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The integration of affective characteristics of the family environment for a more comprehensive explanatory model of reading abilities

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Introduction: This research focuses on the influence of familial affective characteristics on family literacy practices and children's reading abilities. Parenting stress and educational practices were two affective characteristics of interest. Parenting stress is defined as a state of psychological discomfort specifically associated with the education of a child whereas educational practices are defined as various means the parent uses to educate and socialize the child.

Methods: A sample of 154 grade 1 children allowed for a correlational analysis between parenting stress, educational practices, the frequency of family reading activities, the diversity of literacy material available and the type of child-parent exchange (alphabet-focus or story-focus). Regression analyses were conducted to develop a model predicting reading abilities.

Results: Three result outcomes are of interest for the field of reading development. First, our study establishes relations between educational practices and certain aspects of family literacy: diversity of supports, frequency of exchanges, and type of child-parent exchange and it suggests that parental engagement plays a significant role in various aspects related to at-home discussions about books. Second, our regression analysis highlights evidence that parenting stress is an explanatory factor directly linked to the child's reading abilities. Therefore, our findings add reading abilities to the list of developmental aspects that is affected by parenting stress. Finally, the results show that, when parenting stress and educational practices are integrated in the predictive model, the story-focus exchanges remain predictive of reading abilities but not the alphabet-focus exchanges.

Discussion: Our findings confirm that the benefit of parent-child exchange on reading abilities is dependent of conditions of the family environment in which these activities occur. These findings also lead us to question the

value of making alphabet-focus exchanges, the cornerstone of some literacy programs in family settings. Our findings call for caution when implementing such programs in family context. In fact, activities involving conversation about the meaning of a text or the links between the text and the child's everyday reality represent the only activities, in our study, that had a beneficial effect on reading abilities while remaining permeable to parenting stress.

KEYWORDS

literacy, parenting stress, educational practices, family literacy practices, reading abilities, shared book reading, parent–child interaction

Introduction

The benefits of reading activities in the family environment for children's development of language and writing skills are well known (Justice et al., 2005; Evans and Shaw, 2008; Anderson et al., 2018). However, the majority of studies of this topic have investigated social, demographic or cultural factors to define how, when, how often or in what language these family reading times are experienced (Justice and Ezell, 2000; Nichols, 2000; Justice and Pullen, 2003; Moody et al., 2020). Yet familial affective characteristics are indissociable from parent–child reading times. Therefore, we propose to examine the effect of familial affective characteristics, such as family stress and parental educational practices, on children's reading abilities at the end of first grade, the nature and frequency of literacy activities organized in a household, as well as the diversity of literacy materials available at home.

Theoretical framework

It has long been recognized that a family environment that exposes children to written work is conducive to young children's development of language, reading and writing (Justice and Ezell, 2000; Sénéchal and LeFevre, 2002, 2014). Among children's different experiences with writing at home, shared reading times with parents present benefits related to the motivation to learn to read and emerging literacy skills (e.g., phonological consciousness and understanding alphabetical principles), as well as reading abilities (i.e., decoding and understanding) (Bus et al., 1995; De Jong and Leseman, 2001; Bennett et al., 2002).

At a young age, shared reading familiarizes children with the written word and its prerequisites, helps them understand how a book "works" (e.g., holding it and turning the pages), recognize letters, and develop phonological awareness (Mason and Allen, 1986; Snow and Ninio, 1986). Later, this practice contributes closely to reading performance (Scarborough and Dobrich, 1994; Bus et al., 1995; Mol and Bus, 2011). Moreover,

the influence of shared reading extends beyond literacy or emergent literacy behaviors as it maintains a strong link to the oral modality of language (Frijters et al., 2000; Fletcher and Reese, 2005; Hutton et al., 2015; Niklas et al., 2015). Indeed, shared reading would stimulate oral language skills more than written language skills in child learners.

