

**Ljubica Marjanovič Umek,  
Kaja Hacin, and Urška Fekonja**

## Children's early literacy: The effect of preschool and family factors

**Abstract:** In this longitudinal study, we established the effect of additional activities used by professionals in two preschool groups to systematically achieve goals related to early literacy within the framework of preschool curriculum on children's achievements in several aspects of early literacy. Children's early literacy was also analysed in relation to parental education, children's age at entry into preschool and several factors of family literacy. The study included 46 children aged 5.1 to 6 years. Using the selected instruments, various aspects of children's early literacy—their graphomotor skills, storytelling and metalinguistic awareness—were analysed twice within a three-month period and assessed by the preschool teachers. The obtained results showed that, between the first and second assessment, children from both preschool groups significantly progressed in all areas of early literacy. Factors related to family literacy were not significantly related to children's early literacy, nor was children's age at entry into preschool. However, the children of parents with a lower level of education, who attended preschool for a longer period of time, narrated developmentally more complex stories compared to children who entered preschool at a higher age, indicating the compensatory role of preschool.

**Keywords:** early literacy, preschool curriculum, scaffolding, family environment

UDC: 373.2

Scientific article

*Ljubica Marjanovič Umek, PhD, full professor, University of Ljubljana, Faculty of Arts, Department of psychology, Aškerčeva cesta 2, SI-1000 Ljubljana, Slovenia; e-mail: ljubica.marjanovic@ff.uni-lj.si*

*Kaja Hacin, teaching assistant, University of Ljubljana, Faculty of Arts, Department of psychology, Aškerčeva cesta 2, SI-1000 Ljubljana, Slovenia; e-mail: kaja.hacin@ff.uni-lj.si*

*Urška Fekonja, PhD, associate professor, University of Ljubljana, Faculty of Arts, Department of psychology, Aškerčeva cesta 2, SI-1000 Ljubljana, Slovenia; e-mail: urska.fekonja@ff.uni-lj.si*

## Introduction

### *Definition of children's early literacy*

In the 1980s, researchers in the fields of developmental psychology and psycholinguistics (e.g. Carrington & Luke 2003; Langford 2005) redefined the concept of early or emerging literacy and underlined the conceptual connection between early and academic literacy. Their work was based on socio-cultural theories emphasising the developmental continuum in toddlers' and children's cognitive and social development, the important relationship between language, culture and development and the role of environmental factors, particularly provision of a symbolically rich environment and encouragement of toddlers'/children's development and learning within the zone of proximal development (Gillen & Hall 2003).

Researchers (e.g. Clay 1996; Karmiloff & Karmiloff-Smith 2001; Marjanovič Umek 2013; Olson 1994) whose explanations of early literacy exceeded the biological or normative understanding of literacy as a product of individuals' maturity and chronological age, defined early literacy as behaviour, knowledge and skills that proceed reading and writing and support the development of academic literacy. For example, children develop the ability to use language in everyday situations, describe pictures, comprehend and tell a story, understand and use words, recognise sounds within words, link letters and sounds, draw and write symbols and understand press in early childhood, but they are important predictors of academic literacy in later life.

Within the developmental interpretation of literacy, toddlers'/children's language and language competence plays an important role at the stage of emerging literacy<sup>1</sup>. Toddlerhood is a crucial period for vocabulary development that, in terms of its growth as well as the variety of words, progresses very rapidly (e.g. Bates & Goodman 2001; Marjanovič Umek et al. 2017a). The findings of a Slovenian longitudinal study carried out on a sample of toddlers aged 16–30 months (who were assessed in three-month intervals) showed that, at the age of 30 months, toddlers used 600 words or more; within this age period, they acquired, on average, 30

---

<sup>1</sup> B. Cutting (1989) defined early literacy as 'whole language'.

words per month; and their first vocabularies included a larger proportion of open words (e.g. nouns, verbs, adjectives), with closed words (e.g. suggestions, pronouns) added later (Marjanovič Umek et al. 2016). According to Vigotski (1978, 2010), children use symbols and mental tools to structure their thoughts. Contemporary researchers (e.g. Hemphil & Snow 1996; Olson 1994) emphasised the relations between metalinguistic awareness, or the ability to think about language at the level of the symbolic system (i.e. understanding the concept of closed and open words, syllables and sounds) and at the level of meta-communicative abilities (i.e., the ability to talk about things that are not present here and now, relationships and mental states), and the development of early literacy. In the development of early literacy, children's ability to listen to the reading of texts is also important. A child who developed metalinguistic and other metacognitive abilities is able to understand and interpret mediated texts to a different extent than a child who does not yet possess metacognitive and metalinguistic abilities. He is able to understand the thoughts and perspectives of other people, cognitive and language transformations, the roles played by heroes and the sequences of events. Both vocabulary and metalinguistic ability also represent the basis for toddlers'/children's pragmatic language competence, namely, storytelling. The stories told by children aged four and five years typically involve interpretation of events, both real and imaginative, from the child's and other people's perspectives; descriptions of time and place; heroic characteristics; dialogue and a narrative arc that creates the structure of a story (Bruner 1986; Engel 2016; Pratt & Fiese 2004).

Graphomotor skills, which are children's ability to copy shapes and signs within a limited surface, track and draw lines of different shape, orientation and proportionality and draw, play a key role in the development of early literacy. Drawing is a symbolic presentation in which the child represents, for example, that the wheels, which are represented as circles, are the key elements of a car by drawing a car as a group of circles. At the level of early literacy, a child distinguishes between drawing and writing, drawing on a limited surface and writing by representing several signs (which are not necessarily recognised as letters) in a sequence from left to right direction while repeatedly raising the pen (Karmiloff & Karmiloff-Smith 2001; Kress 1996; Roskos & Christie 2007).

### *The role of adults in supporting children's early literacy*

Adults can support the development of children's early literacy in different ways and during various activities. Activities such as conversations, storytelling and shared reading, teaching songs and rhymes, visiting the library, teaching letters and numbers, reading and writing and encouraging symbolic play and drawing are key factors in the development of early literacy of toddlers and children in early childhood (e.g. McCoy & Cole 2011; Lonigan 2004; Marjanovič Umek et al. 2005).

