Do Early Learning and Literacy Support at Home Predict Preschoolers’ Narrative Skills?

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Abstract
This study aimed to examine the psychometric properties of an instrument designed to measure parental practices to support young children’s learning and literacy at home (ELLS) and explore the predictive validity of the instrument by examining the associations between the ELLS subscales (basic concepts, phonological awareness, conceptual understanding) and children’s narrative skill scores. The sample included 315 parents of three to five years old preschool-aged children. The results of a confirmatory factor analysis demonstrated that a hypothesized three-factor model was a good fit to the sample data. All subscales had adequate internal consistency. The overall findings of the current study suggest that phonological awareness is the strongest predictors of children’s narrative skills. Parental activities that aim to promote children’s phonological awareness appear to make a greater contribution to the children’s narrative skills than the activities that enhance children’s knowledge of basic concepts and understanding of events and characters depicted in picture books.

Keywords
Home literacy practices • Narrative skills • Phonological awareness • Early literacy • Instrument development

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Parents’ literacy related practices and beliefs are important predictors of children’s early literacy skills. By providing developmentally appropriate literacy resources and activities and believing that their children are interested in and will be able to benefit from such activities parents play a vital role in supporting the development of early literacy skills at home (Curenton & Justice, 2008; DeJong & Leseman, 2001; Evans, Shaw, & Bell, 2000; Sénéchal & LeFevre, 2002; Roberts, Jurgens, & Burchinal, 2005; Saçkes, Işitan, Avci, & Justice, 2016). Studies have shown that exposure to literacy related parental practices at home contribute children’s knowledge of vocabulary, concepts, and written language, phonological sensitivity, and narrative skills (Foy & Mann, 2003; Lonigan, Dyer, & Anthony, 1996; Sénéchal, LeFevre, Thomas, & Daley, 1998). To date, a great number of studies that examine the association between parental practices and several indicators of early literacy components and the association between inside-out and outside-in components of early literacy have been generated (Reese, Sparks, & Leyva, 2010; Whitehurst & Lonigan, 1998). Yet, the link between the parental activities to support the acquisition of basic concepts, phonological awareness and conceptual understanding and children’s narrative skills has remained understudied.

Narrative skills is an important precursor of children’s reading performance (Griffin, Hemphill, Camp, & Wolf, 2004; Roth, Speece, Cooper, & Paz, 1996). Starting before their second birthday, children’s narrative skills go under a rapid development. While the children’s initial narratives consisted of unpleasant past events, they start producing Two-Event narratives around three and half, Leap-Frog narratives by four, End-at-High-Point narratives by five, and Classic narratives by six (McCabe & Rollins, 1994). Through parent-child conversations, shared-book readings, and other activities parents offer several opportunities for their youngsters to develop knowledge and skills required to produce competent narratives.

Studies have demonstrated that young children’s developing competencies in basic concepts, such as colors, shapes, and numbers, are linked to their subsequent performance in reading and comprehension skills (Boehm, 2000; Bracken & Panter, 2011; Uyanık-Balat, 2009). Comprehension of a narrative, among other factors, depends on children’s knowledge about various situations and facts (Graesser, Millis, & Zwaan, 1997). Parents initiated home activities that introduce basic concepts and build vocabulary help children acquire knowledge of situations and facts, which in turn, may support children’s narrative skills (Dickinson & Tabors, 1991).

Phonological awareness is a strong predictor of children’s literacy performance in early elementary grades even after controlling children’s age and oral language abilities (Burgess, 2002; Burgess & Lonigan, 1998; Naslund & Schneider, 1996). Phonological awareness skills appear to be particularly essential for word recognition and spelling,
and make an additional contribution to children’s reading and writing skills beyond their language skills (Bus & van IJzendoorn, 1999; Storch & Whitehurst, 2002). Children’s performances in phonological awareness associated with their narrative skills (Hipfner-Boucher et al., 2014). Rich home literacy environments support the development of young children’s phonological awareness (Burgess, 2002).

