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Investigation of Parents' Early Literacy Beliefs in the Context of Turkey through the Parent Reading Belief Inventory (PRBI)

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Abstract: This paper aims to test the reliability and validity of the Turkish adaptation of DeBaryshe and Binder's Parent Reading Belief Inventory (PRBI) and to investigate parents' literacy beliefs. The primary focus of this paper is to explore parents' beliefs and practices and their relatedness on the emergent literacy of their children aged 3-7 (M=69.8 months; SD= 9.33 months). As data collection tools, we availed ourselves of the Parent Reading Belief Inventory, (PRBI), Home Literacy Inventory (HLI) and Child Literacy Behaviours (CLB). In addition, the Personal Information Form, prepared by the researchers, was utilized. Moreover, confirmatory factor analyses were performed on samples of parents from Adana, a city in southern Turkey (N= 952). The study showed that a seven-factor structure in the original form of the PRBI was validated, excluding items 8, 30 and 31. Consistent with the results of the confirmatory factor analysis and reliability analysis, it can be concluded that the PRBI is a valid and reliable tool to investigate the process of parents' literacy activities with their children in Turkey.

Keywords: *Child literacy behaviours, parents' literacy beliefs, parent reading belief inventory, maternal literacy practice, parent-child interaction.*

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Introduction

Early literacy at home provides children with opportunities to become acquainted with reading and writing, observe people's literacy-related activities, perceive book reading/analyzing as an independent behaviour and participate in literacy activities with family members (DeBaryshe, Binder & Buell, 2000). Related studies show that literacy-motivating home environments contribute to the development of children's reading and writing skills (Asici, 2005; Burgess, Hetcht & Lonigan, 2002; Yeo, Ong & Ng, 2014)

Books are one of the most efficient and accessible tools that parents can offer their children. Reading books affects the development of language and literacy skills, as has been repeatedly shown in the studies. According to research findings by Aram and Levin (2001); Senechal Lefevre, Hudson and Lawson, (1996) children's development related to language skills, such as reading, writing and speaking, is supported through book reading. It also helps children express themselves better and affects their understanding of reading and what is read.

Parents' literacy beliefs are crucially important in their home activities when they spend time with their children and when they organize literacy environments at home. As they increasingly support early-literacy development, literacy-related activities at home will rise accordingly in terms of frequency and quality (DeBaryshe, 1995). Research findings highlight the relationship between parents' literacy beliefs and home literacy environments (Burning, Schraw & Norby, 2014; Cottone, 2012; Dhima, 2015).

Research findings based on parents' beliefs in their child's literacy development, however, present interesting results. Some parents may be in favour of the idea that it is mainly their responsibility to actively take part in, and promote, their children's literacy development, while other parents disagree with them and they claim that this responsibility completely belongs to the teachers or other educational collaborators. Meanwhile, whilst parents may play a significant role in the development of their children's literacy, they can also regard it as an opportunity to strengthen links with their children by means of activities based on literacy (e.g. storybook reading). Various studies suggest that parents' literacy beliefs can substantially impact on their children's learning dimensions within the home context (Bringham,

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2007; Foy & Mann, 2003), and that variety in literacy beliefs of parents is implicitly related to what their children really acquire and perform in their immediate family environment (DeBaryshe, Binder, & Buell, 2000; Van Steensel, 2006).

According to the definitions in the related literature, a body of constructs related to structure and content of a person's perspective, underlying his/her behaviours are described as beliefs (Evans, Fox, Cremaso & McKinnon, 2004; Shermer, 2011). According to Shermer, (2011) it is a fact that everyone performs in line with their experience or fantasy. Also, they exhibit a strong emotional and evaluating part. Therefore beliefs carried by parents "are regarded [to be] causative factors and they affect the course of children's development" through child upbringing practices (Sigel & McGillicuddy-De Lisi, 2002, p. 486). Furthermore, the researchers add that parents intend to shape their parental beliefs about literacy during their emergence period. Their emergence derives from parents' background, culture-specific interactions, and parent-child relations, and is regarded as an act or action which is unique to that person. Dhima, (2014); Wu and Honig (2010) consider parents' beliefs as a main initiator for all involvement parents have with their children. The connections between beliefs and actions are reciprocal as they interact with each other. Teachers' beliefs, as a fundamental part of children's education process, have also been investigated (Hindman & Basik, 2008). The result from this study highlights the importance of the duration of their teaching experience in establishing their beliefs about children's early literacy development.

Parental-literacy beliefs are forged in the home environment, as that is the context where children come across language and literacy interactions initiated by adults for the first time (DeBaryshe, 1995; DeBaryshe & Binder, 1994; Donohue, 2008) In line with the broad idea that equipping children with environments supporting literacy enhances the child's literacy development (Cottone, 2012; Curenton & Justice, 2008), it is particularly important to explore parental literacy beliefs (Lynch, Anderson, Anderson and Shapiro, 2006). Unfortunately, there is a lack of reliable and valid tools to measure the home settings where literacy activities are provided and perspectives that parents hold.