Among the activities that are particularly important for supporting toddlers' and children's language and early literacy, several authors (e.g. Debaryshe 1993; Vander Woude & Barton 2003; Wasik & Bonn 2001) emphasise interactive shared reading of children's books and symbolic play. Researchers (e.g. Dixon-Krauss et

al. 2010; Wasik & Bond 2001) argue that, during high-quality shared reading, the adult constantly determines the child's understanding of the text, answers questions, encourages conversation about the text and encourages the child to continue the story, describe illustrations and interpret the hero's thoughts and emotions. Interactive shared reading of children's books provides a lot of opportunities for children to learn new words. Additionally, the language used by adults in conversations with their children during shared reading is more complex compared to other daily activities (Fletcher & Reese 2005). The age at which adults began to read to a child and the frequency of shared reading have a positive effect on child's vocabulary, language competence, reading comprehension and phonological awareness (Debaryshe 1993; Sénéchal et al. 1998). Similarly, symbolic play is a complex activity in which children's cognitive, language and metacognitive abilities are intertwined. Children's pretending in symbolic play (e.g. creation of symbolic cognitive and language presentations that take on different roles or create imaginary situations) is a reciprocal relationship, since language as a symbolic system supports the development of symbolic play at a higher level of development and vice versa (Pellegrini & Galda 1998; Smilansky & Shefatya 1990; Vigotski 1967). Encouragement of children's symbolic play by a more competent individual who supports the children within the zone of proximal development thus creates opportunities for development of language, metalinguistic awareness and, consequently, early literacy (e.g. Doyle 2010; Hakkarainen & Bredikyte 2008).

It is especially important for children enrolled in preschool to be included in different activities that promote early literacy within the preschool curriculum (Browne 1996; Harris 1993, NICHD 2000). The quality of preschool teachers' implementation of the preschool curriculum, that is, the implementation of planned activities as well as the hidden curriculum, largely depends on their understanding of the importance of different activities such as group discussion, storytelling, use of language to describe cognitive problems and social relations (Browne 1996). The findings of a Slovenian study show that additional planned preschool activities concerning shared reading had a positive effect on general language competence and the storytelling of children aged four to five years (Marjanovič Umek et al. 2003). In the Slovenian preschool curriculum (1999), early literacy is not stated as an area of activities, and the goals and examples of activities from this area are not specifically recognised.

Researchers (e.g. Dearing et al. 2009; Geoffroy et al., 2010; Marjanovič Umek & Fekonja 2006) argue that high-quality preschool is a protective factor affecting the development and learning of children, including the development of language and early literacy, especially for children from socially and culturally less supportive environments who are enrolled in preschool at an early age.

### *The importance of a symbolically rich environment for children's development of early literacy*

Social, economic and cultural factors related to the family environment significantly affect the language development of toddlers and children in early childhood

(e.g. Burgess et al. 2002, McKean et al. 2015). One of the most frequently studied family factors is parental education. Research (Marjanovič Umek et al. 2017a) shows that parental education has a significant effect on children's language ability, particularly children's storytelling. Children with highly educated parents typically tell stories with a greater number of words and a more complex structure compared to children whose parents have a lower level of education (e.g. Marjanovič Umek et al. 2012). The effect of parental education on children's language and early literacy is mediated by parents' knowledge of their children's development (Rowe et al. 2016). Moreover, parental education affects parents' implicit theories about their children's development and learning and, consequently, parental behaviour during symbolic play with a child (Marjanovič Umek & Fekonja Peklaj 2017).

In addition to parental education, several other family factors, especially a symbolically rich environment, play an important role in children's language and early literacy development. Research (e.g. Burgess et al. 2002; Manolitsis et al. 2011) shows that exposure to a number of books, especially children's books, has a significant effect on children's language. Furthermore, the number of children's books at home is an important predictor of children's language in early childhood (McKean et al. 2015) and is significantly related to children's emerging literacy (Manolitsis et al. 2011). In addition, the number of books, including children's books, at home and children's age at the onset of shared reading significantly affect the quality of shared reading between mothers and their children, which is, in turn, related to the coherence of children's stories (Marjanovič Umek et al. 2017b).

The main aim of our research was to examine the effect of additional activities carried out by preschool professionals in two preschool classes to achieve goals related to early literacy on children's achievements in several areas of emerging literacy. In this regard, we analysed children's achievements, particularly in relation to parental education, children's age at entry into preschool and factors related to the family's cultural capital.

## Method

We used a quasi-experimental method with quantitative data analysis.

### *Sample*

The sample included two preschool classes in which children were enrolled in the year before entering primary school. The first class included 24 children, and the second included 25 children. Parental consent was obtained for all the children, but the final sample only included children with normative development (we excluded three children who received additional professional help due to special needs). The final sample thus included 46 children (24 children from the first preschool class and 22 children from the second), 22 girls (47.8 %) and 24 boys (52.2 %), aged 5.1 to 6 years ( $M = 5.7$ ,  $SD = .3$ ).

Parents had various levels of formal education. In total, 11 parents (23.9 %) had completed secondary vocational education or less and 35 parents (76.1 %) had at least general secondary education.

Two pairs of preschool teachers and preschool teachers' assistants participated in the study. The preschool teachers finished a higher education preschool education programme, and the preschool teachers' assistants finished secondary school for preschool teachers. The preschool teachers had 20 and 24 years of professional work experience, while the preschool teacher's assistants had 3 and 11 years of experience.

### *Materials*

The following materials were used to assess different areas of children's early literacy.

Children's metalinguistic awareness was assessed with the *metalinguistic awareness scale* (MAS), one of the three scales included in the *Scales of General Language Development – LJ* (Marjanovič Umek et al. 2004). It consists of 35 tasks used, for example, to assess the ability to recognise the first and last sound in a word, correct grammatical errors and distinguish between long and short words in children aged five to six years. The highest possible score is 35. The Cronbach alpha reliability coefficient is .90, calculated with a sample of 78 children aged six years (ibid.).