Early exposures to literacy activities promote children’s narrative skills. Such activities may facilitate children’s sensitivity to the structure of narratives, their ability to make inferences, and make conceptual connections among the parts of the narratives (Graesser et al., 1999). Developing conceptual understandings of events depicted in illustrations, temporal order in the events, actions and intentions of characters are essential for constructing narratives, and support children’s text comprehension and production (Schick & Melzi, 2010; Snow, 1991; Snow, Tabors, Nicholson, & Kurland, 1995). Parental practices, providing prompts to elicit details and explanations about events and characters, may influence the quantity and the quality of narratives their children produce (McCabe & Peterson, 1991; Peterson & McCabe, 1992).

Early home learning opportunities targeting the acquisition of basic concepts, phonological awareness, and conceptual understanding have potential to support children’s narrative skills. To date, a limited number of psychometrically sound instruments have been devised to measure the degree early learning and literacy support parents offer to young children at home and few studies have focused on the relationship between basic concepts, phonological awareness, conceptual understanding, and narrative skills. Therefore, the purpose of this study was twofold (1) to examine the psychometric properties of an instrument designed to measure parental practices to support young children’s learning and literacy at home and (2) explore the predictive validity of the instrument by examining the associations between the ELLS subscales (basic concepts, phonological awareness, conceptual understanding) and children’s narrative skill scores.

**Method**

**Participants**

The sample of the study included 315 parents of preschool-aged children located in a mid-size city in northwestern Turkey. The researchers recruited parents through meeting with parents in-person at publicly funded pre-kindergarten programs when parents were dropping off or picking up their children, word-of-mouth referrals, and sharing information with parents at public play yards within the vicinity of the pre-kindergarten institutions. The average age of the parents was 33 years ($SD = 5.5$; range 20-52 years). The sample was primarily low socioeconomic status based on household income and caregiver educational attainment. More than half of
the parents (61%) were low-income households and had either elementary (30%) or middle school (22%) as the highest level of attainment. Among all caregivers, 16% had higher education attainment (3% had an associate’s degree and 13% of the parents had a bachelor’s or a graduate level degree) and 32% had a high school diploma. For the children, the representation of gender was almost even in the sample (52% boys, 48% girls). The majority of the children (58%) were enrolled in preschool or kindergarten. The children’s age ranged from three to five years, with 18% three years, 34% four years, and 49% five years. All children were typically developing.

Design of the Early Learning and Literacy Support at Home Instrument

An initial draft of the Early Learning and Literacy Support at Home Instrument (ELLS) was constructed based on adaptation of items from available instruments and design of new items (Boudreau, 2005; Marvin & Mirenda, 1993; Nebrig, 2007; Sipe, 2002; Smith & Dixon, 1995; Sonnenschein & Munsterman, 2002; Weigel, Martin, & Bennett, 2006; Wu & Honig, 2010; Zhou & Salili, 2008). A total of 34 items was generated. A panel of experts with doctorates in relevant fields (including child development, early childhood education, and linguistics) examined the items in terms of clarity and content validity. Based on the experts’ suggestions, the wordings of several items were revised. None of the items were excluded from the initial draft of ELLS. The final draft of the instrument was piloted with eight parents to examine readability and understandability of the items. No further revisions were made on the items. The final draft of the ELLS consisted of three subscales and included a total of 34 items.

The first subscale, Support for Basic Concepts, included 8 items, the second subscale, Support for Phonological Awareness, included 16 items, and the third subscale, Support for Conceptual Understanding, included 10 items. The first subscale, Support for Basic Concepts, focused on activities and games parents used to support their children’s knowledge of basic concepts (e.g., colors, shapes, numbers, science and nature); an example item is “I play construction games with my child.” The second subscale, Support for Phonological Awareness, focused on activities parents used to support their children’s phonological awareness (e.g., sounds of letters, rhymes); an example item is “I teach sounds of some letters to my child.” The third subscale, Support for Conceptual Understanding, focused on activities parents used to support their children’s comprehension of the elements of the picture books (e.g., events depicted in illustrations, characters); an example item is “I ask questions about the illustrations of the picture books to my child.” Parents responded to each item using a five-point scale (1 = never, 5 = always). Participants’ consents were secured prior to data collection. Parents who agreed to participate into the study orally completed the ELLS in a 15-20 minute session during home visits or, in a few cases, in public settings.
Narrative Skills Assessment