In this part below, we aim to provide background about socio-cultural structure of families in Turkey and to introduce some of the main cultural values that may be related to beliefs and cognitions of Turkish parents. Turkey is at the crossroads of Europe and Asia. This geographical location between these two continents also affects the social and moral values of the society, resulting in a more heterogeneous community (Ataca, 2009). According to studies by Goregenli (1995, 1997), Turkish people give more importance on collectivistic values and cultural values such as hospitality and sharing are reinforced in family relations. Studies conducted with Turkish families point out that the traditional Turkish family fits into the Family Model of Emotional Interdependence valuing both emotional dependence and economic freedom. In this model, parents are authoritative but their authority mostly focuses on emotional dimension (Kagitcibasi, 2007; Sen et al. 2014). As the results from the studies mentioned above show in general, Turkish parents exhibit parenting behaviours, to some extent, reinforcing individualistic values but not ignoring closeness and relatedness values. This makes the context of Turkey more challenging arena to investigate further with specific reference to a particular topic, one of which is parents' literacy beliefs. In addition, Turkey is a developing country, investing on education so much in recent years. Much emphasis has been given on pre-school education and parents' involvement into the education process. Therefore, these observed changes and the culture-specific characteristics of Turkish people make investigating parents' early literacy beliefs a more challenging topic.

The Parental Reading Belief Inventory

The Parental Reading Belief Inventory (hereinafter the PRBI), first developed by DeBaryshe and Binder (DeBaryshe & Binder, 1994; DeBaryshe, 1995), explores parents' beliefs regarding their interactions in school-related skills with their children, positive affect related to reading, the importance parents give to their children's active participation to read-aloud activities verbally, the effect of giving straight reading instruction, whether knowledge is acquired from books by children, whether a lack of sources in the immediate surrounding may impede reading, and the adjustability of language development. DeBaryshe established a solid link between exact beliefs (e.g. parent literacy beliefs) and behaviours (e.g. reading socialization practices) in her previous research. More specifically, DeBaryshe (1995) asserted that through developmentally appropriate practice and emergent literacy, participatory parental beliefs were found to be predictive of the stage at which parents were involved in literacy activities with their children such as joint storybook reading, the quality of these reading sessions and children's general attitude in books.

In various studies, PRBI's total score was utilized to explore the relation between parents' beliefs and their children's literacy related outcomes. In a cluster analysis, Weigel, Martin and Bennett (2006a) identified two different groups made up of mainly Caucasian sample formed by middle-class mothers through the PRBI: facilitative mothers and conventional mothers. It was further found that mothers with a facilitative style provide their children more literacy-enriched environments. Consequently, print knowledge skills of this group of children were found to be at an advanced level and these children were enthusiastic in reading. Through the same data, Weigel, Martin and Bennett (2006b) also investigated that parents' routines in their literacy activities are consistent with parental beliefs, implying that beliefs that parents hold are consistently in line with facilitative parent-child activities, and that print knowledge and involvement in reading are positively linked to parent-child activities.. Accordingly, in a study Latino and African American families, Gonzalez, Rivera, Davis and Taylor (2010) investigated that more educated mothers presented environments rich in literacy related sources. As the home context was enriched, maternal facilitative reading beliefs have a beneficial effect on the PRBI.

The studies given above show that parents' beliefs about reading can help explain interactions between children's immediate literacy environment at home, activities done by parents and children's emergent literacy skills. There does, however, seem to be very little information to corroborate the DeBaryshe and Binder (1994) factor structure. Two studies that are – to our knowledge – available and have been published attempt to replicate the structure. One of them is a study by Gonzalez, Taylor, Davis and Kim (2013) with a local independent sample in south central Texas to investigate further the factor structure of the PRBI. The other study is by Wu & Honig (2010) involving Taiwanese mothers through the Mandarin version of the PRBI. The results based on Gonzalez et al. (2013) differed from those of Wu and Honig (2010) and DeBaryshe and Binder (1994). In their confirmatory factor analysis, Gonzalez et al. (2013) found a good fit for 2 dimensions of the PRBI out of 7 dimensions. Gonzalez et al. (2013) insisted on conducting more research with different populations through cross-cultural research. They added that since there are no other inventories to measure parental literacy beliefs, the PRBI should be tested and standardized with different and larger samples.