Another component of the home literacy practices is the quality of parent–child exchanges. The quality of exchanges can be defined as instructional or emotional quality (Cline and Edwards, 2013, 2017). An exchange with favorable instructional quality will include extratextual conversation when the parent guides the child to interrupt the reading and think about it, asking open-ended questions to incite discussion and reflection. On the other hand, reading during which the child remains passive is considered to be of lesser instructional quality. The emotional quality of an exchange resides in the presence of a myriad of parental behaviors, such as empathy, warmth and positive attitude (Van Ijzendoorn et al., 1987; Beaudoin, 2002; Boudreau et al., 2018). This tie between emotions and reading skills has been observed in young adults (Jiménez-Pérez et al., 2020) as well as in young children (Waters et al., 2019). The literature emphasizes that mothers have a crucial role in mediating positive emotions and their benefits to the child's cognitive and language competence (Jiménez-Pérez et al., 2019), fostering the development of literacy abilities in all families where it is observed. On the other hand, the level of instructional quality varies according to socio-familial characteristics. Consequently, the benefits of talking about books for the development of reading abilities may differ from one family setting to another (Cline and Edwards, 2013). This distinction suggests that family characteristics (socio-demographic and cultural characteristics) can impact FLAs' beneficial effects on reading abilities.

In addition, the nature of the emotional ties that the child has with the adult influences the benefits that the child will derive from shared reading times. For example, the quality of the attachment between parent and child is intimately linked to the quality of the exchanges during reading time (Bus and Van Ijzendoorn, 1988). Emotions are more and more in the

researchers' sights. Strangely, even though they are involved in all learning, they have long been the great absentees of learning models in language didactics (Swain, 2013). Yet, it is natural to assume that a negative emotion (such as anxiety) may be associated with the absence of learning, and that a positive emotion (such as joy) may be linked to sustained engagement that promotes learning. This is precisely what Fredrickson and Losada (2013) stipulated in the expansion and construction theory.

In more detail, Fredrickson and Losada theorized the major role of positive short and long-term emotions in the learning process. Their theory, as well as other approaches emphasizing the importance of affectivity in learning (e.g., Arnold, 2006; Armand et al., 2013; Swain, 2013; Pramanik and Dhir, 2020), have been translated to education in several ways. Think of the work on the importance of student well-being in the reception classroom, the supportive role of affective relationships (closeness, friendship) within the classroom and their impact on learning (Rodríguez et al., 1996), the importance of affect and emotion in second language learning (Zuniga and Rueb, 2018), or the role of feelings in vocabulary learning (Tremblay, 2018). In fact, all evidence suggests that positive emotions, fostered by an open and caring climate, catalyze language learning in school and in home settings.

A series of publications by Sénéchal and LeFevre (2002, 2014) established the foundations of the Home Literacy Model (HLM), which made it possible to clarify the benefits of family literacy activities (FLAs). FLAs were then categorized into formal and informal activities. Formal literacy activities were defined as activities involving exchanges between the parent and child that explicitly present or teach about print (e.g., naming letters, recognizing words) (Bus, 2001), whereas informal literacy activities refer to exposure to print (letters, sounds of letters, etc.) without any formal teaching of letters or sounds. During informal literacy activities, exchanges between the parent and child mostly deal with the meaning of the text or linkages between the text and the child's everyday life (Justice et al., 2006). As a result of research conducted on HLM, both formal and informal literacy activities were recognized as contributing significantly to the development of reading abilities (Sénéchal and LeFevre, 2002, 2014). Nonetheless, the preponderance of formal and informal FLAs remains uneven in family routines. A thorough examination of parent-child dialogs has revealed that the vast majority of parent-child exchanges when reading books are informal and that very few discussions of the formal aspects of literacy can be observed in natural, spontaneous contexts (Evans and Saint-Aubin, 2005; Price et al., 2009; Hindman et al., 2014).

Beyond the nature of exchanges, which can be formal or informal, the literacy experience inside a family unit varies according to the household literacy environment. For example, the supports provided in written forms (e.g., magnetic letters, picture books, books, digital tablets) and frequency of

conversations related to literacy may differ greatly from one family to another (Grieshaber et al., 2012). A child who has limited supports in written form or negligible time to converse with parents will not experience the same diversification of FLAs as one who benefits from a rich family literacy environment with ample time to talk with parents (Crosnoe et al., 2010; Marcella et al., 2013; Provencher, 2014).