A criterion-referenced procedure, where children were asked to tell a story based on the wordless picture book, was adopted to assess children’s narrative skills. Children’s narrative language samples were elicited using Mercer Mayer’s (1969) book “Frog, Where are You?” Using the procedure a total of 36 children’s narrative skills was assessed. Fourteen boys and 22 girls, with a mean age of 60 months, participated in the assessment. Parents’ and children’s consents were secured prior to assessment. All child assessments were conducted in a quiet room at the child’s home. Children’s utterances were audio-taped and then transcribed. Two coders with doctoral degrees in child development and early childhood education and expertise in early literacy and language development examined and independently coded the data using the procedure described in elsewhere (Justice et al. 2006; Petersen, Gillam and Gillam 2008). The percentage agreement between the coders was 92% indicating high intercoder reliability. The following narrative measures capturing different features of children’s narratives were calculated for each child: total number of communication units (C-units), a measure of overall productivity, number of different words (NDW), a measure of lexical diversity, and index of narrative complexity (INC), a measure of syntactic complexity.

Data Analysis

To assess the factorial structure of the instrument, confirmatory factor analysis was performed using LISREL version 8.80. Correlation matrices and estimation methods that are suitable for item-level analysis were employed. The reliability of observed ELLS scores was examined by calculating Cronbach’s alpha coefficients. To examine the predictive validity of the instrument the associations between the ELLS subscales and children’s narrative skill scores were calculated. Before the primary analyses, the data set was screened for missing observations. The percentage of missing data was less than 4% with no recognizable pattern. The Expectancy-Maximization algorithm was used to impute missing item level observations using PRELIS software version 2.80 (Jöreskog & Sörbom, 2006). The imputed data file was used in the subsequent confirmatory factor and correlation analyses.

Results

Factorial Validity of ELLS

The results of a confirmatory factor analysis demonstrated that a three-factor model was a good fit to the sample data ($\chi^2 = 2290.05$, df = 524, $p < 0.001$). Although the root mean square error of approximation (RMSEA) was larger than 0.06 (RMSEA = 0.10, %90 CI = 0.099-0.101), the other goodness of fit indices were above the recommended thresholds (The non-normed fit index [NNFI] = 0.96, the comparative fit index [CFI] =
0.96, the adjusted goodness of fit index [AGFI] = 0.97). Standardized factor loadings ranged from 0.68 to 0.87 for the Support for Basic Concepts sub-scale, 0.65 to 0.84 for the Support for Phonological Awareness sub-scale, and 0.73 to 0.89 for the Support for Conceptual Understanding sub-scale. There were high and statistically significant correlations between the subscales, ranging from 0.64 to 0.75. The alpha coefficients for the observed scores ranged from 0.89 to 0.95 (Support for Basic Concepts = 0.89, Support for Phonological Awareness = 0.95, and Support for Conceptual Understanding = 0.94) suggesting high internal consistency for the subscales.

We explored the relations between these three factors of the home literacy environment and key characteristics of our sample of children, particularly their gender and age group. Table 1 presents the data for the overall sample of children as a whole as well as subgroups based on gender (girls, boys) and age (3-, 4-, and 5-year-olds). The mean scores of Support for Basic Concepts, Support for Phonological Awareness, and Support for Conceptual Understanding were quite similar for boys and girls. The results of the independent samples t-test indicated no statistically significant differences between boys and girls (p > .05). However, there appears to be a linear trend in mean scores of Support for Basic Concepts, Support for Phonological Awareness, and Support for Conceptual Understanding favoring older children. Nevertheless, the results of the one-way ANOVA test indicated that this trend was not statistically significant (p > .05).

