

SOCIETY, FAMILY AND LEARNING. THE ROLE OF HOME LITERACY ENVIRONMENTS.

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Abstract

This paper explores the relation between society, family, and learning. In particular, it addresses the features of home literacy environments in low income families and their impact on children's pre-literacy skills and knowledge.

Sixty-two four/five-year-old children and their mothers were randomly selected for this study. The mothers were interviewed using an adaptation of a family literacy environment survey (Whitehurst, 1992). The children were assessed with specific tests to examine the scope of their 'early literacy'. The results revealed significant variability in the features and practices of home literacy environments as well as in the children's emerging pre-literacy skills and knowledge. The correlation between the two variables shows low to moderate statistical significance. The implications of such findings are discussed. Additionally, the purpose of isolating relevant features of the children and their home environments is to identify specific indicators related to the literacy fostering process. Ultimately, the goal is to design adequate, timely, and systematic intervention strategies aimed at preventing difficulties related to written language learning in children that could be considered at risk.

Key words: home literacy - early literacy - poverty

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INTRODUCTION

This paper presents the findings of a research project aimed at examining the relationships that exist between society, family and learning, especially the characteristics of the literacy home environment of disadvantaged populations and their impact on their children's pre-reading knowledge and skills. Research on the effect that the environment has on children's spoken language development and written language learning has traditionally taken into account global measurements connected with parents' socio-economic or educational levels (Ninio, 1980; Hoff-Ginsberg, 1991). Interest has progressively focused on the identification of those factors which are specifically linked with parents' socioeconomic and educational levels that could have some impact on their children's performance, particularly where school learning is concerned (Piacente, Marder, Resches, & Ledesma, 2006, Rodríguez-Brown, 2011). Thus, the implications of context variability, in connection with home resources and early interactions, on later literacy of children from different background have been considered.

This study focuses specially on the differences that can be found within poor homes. Its elucidation involves not only having later literacy forecasting indicators, but also prevention models to adopt (Payne, Whitehurst, & Angell, 1994).

The *home literacy environment* may be characterized by the variety of resources and opportunities related to the availability of written material and the specific interactions with such material that care-givers provide children with before formal schooling. Parents' skills, capacities and dispositions which determine the provision of these resources and opportunities have also been included in this dimension.

The literacy context variables that are usually analyzed normally relate to the *availability and use of printed material* at home (Feitelson, & Goldstein, 1986; McCormick, & Mason, 1986, Raz, & Bryant, 1990), *adult care-givers' characteristics and habits* with respect to concrete reading and writing motivation and practices, and *early reading practices or activities with children* (Snow, 1983; Hoff-Ginsberg, 1991; Whiterhurst, & Lonigan, 2001). In terms of this last dimension, Baker, Fernández-Fein, Scher and Williams (1998) have pointed out that, in reading activities for children, the act of reading as well as the conversations between readers and children during the reading session, the emotional quality of these interactions and the exchanges arising from what has been read are all important (DeBruin-Parecki, 2003).

Research has found relevant differences in children's home experiences as regards their social backgrounds (Raz, & Bryant, 1990; Chaney, 1994; Marvin, & Miranda, 1993; Elliot, & Hewison, 1994, Pucell-Gates, 2000). The results from these studies agree that pre-school children tend to have literacy experiences at home, but when it comes to middle-income families those experiences tend to be more numerous and varied.

In the *Early Childhood Project* directed by Baker, Sonnenschein and Serpell (Whitehurst & Lonigan, 2001), the authors identified different conceptions of literacy from the analysis of the activities reported by the parents. In parents' daily records, literacy is considered as a source of entertainment (for instance, shared reading, independent reading, writing-related games, casual exhibition of writings and visits to bookstores); as a group of skills which can be deliberately trained (work and practice at home); and as an intrinsic aspect of everyday life. From the findings, they concluded that middle-income families tend to display greater approval of literacy as a source of entertainment than lower-income families do, while these paid greater attention to literacy as a systematically trained skill.