In this study, we were interested in investigating family characteristics, other than socio-demographic and cultural, that can affect the benefits of FLAs for children's reading abilities. Parenting stress and educational practices were two affective characteristics of interest, especially in the pandemic context we have experienced in the past 2 years. Parenting stress is defined as a state of psychological discomfort specifically associated with the education of a child (Lacharité et al., 1992). The component of this stress that is related to the parent-child relationship (Abidin, 1995) has been identified as a predictor of the presence, quality and impact of FLAs (Deniz-Can and Ginsburg-Block, 2016), confirming past studies by Bus and Van Ijzendoorn (1988) and with Bus and Van Ijzendoorn (1995) that also associated the quality of the parent-child bond with the quality of shared reading times. Other familial affective factors have also been linked to children's reading abilities. One particularly interesting factor is educational practices, defined as various means the parent uses to educate and socialize the child (Hamel, 2001). Positive educational practices are generally observed in the parent's engagement with the child, usage of positive educational practices and a sense of efficacy with discipline (Abidin, 1995). Favorable educational practices and a positive parenting style have been associated with higher-quality interactions during reading times and have resulted in enhanced positive effects on the child's language development (Dexter and Stacks, 2014). These benefits have been observed consistently, in populations of different genders, ages and ethnic origins, and educational institutions (Dornbusch et al., 1987; Ferguson, 1987; Christenson et al., 1992).

Our study proposes a predictive model of FLAs' on reading abilities that integrates parenting stress and educational practices. We posited that (1) *the diversity of supports in written forms is independent of educational practices and parenting stress* since it is closely linked to parents' financial resources and education level. However, (2) *parenting stress should have a negative effect on the frequency of parent-child literacy-related talk*. We anticipated that (3) *favorable educational practices and low parenting stress should both impact positively reading abilities*. Moreover, since informal literacy activities are more conducive to diverse extratextual discussions and represent a larger percentage of exchanges than formal ones, we argued that (4) *the influence of educational practices and parenting stress on reading abilities will be mostly explained by its impact on informal literacy activities*.

Figure 1 illustrates these hypotheses concerning the anticipated links between familial affective characteristics

(educational practices and parenting stress), the literacy environment (diversity and frequency), FLAs (formal and informal) and reading abilities. The hypothesis pertaining to these linkages, presumed to be more important, is illustrated by the width of the arrow connecting parenting stress, informal activities and reading abilities.

Materials and methods

Participants

Following the institutional ethical approval and the authorization granted by the Commission d'Accès à l'information, the research team acquired by way of the Régie de l'assurance maladie du Québec, a list of 4,575 children turning 7-year-olds between 1 October 2015 and 30 September 2016. The children were chosen randomly from the territories serviced by les Centres de santé et de services sociaux de Montréal, where more than 30% of children aged five or younger live below the poverty line. Letters were sent to 4,575 families, followed by telephone calls to close to 3,000 of the families we were able to trace. From those families contacted, 1,575 children met the selection criteria, which included their health (Apgar > 7, weight > 2500 grams at birth and minimum 37 weeks gestation) and their typical global development, notably their language development. Their mother tongue needed to be French. Of the 1,425 remaining families, 255 families who met the criteria agreed to participate and 796 refused. Participants signed a consent form explaining the purpose of the study, its risks, and benefits. The data presented in this article are drawn from the 154 children (82 girls, 72 boys) that were evaluated during their first year of elementary school. At the time of data collection, 75.9% of the families had an income above the low-income cut-off based on Statistics Canada's criteria (Statistics Canada, 2011), 84.1% were two-parent families, and the majority of parents had a university degree (65.9% of mothers, 60.0% of fathers).

Data collection instruments

Formal literacy activities

To measure formal literacy activities, we used an adapted section of a questionnaire on parental literacy practices inspired by the work of Martini and Sénéchal (2012), which shows excellent internal validity (Cronbach's $\alpha = 0.91$). The selected section contains six questions to which the parent is asked to provide answers on a scale of 1–5. These questions assess the frequency, on a scale of 1–5, of the mother showing her child (1) the names of letters, (2) the sounds of letters, (3) how to write letters, (4) how to write the child's first name, (5) how to write words, and (6) how to read words.