Parents' beliefs involve their opinions based on experiences that parents can provide their children and activities that parents can engage in with their children (Curenton & Justice, 2008). They consist of parents' points of views related to the development of reading skills and probable activities supporting these skills (DeBaryshe & Binder, 1994). Investigating parents' early literacy beliefs, particularly in pre-school, is important, because these beliefs are the main determinants when designing literacy-rich home environments and when helping in the development of literacy-related activities at home. In this study, we tested whether the Parent Reading Belief Inventory, developed by DeBaryshe and Binder (1994), was applicable in Turkey or not. The PRBI was tailored to different cultures and was found to be a valid tool. For example, it was adapted to Mexico-American by Rodríguez, Hammer and Lawrance (2009), to Taiwanese by Wu and Honig (2010), to Malaysian by Husain, Choo and Singh (2011), to Dutch by Boomstra, Dijk, Jorna and Geert (2013) and to the Serbian culture by Radisic and Seva (2013).

The aim of this study is to twofold: to investigate Turkish parents' early literacy beliefs through the PRBI and to test the validity and reliability of the Turkish PRBI. The PRBI was, in fact, adapted to Turkish by Turkay and Iflazoglu Saban (2011) and Simsek Cetin, Bay and Alisinanoglu (2014). In the adaptation study by Turkay and Iflazoglu Saban (2011), the exploratory and confirmatory factor analysis, as well as construct validity analysis, were conducted and the inventory was found to be a reliable tool. However, since the sample in the adaptation study was small ($n=374$) and as the number of items, 42 in the original form, was reduced to 27, a new study was needed. The size of the sample is an important variable in confirmatory factor analysis for representative results, but there is no agreement about the exact number of the samples (Waltz, Strickland & Lenz 2010). If the relationship coefficient is based on the small samples, there is every chance that it is less reliable. That is why it is crucial that the sample size is broad enough to make a reliable guess. Tabachnick and Fideli (2001) claim that the sample size should be at least five or ten times more than the variables observed. Similarly, Kline (1994) emphasizes the importance of working with extensive samples to come across reliable factors. Andrew, Pedersen and McEvoy (2011) mention that the sample should be 20 for each item but 10 will be satisfactory for each item.

Simsek Cetin et al. (2014) tested the validity of the Turkish adaptation of the PRBI on first-order confirmatory factor analysis with 420 mothers who had pre-school children in Ankara/Turkey (in the mid-Anatolian region). However, t -values of the two items in the teaching efficacy and reading dimensions were found to be low. After negotiating with experts, these items were excluded. No change was done in their factor structures. Following that, the statistical procedure was repeated. The confirmatory factor analysis was done with 40 items. Following this process, it was seen that all items were found to be meaningful in seven sub-scales.

As seen in the studies conducted in Turkey with different samples (Gundogan, 2018; Turkay & Iflazoglu Saban, 2011 and Simsek Cetin et al. 2014), the PRBI has taken place in the related literature in Turkey as well as international studies. As the adaptation studies of the PRBI into Turkish presented different results, in the present study, we focused on the structure of the Turkish adaptation of the PRBI with seven sub-scales with a larger sample through the first- and second-level confirmatory factor analysis models to overcome the weaknesses in the previous studies. Therefore, this study is expected to provide satisfactory results based on the Turkish adaptation of the PRBI for crosscultural comparisons in the future.

Therefore, in this study, in line with the original PRBI involving 42 items, confirmatory-factor analysis was computed to see whether the Turkish adaptation of the PRBI exhibited similar characteristics to the original PRBI (DeBaryshe & Binder, 1994; DeBaryshe, 1995) in terms of the seven subscales based on 42 items. In addition, construct and concurrent validity were analyzed by examining the relationship between scores on the PRBI, Home Literacy Inventory (HLI) and Child Literacy Behaviours (CLB). Furthermore, the levels of parents' literacy beliefs were identified. Finally, the distribution of the scores based on parents' home literacy activities and their observations of their children's reading activities was determined.

Methodology

This is a descriptive study in which parents' literacy beliefs were investigated in a sample in Turkey. The study mainly focused on the reliability and validity of the Inventory of Parent Reading Belief through a bigger sample. The sample of this research is based on 952 parents with children aged between 3-7 in the central districts of Adana (Seyhan, Yuregir, Saricam ve Cukurova). In this study, 759 (79.7%) of the respondents were mothers, 181 (19.0%) were fathers and 12 (1.3%) of them were from another category, namely, aunt, elder brother or sister. The education levels of the mothers participated in the study are as follows: primary/secondary school (8 years) n=209 (%27.5), high school (4 years) n=298 (%39.3), college (2 years) n=76 (%10.0), university (at least 4 years) n=152 (20.0), MS/PhD n=24 (%3.2). The average family income in most of the families in the study was below 3000 Turkish Lira (equivalent to 700-750 American dollars monthly) (n=722, 75.8%). Most of the families (n=914, 96.0%) had 1-3 children. The children who made up of the target group of this study were 501 girls (52.6%) and 451 boys (47.4%). The age groups of the children were as follows: 20 children aged 35-45 months (2.1%), 46 children aged 46-55 months (4.8%), 180 children aged 56-65 months (18.9%) and 706 children older than 66 months (74.2%). As for the birth sequence, most of the children were first- or second-borns (n=866, 91.0%) in their families.