All the research on this topic highlights the effects that context quality has on children's skills and knowledge, formalized in many papers as "emergent literacy" and later on as "early literacy" (Whitehurst & Lonigan, 2001, Yarden, Rowe, & MacGillivray, 2011).

Emergent literacy thus consists in skills, knowledge and attitudes which are, presumably, the forerunners of the development of traditional forms of reading and writing (Teale, & Sulzby, 1986; Neuman, & Dickinson, 2002). This notion denotes the idea that literacy acquisition is continuous development originated early in the child's life, before the beginning of formal education. Today "early literacy" is used more frequently to focus on the importance of specific interactions with children, whose knowledge and skills never emerge spontaneously but rather from relevant experiences with written language.

Whitehurst and Lonigan (2001) suggest the following components for *emergent literacy*: language flow or width, knowledge of written material conventions, knowledge of letters, phonological awareness, knowledge of grapheme-phoneme correspondence, emergent reading and writing, and interest in written material.

The studies on this subject that have been reviewed provide empirical evidence of the importance of literacy experiences at home as preparatory for formal learning, once school has begun. Therefore, for instance, being exposed to rhyme books and saying poems, rhymed verses and plays-on-words help develop children's *phonological sensitivity* (Baker, Fernández-Fein, Scher, & Williams, 1998; Marvin, & Mirenda, 1993). Conversely, knowing the names of the letters, most of the time explicitly taught by parents, as well as the various aspects related to printed material, acquired through contact and interactions with story books during shared readings (DeBruin-Parecki,

2003), are strongly related to future *word identification*. Moreover, the existence of sufficient resources at home enables children to have greater opportunities to learn about written material: identifying letters on labels, writing letters, identifying words beginning with..., asking “what does it say...?” on an advertising, etc. (Ferreiro, & Teberosky, 1979).

Plenty of research has examined the associations between literacy context and early literacy. However, only some has focused on the relations between different aspects of such context and the various components of early literacy. One of the studies carried out by Payne, Whitehurst and Angel (1994) provided evidence for the differences in literacy environment quality within lower income family groups.

The main interest of this work lies on the study of the relations between the characteristics of the homes and of the children from poor families in our region. In this respect, the following questions have been formulated and have directed the implementation of the study carried out: How can the various aspects of the literacy context and early literacy be operationalized? Are there differences within the same social group? Do global associations come up in the indicators of both variables or rather among any of the indicators? In this last case, among which?

METHODOLOGY

Participants. Sixty-two children and their mothers were randomly selected for this study. The children (mean age = 4.6 years) attended Pre-school in public institutions of La Plata, province of Buenos Aires (Argentina). In all cases, the schools receive urban low-income populations and were selected due to their location (peripheral) and area of influence. The parents’ educational-occupational level was taken as socio-demographic indicator.

Instruments. In order to assess the literacy environment, a Spanish translation and adaptation (Piacente, Marder, Resches, & Ledesma, 2006) of the *Stony Brook Family Reading Survey* (Whitehurst, 1992) was used. This instrument includes 38 multiple-choice questions examining different home environment aspects: a) home literacy context practices and characteristics (how often children are read to, how long children are read to, number of books at home, frequency of visits to bookshops); b) reading-related children's characteristics (how often children ask to be read to, how much children enjoy reading, how often children look at books); c) parents-related characteristics (reading time, reading enjoyment, schooling enjoyment).

The following tests were used to assess "early literacy" (Piacente, Signorini, Marder, & Resches, 2003): a) *Phonological awareness* (syllable and phoneme segmentation; rhyme identification; initial phoneme identification; initial and final syllable identification; word, syllable and phoneme synthesis and elision); b) *Written language knowledge* (differences between picture and writing, letter and number; knowledge of the sound and name of letters; sound-letter correspondence) and c) *Early reading and writing* (reading of pseudo-words; reading and writing of familiar words).

Procedures. Mothers' interviews were carried out collectively, clarifying - in all cases - the doubts that might arise. Children were assessed individually and at school, with the tests selected. Parents' informed consent was requested for this evaluation and information confidentiality was guaranteed. The tests were administered by specially trained evaluators during 60-minute sessions, and the results obtained were included in a data base by means of SPSS statistical analysis software.