Informal literacy activities

For the measurement of informal literacy activities, we used a list of titles and authors of children's books published in French (Charron et al., 2020), adapted from Sénéchal and LeFevre (2002, 2014). This indirect measure proved to be a suitable indicator of informal literacy activities. First, parents were asked to indicate on the questionnaire how familiar they were with the titles of publications for children, from a list of 25 items, of which 17 were real titles and 8 were fictitious titles. Then, parents were given a list of 25 authors of children's literature and asked to indicate which ones were known to them; similar to the list of titles, 17 were real authors and 8 were fictitious authors. The measure of informal literacy activities consisted of the sum of real titles and authors, minus fictitious titles and authors selected by the parent. A complete description of the adaptation protocol is described in Charron et al. (2020).

Diversity of supports

The diversity of supports was also measured by a parental questionnaire in which the parent was required to specify objects used during literacy activities, among 18 everyday life objects; for example, a pictorial, magnetic letters and a grocery list. This questionnaire was adapted from a sub-section of a questionnaire on parental literacy by Martini and Sénéchal (2012). In their work, these authors revealed that they also used the instrument to measure practices linked to formal literacy activities. In fact, any given material can naturally elicit a formal exchange instead of an informal one. For instance, the usage of magnetic letters can potentially lead to a formal exchange on the sound and form of letters. However, we decided to utilize the questionnaire as a measure of availability of different supports at home, rather than a measure of formal literacy activities because we thought it was important to maintain the distinction between concepts of diversity and formality. Where relevant, a collinearity of these two measures could be eventually considered by way of amendment to our statistical analysis. In any case, the diversity of supports was established by recording the number of supports marked on the questionnaire as being used by parents at home. The complete adaptation protocol is described in details in Charron et al. (2020).

Frequency of exchanges about literacy

For the purpose of measuring the frequency of parents-children exchanges about literacy, a list of six situations of typical exchange was presented to the parent (learn lullabies, discuss images in a book, name images in a book, ask the child to read simple words, point at words, and ask the child to trace or copy letters). This list was developed from scale 3 of a questionnaire developed by Martini and Sénéchal (2012). In its original English version, the scale was comprised of seven questions, including a question on the parent teaching letters, three questions on the parent teaching words, two questions related to exchanges on images in a book and one question on

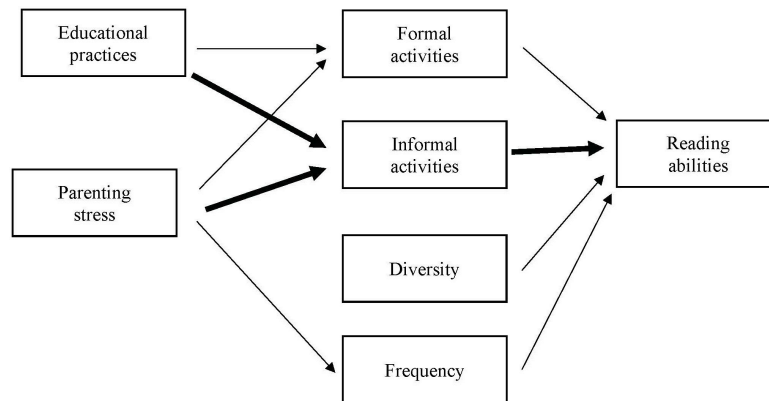


FIGURE 1

Hypotheses concerning the links between reading abilities, family literacy practices and socio-familial factors.

an activity unrelated to literacy, i.e., puzzles. This last question was eliminated because it did not directly pertain to literacy. As for the six questions left, the term “teach” was replaced by terms referring to exchanges, such as “speak with the child, discuss, etc.” Parent was to indicate, on a scale of 1–5, the frequency of activities performed with her child. Although the formal measure explicitly requested the parent to confirm the frequency at which she “shows” something to her child, separate items of exchanges frequency measurement were formulated in a less direct fashion. However, it is possible that the parent interpreted both questions in the same manner. During our statistical analysis, special attention was given to correlation between the measure of formal activities and measure of exchanges frequency.

Reading abilities

Children’s reading abilities were measured by means of the tests on reading words, decoding pseudo-words, and reading comprehension from the Wechsler Individual Achievement Test, 2nd edition (WIAT-II; Wechsler, 2005). In accordance with test protocols, an equivalency score was established for reading components. Regarding the use of this instrument, Wechsler (2005) reported excellent internal coherence coefficients ($\alpha > 0.90$) and very good temporal stability coefficients ($r > 0.80$) for measured abilities.