Data Collection Tools

In this research, the data were collected using PRBI, the Home Literacy Inventory, the Child's Literacy Behaviours Observation Inventory and the Personal Information Form. Detailed information about the inventories used was provided below.

The Parental Reading Belief Inventory (PRBI)

The PRBI is comprised of 42 items and 7 subscales. This inventory was developed by DeBaryshe & Binder (1994) in order to determine parents' beliefs about their reading-aloud activities with their children. It has a rating scale based on 4-point-Likert type from "completely disagree" to "completely agree". The items numbered 2, 4, 8, 10, 14, 16, 18, 28, 29, 30, 37, 38, 39, 40, 41, and 42 were conversely scored. Despite its structure with seven subscales, it can also be used to form a single factor. The lowest score and the highest score to be received from the PRBI are 42 and 168, respectively. As the score received from the PRBI increases, so do the parental reading literacy beliefs. The subscales of the PRBI and examples are presented below in Table 1.

Table 1. PRBI subscales and examples

PRBI subscales	Examples
Efficacy of Teaching	When my child goes to school, his/her teacher will teach him/her whatever he/she needs to know, so I do not need to worry.
Positive Effect of Reading	I enjoy reading with my child.
Verbal Participation	My child knows most of the objects he/she sees in the books.
Teaching Reading	I read stories/books to my child so he/she learns how to read letters and simple words.
Reading as Knowledge Base	Stories/Books develop my child's imagination.
Resources	Despite my willingness, I feel so tired and busy that I cannot read stories/books to my child.
Environmental Variables	Some children are talkative and some are quiet by nature. Parents do not have that much influence.

The Home Literacy Inventory (HLI hereinafter) (Wu and Honig, 2010)

It aims to investigate how often parents are engaged in literacy activities at home. The subscales are (a) Library and bookstore visit (1., 2., 3. and 4. items. For example: "I take my child to the bookstore", "I buy books for myself"), (b) Model writing (5., 6., 7. and 8. items. For example: "I take notes about the activities to do when my child is with me", "I prepare a shopping list when my child is with me"), (c) Model reading (9. and 10. items. For example: "When my child is with me, I read a book, a magazine or a newspaper"), (d) Teach reading (11. and 12. items. For example: "I teach my child how he/she can write his/her own name and some other simple words such as mummy and daddy", "I teach my child how he/she can read words"), (e) Parent-child joint reading (13., 14., 15. and 16. items. For example: "I read a picture book to my child at bed-time", "I read my child picture books during the day"). The families were invited to mark the choice that matched their situation "1=Never", "2=1-2 a week", "3=3-4 times a week", "4=very often". In the adaptation study by Turkey, Iflazoglu and Saban (2011), the 5-dimension structure of the inventory was kept but the items 1., 4., 5., 8., 13. and 14. were excluded from the analysis as they yielded more than one factor. The solution of 10 items accumulated in five factors explained 78.49 % of the variance. The Cronbach Alpha values of five factors are *bookstore and library visits* (2. and 3. items) 0.67, *model writing* (6. and 7. items) 0.69, *model reading* (9. and 10. items) 0.76, *teaching reading* (11. and 12. items) 0.73 and *shared reading* (15. and 16. items) 0.70.

The Child's Literacy Behaviours Observation Inventory (CLB hereinafter)

It is an inventory developed by Wu and Honig (2010) and comprises seven items and two subscales. It aims to determine parents' points of views related to their children's reading demands. These scales are (a) Demand reading (reading interest) (1., 2., 3. and 4. items. For example: "My child asks me questions after being read a book", "My child wants to be read books") and (b) Emergent literacy behaviours (5., 6. and 7. items. For example: "My child pretend writes", "My child does pretends in his/her games as if he/she were reading a book on his/her own", "My child pretends in his/her games as if he/she were reading on her/his own"). The families were invited to mark the appropriate choice that matched their situation "1=never", "2=1-2 times a week", "3=3-4 times a week", 4=very often". In the adaptation study by XXXX (2011), the two-dimension structure was kept but 1. and 2. items were excluded from the analysis, as they yielded more than one factor. The 5-item solution which accumulated two factors explained 81.48 % of the variance. The Cronbach Alpha values of these two factors were the child's demand for reading (3. and 4. items) 0.82 and the child's literacy behaviour (5., 6. and 7. items) 0.86.

Personal Information Form

Family demographic characteristics, such as parents' age, education level, family income, child's gender, age, birth order and the number of children in the family primary language used at home and child's main caregiver, were obtained through the personal information developed by researchers.