The *Little Glove Storytelling Test* (LGST, Marjanovič Umek et al. 2012) was used to assess children's storytelling. The test is designed to measure the spontaneous storytelling of children aged three to six years, and it takes the form of a picture book without text. It includes 11 illustrations presenting a folk story about a lost glove. The final score is a sum of 11 partial scores on the following measures (converted to centile values): tokens (all words), types (different words), mean length of utterances, coordinate clauses, subordinate clauses, simple sentences, coordinating conjunctions, subordinating conjunctions, events, narrative perspective and characters' mental state. The Cronbach alpha reliability coefficient is .88, calculated with a sample of 64 children aged five years.

Children's graphomotor skills were assessed with the *Graphomotor Skills Test* (GST), which included four tasks, of which two are included in the *Test for First Grade Pupils* (Toličič & Skerget 1966) and the other two are included in the *School Readiness Test* (Toličič 1986). The tasks are used to assess children's ability to copy individual signs, a set of consequent signs and more complex patterns within a limited surface. The proportionality, shape and size of the copied signs, appropriateness of angles and visual-motor coordination are assessed. The maximum score is 26. The Cronbach alpha reliability coefficient is .75, calculated with a sample of the children included in this study.

Preschool teachers assessed children's early literacy using the *Early Literacy Scale for Preschool Teachers* (ELSPT, Marjanovič Umek et al. 2017c). The scale includes 15 items referring to various aspects of children's early literacy (for example, 'He/she is interested in reading and related activities', 'He/she remembers

the details from the stories', 'He/she draws on a limited surface using different pens'). The preschool teacher assesses how often an individual child expresses the described behaviour during various preschool activities using a scale from 1 (never) to 5 (very often/always). Each child is assessed separately, and children are not compared to each other. The highest possible score on the scale is 75. The Cronbach alpha reliability coefficient is .85, calculated with a sample of the children included in this study.

Through the *questionnaire for parents*, which included six questions, we obtained information about the children's family environment, namely parental education, the number of books (including children's books) at home, the age at which parents began to read to the child and the child's age at entry into preschool.

### *Procedure*

The study was designed longitudinally. Namely, we assessed children's early literacy twice: first during the month when additional professional education of professional workers took place and second three months later, after participants completed additional activities related to children's early literacy. Specially trained testers individually tested each child with the GST, MAS and LGST. In addition, each of the preschool teachers assessed the early literacy of children included in their classes using the ELSPT. At the time of the first assessment, parents filled in the questionnaire for parents and returned it to their child's preschool teacher in a sealed envelope.

At the time of the first assessment of children's early literacy, the professional workers (preschool teachers and their assistants) received additional professional education, which we designed for the purposes of the study. Within the professional education, which involved lectures and discussions over a period of one month, we provided professional workers with additional knowledge about the development of language and early literacy as well as possible ways to promote different areas of children's emerging literacy. The lectures covered topics such as interactive shared reading of preschool teachers and children, symbolic play and drawing, language and children's pre-reading and pre-writing skills. Particular emphasis was placed on the importance of supporting children within the zone of proximal development as well as the role of a more competent adult who, through their involvement in various activities, enables children to develop cognitive, memory and language strategies to achieve higher levels of development than they themselves could achieve. At the same time, various preschool curriculum activities (such as symbolic play, routines, drawing, shared reading) were emphasised as contexts for the development of children's early literacy. Examples of appropriate ways of involving adults in children's activities and scaffolding were illustrated. In addition, the preschool teachers and their assistants were provided with additional professional literature about these topics.

During the period of additional professional education and in the following three months, professional workers from both preschool classes carried out additional activities to support children's early literacy within the everyday implementation of

curriculum. The activities included those that were planned (for example, interactive shared reading, storytelling, riddle solving, drawing, supporting graphomotor skills) and routine (for example, clothing, having meals, resting). Above all, they aimed to follow the basic principles of encouraging children's development and learning, as interpreted by sociocultural theories.

Professional workers kept notes about the implemented activities and ways of providing children with support (for example, they described in detail the course of an activity or conversation during a specific activity or collected children's arts and photographs). In addition, the researchers recorded several examples of activities carried out in each of the preschool classes during two typical days in preschool (two examples of additional activities are described in the Annex).

**Results**

*Children's achievements at the first assessment*

First, we calculated the correlations between children's achievements on all tests used at the first assessment, differences between the achievements of girls and boys and the correlations between children's achievements and home environment factors. All children were assessed with all tests, except for the LGST, in which one girl did not participate.

|       | GST   | MAS   | LGST  | ELSPT |
|-------|-------|-------|-------|-------|
| GST   |       |       |       |       |
| MAS   | .293* |       |       |       |
| LGST  | -.052 | .141  |       |       |
| ELSPT | .143  | .571* | .348* |       |

Table 1. Correlations between children's achievements on all tests used at the first assessment.

Note: \* =  $p < .05$ ; GST = Graphomotor Skills Test; MAS = Metalinguistic Awareness Scale; LGST = Little Glove Storytelling Test; ELSPT = Early Literacy Scale for Preschool Teachers.

As can be seen in Table 1, there was a significant correlation between children's achievements on GST and MAS. Additionally, children's achievements on ELSPT were significantly correlated with their achievements on MAS and LGST.

The results of the questionnaire for parents showed that children entered preschool at an average age of 18 months ( $SD = 10.04$  months). The average age when parents started reading to their children (onset of shared reading) was 13.96 months ( $SD = 12.30$  months). According to parents' reports, they possessed, on average, 100–200 books and 40–60 children's books. We calculated the correlations between children's achievements on the used tests, home environment factors and age at entry into preschool.



| Home environment factor     | <i>GST</i> | <i>MAS</i> | <i>LGST</i> | <i>ELSPT</i> |
|-----------------------------|------------|------------|-------------|--------------|
| Number of books             | -.046      | .178       | .046        | -.043        |
| Number of children's books  | -.003      | .239       | .004        | .129         |
| Onset of shared reading     | .093       | .024       | -.118       | .156         |
| Age at entry into preschool | -.010      | -.159      | .132        | -.065        |

Table 2. Correlations between children's achievements on the tests used at the first assessment (home environment factors and child's age at entry into preschool).