Educational practices

Parental educational practices were evaluated based on a questionnaire of 42 questions (Poulin et al., 2006). This questionnaire measures three aspects of practices that benefit the child – parental engagement with the child, use of positive educational practices, and sense of efficacy with discipline – as well as three aspects of unfavorable practices and negative educational practices: inconsistent parental practices, use of hostile educational practices, and affective rejection. The Likert-type response scale (1 = not at all to 5 = absolutely) generated

a mean score for favorable practices and a mean score for unfavorable practices. For this study, we used only a mean of scores on the three scales measuring favorable practices.

Parenting stress

To measure parenting stress, we used an abbreviated version of the *Index de stress parental* (Abidin, 1995; Bigras et al., 1996). The index is composed of 36 questions divided into two general categories of stressors: those linked to the child (distraction/hyperactivity, temper, acceptance by the parent, adaptation capacity, level of expectation) and those associated with the parent (sense of competency, attachment to the child, role restrictions, depression, spousal relationship, social isolation, physical health of the parent). A high score signifies that the stress experienced by the parent – the mother in this case – is high.

Data collection

Data were collected in two phases. First, during the month following the child’s seventh birthday, an evaluator visited the familial household to fill out questionnaires with the parents and control the handover sequence, which was identical for all children. The duration of home visits was approximately 120 min. In the second phase, between the months of April and June at the end of first grade, a research assistant assessed the child’s reading abilities with the WIAT-II (Wechsler, 2005) at the child’s residence.

Results

Prior to initiating any analysis, we ensured that our variables met the normality and uniformity criteria. Data were transformed for normality when necessary. Transforming

TABLE 1 Correlation between independent variables.

	Parenting stress	Educational practices	Informal activities	Formal activities	Diversity	Frequency
Parenting stress	1					
Educational practices	-0.503** (<i>n</i> = 146)	1				
Informal activities	-0.01 (<i>n</i> = 135)	0.115 (<i>n</i> = 132)	1			
Formal activities	-0.12 (<i>n</i> = 149)	0.245** (<i>n</i> = 146)	0.025 (<i>n</i> = 136)	1		
Diversity	-0.233** (<i>n</i> = 149)	0.293** (<i>n</i> = 146)	0.05 (<i>n</i> = 136)	0.493** (<i>n</i> = 151)	1	
Frequency	-0.301** (<i>n</i> = 149)	0.294** (<i>n</i> = 146)	0.115 (<i>n</i> = 136)	0.449** (<i>n</i> = 151)	0.553** (<i>n</i> = 151)	1

***p* < 0.01.

data for normality is a regular procedure to allow parametric analyses requiring normality assumption such as regression analysis. Pituch and Stevens (2016) reports that as long as the sample size exceeds 50, transforming data for normality has no impact on validity. In addition, a correlational analysis (Table 1) was done to verify the multicollinearity of independent variables. Not surprisingly, the parenting stress and parental educational practices variables were found to be correlated ($r = 0.503$, $p < 0.01$). Indeed, we can easily imagine that the stress associated with parental responsibilities can lead to less favorable educational practices and vice versa. However, although there is a correlation, the correlation value is considered moderate (Larsen-Hall, 2010). Therefore, although they are linked to each other, the two variables remain distinct constructs that can be reflected separately in modeling.

Regression analyses were done to determine whether parenting stress and educational practices influenced the nature, frequency and diversity of material used during FLAs. According to the regression analyses conducted (Figure 2), favorable educational practices predicted formal literacy activities ($R^2 = 0.06$, $F(2,143) = 5.56$, $p < 0.05$, $\beta = 0.26$, $p < 0.001$), the diversity of supports ($R^2 = 0.08$, $F(2,396) = 7.26$, $\beta = 0.25$, $p < 0.001$), and the frequency of exchanges ($R^2 = 0.09$, $F(2,143) = 8.45$, $p < 0.01$, $\beta = 0.21$, $p < 0.001$), whereas the parenting stress variable did not predict any aspects of at-home discussions of books. These results run counter to our hypotheses 1 and 2, which predicted that the diversity of supports available at home would not be linked to parenting stress or educational practices because they depended mainly on other socio-economic factors, such as family income. Instead, our findings show that it is the frequency of FLAs that is not linked to familial affective variables. Nevertheless, the diversity of supports available at home is linked to both a low level of parenting stress and favorable educational practices.