Data Analysis

In line with the structure of the 4-point Likert scale, intervals were determined and interpreted as follows: the first interval 1.00-1.75 equalled "strongly disagree", the second interval 1.76-2.50 corresponded to "disagree", the third interval "2.51-3.25 related to "agree" and the fourth interval "3.26-4.00" tallied with "strongly agree". Factor analysis was conducted to test the structure of the PRBI regarding its 42 items and 7 subscales. The LISREL 8.70 programme was used for factor analysis. Also, the SPSS 17.0 programme was used for the data analysis. Cronbach alpha values were calculated for each inventory and subscales. In addition, the correlations between the total scores of component-factors were calculated. In line with the objectives of the study, standard deviations of parents' reading beliefs, t-test, one-way variance, Pearson correlation coefficient and regression analysis were computed. For the interpretation of the findings, .05 was regarded as a significant level.

Findings / Results

In this part of the article, the findings were presented in line with the objectives of the study. The Cronbach alpha reliability coefficient values of the PRBI in this study and previous studies were compared. Table 2 shows the Cronbach alpha reliability coefficients in these three studies. As seen in Table 2, the Cronbach Alpha reliability coefficient values change from 0.48 and 0.87 and are in line with other studies.

Table 2. Internal Consistency Estimates of the PRBI by Subscale

Subscales	α value DeBaryshe & Binder (1994)	α value Radisic & Seva (2013)	α value in this study
Efficacy of Teaching	.73	.58	.61
Positive Effect of Reading	.85	.77	.76
Verbal Participation	.83	.76	.83
Teaching Reading	.63	.65	.63
Reading as Knowledge Base	.82	.65	.78
Resources	.79	.59	.87
Environmental Variables	.50	.50	.48

Confirmatory factor analysis (CFA)

Confirmatory factor analysis was computed to test the validity of the PRBI with its 42 items and 7 subscales. Table 3 shows subscales and items used for the confirmatory factor analysis.

Table 3. PRBI by Subscale

PRBI subscales	n	Subscale Item
Efficacy of Teaching	9	1, 2*, 3, 4*, 5, 6*, 7, 8*, 9
Positive Effect of Reading	10**	10*, 11, 12, 13, 14*, 15, 16*, 17, 18*, 19
Verbal Participation	8	20, 21, 22, 23, 24, 25, 26, 27
Teaching Reading	4	28*, 29*, 30*, 31
Reading as Knowledge Base	5	32, 33, 34, 35, 36
Resources	4	37*, 38*, 39*, 40*
Environmental Variables	2	41*, 42*
Total	42	

*reversely-coded items

**Item 20 was both in the Positive Effect of Reading and the Verbal Participation dimensions. As a result of the analysis, it was decided to include item 20 in the subscale of Verbal Participation.

In the first confirmatory factor analysis, the items that did not have significant t-values were analyzed. Since item 8 in the efficacy of teaching dimension, item 30 in the reading as knowledge base dimension and item 31 did not yield significant t-values (-0.66, -3.01, -18.54), they were excluded from the inventory. Table 4 illustrates the results of fit indices based on first- and second-level models with seven factors, tested in the confirmatory factor analysis.

Table 4. Summary of Fit Indices from Confirmatory Factor Analysis

	X ²	df	χ ² /df	RMSEA	SRMR	GFI	CFI	IFI
Single factor	3844.22	797	4.823	0.082	0.070	.89	0.90	0.90
Second-order factor	2266.49	811	2.819	0.067	0.056	.91	0.93	0.93

Note: CFI= comparative fit index; IFI=incremental fit index; RMSEA=root mean squared error of approximation.
p< .05

The fit indices in Table 1 show that RMSEA, SRMR, GFI, IFI and CFI are indicators of good fit and the rate of X²/sd is at acceptable second-level fit (Kline, 2005; Hu & Bentler, 1999; Sumer, 2000; Cokluk, Sekercioglu & Buyukozturk, 2010). In line with the fit indices calculated, the adaptability of the seven-factor structure of the PRBI was tested and it was concluded that the seven-factor structure in the original form of the inventory was confirmed, excluding items 8, 30 and 31. Table 5 is based on the mean, standard deviations of the subscales of the PRBI and correlations among subscales and total scores.