As can be seen in Table 2, home environment factors and children's age at entry into preschool were not significantly correlated with their achievements on any of the tests. The highest correlations were found between children's achievements on *MAS* and the number of all books and number of children's books at home.

Next, we analysed the differences between girls' and boys' achievements using a t-test. We found that there were no significant gender differences in achievements on *GST* ( $t = .209, p = .836, d = .062$ ), *MAS* ( $t = -1.180, p = .244, d = .348$ ), *LGST* ( $t = .197, p = .844, d = .059$ ) or *ELSPT* ( $t = -1.204, p = .235, d = .358$ ).

Using one-way ANOVA for unreplicated measures, we calculated the effects of parents' education and age at entry into preschool on children's achievements. First, we divided children into two groups depending on their age at entry into preschool. The first group included children who entered preschool when they were less than two years old, while the second group included children who entered preschool when they were at least two years old. The obtained results show that differences in children's achievements on *GST* were not significant for children's age at entry into preschool ( $F(1, 42) = .044, p = .834, \eta_p^2 = .001$ ), parents' education ( $F(1, 42) = 1.785, p = .189, \eta_p^2 = .041$ ) or the interaction between the two variables ( $F(1, 42) = .002, p = .963, \eta_p^2 = .000$ ). Similarly, the differences in children's achievements on *MAS* were not significant for children's age at entry into preschool ( $F(1, 42) = .143, p = .707, \eta_p^2 = .003$ ), parental education ( $F(1, 42) = .152, p = .699, \eta_p^2 = .004$ ) or the interaction between them ( $F(1, 42) = 3.879, p = .056, \eta_p^2 = .085$ ). The differences between children's achievements on the *LGST* were not significant for children's age at entry into preschool ( $F(1, 41) = .137, p = .714, \eta_p^2 = .003$ ) or parents' education ( $F(1, 41) = .644, p = .427, \eta_p^2 = .015$ ), but the interaction between the two factors was significant ( $F(1, 41) = 6.416, p = .015, \eta_p^2 = .135$ ). The differences between children's achievements on *ELSPT* were not significant for parents' education ( $F(1,42) = .272, p = .605, \eta_p^2 = .006$ ), children's age at entry into preschool ( $F(1, 42) = .006, p = .938, \eta_p^2 = .000$ ) or the interaction between the two ( $F(1, 42) = 3.421; p = .071, \eta_p^2 = .075$ ). To summarise, the results showed that children's age at entry into preschool, parents' education and the interaction between these two factors did not have significant effects on children's achievements, except for the interaction between children's age at entry into preschool and parents' education identified for the *LGST*. The children of parents with lower levels of education achieved more if they attended preschool for a longer period of time compared to those who attended preschool for a shorter period. Contrarily, the

children of parents with higher levels of education scored higher if they attended preschool for a shorter period of time.

*Comparison of children's achievements between both rounds of assessment*

Next, we examined the effects of implementation of additional activities concerning early literacy on children's achievements. Using mixed-design ANOVA, we analysed the differences in children's achievements between the first and second assessment.

| Test  | Time of assessment | Preschool class | M     | SD   | ANOVA   |
|-------|--------------------|-----------------|-------|------|---|
| GST   | 1. assessment      | 1. class        | 5.71  | 4.93 |   |
|       |                    | 2. class        | 8.86  | 5.29 | $df_1 = 44; df_2 = 1; df_3 = 1; df_4 = 1$     |
|       |                    | all             | 6.84  | 5.34 | $F_1 = 28.524; p_1 = .000; \eta_p^2 = .393^*$ |
|       | 2. assessment      | 1. class        | 8.08  | 5.48 | $F_2 = 6.755; p_2 = .013; \eta_p^2 = .133^*$  |
|       |                    | 2. class        | 12.36 | 5.05 | $F_3 = 1.046; p_3 = .312; \eta_p^2 = .023$    |
|       |                    | all             | 9.55  | 5.94 |   |
| MAS   | 1. assessment      | 1. class        | 11.21 | 5.24 |   |
|       |                    | 2. class        | 10.57 | 3.79 | $df_1 = 44; df_2 = 1; df_3 = 1; df_4 = 1$     |
|       |                    | all             | 10.64 | 4.56 | $F_1 = 16.476; p_1 = .000; \eta_p^2 = .272^*$ |
|       | 2. assessment      | 1. class        | 14.23 | 5.36 | $F_2 = .940; p_2 = .337; \eta_p^2 = .021$     |
|       |                    | 2. class        | 12.57 | 3.21 | $F_3 = .681; p_3 = .414; \eta_p^2 = .015$     |
|       |                    | all             | 13.16 | 4.57 |   |
| LGST  | 1. assessment      | 1. class        | 5.08  | 1.38 |   |
|       |                    | 2. class        | 5.00  | 1.45 | $df_1 = 43; df_2 = 1; df_3 = 1; df_4 = 1$     |
|       |                    | all             | 5.02  | 1.42 | $F_1 = 11.145; p_1 = .007; \eta_p^2 = .156^*$ |
|       | 2. assessment      | 1. class        | 5.88  | 1.94 | $F_2 = .170; p_2 = .682; \eta_p^2 = .004$     |
|       |                    | 2. class        | 5.55  | 1.6  | $F_3 = .167; p_3 = .732; \eta_p^2 = .003$     |
|       |                    | all             | 5.71  | 1.73 |   |
| ELSPT | 1. assessment      | 1. class        | 66.75 | 5.19 |   |
|       |                    | 2. class        | 68.23 | 4.00 | $df_1 = 44; df_2 = 1; df_3 = 1; df_4 = 1$     |
|       |                    | all             | 67.02 | 5.18 | $F_1 = 59.333; p_1 = .000; \eta_p^2 = .574^*$ |
|       | 2. assessment      | 1. class        | 70.58 | 3.45 | $F_2 = .377; p_2 = .542; \eta_p^2 = .008$     |
|       |                    | 2. class        | 70.55 | 4.00 | $F_3 = 3.599; p_3 = .064; \eta_p^2 = .076$    |
|       |                    | all             | 70.14 | 4.16 |   |

Table 3. Differences in children's achievements between the first and second assessment.