A second series of regression analyses allowed us to verify whether educational practices and parenting stress predicted reading abilities through family literacy activities (hypothesis 3) and whether their effect on reading was mostly driven by informal or formal literacy activities (hypothesis 4). To test hypothesis 3, we conducted a

regression analysis (Table 2) with a first set of independent variables composed of traditional measures of FLAs; namely formal activities, informal activities, diversity of supports, frequency of exchanges (Model 1). A second regression analysis was conducted (Model 2) with traditional measures of FLAs and familial affective variables (parenting stress and educational practices) as independent variables. Model 2 explains more of the reading variance ($R^2_{adj} = 0.21$, $F(1,123) = 4.7$, $p < 0.01$) than Model 1, ($R^2_{adj} = 0.185$, $F(4,124) = 7.0$, $p < 0.05$), thus confirming that reading abilities are partly predicted by educational practices and parenting stress.

As illustrated in Figure 3, the analyses conducted revealed different roles associated with parenting stress and educational practices. Parenting stress is directly linked to reading abilities whereas educational practices are indirectly linked to reading through their relations with the diversity of supports.

It is relevant to mention that Models 1 and 2 differ as to the significance of formal literacy activities as a predictor of reading abilities. In the first model, three variables are predictive of reading: informal literacy activities, formal literacy activities, and diversity of supports. In Model 2, formal literacy activities no longer have significant predictive value regarding reading abilities.

Discussion

This study investigated the effect of familial affective characteristics on reading abilities. We hypothesized that reading abilities would be indirectly influenced by educational practices and parenting stress, and that this effect would be mediated by informal literacy activities due to their prevalence in parent-child exchanges about books. Instead, our findings showed that educational practices are indirectly linked to reading abilities through the diversity of literacy supports at home, whereas parenting stress is directly correlated with reading abilities.

The results of our study establish relations between educational practices and certain aspects of family literacy (diversity of supports, frequency of exchanges, and formal

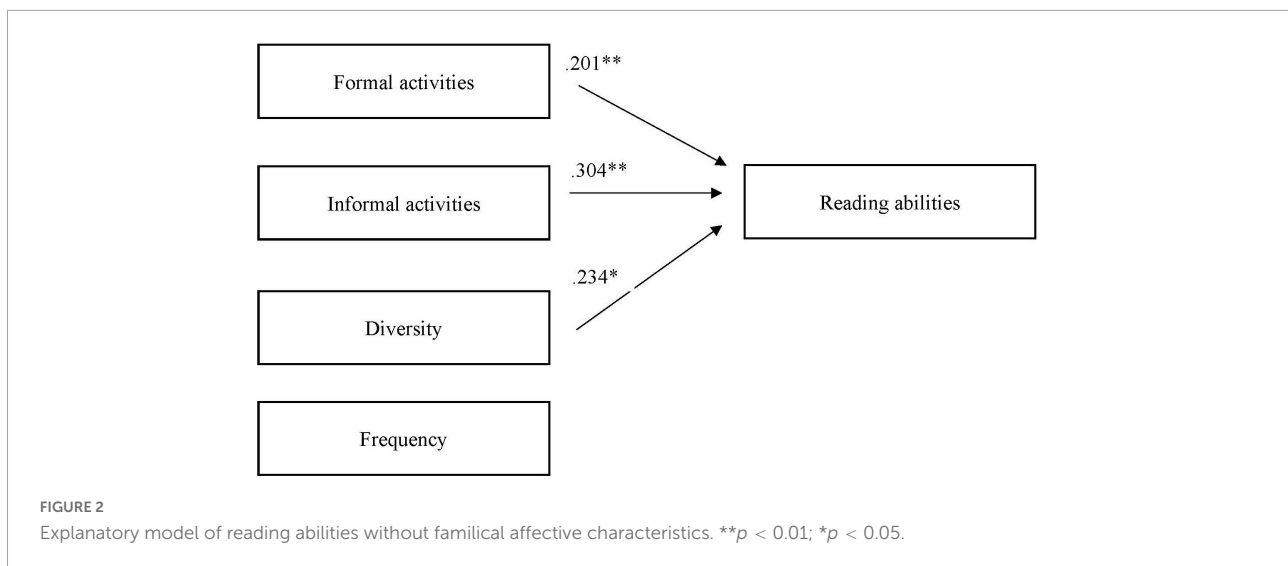


TABLE 2 Multiple regression analyses for reading abilities.

