the same criteria. On the other hand, father's education correlates higher than mother's education with the scores on *Storytelling test*. The correlation between scores on *SGLD – LJ* and scores on *CPM* are positive and low to moderate. Home literacy environment seems to be weakly related to child's language competency. Statistically significant are only the positive correlations between *F1* (*Reading and conversation*) and *F3* (*Correct use of language*) with child's score on *MAS*, and the correlation between F1 *(Reading and conversation*) and *LCS* score. We can also notice that five years of preschool education, in comparison with shorter duration, are related to lower scores on *Storytelling test* and *MAS*.

	Story	LCS	LES	MAS	gender	EDm	EDf	F1	F2	F3	Preschool1	Preschool2	CPM
Story	1												
LCS	.241**	1	.467**	.383**	.044	.310**	.142	.051	.051	.192*	.058	–.045	.243**
LES	.602**	.467**	1	.417**	.085	.355**	.262**	–.037	–.016	.086	.147	–.028	.285**
MAS	.267**	.383**	.417**	1	.075	.270**	.170*	.184*	.112	.201*	–.041	–.227**	.328**
gender	.050	.044	.085	.075	1	.035	.070	–.013	–.005	–.006	.034	–.033	.015
EDm	.185*	.310**	.355**	.270**	.035	1	.460**	.076	–.107	.262**	.224**	.005	.263**
EDf	.239**	.142	.262**	.170*	.070	.460**	1	.141	–.164*	.111	.087	–.092	.217**
F1	.001	.051	–.037	.184*	–.013	.076	.141	1	.329**	.415**	.120	–.082	.013
F2	.070	.051	–.016	.112	–.005	–.107	–.164*	.329**	1	.556**	–.111	–.217**	–.058
F3	.085	.192*	.086	.201*	–.006	.262**	.111	.415**	.556**	1	.061	–.113	–.015
Preschool1	.026	.058	.147	–.041	.034	.224**	.087	.120	–.111	.061	1	--	.173*
Preschool2	–.194*	–.045	–.028	–.227**	–.033	.005	–.092	–.082	–.217**	–.113	--	1	.005
CPM	.178*	.243**	.285**	.328**	.015	.263**	.217**	.013	–.058	–.015	.173*	.005	1

Table 2: Correlations (Pearson correlation coefficients) among studied variables

Note: Story – score on the *Storytelling test*; LCS – score on *Language Comprehension Scale*; LES – score on *Language Expression Scale*; MAS – score on *Meta-linguistic Awareness Scale*; EDm – mother's education (in years); EDf – father's education (in years); F1 – first factor of family literacy environment: *Reading and conversation*; F2 – second factor of family literacy environment: *Academic skills*; F3 – third factor of family literacy environment: *Correct use of language*; Preschool1 – dummy variable that differentiates between children not attending preschool (value 0) and children attending preschool (value 1); Preschool2 – dummy variable that differentiates between children attending preschool for five years (value 1) and children attending preschool for three years or not attending preschool (value 0); CPM – score on *Coloured progressive matrices*; -- calculating correlation would have no meaning.
*p < .05. **p < .01.

Regression analysis (Table 3) showed that our predictors can explain a statistically significant proportion of the variance of all four criteria: of *Storytelling test* score (F [9, 137] = 2.26, p = .021, *MSE* = 1.04), of *LCS* score (F [9, 137] = 2.94, p = .003, *MSE* = 14.95), of *LES* score (F [9, 137] = 3.44, p = .001, *MSE* = 24.42), and of *MAS* score (F [9, 137] = 3.34, p = .001; *MSE* = 22.52). In hierarchic regression, where child's gender, parental education, home literacy environment and child's nonverbal intelligence were entered into the model as the first block of variables, and dummy variables indicating duration of preschool education were entered as the second block of variables, it was found that the first block of variables explained 9.8% of variance in *Storytelling test* score (F [7, 139] = 2.16, p = .042) and the second block of variables explained additional 3.2% of variance (F [2, 137] = 2.50, p = .086). The first block of variables explained 16.1%

of variance of *LCS* score (F [7, 139] = 3.81, p = .001), 18.2% of variance of *LES* score (F [7, 139] = 4.42, p = .000) and 14.2% of variance of *MAS* score (F [7, 139] = 3.28, p = .003). The second block of variables added only a little to the explanation of variance of *LCS* and *LES* scores, namely only 0.1% of variance of the first (F [2, 137] = 0.06, p = .947) and 0.2% of variance of the second (F [2, 137] = 0.21, p = .815) was explained by duration of preschool education. However, the second block of variables added significantly to the prediction of *SMA* score—it explained additional 3.8% of its variance (F [2, 137] = 3.20, p = .044).