The literacy context aspects were categorized individually in terms of adequacy, frequency and/or quality, with a 1 to 3 point value (Chart 1).

(INSERT Chart 1)

The tasks included in the “early literacy” dimension were assessed in terms of the number of correct choices, giving one point to each correct answer.

The variables included were analyzed individually with descriptive statistical measurements (frequencies, average scorings, standard deviations and percentage of correct answers). To estimate correlations, literacy context compound variables (“literacy practices and characteristics”, “reading related children’s characteristics” and “parents’ characteristics”) were obtained by adding the gross scores from the individual variables. As regards early literacy, individual variables and the “phonological awareness” compound variable obtained by adding the scores from the different tests assessing that ability were used (see Instruments).

RESULTS

1. Literacy context

a) *Practices and characteristics of the literacy home environment.* The percentages of each of the simple variables included were divided into the three established categories, showing the heterogeneity and variability of the literacy characteristics and practices at home. Within “frequency of reading to children” a percentage of roughly half of the cases were classified in the “adequate practices” category, while only one third of the cases showed up in the same category as regards the number of books available at home. Visits to bookshops were mostly non-existent (Table 1).

(INSERT TABLE 1)

b) *Reading-related children’s characteristics.* From the information provided by parents or care-givers derived that most of the children appeared within the category considered adequate, the other two categories being considerably less crowded (Table 2).

(INSERT TABLE 2)

c) *Parents' characteristics.* Within the “reading enjoyment” and “schooling enjoyment” categories, most of the answers were located in the category considered “adequate”. However, when the percentage related to how much time parents devoted to reading was analyzed, they reported that they either do not read at all or they spend less than 15 minutes a day at it (Table 3).

(INSERT TABLE 3)

A further analysis of parents' characteristics makes reference to schooling and occupation. As regards their level of education, 63.5% of fathers and 42.9% of mothers have completed primary school. Over half of the mothers (55.5%) and about a third of the fathers have completed more than 8 school years. Within such percentage a minimal number of parents reached higher education (3.2% for fathers and 9.5% for mothers).

As regards the occupational category and occupation, most mothers were housewives (77.8%); only 17.5% worked and 3.2% were unemployed. When it comes to fathers, the highest percentage was the employee-worker category (42.9%), with a low percentage of technicians (4.8%) and about one third of non-qualified workers (28.6%). A larger percentage of unemployed fathers was recorded as well (14.3%), in comparison with mothers.

2. Early literacy

a) *Phonological awareness.* The sample groups registered the highest performance in phonological awareness abilities on the syllable segmentation test. Their performance in initial syllable identification, syllable synthesis, final syllable identification and rhyme identification was low and in the rest of the tests related to phonemic and lexical manipulation, the percentage of correct answers were even lower. The analysis of

average scores and deviations provided evidence of greater homogeneity in syllable segmentation performance, while in the rest of the variables it was extremely heterogeneous (Table 4).

(INSERT TABLE 4)

Children found tests involving any kind of treatment on the phonemic level (segmentation, synthesis and elision) difficult to work out. Ninety-two per cent failed to solve some item of the phonemic segmentation test.

When it came to elision or joining of words, items including familiar words were easier, which shows how important the role of the lexical flow is.

b) Knowledge of the written language. Forty-three point nine per cent of the children could tell the difference between pictures and writing, but only 27.3% separated letters from numbers. Sixty-two point one per cent failed to identify the letter presented to them; 34.8% identified two to four letters (usually vowels and such frequent consonants as “m” and “p”) and only 3% identifies more than ten letters. Consequently, a significant percentage of children (60.6%) did not succeed in working out the items proposed by the sound-letter correspondence test.

c) Reading and writing of words. Most children (92.4%) failed to identify familiar words. Only 7.5% managed to identify one or two, which in some cases corresponded to a logographic reading from sound content. None could read pseudo-words.