	<i>B</i>	<i>SE</i>	β
Model 1			
Constant	88.75	11.22	
Informal activities	28.58	7.69	0.304** ¹
Formal activities	0.840	0.406	0.201* ²
Diversity of materials	0.424	0.193	0.234*
Frequency	0.646	0.517	0.134
Model 2			
Constant	109.49	14.655	
Informal activities	28.93	7.58	0.307**
Formal activities	0.787	0.401	0.168
Diversity of materials	0.384	0.191	0.212
Frequency	0.420	0.520	0.088
Parenting stress	−0.221	0.103	−0.181*

¹** $p < 0.01$.

²* $p < 0.05$.

activities). These links have also been mentioned in a previous study of family characteristics and family literacy (Deniz-Can and Ginsburg-Block, 2016), in which participants originated in more challenging socio-economic environments with lower education levels than in our sample. In our study, the mothers' education level was relatively high and homogenous, as were their ethnocultural origins. Nevertheless, our findings suggest that parental engagement plays a significant role in various aspects related to at-home discussions about books.

Furthermore, our regression analysis highlighted evidence that parenting stress is an explanatory factor directly linked to the child's reading abilities. The largest explanatory variance of reading abilities stems from the model that integrates both FLAs and familial affective characteristics (Model 2). Our findings

echo other results regarding parenting stress, particularly its component linked to the parent–child relationship and its influence on various aspects of the child's development (Guajardo et al., 2009; Iruka et al., 2012). Our findings add reading abilities to the list of developmental aspects that may be affected by parenting stress. A remaining question, however, is whether this link can be explained mostly, or even exclusively, by the parent–child relationship component of parenting stress, as is the case for other developmental aspects.

The results of our study raise two important elements for further research and interventions in family literacy. On the one hand, they demonstrate the importance of integrating familial affective characteristics from the environment in which literacy activities take place when it comes to modeling predictors of reading abilities. In fact, a predictive model of reading abilities that does not include variables linked to familial affective factors may lead one to posit relations that no longer exist when family-related characteristics are considered. As shown by model 1 and like several other predictive models of reading abilities (LeFevre and Sénéchal, 2002), formal literacy activities are identified as a predictor of reading abilities. However, when model 2 integrates the familial affective characteristics in which literacy activities take place, formal activities' predictive value declines and only informal literacy activities continue to predict reading abilities. We are not claiming to present an all-inclusive explanatory model of reading abilities. The R^2 value indicates otherwise: close to 80% of the variance in reading abilities remains unexplained, even after the inclusion of parenting stress and educational practices as explanatory variables in the model. However, our findings confirm that the effect of FLAs on reading abilities is not independent of conditions of the family environment in which these activities occur.

Our findings also have implications for the implementation of family literacy intervention programs. In our study, informal literacy activities proved to be predictive of reading abilities,

regardless of the prevailing familial affective characteristics. At first glance, this result seems counterintuitive. We incorrectly believed that the informal activities are less restrictive concerning written work and thus are more susceptible to variations between families (Curenton and Justice, 2008; Shahaian et al., 2018). However, this is not what we found. In fact, the beneficial effects of formal literacy activities on reading abilities are more affected by familial affective characteristics than those informal activities. It is possible that the responsiveness of formal literacy activities to ethnocultural (Hindman et al., 2014) and socio-affective factors resides in the educational nature of the exchange (e.g., teaching letters, explicitly presenting the sounds of letters, etc.). It has been demonstrated that an exchange with a high degree of educational connotation will be more susceptible to family conditions than an extratextual exchange with a more personal connotation, such as informal literacy activities (Cline and Edwards, 2013). We made the same observations.