Table 3 shows regression coefficients for all the predictors. The first column contains unstandardized regression coefficients, which indicate an increase in the value of criterion if the value of the predictor increases for one unit and the values of all other variables remain constant. Column *Beta* contains standardized regression coefficients (they represent the change in criterion expressed in units of standard deviation, when the predictor value increases for one standard deviation and all other variables are controlled for), which indicate the relative efficiency of each predictor in explaining the variance of the criterion. Whereas *SGLD – LJ* scores, i.e. scores on *LCS*, *LES* and *MAS*, are statistically significantly predicted by mother's education and child's *CPM* score, the *Storytelling test* score is predicted best by father's education and duration of child's preschool education. In this test, holding the values of other predictors constant, a year more of father's education is related to 0.09 point increase in test score. Because within the block of variables related to duration of preschool education, only *preschool2* is statistically significant, we can conclude that children who attended preschool for three years or did not attend preschool differ statistically significantly in storytelling competence from children who attended preschool for five years. Holding the values of other predictors constant, children who attended preschool would attain 0.24 point higher score than children who did not attend preschool; while children who attended preschool for five years would achieve 0.48 point lower score than children who attended preschool for three years or did not attend preschool.

		b	*SE(b)*	Beta	*t*	*p*
Storytelling						
	Constant	4.16	0.94	0.00	4.42	.000
	Gender	0.04	0.17	0.02	0.26	.792
	EDm	0.03	0.04	0.07	0.69	.493
	EDf	0.09	0.04	0.19	1.99	.049
	F1	–0.01	0.01	–0.10	–1.08	.283
	F2	0.02	0.02	0.11	1.08	.281
	F3	0.00	0.03	–0.01	–0.05	.958
	CPM	0.03	0.02	0.11	1.30	.196
	Preschool1	0.24	0.22	0.11	1.10	.275
	Preschool2	–0.48	0.21	–0.21	–2.23	.027

Language Comprehension Scale						
	Constant	79.07	3.56	0.00	22.20	.000
	Gender	0.36	0.64	0.04	0.56	.574
	EDm	0.48	0.17	0.28	2.88	.005
	EDf	–0.04	0.16	–0.02	–0.27	.788
	F1	0.00	0.02	0.01	0.13	.896
	F2	0.03	0.07	0.05	0.46	.643
	F3	0.06	0.12	0.05	0.48	.631
	CPM	0.21	0.08	0.21	2.48	.014
	Preschool1	0.13	0.84	0.01	0.15	.880
	Preschool2	–0.27	0.80	–0.03	–0.33	.742
Language Expression Scale						
	Constant	75.88	4.55	0.00	16.67	.000
	Gender	0.66	0.82	0.06	0.80	.422
	EDm	0.52	0.21	0.23	2.45	.016
	EDf	0.31	0.21	0.14	1.51	.134
	F1	–0.03	0.03	–0.08	–0.96	.337
	F2	0.07	0.09	0.08	0.77	.442
	F3	–0.10	0.15	–0.07	–0.67	.507
	CPM	0.26	0.11	0.20	2.44	.016
	Preschool1	0.69	1.08	0.06	0.64	.525
	Preschool2	–0.28	1.03	–0.02	–0.27	.789
Meta-linguistic Awareness Scale						
	Constant	–0.90	4.37	0.00	–0.21	.838
	Gender	0.39	0.79	0.04	0.50	.617
	EDm	0.44	0.21	0.20	2.12	.035
	EDf	–0.01	0.20	–0.01	–0.06	.950
	F1	0.03	0.03	0.09	1.06	.290
	F2	0.03	0.09	0.04	0.39	.694
	F3	0.08	0.15	0.06	0.57	.567
	CPM	0.30	0.10	0.23	2.85	.005
	Preschool1	–1.07	1.04	–0.10	–1.03	.304
	Preschool2	–1.43	0.99	–0.14	–1.45	.149

Table 3: Regression coefficients in predicting four criteria

Note: see Table 2.