Note: \* = significant effect at the level of .05;  $df_1$  = degrees of freedom – error;  $df_2$  = degrees of freedom – time of assessment;  $df_3$  = degrees of freedom – preschool class;  $df_4$  = degrees of freedom – interaction;  $F_1$  = test of differences between times of assessment;  $F_2$  = test of differences between both preschool classes;  $F_3$  = effect of interaction between time of assessment and preschool class.

As can be seen in Table 3, significant differences in children's achievements between the first and second assessment were measured on all used tests. More specifically, children's achievements were significantly higher at the second assessment. However, there were no significant differences between the two preschool classes. The only exception was GST, on which children from the second preschool class scored significantly higher than children from the first preschool class. The effect of the interaction between time of assessment and preschool class was not significant for any of the tests used in this study. The obtained results thus show that children from both preschool classes progressed similarly in all the assessed areas of early literacy. The effects of implementation of additional activities concerning early literacy on children's achievements between the first and the second assessment are shown in Figure 1.

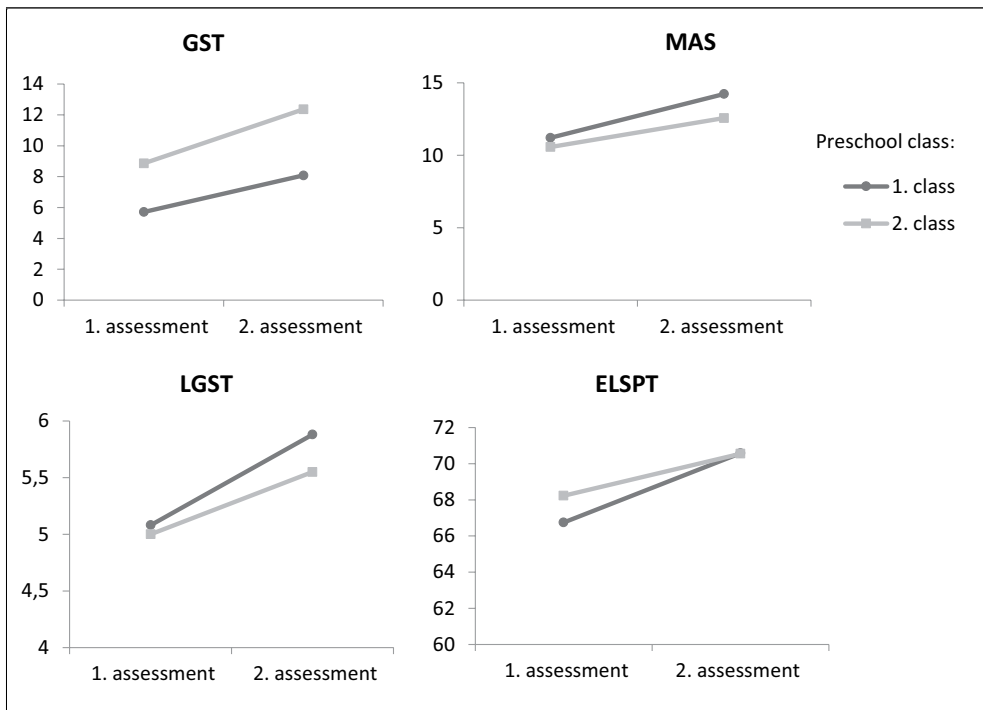


Figure 1. Effects of implementation of additional activities concerning early literacy on children's achievements on all tests for both preschool classes.

Furthermore, we were interested in the possible effect of implementation of additional activities with regard to parental education. Using mixed-design ANOVA, we estimated whether the children of parents with higher levels of education progressed similarly during the implementation of additional activities compared to the children of parents with lower levels of education. The differences in children's achievements on GST were not significant for parents' education ( $F(1, 44) = 1.326; p = .256; \eta_p^2 = .029$ ) or for the interaction between the time of

assessment and parents' education ( $F(1, 44) = .698, p = .408, \eta_p^2 = .016$ ). Similarly, parents' education did not have a significant effect on the differences in children's achievements on MAS ( $F(1, 44) = .614, p = .437, \eta_p^2 = .014$ ) or *LGST* ( $F(1, 43) = .836, p = .366, \eta_p^2 = .019$ ), and the effect of interaction between the time of assessment and parents' education was not significant for children's achievements on MAS ( $F(1, 44) = 1.010, p = .320, \eta_p^2 = .022$ ) or *LGST* ( $F(1, 43) = 1.497, p = .288, \eta_p^2 = .034$ ). Moreover, the differences in children's achievements on *ELSPST* were not significant for parents' education ( $F(1, 44) = .000, p = .992, \eta_p^2 = .000$ ) or the effect of interaction between the time of assessment and parents' education ( $F(1, 44) = .073, p = .788, \eta_p^2 = .002$ ). To sum up, we found that the children of parents with different levels of education progressed similarly during the implementation of additional activities between the first and the second assessment.

## Discussion

The main goal of our study was to establish the effect of additional activities implemented by preschool professionals in two preschool classes in order to encourage early literacy of children aged five to six years.

The obtained results showed that different areas of early literacy, which we assessed with standardised tests and preschool teachers' assessments, were related, thus indicating that the early literacy in early childhood is a holistic ability that includes various aspects of language competence, such as metalinguistic awareness and storytelling as well as graphomotor, pre-reading and pre-writing skills. According to several authors (e.g. Clay 1975; Karmiloff & Karmiloff-Smith 2001; Marjanović Umek 2013), early literacy is a comprehensive ability involving a variety of knowledge and skills, especially metalinguistic awareness (e.g. Olson 1994; Hemphil & Snow 1996).