Table 5. the PRBI Mean, Standard Deviations and Correlation Values

	M	SD	TE	PA	VP	RI	KB	R	EI
Efficacy of Teaching	3.13	.36	-	.53**	.46**	.06	.40**	.36**	.24**
Positive Effect of Reading	3.22	.40	-	.57**	.01	.42**	.47**	.17**	
Verbal Participation	3.34	.39	-		-.11**	.62**	.37**	.07*	
Teaching Reading	2.62	.62	-			-.08*	.14**	.13**	
Reading as Knowledge Base	3.23	.45	-				.27**	.07*	
Resources	3.28	.62	-					.30**	
Environmental Variables	2.64	.63	-						
Total PRBI score	3.17	.29	.74*	.83**	.78**	.36**	.66**	.73**	.55**

** p< 0.01

* p< 0.05

The correlations between the total scores of the inventory and factor scores ranged from 0.36 to 0.83 and the correlations among factor scores were between -0.08 and 0.62. The mean scores of the PRBI are 3.17 (SD=.29) in total, 3.13 (SD= .36) for efficacy of teaching, 3.22 (SD= .40) for positive affect of reading, 3.34 (SD= .39) for verbal participation, 2.62 (SD= .62) for teaching reading, 3.23 (SD= .45) for reading as knowledge base, 3.28 (SD= .62) for resources and 2.64 (SD= .63) for environmental variables.

Criterion-related validity

The correlation coefficients were calculated as a validity criterion for mothers' PRBI total scores (39 items), mothers' education level, family income, child's gender, child's age, HLI and CLB. The correlation analysis results showed that there is a significant relationship between Turkish mothers' PRBI scores, family income and mothers' education ($r = .26$ and $r = .36$, $p < .01$) respectively. No significant relationship was found between mothers' PRBI scores or child's age and gender ($p > .05$). However, a significant relationship was seen among mothers' PRBI scores, HLI and CLB $r = .46$ and $r = .37$, $p < .01$ respectively (see Table 6). Also, it was seen that the correlation for mothers' PRBI scores, HLI and CLB was retained when family income and mothers' education level were controlled ($r = .43$ and $r = .36$, $p < .01$) respectively. Thus, the family reading belief inventory is a robust measure.

Table 6. Bivariate and Partial Correlations between Turkish Reading Belief Inventory and Family Literacy-Related Practices (n = 759).

Variables	Bivariate		Partial ^a	
	r	p	r	p
Maternal literacy practice				
Library and bookstore visit	.45	001**	.36	001**
Model writing	.31	001**	.30	001**
Model reading	.39	001**	.34	001**
Teach reading	.28	001**	.23	001**
Parent-child joint reading	.44	001**	.40	001**
Total MLP score	.46	001**	.43	001**
Child Literacy behaviours				
Demand reading (reading interest)	.40	001**	.39	001**
Emergent literacy behaviours	.29	001**	.28	001**
Total CLB score	.37	001**	.36	001**

* $p < .01$.Note: ^aControlling for parent education and family income.

Role of maternal education

The mothers in the study (n=759) were categorized into two groups in line with their education levels. The first group included the mothers who had attended school for 12 years or less (i.e. high-school graduate or less than high-school education) and the second group included the mothers who had attended school for 13 years or more (i.e. college, university and graduate degrees). Accordingly, 507 (66.8%) of the mothers were in the low-education group, while 250 (33.2%) of the mothers were in the high-education group.

Reading-belief scores of mothers according to education level

A two way MANOVA was used to examine the interaction between maternal-education levels and child-age groups. Subject factors and family income, composite reading-belief scores and independent subscale scores are considered as dependent variables. The effect of maternal education was found to be significant as it can be seen in Table 7. There were no major effects of child age or maternal education and child age reading-belief scores at all or literacy practices scores. By the way, high-education mothers showed higher scores on the *efficacy of teaching*, *reading-instruction* subscale and higher on the *knowledge-base* subscale than low-education mothers.

Table 7. Comparison between Maternal Education (High and Low) and Reading Beliefs, Literacy Practices and Child-Literacy Behaviours

	Low (n=507)		High (n=252)		F (1, 756)	p
	M	SD	M	SD		
Parent reading belief inventory (PRBI)						
Efficacy of teaching	24.52	2.77	26.15	2.84	22.36	.0001**
Positive affect of reading	31.77	3.88	33.79	3.72	2.92	.088
Verbal participation	26.58	3.08	27.22	2.99	2.12	.145
Teaching Reading	5.07	1.147	5.62	1.28	8.28	.004*
Reading as Knowledge base	15.87	2.19	16.71	2.18	4.51	.034*
Resources	12.82	2.53	13.77	2.32	2.96	.086
Environment variables	5.07	1.26	5.58	1.18	2.24	.135
Total PRBI score	121.70	10.83	128.85	11.30	12.23	.0001**
Home Literacy Inventory (HLI)						
Library and bookstore visit	4.13	1.72	5.21	1.83	2.51	.113
Model writing	4.63	1.93	4.95	2.10	.20	.656
Model reading	5.28	1.93	6.17	1.87	4.48	.035*
Teach reading	4.94	2.15	4.29	2.10	12.10	.001*
Parent-child joint reading	4.94	1.88	5.68	1.80	9.05	.003*
Total MLP score	23.92	6.74	26.31	6.55	.38	.539
Child literacy behaviours (CLB)						
Demand reading (reading interest)	6.44	1.86	6.81	1.60	1.75	.186
Emergent literacy behaviours	9.59	2.80	9.99	2.70	.75	.388
Total CLB score	16.03	4.12	16.80	3.88	1.38	.241