On *Storytelling test*, children who attended preschool for five years achieved the lowest scores (M = 5.98, SD = 1.18). They were followed by the children who did not attend preschool (M = 6.22, SD = 0.89). The highest scores on this test were achieved by children attending preschool for three years (M = 6.59, SD = 1.00). Scheffe's post hoc test showed that only the difference between children who attended preschool for three and five years is statistically significant

(p = .014), whereas the other two paired comparisons did no yield significant results.

The difference between the observed average score in three groups of children with different duration of preschool enrolment and the estimated differences among the groups (based on the regression coefficients *b*; see previous paragraph) points to correlations between duration of preschool enrolment and other predictors (see Table 3). This is why we further took differences among children with different preschool education under scrutiny. We examined how groups of children differ according to parental education, family literacy environment, and intelligence of children.

Table 4 shows average values of predictors in different groups and the statistical significance of the differences between the groups. We can see that the groups differ significantly in mother's education, in reading and conversation at home (*F1*), and in development of academic skills (*F2*), but also differences in other predictors were close to statistical significance. Paired comparisons between groups were evaluated with *Tukey's B test* (among different post hoc tests it is neither especially liberal nor too strict). Statistically significant differences were found only for mother's education: mothers of children who did not attend preschool had statistically significantly lower education level than mothers of children who started to attend preschool at the age of three.

	did not attend preschool (N = 46)			attended preschool for three years (N = 49)			attended preschool for five years (N = 52)			test of equality of groups		
	M	*SD*		*M*	*SD*		*M*	*SD*		Wilks' Lambda	*F* (2, 144)	*p*
EDm	12.26	2.52		13.76	2.04		13.06	2.32		.935	5.03	.008
EDf	11.89	2.00		12.78	2.64		11.90	2.20		.968	2.38	.096
F1	89.39	17.26		96.59	12.08		90.44	16.32		.959	3.11	.048
F2	34.13	5.86		34.08	5.15		31.33	6.88		.953	3.57	.031
F3	23.93	3.17		25.16	3.29		23.71	4.22		.969	2.32	.102
CPM	19.35	4.48		21.31	4.25		20.40	3.14		.961	2.88	.059

Table 4: Differences between groups of children with different level of preschool education

Note: see Table 2.

Discussion

The findings of our study referring to the positive correlations between parental education and child's language competence are also comparable with the

findings of other studies (e.g., Bornstein & Haynes, 1998; Browne, 1996; Duncan & Magnuson, 2003), suggesting that both maternal and paternal education are important factors in children's language development. Six-year-olds whose mothers had a high level of education achieved higher results on all of the three scales of language development as well as on the *Storytelling test* than children whose mothers had a lower level of education (the correlations are positive and statistically significant – see Table 2). The same goes for the education of fathers, the correlations between paternal education and children's storytelling are even higher. Various researchers (e.g., Bornstein et al., 2003; Hoff, 2003a; Marjanovič Umek, Podlesek, & Fekonja, 2005) explain the effect of maternal education on children's language development primarily with the correlation between parental education (especially the education of mothers) and the quality of family environment or the quantity and quality of encouragements that children receive in their family environment for their language development. The results obtained only partially support these findings because they show that maternal education is positively correlated only with one of the factors of family environment, namely with factor 3 *Correct use of language*. More educated mothers reported that they more frequently encourage their children to use language correctly and acquire grammatical rules, use more coordinate and subordinate statements when speaking to their children, they more often explain things their children do not understand, and they consistently answer their children's questions, correct their statements, and encourage them to use the dual and plural numbers, as well as past and future forms, than mothers with lower education. According to a group of researchers (Sénéchal, LeFevre, Thomas, & Daley, 1998), activities included in the third family environment factor, such as learning how to count, write, and read, are primarily formal literacy activities, during which parents and children focus on the characteristics of a written text. Hoff (2003b) established that toddlers that heard more complex and longer statements from their mothers learned new words faster than those that heard shorter and simpler statements. Bohannon and Stanowicz (1988, cited in: Berk, 1997) report that toddlers repeated their parents' statements more frequently when the parents corrected their grammatically incorrect statements. To some extent, the results of this study match Bernstein's findings (1962) who established that mothers with a high level of education used an »elaborated« (or more structured) speech code with their children; the typical characteristics of this code include expanding and complementing children's statements more frequently, as well as constructing grammatically correct statements, answering children's questions, and explaining. Mothers with a high level of education reported that they more frequently use a »highly elaborated« conversational style in verbal interactions with their children. Haden, Ornstein, Eckerman, & Didow (2001) define this style as a conversation in which mothers encourage their children's language development by asking them frequent questions and adding new information to their statements. Other aspects of family environment, connected with joint reading and encouraging children's academic skills did not correlate significantly with maternal education and children's storytelling (see