Although the findings of several studies (e.g. Manolitsis et al., 2011, Marjanović Umek et al. 2015, Rowe et al. 2016) suggest that family factors have a significant effect on various aspects of early literacy, especially children's language ability, the obtained results do not confirm the relation between parental education, number of books and children's books at home, the age at which parents began to read to the child, and children's early literacy. One possible reason for the insignificant correlations between children's achievements and family environment factors is that a large proportion of children in our sample had highly educated parents and consequently a relatively supportive family environment. On average, parents stated that they owned 100–200 books and 40–60 children's books in their homes and that they began to read to their children when they were, on average, 13 months old. To obtain a more detailed assessment of family literacy factors, it would be necessary to gain information about the quality of encouragements provided by parents for their children, for example by observing language interactions between a parent and a child during shared reading or symbolic play.

Moreover, children's age at entry into preschool was not found to be related to any of the early literacy measures, indicating that children who entered preschool

at different ages (between 12 and 48 months of age, an average of 18 months), achieved comparable early literacy scores between the ages of five and six. The findings of several studies (e.g. Dearing et al. 2009; Geoffroy et al. 2010) suggest that a high-quality preschool is a supportive factor affecting children's language and early literacy development, but mainly for children from socially and culturally less supportive family environments. The findings of our study also showed that the age at which children entered preschool had a different effect on storytelling than parents' level of education. Namely, children whose parents had a lower level of education and were enrolled in preschool for a longer period of time told developmentally more complex stories compared to children who entered preschool at a later age. The findings suggest that preschool has a compensatory role in the language competence of children with less educated parents, in line with the results reported by several other authors (e.g. Marjanovič Umek & Fekonja 2006). Furthermore, we found that a longer period of enrolment in preschool did not have a positive effect on the storytelling of children with highly educated parents. In fact, children of highly educated parents who entered preschool at a later age told developmentally more complex stories compared to those who attended preschool for a longer period of time. Considering this, we could conclude that, within preschool activities, there are several opportunities to encourage the storytelling of children with highly supportive home environments, who typically express higher language competence compared to children of less educated parents (e.g. Burgess et al. 2002; Marjanovič Umek et al. 2017).

In the present study, we educated professional workers to implement additional activities that, within the framework of preschool curriculum, encourage the development of children's early literacy. The findings show that, during a three-month period of planned additional encouragement, children from both classes made significant progress in all the assessed aspects of early literacy: children told stories at higher developmental levels, expressed more developed graphomotor skills and achieved higher metalinguistic awareness, and their early literacy was graded higher by the preschool teachers. The two preschool classes did not differ in various aspects of early literacy, except graphomotor skills; however, the variability in graphomotor skills was also relatively high in the whole sample of children. Comparison between the first and second assessment showed that children from both preschool classes progressed similarly in all the assessed areas of early literacy. Based on the notes made by preschool teachers as well as records of preschool activities, the professional workers encouraged children's early literacy in different ways during planned activities (e.g. shared reading, symbolic play, visiting library, drawing) and routine activities (e.g. dressing, having meals, cleaning up, resting). Special attention was paid to adults' inclusion in the implemented activities in order to scaffold children's development and learning (examples of scaffolding are described in the Annex). Although early literacy develops rapidly in early childhood (e.g. Applebee 1978; Baldock 2006) and the differences in children's achievements between the first and second assessments may be partly attributed to developmental effects. We assume that the time period between the two assessments was rather short for identifying progress in children's achievements solely based on

developmental changes. In our opinion, the findings described above suggest that preschool workers can contribute to the development of early literacy in children aged five to six years through planned, appropriate encouragement based on knowledge about and approaches to support children's development. Similarly, Browne (1996) argues that the quality of preschool teachers' work largely depends on their understanding of the importance of individual activities for children's development and learning. Since early literacy is not currently defined as an independent area within Slovenian preschools and thus early literacy activities are not specifically defined, it seems that early literacy should be more precisely conceptualised and appropriate methods of implementation should be developed as it is an important predictor of later reading literacy and academic success (e.g. Olson 1994; Karmiloff & Karmiloff-Smith 2001; Marjanovič Umek 2013).

In our opinion, the research findings contribute to improvements in the quality of preschool education, especially regarding early literacy. In this respect, we emphasise the importance of professional workers' knowledge about preschool children's development and learning as well as ways of encouraging children within the zone of proximal development during different curriculum activities.

The study has certain limitations that must be taken into account when interpreting its findings. The first limitation is the relatively small sample of children and professional workers, which prevents the findings from being generalised. The small sample of children might have also affected the low and insignificant correlation between the investigated variables. The second limitation is the relatively high level of parental education; the study did not include children with extremely disadvantaged family environments, for whom preschool could have an even more important compensatory effect. The third limitation concerns the longitudinal monitoring of children's progress over a given period of time; it is difficult to distinguish between the effect of encouragement on children's achievements and the effect of developmental changes related to the age interval between the first and second assessments. However, we emphasise that developmental changes are also affected by environmental factors and appropriate encouragement.

## References

- Applebee, A. (1978). *The child's concept of story: Ages two to seventeen*. Chicago: University of Chicago Press.
- Baldock, P. (2006). *The place of narrative in the early years curriculum: How the tale unfolds*. London: Routledge.
- Bates, E. and Goodman, J. C. (2001). On the inseparability of grammar and the lexicon: Evidence from acquisition. In M. Tomasello in E. Bates (eds.). *Language development. The essential readings*. Oxford: Blackwell Publishers Ltd., pp. 134–162.
- Browne, A. (1996). *Developing language and literacy 3-8*. London: P. C. P.
- Bruner, J. (1986). *Actual minds, possible words*. Cambridge, MA: Harvard University Press.
- Burgess, S. R., Hecht, S. A. and Lonigan, C. J. (2002). Relations of the home literacy environment (HLE) to the development of reading-related abilities: A one-year longitudinal study. *Reading Research Quarterly*, 37, issue 4, pp. 408–426.