With respect to the writing of familiar words, such as the name of the child and other words like “papá” (dad), “mamá” (mom), “oso” (bear), “casa” (house) and “sol” (sun), 97% made use of a non-analytical strategy (Ball & Blachman, 1991) which implies an impossibility to analyze the sound structure of spoken words and the graphemic structure of written words, and their correspondence between them. Two kinds of non-

analytical writings were observed: 1) pre-conventional, that is, a group of graphic signs arranged randomly or a doodle and 2) conventional logographic, that is, the writing of some words learned by heart. Only 3% of all the children assessed produced incomplete analytical writings associated to the incipient phoneme-grapheme correspondence abilities.

As regards the writing of unfamiliar words, such as “auto” (car), “gato” (cat), “mesa” (table), “flor” (flower), “pelota” (ball), 53% of the children failed to produce any sort of writing and the rest presented writings in which only non-analytical strategies were used (Table 5).

(INSERT TABLE 5)

3. Literacy environment – early literacy correlations

The correlations between the different variables of the literacy environment reached statistical significance. Moderate associations appeared, in particular, between parents’ literacy practices and children’s characteristics reported by the parents as regards their demands and experiences connected with reading (Table 6).

(INSERT TABLE 6)

As regards the variables related to pre-reading knowledge and abilities, moderate correlations appeared between most of the variables considered (Table 7).

(INSERT TABLE 7)

Literacy environment / pre-reading knowledge and skills correlations. The correlations between the two dimensions considered only reached statistical significance through weak values between some of the variables included (Table 8).

(INSERT TABLE 8)

CONCLUSIONS

This study is part of the ample literature destined to examine the relationship between home characteristics and children's pre-reading activities. It differs from other studies in a variety of aspects: a) it focuses exclusively on poor children and families, b) literacy environment and pre-reading skills and knowledge were analyzed through a series of specific variables, c) simple and compound variables were used in the estimation of possible associations between the dimensions examined.

The results obtained highlight great variability within the practices and characteristics within the domestic context of the families analyzed, according to the information provided by the participants. In this respect, in many homes a series of literacy practices are made effective, which – it is proposed – favor the emergence of pre-reading skills and knowledge, among which frequent reading to children (48.4%) can be found. This, in turn, is related to children's demand of frequent reading of children's book (56.5%). Statistically significant, though moderate, relations were found between both variables ($r= 0.538, p .000$).

However, when availability of books was analyzed separately, a high percentage (75%) possessed fewer than 10 books, which curb the information actually reported in connection with literacy practices and children's demands.

The results related to parents' characteristics in terms of written language are registered here. The information as to reading enjoyment in 46.8% of the cases contrasts with the 72.6% which stated that they do not read at all or spend less than 15 minutes a day at it. Therefore, the reported reading pleasure constitutes a practice which can be inferred to actually not be made effective.

The characteristics of reading habits were related, though weakly, with literacy practices ($r=0.212$, $p .03$). The same happened with the relations between these parents' characteristics and children's demands informed by them, which – despite being weak – turned out to be significant ($r=0.232$, $p .01$).

Parents' educational level turned out to be quite heterogeneous: an important percentage has finished primary school (63.5% of father and 42.9% of mothers); over half of mothers (55.5%) and about one third of fathers reported an education of 8 years or more. Such situation contrasts with that of parents from less disadvantaged social backgrounds, in which the educational level usually corresponds to secondary education mostly (Piacente, Marder, Resches, & Ledesma, 2008).

As regards the occupational category and occupation, only 17.5% of the mothers had a job. The rest mostly identified themselves as housewives (77.8%) and a small percentage claimed to be unemployed (3.2%). The percentage of unemployed fathers was somewhat higher (14.3%): 42.9% worked as employee-workman, 4.8% as technician and about one third as non-qualified workman (28.6%). This portrays a situation of economic hardship for these families.

Within the children's pre-reading knowledge and skills dimension, when it came to *phonological awareness abilities*, the results were meager, except in the case of syllable segmentation abilities (86.82% of right answers on the test included). In the other variables, results ranged between about 30% and 40% of right answers, except in those which implied phonemic manipulation of words. A low percentage managed to identify rhymes (32.12%) and the initial phoneme of a word (12.5%).