Table 2). Both mothers with higher and lower educational level reported that they read children's books and magazines with their children, visit the library with them, give them books as gifts, talk with them about the book read, and encourage them to engage in symbolic play with comparable frequency. In addition, mothers with different educational levels teach their children to count, write letters and numbers, and read with comparable frequency. The findings of some other studies differ; certain researchers (e.g., Bornstein et al., 2003; Bradley et al., 2001; Coley, 2002; Hoff, 2003a; Marjanovič Umek et al., 2006; Wray & Medwell, 2002) have established that mothers with a higher level of education more often engage in the process of joint reading and other activities connected with language and early literacy development (e.g., visit the library and attend puppet shows with their children, encourage them to engage in symbolic play, and so on), and that the frequency of joint reading by parents and children significantly and positively correlates with children's language development (e.g., Cairney, 2003; Robbins & Ehri, 1994; Sénéchal & LeFevre, 2002; Silvén et al., 2003). The findings of our study also show that factor *3 Correct use of language* positively and statistically significantly correlate with child's language comprehension and meta-linguistic awareness but not with language expression or storytelling. The characteristics of joint reading and conversation between mothers and children are positively and significantly correlated only to the meta-linguistic awareness of 6 years old children. Children whose mothers estimated to frequently engage in joint reading and conversation with children as well as encourage them to correctly use grammatically more complex utterances, achieved a higher level of meta-linguistic awareness than children of mothers who reported to less frequently engage in these activities.

The low and insignificant correlations between certain aspects of family environment quality on one hand and maternal education and child's language comprehension, expression and storytelling on the other hand may result from the fact that all mothers, with both low and high levels of education, evaluated their home environment as supportive and with relatively high estimations with the variability of estimations being small. Sénéchal et al. (1998) believe that reading books and other activities that encourage children's language development represent activities that are highly valued by the majority of parents; therefore, to a great extent, their answers to how often they read to their children may reflect social desires and contribute to unreliable correlations between the frequency of joint reading and children's language competence. On the one hand, the high evaluations of the quality of family environment provided by the mothers in our study may be the result of socially desired answers from mothers that believe that the activities included in the questionnaire are important for the development of children's language; on the other hand, highly educated mothers may also be more critical in evaluating the frequency of a specific activity and thus tend to evaluate a specific activity as frequent less readily than mothers with lower educational level. In order to improve the objective evaluation of encouraging children's language development, some authors have developed different approaches to assess the quality of family environment, e.g. *Home Observation for Measurement of*

the Environment – HOME used to evaluate mother's and child's behaviour in the home setting by external observers (Caldwell & Bradley, 1984); check-lists of children's books with correct and incorrect or fictitious titles and authors, used to evaluate to what extent the parents are familiar with children's books (e.g., Bajc & Marjanovič Umek, 2005; Sénéchal, LeFevre, Hudson, & Lawson, 1996).

The results of our study also suggest that child's intellectual abilities also significantly positively correlate with different aspects of his/her language, namely with language comprehension, expression, meta-linguistic awareness and storytelling ability. Six years old children who achieved higher results on *CPM* also expressed a higher level

of language competence and told stories on higher developmental levels than children who achieved lower results on *CPM*. Parental education, family environment, child's gender and his/her intellectual abilities proved to be statistically important predictors of children's language competence at six years of age. These predictors explain an important share of variance in children's storytelling ability as well as in their achievement on *LCS*, *LES* and *MAS*. While controlling for other predictors, child's intellectual abilities, probably also because of significant correlations with some of the variables, did not proved to be a statistically important predictor of child's storytelling ability.