<table>
<thead>
<tr>
<th></th>
<th>Support for Basic Concepts</th>
<th>Support for Phonological Awareness</th>
<th>Support for Conceptual Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>All</td>
<td>29.64</td>
<td>6.47</td>
<td>39.17</td>
</tr>
<tr>
<td>Girls</td>
<td>29.47</td>
<td>6.47</td>
<td>39.95</td>
</tr>
<tr>
<td>Boys</td>
<td>29.79</td>
<td>6.49</td>
<td>39.37</td>
</tr>
<tr>
<td>3-year-old</td>
<td>28.80</td>
<td>6.13</td>
<td>36.09</td>
</tr>
<tr>
<td>4-year-old</td>
<td>28.95</td>
<td>6.75</td>
<td>39.10</td>
</tr>
<tr>
<td>5-year-old</td>
<td>30.41</td>
<td>6.34</td>
<td>40.35</td>
</tr>
</tbody>
</table>

Note. Support for Basic Concepts scores ranged from 8 to 40, Support for Phonological Awareness scores ranged from 16 to 80, and Support for Conceptual Understanding scores ranged from 10 to 50.

The Association between the Support for Basic Concepts, Support for Phonological Awareness, and Support for Conceptual Understanding and Narrative Skills

Table 2 provides bivariate correlation coefficients for three ELLS subscales as well as children’s narrative measures including Total Number of Communication Units, Number of Different Words, and Index of Narrative Complexity. The correlation coefficients were calculated using a bootstrap procedure where large number of random samples (n = 1000) with replacement were drawn from the actual data and coefficients were estimated for each sample. The bootstrapped correlation coefficients
for all three ELLS subscales were moderate to high and statistically significant. The relationship between Support for Basic Concepts and Index of Narrative Complexity was moderate and statistically significant. There were moderate and statistically significant relationships between Support for Phonological Awareness and two narrative measures, Number of Different Words and Index of Narrative Complexity. Surprisingly, none of the narrative measures was related to Support for Conceptual Understanding subscale. All three bootstrapped confidence intervals (95%) included zero. A series of bootstrapped simple regression analysis was performed to examine the Support for Basic Concepts and the Support for Phonological Awareness scores. The results indicated that the Support for Phonological Awareness scores explained about 17% variance in Number of Different Words (B = 0.47, \( p = .007 \), BCa 95% CI for \( B = 0.17-0.75 \)) and about 19% variance in Index of Narrative Complexity (B = 0.13, \( p = .002 \), BCa 95% CI = 0.05-0.19). Support for Basic Concepts, on the other hand, explained about 13% variance in Index of Narrative Complexity (B = 0.24, \( p = .026 \), BCa 95% CI = -0.04-0.40). Nonetheless, the confidence interval captured zero suggesting Support for Basic Concepts scores might not be a statistically significant predictor of Index of Narrative Complexity.

Table 2
Correlation Coefficients for the Study Variables

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support for Basic Concepts</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Support for Phonological Awareness</td>
<td>.73*</td>
<td>-.11-.55</td>
<td>.26</td>
<td>.41*</td>
<td>-.12-.40</td>
</tr>
<tr>
<td></td>
<td>(.55-.85)</td>
<td>(.13-.82)</td>
<td>(.40-.82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Support for Conceptual Understanding</td>
<td>.55*</td>
<td>.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(.13-.82)</td>
<td>(.17)</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4. Total number of communication units (C-Units)</td>
<td>.21</td>
<td>.26</td>
<td>.48*</td>
<td>.49*</td>
<td>.74*</td>
</tr>
<tr>
<td></td>
<td>(-.08-.46)</td>
<td>(-.11-.55)</td>
<td>(-.12-.40)</td>
<td>(-.19-.71)</td>
<td>(-1.56.56)</td>
</tr>
<tr>
<td>5. Number of different words (NDW)</td>
<td>.08-.65</td>
<td>.20</td>
<td>.49*</td>
<td>.49*</td>
<td>.74*</td>
</tr>
<tr>
<td></td>
<td>(.15-.65)</td>
<td>(.20)</td>
<td>(.23-.70)</td>
<td>(.23-.70)</td>
<td>(.54-.87)</td>
</tr>
</tbody>
</table>

Note. * significant at \( \alpha = 0.05 \), \( n = 36 \), Bootstrapped 95% CI is in parenthesis.