As regards *knowledge connected with written language*, a relatively high percentage of children could tell the difference between pictures and writing. The percentage of

children who managed to distinguish between pictures, letters and numbers was smaller: most did not recognize letters (62.1%) or sound-letter correspondence (60.6%).

During the reading of words, 92.4% failed to identify familiar words and none of the participants succeeded in reading pseudo-words. In terms of writing, 97% made use of non-analytical strategies to write familiar words, thus producing unconventional idiosyncratic writings. As regards unfamiliar words, 53% failed to write any.

This dimension's internal correlations are low, even though they reach statistical significance in most of the variables considered, except in the case of phonological awareness which was only associated to the picture/letter/number differentiation and sound-letter correspondence. It seems reasonable to state that the low percentage of correct answers in the tasks assigned is operational here.

Among the correlations between the variables of both dimensions, literacy context characteristics appeared to be related in a statistically significant way, though with low values, to the various pre-reading knowledge and skills. As regards literacy practices and characteristics, weak but significant associations were found with both phonological awareness ($r=0.217$, $p .02$) and picture/letter/number difference variables ($r=0.254$, $p .01$). Significant correlations were also discovered between children's reading characteristics and phonological awareness ($r=0.271$, $p .005$) and familiar word writing ($r=0.223$, $p .02$) variables, and parents' characteristics and the familiar word writing variable ($r=0.340$, $p .001$).

All in all, the findings from this research account for the variability present in poor home contexts and in children's pre-reading knowledge and abilities. Parents reported the presence of a relatively high percentage of adequate practices and characteristics, which may have a favorable impact on children's characteristics. However, all the

results highlight answers which do not coincide with what was observed in the children, a situation which may be interpreted as answers biased by social desirability. Nonetheless, parents' knowledge of the issues included, beyond the effective implementation of the practices reported, speaks of the possibility to have possible resilient or protective factors in non-advantageous conditions.

These results, like those from other research (Neuman, & Dickinson, 2002), have practical implications which stress the importance of the literacy context as well as of early knowledge and abilities connected with written language in reading and writing's first learning, considering them indicators of future achievements in such learning. They have specially shown that explicit and specific teaching at pre-school levels lead to a better reading and writing performance during the first years of primary school (Domínguez, 1996). In this study, what can be observed, on the one hand, are the difficulties that appear in poor contexts in terms of the specific resources connected to early literacy that they possess, as well as those related to the ability to make effective the practices which favor it, beyond the information provided by parents. What can also be observed, on the other hand, a relative shortage of children's pre-reading knowledge and skills. There is a weak correlation between the dimensions considered, which is still interesting, taking into account the characteristics that the dimensions being studied take on low-income populations.

Finally, it is important to point out that the results obtained coincide with the evidence provided by specific research on the topic, and that the high rate of low-income children's school failure reported in specialized literature emphasize the need to implement or increase the existing programs. In such programs, not only should timely, systematic and specific interventions be prioritized within the education provided at

school, but also at home in poorer sectors, thus enabling the prevention of future difficulties in school education.

Chart 1. Adjustment of the items included in the Literacy Environment (Piacente, Marder, Resches & Ledesma, 2006)

VARIABLES	Appropriate	Intermediate	In need of improvement
<i>Literacy practices and characteristics</i>			
Frequency of reading to children	Daily or weekly	Monthly	Seldom or never
Time spent reading to children	Over 20 minutes	Up to 10 minutes	No reading
Number of children's books	More than 10	3 to 10	Less than 3
Frequency of bookshop visits	Daily or weekly	Monthly	Seldom or never
<i>Reading-related children's characteristics</i>			
Frequency of request for reading	Every day or once/twice a week	Once/twice a month	Seldom or never asks
Enjoyment of reading	High	Low	No enjoyment
Book browsing frequency	Every day or once/twice a week	Once/twice a month	Seldom or never asks
<i>Parents' characteristics</i>			
Reading time	Over half an hour	15 to 30 minutes	Under 15 minutes or none
Enjoyment of reading	High	Little	None
Enjoyment of schooling	High	Little	None