- Carrington, V. and Luke, A. (2003). Reading, homes and families: From postmodern to modern? In A. Van Kleeck, S. A. Stahl and E. B. Bauer (eds.). *On reading books to children: Parents and teachers*. Mahwah, NY: Erlbaum, pp. 231–252.
- Clay, M. (1996). Accommodating diversity in early literacy learning. In D. R. Olson and N. Torrance (eds.). *The handbook of education and human development*. Cambridge, MA: Blackwell Publisher Inc., pp. 202–224.
- Cutting, B. (1989). *Getting started in whole language*. Bothell, WA: The Wright Group.
- Dearing, E., McCartney, K. and Taylor, B. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? *Child Development*, 80, issue 5, pp. 1329–1349.
- Debaryshe, B. (1993). Joint picture-book reading correlates of early oral language skill. *Journal of Child Language*, 20, issue 2, pp. 455–461.
- Dixon-Krauss, L., Januszka, C. M. and Chae, C. H. (2010). Development of the Dialogic Reading Inventory of Parent-Child Book Reading. *Journal of Research in Childhood Education*, 24, issue 3, pp. 266–277.
- Doyle, G. (2010). *Vygotsky in action in the early years*. London: Routledge.
- Engel, S. (2016). Storytelling in the first three years. *Zero to three Journal*, 1, pp. 2–6.
- Fletcher, K. L. and Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review*, 25, pp. 64–103.
- Geoffroy, M.-C., Côte, S. M., Giguère, C.-É., Dionne, G., Zelazo, P. D., Tremblay, R. E., Boivin, M. and Séguin, J. R. (2010). Closing the gap in academic readiness and achievement: The role of early childcare. *Journal of Child Psychology and Psychiatry*, 51, issue 12, pp. 1359–1367.
- Gillen, J. and Hall, N. (2003). The emergence of early childhood literacy. In N. Hall, J. Larson and J. Marsh (eds.). *Handbook of early childhood literacy*. London, Thousand Oaks, New Delhi: Sage Publications, pp. 3–12.
- Hakkarainen, P. and Bredikyte, M. (2008). The zone of proximal development in play and learning. *Cultural-Historical Psychology*, 4, pp. 2–11.
- Harris, J. (1993). *Early language development*. London, New York: Routledge.
- Hemphill, L. and Snow, C. (1996). Language and literacy developmental: Discontinuities and differences. In D. R. Olson and N. Torrance (eds.). *The handbook of education and human development*. Cambridge, MA: Blackwell Publisher Inc, pp. 173–201.
- Karmiloff, K. and Karmiloff-Smith, A. (2001). *Pathways to language: From fetus to adolescent*. United States of America: President and Fellows of Harvard College.
- Kress, G. (1996). Writing and learning to write. In D. R. Olson in N. Torrance (eds.). *The handbook of education and human development*. Cambridge, MA: Blackwell Publisher Inc, pp. 225–257.
- Kurikulum za vrtce [Preschool Curriculum]*. (1999). Ljubljana: Zavod RS za šolstvo.
- Langford, P. E. (2005). *Vygotsky's developmental and educational psychology*. Hove, New York: Psychological Press.
- Lonigan, C. J. (2004). Emergent literacy skills and family literacy. In B. H. Wasik (eds.), *Handbook of family literacy*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 57–81.
- Manolitsis, G., Georgiou, G. K. and Parrila, R. (2011). Revisiting the home literacy model of reading development in an orthographically consistent language. *Learning and Instruction*, 21, pp. 496–505.

- Marjanovič Umek, L. (2013). Mišljenje in govor kot napovednika bralne pismenosti in znanja otrok: socialna in kulturna perspektiva [Thinking and language as predictors of children's literacy and knowledge: A social and cultural perspective]. In F. Noliml and T. Novaković (eds.), *Bralna pismenost v vrtcu in šoli. Teoretska izhodišča in empirične ugotovitve* [Literacy in preschool and school: Theoretical issue and empirical findings]. Ljubljana: Zavod RS za šolstvo, pp. 49–62.
- Marjanovič Umek, L., Božin, N., Čermak Hauko, N., Štiglic Hribernik, N., Bajc, S. and Fekonja Peklaj, U. (2016). Zgodnji govorni razvoj: Primerjava besednjaka slovenskih malčkov in malčic [Early language development: Vocabulary comparison of Slovenian boys and girls]. *Sodobna pedagogika*, 67, issue 1, pp. 12–37.
- Marjanovič Umek, L. and Fekonja, U. (2006). Učinek vrtca na otrokov govorni razvoj: slovenska vzdolžna študija [The effect of preschool on children's language development]. *Sodobna pedagogika*, 57, issue 5, pp. 44–64.
- Marjanovič Umek, L. and Fekonja Peklaj, U. (2017). The roles of child gender and parental knowledge of child development in parent child interactive play. *Sex Roles*, 77, issue 7–8, pp. 496–509.
- Marjanovič Umek, L., Fekonja, U., Kranjc, S. and Lešnik Musek, P. (2003). The impact of reading children's literature on language development in the preschool child. *European Early Childhood Education Research Journal*, 11, issue 1, pp. 125–135.
- Marjanovič Umek, L., Fekonja Peklaj, U. and Podlesek, A. (2012). Parental influence on the development of children's storytelling. *European Early Childhood Education Research Journal*, 20, issue 3, pp. 351–370.
- Marjanovič Umek, L., Fekonja, U., Podlesek, A., Kranjc, S. and Bajc, K. (2007). *Lestvice splošnega govornega razvoja – LJ (LSGR – LJ). Priročnik* [Scales of general language development – LJ. Manual]. Ljubljana: Center za psihodiagnostična sredstva.
- Marjanovič Umek, L., Fekonja Peklaj, U. and Sočan, G. (2017a). Early vocabulary, parental education, and the frequency of shared reading as predictors of toddler's vocabulary and grammar at age 2;7: A Slovenian longitudinal CDI study. *Journal of Child Language*, 44, issue 2, pp. 457–479.
- Marjanovič Umek, L., Fekonja Peklaj, U., Sočan, G. and Komidar, L. (2011). *Pripovedovanje zgodbe. Preizkus pripovedovanja zgodbe: Rokavička. Preizkus pripovedovanja zgodbe: Žabji kralj* [Storytelling. Storytelling test: The Little glove. Storytelling test: The Frog king]. Ljubljana: Center za psihodiagnostična sredstva.
- Marjanovič Umek, L., Hacin, K. and Fekonja, U. (2017b). The quality of mother–child shared reading: Its relations to child's storytelling and home literacy environment. *Early Child Development and Care*, DOI: 10.1080/03004430.2017.1369975.
- Marjanovič Umek, L., Hacin, K. and Fekonja, U. (2017c). *Lestvica za ocenjevanje zgodnje pismenosti otrok za strokovne delavce v vrtcu. Neobjavljeno gradivo* [Early Literacy Scale for Preschool Teachers. Unpublished material].
- Marjanovič Umek, L., Podlesek, A. and Fekonja, U. (2005). Assessing home literacy environment: Relations to the child's language comprehension and expression. *European Journal of Psychological Assessment*, 21, issue 4, pp. 271–281.
- McCoy, E. and Cole, J. (2011). *A snapshot of local support for literacy: 2010 survey*. London: National Literacy Trust.
- McKean, C., Mensah, F. K., Eadie, P., Bavin, E. L., Bretherton, L., Cini, E. and Reilly, S. (2015). Levers for Language Growth: Characteristics and Predictors of Language Trajectories between 4 and 7 Years. *PLoS ONE*, 10, issue 8, pp. 1–21.