Moreover, these findings lead us to question the value of organizing formal literacy activities, the cornerstone of some literacy programs in family settings (Brown et al., 2019). Like Hindman et al. (2014), we question the “one size fits all” recommendations for family literacy programs. In fact, a significant number of studies and intervention programs adhere to a formal, explicit instructional approach toward families presenting vulnerabilities (Justice and Ezell, 2000; Hindin and Paratore, 2007). Our findings call for caution when implementing such programs. In fact, our results suggest instead that informal literacy activities, namely activities involving conversation about the meaning of a text or the links between

the text and the child’s everyday reality, are potentially more beneficial in terms of effects on reading abilities than formal literacy activities where the parent adopts a teaching role or explicitly presents written codes. Furthermore, informal activities correspond to the “natural” role of a parent reading stories to a child (Bingham, 2007; Cline and Edwards, 2013) and represent the only activities, in our study, that had a beneficial effect on reading abilities while remaining permeable to familial affective characteristics.

Finally, another interesting observation, for which an in-depth analysis exceeds the scope of our study, concerns the ever-present influence of familial context on reading abilities at the end of first grade. In fact, after 2 years of schooling (kindergarten and first grade), during which considerable time is spent developing reading abilities and understanding written codes, school attendance does not seem to have diminished the influence of family context on reading abilities. Once again, this highlights the school’s enormous challenge of alleviating social inequalities, even in a largely favorable socio-economic context such as the one in which our study was conducted, where 73% of families came from privileged backgrounds.

Limitations

The correlations presented here are not causal and may equally be represented as two-directional. Moreover, our sample of 154 families included few vulnerable families and, in that sense, is not representative of the general population. As such,

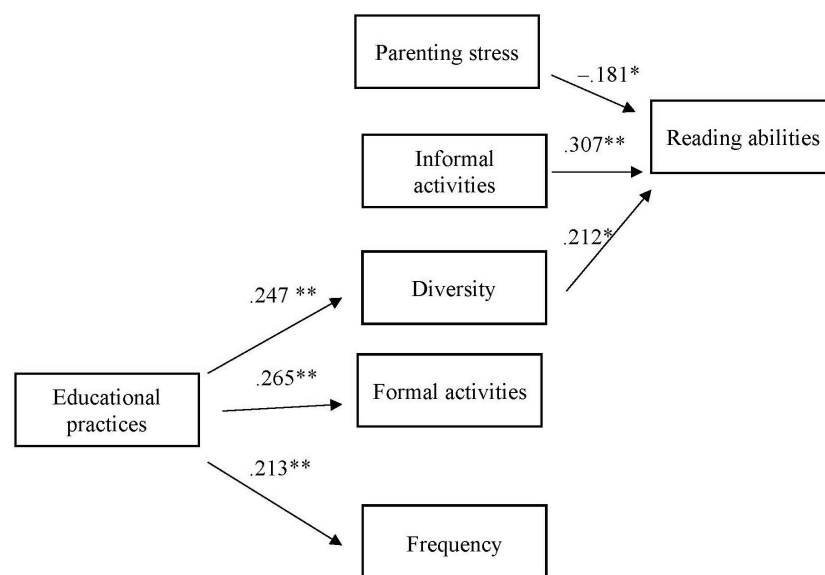


FIGURE 3

Explanatory model of reading abilities including familial affective characteristics. ** $p < 0.01$; * $p < 0.05$.

one of our conclusions concerned the varying nature of the predictive value of FLAs for reading abilities in relation to the family context. Consequently, it is important not to generalize this predictive model to the overall population.

Conclusion

The importance of our findings goes beyond the dissemination of a predictive model of reading abilities. Essentially, our study makes two contributions. First, it confirms the influence of affective-family factors on reading abilities. Second, it reveals that formal literacy activities are more responsive to family context than informal literacy activities. Two familial affective characteristics (educational practices and parenting stress) were integrated into the predictive model. Other factors – social, familial or individual – may also influence FLAs' impact on reading abilities in the same manner, substantially modifying their predictive value. More importantly, it would be surprising if the context in which literacy activities occur had variable effects on reading abilities in a family setting but not in a school environment. Based on these observations, we propose two areas for future research. First, it would be interesting to measure the effects of an intervention program in family literacy that includes family literacy components but also familial affective aspects, namely the parent–child relationship. It would also be worthwhile to measure whether the predictive value of literacy activities varies depending on affective characteristics in a school environment. Finally, we recommend that future studies examine certain aspects of socio-affective characteristics in the classroom, namely teaching practices and stress associated with the teacher–child relationship, as potential influences on the effects of literacy activities in schools.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of Université du Québec à Montréal. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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