* $p < .05$; ** $p < .01$.Note: ^aFamily income was controlled

Literacy practices of mothers according to education level

A two-way (2x3) MANOVA considering mother-education levels and child-age groups was conducted to examine main effects on parental literacy-related practices. According to MANOVA tests, the effect of maternal education on the composite *parental-literacy practices* score [$F(1, 756) = .38, p = .539$] was not significant. Maternal education has a major impact on the parental *modelling reading* subscale [$F(1, 756) = 4.48, p = .035$] and *parent-child joint reading* subscale [$F(1, 756) = 9.05, p = .003$], and *teaching reading* [$F(1, 756) = 12.10, p = .001$] (see Table 6). High-education mothers themselves read more than low-education mothers. Low-education mothers are reported to help their children learn to read marginally more than do high-education mothers ($p = .001$).

Taking into account the mothers' total scores, as well as mean and standard deviation scores from the inventory, the mothers were grouped into three education groups: low, mid and high. Then, Kruskal Wallis' test was conducted to see whether there were significant discrepancies among the subscales, home-literacy activities and children's literacy-activities observations in the mothers' three groups. The results are given in Table 8.

Table 8. Kruskal Wallis-Analysis Results Based on the Mothers' Literacy Beliefs Subscales, the Inventory of Maternal Literacy Practice and the Inventory of Child Literacy Behaviours (N=759, sd=2)

Variables	PRBI score	N	Mean Rank	X ²	p
Teaching efficacy	Low	99	155.35	235.471	.0001
	Medium	523	367.00		
	High	137	591.96		
Positive affect of reading	Low	99	152.77	248.370	.0001
	Medium	523	365.20		
	High	137	600.71		
Verbal participation	Low	99	195.30	195.040	.0001
	Medium	523	361.37		
	High	137	584.57		
Teaching reading	Low	99	253.30	79.219	.0001
	Medium	523	372.58		
	High	137	499.90		
Reading as Knowledge base	Low	99	240.67	182.690	.0001
	Medium	523	350.45		
	High	137	593.50		
Resources	Low	99	124.48	277.695	.0001
	Medium	523	371.90		
	High	137	595.55		
Environmental variables	Low	99	200.63	173.244	.0001
	Medium	523	365.89		
	High	137	563.49		
Total PRBI score	Low	99	50.00	503.868	.0001
	Medium	523	361.00		
	High	137	691.00		
Library and bookstore visit	Low	99	244.15	98.818	.0001
	Medium	523	369.04		
	High	137	520.02		
Model writing	Low	99	276.39	49.366	.0001
	Medium	523	374.77		
	High	137	474.82		
Model reading	Low	99	282.52	53.380	.0001
	Medium	523	371.36		
	High	137	483.42		
Teach reading	Low	99	386.82	6.292	.033
	Medium	523	389.69		
	High	137	338.07		
Parent-child joint reading	Low	99	235.64	89.272	.0001
	Medium	523	375.18		
	High	137	502.71		
Total HLI score	Low	99	246.22	79.633	.0001
	Medium	523	373.44		
	High	137	501.70		
Demand reading (reading interest)	Low	99	269.89	68.067	.0001
	Medium	523	372.68		
	High	137	487.50		
Emergent literacy behaviours	Low	99	285.15	38.306	.0001
	Medium	523	378.70		
	High	137	453.50		
Total CLB score	Low	99	260.89	63.772	.0001
	Medium	523	375.22		
	High	137	484.33		

Table 8 indicates a significant difference between the mothers' scores based on all the subscales of the PRBI, HLI and CLB scores in line with the mothers' literacy beliefs levels. In terms of subscales scores, a difference was observed in favour of the mothers in the low- and middle-literacy beliefs groups in the teaching reading subscale [$X^2(2) = 6.292, p = .033$]. In all other subscales, a difference was seen in favour of the mothers in the high-literacy beliefs. In short, it was seen that mothers with high-literacy beliefs develop more positive attitudes towards reading and they seem more willing to provide a literacy-enriching, psychological and tactile environment for their children.

Discussion

Our results in this study show that the alpha values representing the current total sample ranged from .48 to .87 and were not entirely compatible with the original values as stated by the authors of the PRBI DeBaryshe and Binder (1994) or the Radisic and Seva (2013) results, for that matter. Similar results were also found by Rodríguez, Hammer and Lawrance (2009), Wu and Honig (2010), Simsek Cetin et al. (2014). Parallel to the present study, internal consistency coefficients of teaching efficacy, reading instruction and environment input subscales were found to be lower than .70. The low reliability estimates for some components partly derive from the small number of items involved. Reliability as low as .49, however, may not be considered a problem when the items are broad enough to cover the content meaningfully (Schmitt, 1996).