The duration of child's enrolment into preschool explained only a small and statistically insignificant share of additional variance in children's achievements on *LCS*, *LES* and their storytelling ability, but a statistically significant share of variance in children's achievements on *MAS* was (see Table 3). The obtained result also indicate that child's enrolment into preschool in the first year of life statistically significantly and negatively correlates with child's storytelling and meta-linguistic ability at the age of six, while the correlations with child's language comprehension and expression are not statistically significant. Children who were, prior to entering primary school, included into a preschool institution, without concerning the duration of the enrolment, expressed somewhat higher language comprehension, expression and storytelling ability, than children who did not attend preschool, but the correlations between the variables were low and statistically insignificant.

Conclusions

Children's storytelling was, along with the father's educational level, statistically significantly predicted by the duration of child's enrolment into preschool. Children who attended preschool for three years or did not attend preschool differed statistically significantly in their achievements on *Storytelling test* from the children who attended preschool for five years. Children who attended preschool for three years, prior to entering primary school, told stories on higher developmental levels, followed by children, who did not attend preschool, while children, who attended preschool for five years told stories on the lowest developmental levels.

The differences between the groups of children, who differed in the duration of their enrolment into preschool, may be at least partially explained by the differences in some of the other characteristics of these three groups. The results show that the groups of children who attended preschool for five years, three years or did not attend preschool differed statistically significantly in their mothers' educational level and home environment (frequency of reading and engaging in conversation with children, and developing children's academic skills); while the differences in paternal education and child's intellectual abilities approached significance (see Table 4). Children who entered preschool at the age of three had mothers and fathers with higher educational level, their mothers estimated the home environment as more supportive for child's language development and they also achieved slightly higher results on the nonverbal test of intelligence than the other two groups of children. Paired comparisons between the three groups showed that the mothers of children who did not attend preschool had a statistically significantly lower level of education than mothers of children who attended preschool for three years while all the other paired comparisons were statistically insignificant. The positive effect of preschool on children's' storytelling of children who attended preschool for three years prior to entering primary school can be a »result« of a more supportive family environment and somewhat higher intellectual abilities of these children and is not entirely influenced by a more or less effective work of a preschool teacher. Nevertheless the findings of our study, showing that preschool is less successful in supporting the pragmatic ability in the first age period, »demand« a special reflection especially on the quality of the preschool on a process level. The findings of a Slovene study (Marjanovič Umek, Fekonja, & Bajc, eds., 2005), in which the researchers assessed the quality of Slovene preschool on the process level, showed that preschool teachers in the first age groups of children do not always support toddlers' language development on the highest levels of quality, e.g. during joint reading, symbolic play or routines. The authors, similarly to some foreign researchers (e.g. Baldock, 2006; Katz, 1985, in Moyles, 1995), conclude that the behaviour of the preschool teachers can be highly influenced by their implicit theories about child's early development and learning. The implicit theories can influence preschool teachers' behaviours in a way that they less frequently use language in different forms and social contexts, engage in joint reading with children and talk to toddlers about the content of the story, less frequently narrate and explain as well as encourage children to tell stories spontaneously.

References

Akhtar, N. (2001). Acquiring basic word order: Evidence for data-driven learning of syntactic structure. In M. Tomasello and E. Bates (eds.), Language development. The essential readings (pp. 187–202). Oxford: Blackwell Publishers.

Anning, A. (2003). Pathways to the graphicacy club: The crossroad of home and preschool. Journal of Early Childhood Literacy, 3, 5–35.

Apostolos, E., and Napoleon, M. (2001). Word-meaning development in Greek children's language: The role of children's sex and parents' educational level. Paper presented at the 10th European Conference on Developmental Psychology, August 22-26in Uppsala, Sweden.

Applebee, A. (1978). The child's concept of story. Chicago: University of Chicago Press.

Bajc, K., and Marjanovič Umek, L. (2005). Skupno branje, merjeno s pomočjo ček liste naslovov otroških knjig, in otrokov govorni razvoj v zgodnjem otroštvu. Psihološka obzorja, 14 (2), 51–71.

Baldock, P. (2006). The place of narrative in the early years curriculum: How the tale unfolds. London, New York: Routledge.

Bates, E. and Goodman, J. C. (2001). On the inseparability of grammar and the lexicon: Evidence from acquisition. In M. Tomasello and E. Bates (eds.), Language development (pp. 134–162). Oxford: Blackwell Publishers.

Berk, L. E. (1997). Child Development. Boston: Allyn and Bacon.