Table 1. Percentage of practices and characteristics of home literacy environments

Variables	Categories		
	Appropriate	Intermediate	In need of improvement
Reading frequency	48.4%	38.7%	12.9%
Time spent reading to children	27.5%	25.8%	46.8%
Number of books	24.2%	38.7%	37.1%
Frequency of bookshop visits	3.2%	19.4%	77.4%

Table 2. Percentage of children's reading-related characteristics

Variables	Categories		
	Appropriate	Intermediate	In need of improvement
Frequency of request for reading	56.5%	25.8%	17.7%
Frequency of solo reading	67.8%	21%	11.3%
Enjoyment of reading	61.3%	27.4%	11.3%

Table 3. Percentage of parent-related characteristics (*)

Variables	Categories		
	Appropriate	Intermediate	In need of improvement
Reading time	14.5%	12.9%	72.6%
Enjoyment of reading	46.8%	22.6%	30.6%
Enjoyment of education	54.8%	-	45.2%

(*) In all cases, the highest values from one of the parents were taken into account.

Table 4. Average, standard deviations and percentage of correct answers in phonological awareness skills

Tests		Mean	Standard Deviations	percentage of correctness
Syllable manipulation	Syllable segmentation	8.68	2.69	86.82%
	Identification of first syllable	2.21	1.56	44.20%
	Syllable synthesis	1.79	2.08	35.80%
	Identification of final syllable	1.70	1.54	34.00%
	Elided syllables	-	0.25	-
Phonemic manipulation	Identification of rhymes	3.21	3.49	32.12%
	Identification of initial phoneme	0.50	1	12.50%
	Phoneme synthesis	0.48	0.95	-
	Elision of phonemes	-	0.25	-
	Phonological segmentation	0.10	0.39	-
Lexical manipulation	Word synthesis	1.47	1.63	29.40%
	Elision of words	1.42	1.66	28.40%

Table 5. Children's percentage in various word writing types

Writing types		Writing of familiar words	Writing of unfamiliar words
Doesn't write		-	53%
Non-analytical strategies	Pre-conventional	93.3%	47%
	Logographic conventional	3%	-
Analytical strategies	Incompletely analytical	3%	-

Table 6. Internal relations between literacy context variables (Kendall tau_b)

Compound Variables	Children's reading-related characteristics	Parents' characteristics
Literacy practices	0.538** .000	0.212* .03
Children's reading-related characteristics	--	0.231* .01

** $p < .01$ * $p < .05$ **Table 7. Internal relations between knowledge and pre-reading skills variables (Kendall tau_b)**

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(2)	0.364** .001					
(3)	0.029 .77	0.526** .000				
(4)	0.218* .02	0.488** .000	0.498** .000			
(5)	0.073 .46	0.356** .001	0.411** .000	0.301** .005		
(6)	0.187 .20	0.473** .004	0.461** .005	0.498** .002	0.930** .000	
(7)	0.138 .19	0.320** .007	0.366** .002	0.394 .001	0.257* .02	0.352* .04

References

- (1) Phonological awareness
- (2) Drawing/letters/numbers differences
- (3) Letter identification
- (4) Sound-letter correspondence
- (5) Writing of familiar words
- (6) Writing of unfamiliar words
- (7) Reading of familiar words

Table 8. Relationship between the literacy context and emergent literacy variables

Variables	Literacy practices and characteristics	Children's reading related characteristics	Parents' characteristics
Phonological conscience	0.217*	0.271**	0.031
	.02	0.005	.75
Picture/letters/numbers differences	0.254*	0.204	0.112
	.01	.05	.30
Letter identification	0.088	0.071	0.139
	.40	.49	.19
Sound-letter correspondence	0.151	0.181	0.129
	.14	.07	.21
Reading of words	0.057	-0.036	0.023
	.60	.74	.83
Writing of familiar words	0.175	0.223*	0.340**
	0,86	.02	.001
Writing of unfamiliar words	0.007	0.193	0.301
	.95	.21	.06

** $p < .01$ * $p < .05$