- NICHD Early Child Care Research Network (2000). The relation of child care to cognitive and language development. *Child Development*, 71, pp. 960–980.
- Olson, D. (1994). *The world on paper*. New York: Cambridge University Press.
- Pellegrini, A. and Galda, L. (1998). *The development of school-based literacy. A social ecological perspective*. London: Routledge.
- Pratt, M. W. and Fiese, B. H. (2004). *Family stories and the life course*. Mahwah, New Jersey, London: Lawrence Erlbaum Associates, Publishers.
- Roskos, K. A. and Christie, J. E. (eds.). (2007). *Play and literacy in early childhood*. United States of America: Taylor and Francis Group, LLC.
- Rowe, M. L., Denmark, N., Jones Harden, B. and Stapleton, L. M. (2016). The role of parent education and parenting knowledge in children's language and literacy skills among white, black and Latino families. *Infant and Child development*, 25, pp. 198–220.
- 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, pp. 96–116.
- Smilansky, S. and Shefatya, L. (1990). *Facilitating play: A medium for promoting cognitive, socio-emotional and academic development in young children*. Gaithersburg: Psycho-social and Educational Publications.
- Toličič, I. (1986). *POŠ. Preizkus pripravljenosti otrok za šolo: Priročnik [POŠ. Test of Children's Readiness for School: Manual]*. Ljubljana: Zavod SR Slovenije za produktivnost dela, Center za psihodiagnostična sredstva.
- Toličič, I. and Skerget, M. (1966). *Ugotavljanje zrelosti otrok za vstop v šolo: Raziskava in poročilo [Determining Children's Maturity for School Entry: Research and Report]*. Ljubljana: Zavod SRS za zdravstveno varstvo v Ljubljani.
- Vander Woude, J. and Barton, E. (2003). Interactional sequences in shared book-reading between parents and children with histories of language delay. *Journal of Early Childhood Literacy*, 3, issue 3, pp. 223–247.
- Vygotski, L. S. (1978/2010). *Mišljenje in govor [Thought and Language]*. Ljubljana: Pedagoška fakulteta.
- Vygotsky, L. S. (1967). Play and its role in the mental development of the child. *Soviet Psychology*, 5, pp. 6–18.
- Wasik, B. A. and Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93, issue 2, pp. 243–250.

## Annex

### *Examples of promoting early literacy*

#### Interactive shared reading

The preschool teacher read a book by Svetlana Makarovič, Šuško *and the Forest Day*, to the children again. There were six children sitting in a circle around the table. The preschool teacher held the book in a way that enabled all the children to follow the text and illustrations. The teacher and two children had a conversation during the shared reading:

Preschool teacher (reading from the book): “Are you not Sapramiška? I remember you from a book and a puppet show – it is you, right?” said Šuško. “Of course I am,” Sapramiška shouted, “I suppose so. Stand up, you lazy, and come with me. I need help. Not only me, all the forest animals are in need.”

Preschool teacher: ‘What do you think happened to the forest animals that they are in need?’

Girl: ‘One dwarf did something’.

Boy: ‘Everyone was fighting’.

Girl: ‘Everyone was fighting because a dwarf did something’.

Preschool teacher: ‘What do you think he did?’

Girl: ‘I do not know. Maybe he has blown up something and they are fighting now’.

Preschool teacher: ‘Do you think that an argument happened? Well, let’s read on and we shall what has happened’.

Girl: ‘No, I remember now. Maybe her house burned down’.

Preschool teacher: ‘Maybe ... You remembered a mouse who survived the forest fire?’

Girl: ‘Yes!’

Preschool teacher: ‘But this mouse is a different one. Maybe they know each other. I will read on’.

#### Metalinguage

The children go for a walk in the forest and tell a song about the spring:

Preschool teacher: ‘Children, do you remember what the word “vesna” means?’

Children: ‘Yes, spring’.

Preschool teacher: ‘That’s right. “Vesna” means spring. Now, we already know two words for spring. I will tell you the third one: spring can also be called “vigred”. Which of the three words do you prefer?’

The children say which word they prefer.

Preschool teacher: ‘Well, one word can also be used as something else. We can use it as a name. Which one is it?’

Children: ‘Vesna’.

Preschool teacher: 'That is true. Is Vesna a name for girls or boys?'

Children: 'For girls'.

Preschool teacher: 'How do you know that?'

The children think.

Preschool teacher: 'Let's see what the names of girls in our group are'.

Children: 'Maša, Zala, Lea, Živa, Julija ...'

Preschool teacher: 'What do you hear in these names? What do they have in common?'

Boy: 'Letter A'.

Preschool teacher: 'Yes, you are right. Explain to others where the letter A is'.

Boy: 'The letter A is at the end of each name'.

Preschool teacher: 'Yes, children, listen again [she emphasises the letter A]: Maš-a, Lin-a, Julij-a, Vesn-a... Most women's names end with the letter a'.