The confirmatory factor analysis indicated a good fit at the second level model RMSEA = 0.067, SRMR = 0.056, GFI = .91, CFI = 0.93 and IFI = 0.93 and an acceptable fit at the rate of $X^2/sd = 2.819$. In this study, the adaptability of the seven subscales of PRBI to the Turkish culture was tested. Excluding items 8., 30., and 31. from the study, we confirmed 39 items in the 7 subscales. In analogy to this, Simsek Cetin et al. (2014) conducted an adaptation study, involving 420 mothers, based on the PRBI. In their study, items 8. and 30. items were extracted and item 31. was reported to present a converse relationship with total scores of the inventory. Therefore, it can be said that two studies conducted with different samples in Turkey present compatible results with each other.

In other adaptation studies of the PRBI in different cultures, it was seen that the original structure of the PRBI with 42 items was not kept. In their research involving 731 Taiwanese mothers with children aged between 3 and 5, Wu and Honig (2010) conducted a principal-components factor analysis, producing an inventory structure with 8 factors and 32 items. As a result of re-analysis, 24 items in five subscales were found to be valid. In another study, Boomstra et al. (2013) tailored the PRBI to the Dutch culture. They deleted 4 items (6, 8, 17 and 41) from the Dutch version and produced an inventory with 38 items in seven subscales. Involving 227 Serbian parents, Radisic and Seva computed the confirmatory-factor analysis, using three models on the factor structure of the inventory. In their study, they found a better fit for the overall models for the entire PRBI scale. Among them, the correlated factors model exhibited the best fit indices. The lowest standardized regression values were obtained for the items 1., 3. and 5.

There was significant correlation between higher PRBI scores and mother education in this study sample. Therefore, we could conclude that maternal education play an important role and is influential on both maternal-reading beliefs and home-literacy practices. But the PRBI scores are not affected by child age and gender. This finding is in line with previous study (DeBaryshe & Binder, 1994; Wu & Honig, 2010). This may be interpreted as a positive sign that parental beliefs are effective in supporting early literacy in both boys and girls.

Though no direct correlation between age, gender and maternal education is observed with regard to all the subscales of the PRBI, HLI and CLB scores, it is important to highlight that the educational level of the mothers has a considerable impact on the children's tendency for reading in terms of both qualitative and quantitative aspects. It has been observed that the mothers with high literacy level are more conscious of their actions when they arrange their children's reading environment in contrast with the mothers with the low or middle literacy beliefs. Their willingness to create highly rich and fruitful reading setting for their children instills in their children the love of reading. This in turn contributes to the children's reading profiles in time. The present study establishes the groundwork for focusing on parents' beliefs through the Turkish adaptation of a well-known instrument, the PRBI for comparative and cross-cultural research.

In general, also of value in this study is the consistent findings with related research (Bingham, 2007; Weigel et al. 2006; Chiu, 2015) in emphasizing the significant role of home literacy environments, mothers' education level and indirectly parenting styles. Before school environment, children's early literacy skills start at home context through families' upbringing style. This upbringing style is affected by parents' beliefs related to literacy and family SES factors (Bourdieu, 1984).

Conclusion

In conclusion, considering the values from both confirmatory-factor analysis and reliability analysis, it can be said that the PRBI is a valid and reliable tool to investigate the process of parental reading interactions and to measure parents' literacy in Turkey. It is hoped that this current study will pioneer international comparisons in relation to literacy beliefs. Further research should focus on different samples to reveal reliability and validity of the inventory and to standardize the Turkish version of the PRBI. Also, the relationship between parents' literacy beliefs, the home literacy

environment and the level of parents' literacy beliefs should be further investigated. Lastly, the connection between children's early literacy development and parents' literacy beliefs deserves further consideration.

Future directions

It is hoped that this current study will pioneer international comparisons in relation to literacy beliefs. Further research should focus on different samples to reveal reliability and validity of the inventory and to standardize the Turkish version of the PRBI. Also, the relationship between parents' literacy beliefs, the home literacy environment and the level of parents' literacy beliefs should be further investigated. Lastly, the connection between children's early literacy development and parents' literacy beliefs deserves further consideration.

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Appendix

This table shows the authors' suggestions to be used in the related field in the following studies.

Type of the Inventory	Developers	English Abbreviation	Turkish Adaptation	Turkish Abbreviation
The Home Literacy Inventory	Wu and Honig (2010)	HLI	Ev Ortamında Okuma Faaliyetleri Ölçeği	EOF
Child's Literacy Behaviours Observation Inventory	Wu and Honig (2010)	CLB	Cocugun Okuma Faaliyetlerini Gözlem Ölçeği	COF
Parent Reading Belief Inventory	DeBaryshe & Binder (1994)	PRBI	Aile Okuma İnancı Ölçeği	AOI