Bernstein, B. (1962). Social class, linguistic codes and grammatical elements. Language and Speech, 5, 221–240.

Bornstein, M. H., Hahn, C.-S., Suwalsky, J. T. D., and Haynes, O. M. (2003). Socioeconomic status, parenting, and child development: The Hollingshead four-factor index of social status and the socioeconomic index of occupations. In M. H. Bornstein and R. H. Bradley (eds.), Socioeconomic status, parenting, and child development (pp. 29–82). London: Lawrence Erlbaum Associates, Publishers.

Bornstein, M. H., and Haynes, O. M. (1998). Vocabulary competence in early childhood: measurement, latent construct, and predictive validity. Child Development, 69 (3), 654–671.

Bradley, R. H., Corwyn, R. F., McAdoo, H., and Coll, C. (2001). The home environments of children in the United States: Part I. Variations by age, ethnicity, and poverty status. Child Development, 72, 1884–1867.

Broström, S. (2002). Children tell stories. European Early Childhood Education Research Journal, 10, 85–98.

Butler, S., McMahon, C., and Ungerer, J. A. (2003). Maternal speech style with paralinguistic twin infants. Infant and Child Development, 12 (2), 129–143.

Cairney, T. H. (2003). Literacy within family life. In N. Hall, J. Larson, and J. Marsh (eds.), Early childhood literacy, (pp. 85–98). London, Thousand Oaks, New Delhi: Sage Publications.

Caldwell, B. M., and Bradley, R. H. (1984). Home observation for measurement of the environment: Revised edition. Little Rock: University of Arkansas at Little Rock.

Caughy, M. O., DiPietro, J. A., and Strobino, D. M. (1994). Day-care participation as a protective factor in the cognitive development of low-income children, Child Development, 65, 457–471.

Clark, H. H. and Clark, E. V. (1977). Psychology and language. New York: Harcourt Brace Jovanovich.

Duncan, G. J., and Magnuson, K. A. (2003). Off with Hollingshead: Socioeconomic, resources, parenting, and child development. In M. H. Bornstein and R. H. Bradley (eds.), Socioeconomic status, parenting, and child development (pp. 83–106). London: Lawrence Erlbaum Associates, Publishers.

Fein, G. (1995). Toys and stories. In A. D. Pellegrini (ed.), The future of play theory (pp.

151–165). New York: State University of New York Press.

Fekonja, U., Marjanovič Umek, L., and Kranjc, S. (2005). Free play and other daily preschool activities as a context for child's language development. Studia Psychologica, 47(2), 103–117.

Fenson, L., Dale, P., Reznick, J. S., Bates, E., Thal, D., and Pethick, S. (1994). Variability in early communicative development. Monographs of the Society for Research in Child Development, 59, no. 242.

Fox, C. (2003). Playing the storyteller: Some principles for learning literacy in the years of schooling. In N. Hall, J. Larson, and J. Marsh (eds.), Handbook of early childhood (pp. 189–198). London, Thousand Oaks, New Delhi: Sage Publications.

Haden, C. A., Ornstein, P. A., Eckerman, C. O., and Didow, S. M. (2001). Mother-child conversational interactions as events unfold: Linkages to subsequent remembering. Child Development, 72 (4), 1016–1031.

Hoff, E. (2003a). Causes and consequences of SES-related differences in parent-to-child speech. In M. H. Bornestein and R. H. Bradely (eds.), Socioeconomic status, parenting, and child development (pp.147–160). Mahwah, NJ: Lawrence Erlbaum Associates.

Hoff, E. (2003b). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. Child Development, 74 (5), 1368–1378.

Hresko, W. P., Reid, D. K. and Hammill, D. D. (1999). Test of early language development – third edition (TELD – 3), Examiner's manual. Austin, TX: PRO-ED.

Jarrold, C., Carruthers, P., Smith, P. K., and Boucher, J. (1994). Pretend play: Is it metarepresentational? Mind and Language, 9, 445–468.

Karmiloff, K., and Karmiloff-Smith, A. (2001). Pathways to language. Cambridge, MA and London: Harvard University Press.

Korat, O., Bahar, E., and Snapir, M. (2003). Sociodramatic play as opportunity for literacy development: The teacher's role. The Reading Teacher, 56 (4), 386–393.

Kress, G. (1996). Writing and learning to write. In D. R. Olson and N. Torrance (eds.), The handbook of education and human development, (pp. 225–256). Cambridge, MA: Blackwell Publishers.