Discussion

The present study sought to investigate the psychometric properties of an instrument designed to measure parental practices to support young children’s learning and literacy at home and whether parental activities to support the acquisition of basic concepts, phonological awareness and conceptual understanding associated with children’s narrative skills. The results of a confirmatory factor analysis demonstrated that a hypothesized three-factor model was a good fit to the sample data. All subscales had adequate internal consistency. Based on the evidence provided in the current study, the ELLS appears to produce valid and reliable measures of early learning and literacy practices of parents of young children at home.
Bootstrapped bivariate correlation coefficients between three ELLS subscales, Support for Basic Concepts, Support for Phonological Awareness, and Support for Conceptual Understanding, and children’s narrative measures, including C-units, NDW, and INC, were calculated to answer the second research question. There was a moderate and statistically significant relationship between Support for Basic Concepts and Index of Narrative Complexity. This finding implies that parental activities to support the acquisition of knowledge about various situations and facts may support the complexity of narratives children produce. However, such activities appear to be not associated with the number of different words children uses in their narratives. This is an unexpected finding as this type of parental activities are supposed to expand the vocabulary of children. Moreover, the results of the bootstrapped simple regression analysis demonstrated that 95% confidence interval calculated for the Beta coefficient contains zero, suggesting Support for Basic Concepts scores might not be a statistically significant predictor of Index of Narrative Complexity at all. Although previous studies have provided evidence to support the hypothesized relationship between competencies in basic concepts and reading and comprehension skills (Boehm, 2000; Bracken & Panter, 2011; Graesser et al., 1997; Uyanık-Balat, 2009), the evidence obtained in the current study was weak. This finding possibly was due to small sample size, which restricted the power of the study. Likewise, none of the narrative measures was related to scores obtained from Support for Conceptual Understanding subscale. In other words, parental practices to provide prompts to elicit details and explanations about events and characters in picture books appear to not influence the quantity and the quality of narratives their children produce.

The relationships between Support for Phonological Awareness and two narrative measures, Number of Different Words and Index of Narrative Complexity were moderate and statistically significant. These findings suggest that parental activities that target children’s sensitivity to sounds of their first language may support the number of different words they use in their narratives and promote the complexity of narratives children produce. For both measures of narrative skills Support for Phonological Awareness scores explained close to one fifth of the variance. Overall, the findings of the current study suggest that phonological awareness is the strongest predictors of children’s narrative skills. Parental activities that aim to promote children’s phonological awareness appear to make a greater contribution to the children’s narrative skills than the activities that enhance children’s knowledge of basic concepts and understanding of events and characters depicted in picture books. These findings are congruent with previous studies where phonological awareness was identified as a strong predictor of children’s literacy performance in early elementary grades (Burges, 2002; Burgess & Lonigan, 1998; Graesser et al. 1997; Hipfner-Boucher et al., 2014; Naslund & Schneider, 1996). Nevertheless, the findings regarding the observed association between phonological awareness and children’s narrative skills in the current study
should be interpreted with caution. Due to small sample size factors, such as parents’ level of education and the developmental status of the children, that might influence children’s narrative skills were unable to be controlled. Further studies should control and examine the potential influences of these relevant factors.

The present study has several other limitations that can be addressed with further inquiries. The sample of this study was nonrandom and came from only a single study site with primarily low income families. Therefore, the psychometric properties of the ELLS should be examined with more diverse samples to provide additional evidence for the validity and reliability of observed scores of the ELLS. The present study provided evidence for the content and factorial validity of the ELLS scores. Additional inquiries should be conducted to provide evidence for the criterion validity of the ELLS scores by investigating the association with ELLS scores and scores from similar constructs, and children’s language and literacy performances in Pre-K and beyond. Moreover, the sample of children used to examine the association between the subscales of ELLS and children’s narrative skills was rather small, which prevents the examination of the contribution of relevant factors in the observed associations, limits the power of the study and increase the likelihood of committing a Type II error. Further studies should be conducted with larger sample sizes to obtain more stable estimates of the association between home literacy activities and children’s narrative skills.

References