Lamb, M. E. (1998). Nonparental child care: Context, quality, correlates. In W. Damon, I. E. Siegel, and K. A. Reninger (eds.), Handbook of child psychology: Vol. 14. Child psychology in practice (pp. 73–134). New York: Wiley.

Marjanovič Umek, L. (1990). Mišljenje in govor predšolskega otroka. Ljubljana: Državna založba Slovenije.

Marjanovič Umek, L., and Fekonja, U. (2006). Učinek vrtca na otrokov govorni razvoj: slovenska vzdolžna študija. Sodobna pedagogika, 57 (5), 44–64.

Marjanovič Umek, L., Fekonja, U., and Bajc, K. (eds.) (2005). Pogled v vrtec. Ljubljana: Državni izpitni center.

Marjanovič Umek, L., Fekonja, U., and Bajc, K. (2006). Vprašalnik družinskega okolja – spodbujanje govornega razvoja: 5–6 let. Internal publication. Ljubljana: Katedra za razvojno psihologijo.

Marjanovič Umek, L., Fekonja, U., and Kranjc, S. (2004). Pripovedovanje zgodbe kot pristop za ugotavljanje otrokovega govornega razvoja. Psihološka obzorja, 13 (1), 43–64.

Marjanovič Umek, L., Fekonja, U., Podlesek, A., Kranjc, S. and Bajc. K. (2008). Lestvice splošnega govornega razvoja – LJ (LSGR –LJ). Priročnik. Ljubljana: Center za psihodiagnostična sredstva.

Marjanovič Umek, L., Kranjc, S., and Fekonja, U. (2006). Otroški govor: razvoj in učenje. Ljubljana: Izolit.

Marjanovič Umek, L., Lešnik Musek, P., and Kranjc, S. (2001). Communication in symbolic play. European Early Childhood Education Research Journal, 9, 87–102.

Marjanovič Umek, L., Podlesek, A., and Fekonja, U. (2005). Assessing the home literacy environment. European Journal of Psychological Assessment, 21 (4), 271–281.

McCartney, K., Dearing, E., Taylor, B. A., and Bub, K. L. (2007). Quality child care supports the achievement of low income children: Direct and indirect pathways through caregiving and the home environment. Journal of Applied Developmental Psychology, 28, 411–426.

Meek, M. (1985). Play and paradoxes: Some considerations of imagination and language. In G. Wells and J. Nicholls (eds.), Language and learning: An interactional perspective, (pp. 41–57). Lewes: Falmer Press.

Moyles, J. R. (1995). Just playing? The role and status of play in early childhood education. Milton Keynes, Philadelphia: Open University Press.

Pellegrini, A. D., and Galda, L. (1993). Ten years after: A re-examination of symbolic play and literacy research. Reading Research, April–June, 163–175.

Pellegrini, A. D., and Galda, L. (1998). The development of school-based literacy. A social ecological perspective. London: Routledge.

Raven, J., Raven, J. C. and Court, J. H. (1999). Priročnik za Ravenove barvne progresivne matrice in besedne lestvice – 3. zvezek: Standardne barvne progresivne matrice. Ljubljana: Center za psihodiagnostična sredstva.

Sénéchal, M., and LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. Child Development, 73 (2), 445–460.

Sénéchal, M., LeFevre, J., Hudson, E., and Lawson, P. (1996). Knowledge of storybooks as a predictor of young children's vocabulary. Journal of Educational Psychology, 88, 520–536.

Sénéchal, M., LeFevre, J., Thomas, E., and Daley, K. (1998). Differential effects of home literacy experiences on the development of oral and written language. Reading Research Quarterly, 32, 96–116.

Silvén, M., Ahtola, A., and Niemi, P. (2003). Early words, multiword utterances and maternal reading strategies as predictors of mastering word inflections in Finnish. Journal of Child Language, 30, 253–279.

van Oers, B. (2003). Learning resources in the context of play. Promoting effective learning in early childhood. European Early Childhood Education Research Journal, 1, 7–26.

Winner, E. (1988). The point of words: Children's understanding of metaphors and irony. Cambridge, MA: Harvard University Press.

Wray, D., and Medwell, J. (2002). Literacy and language in the primary years. London: RoutledgeFalmer.