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Authors

Lefebvre, Pascal Bolduc, Jonathan Pirkenne, Christel

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Pilot Study on Kindergarten Teachers' Reaction to Linguistic and Musical Challenges in Nursery Rhymes

Pascal Lefebvre, Jonathan Bolduc, and Christel Pirkenne
University of Ottawa

Author Note

Pascal Lefebvre, School of Rehabilitation Sciences, Faculty of Health Sciences, University of Ottawa; Jonathan Bolduc, Faculty of Education, University of Ottawa; Christel Pirkenne, Faculty of Education, University of Ottawa.

Jonathan Bolduc is now at Faculty of Music, Université Laval. Christel Pirkenne is now working in private practice, Colmar, France.

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Correspondence concerning this article should be addressed to Pascal Lefebvre, School of Rehabilitation Sciences, Faculty of Health Sciences, Roger-Guindon Hall, 451 Smyth Rd., Ottawa, Canada, K1H 8M5. E-mail: pascal.lefebvre@uottawa.ca

Abstract

Nursery rhymes provide a unique learning context for preschoolers in regard to their emergent literacy and musical development. According to Vygotsky's social constructivist theory (1978), in order for learning to occur, children must face challenges, and adults must provide support to guide them toward mastery of new skills. The current pilot study began with the aim of documenting teachers' reactions to nursery rhymes in relation to their level of difficulty. Eightyeight kindergarten teachers were asked to use the new nursery rhymes in their classrooms. Then, they were asked fill out a questionnaire to document their reactions and their ratings of the linguistic and musical difficulty. Teachers' reactions were measured by their overall impression of the nursery rhymes, their perception of pupils' enjoyment of the nursery rhymes and the time they spent using these nursery rhymes in their classrooms. The results revealed that the teachers tended to have a better impression of the nursery rhymes, perceive their pupils' enjoyment of the nursery rhymes as more positive, and spend more time on those nursery rhymes judged the easiest in regard to their vocabulary and their rhythm. According to Ezell and Justice (2005), by putting more emphasis on easier nursery rhymes, teachers might target only what children have already mastered, leaving less opportunity for new emergent literacy and music skills to develop. The results point to the necessity of improving educators' training in regard to the use of nursery rhymes by focusing on the educational opportunities provided by linguistic and musical challenges in nursery rhymes, an important starting point for explicit instruction and scaffolding (Bruner, 1983).

Keywords: nursery rhymes, music education, emergent literacy, teachers, kindergarten

Pilot Study on Kindergarten Teachers' Reaction to Linguistic and Musical Challenges in Nursery Rhymes

Nursery rhymes are part of a longstanding tradition in early childhood education. Many generations of children have learned and recited nursery rhymes in their homes and schools. However, over the last few years, more pressure has been put on kindergarten teachers to apply educational curricula and programs that promote the explicit teaching of specific skills. This situation could lead kindergarten teachers to put aside more traditional interactive activities such as nursery rhymes (Kenney, 2005). In fact, when they learn nursery rhymes, children face linguistic and musical challenges that trigger their cognitive development through pleasant social interactions mediated by adults and peers (Gauthier & Lejeune, 2008). Nursery rhymes provide a unique learning context in which can also be embedded explicit instruction that promotes early literacy and musical development in young children (Gauthier & Lejeune, 2008, Justice & Kaderavek, 2004, Bolduc, Lefebvre, & Pirkenne, 2012). The rhythmic and often non-nonsensical nature of nursery rhymes would catalyze this development, because it leads the child to focus on rhythm and sonority of words rather than on their meaning (de Santis, 1986; Kenney, 2005). Until now, no studies have been conducted to observe how today's teachers react to linguistic and musical challenges in nursery rhymes in their classes. The current pilot study aims to provide preliminary answers to that question, using a questionnaire to document teachers' reaction to new nursery rhymes that include those challenges. Given the omnipresence of nursery rhyme practices in childhood settings and their high educational potential, it is important to do more research about their use in the educational system. The results can influence initial university training and continuing education for kindergarten teachers regarding nursery rhymes as an educational tool.

Empirical and Theoretical Background

Nursery rhymes such as "Humpty Dumpty," "Little Miss Muffet" or "Jack and Jill" are defined as short rhythmic poems. They are often a source of shared pleasure between educators and children in preschool and kindergarten settings. Through this interaction, nursery rhymes are thought to play an essential role in the processes of transmission and learning (Gauthier & Lejeune, 2008). Dunst, Merter, and Hamby (2011) reviewed 12 studies on the relationships between nursery rhymes and emergent literacy development. The studies indicated that nursery rhyme experience and knowledge were predictive of both phonological processing skills and print-related outcomes in young children. In fact, knowledge of nursery rhymes seems to foster children's phonological awareness, which, in turn enhances their literacy skills in school (Bryant, Bradley, Maclean & Crossland, 1989; Maclean, Bryant & Bradley, 1987; Harper, 2011). The fact that nursery rhymes are more about rhythm and sonority of words than their actual meaning could explain why phonological awareness skills are easily enhanced by nursery rhymes. Children enjoy the sonority and rhythm of words in nursery rhymes in spite of their incomplete, or even poor, knowledge of their meaning (De Santis, 1986; Zachok, 1992). When their attention is shifted away from the meaning, children can focus more easily on the phonological features of words (van Kleeck, 1995). In fact, the semantic features of words can interfere with their phonological features. For example, it is hard for a child to realize that the word *locomotive* is phonologically longer that the word *train*, because, semantically, it is the opposite. As a result, teachers are encouraged to incorporate nursery rhymes into their early literacy curricula and to

focus children's attention on the sound structure of words and not on their meaning in order to enhance their phonological awareness skills (Yopp & Yopp, 2000).

The research and educational practice literature also addressed the impact of nursery rhymes on the development of musical skills in children, but to a lesser extent than for emergent literacy. Campbell and Scott-Kassner (2002) and McDonald and Simons (1989) encouraged the use of nursery rhymes to introduce children to musical features such as pitch, intensity, and timbre. Hargreaves (1986) and Radocy and Boyle (2003) also found that nursery rhymes can improve children's ability to distinguish different rhythmic structures such as one used in a march versus one related to a waltz or a lullaby. Kenney (2005) also highlights the importance of rhythm in nursery rhymes, which prepares children for future music education. The benefits of music education encompass success in larger domains, such as success in society, in school, in developing intelligence, and in life (Petress, 2005) A review from the Royal Conservatory of Music (2014) listed positive effects of music education on IQ, memory and focus, on speech and reading ability, on creativity, on empathy and social awareness, and on health and resilience.

A recent study conducted by Bolduc, Lefebvre, and Pirkenne (2012) assessed the efficiency of nursery rhymes in fostering the development of both musical and phonological processing skills through four different learning conditions: 1) nursery rhymes supplemented by explicit musical instruction; 2) nursery rhymes supplemented by explicit phonological awareness instruction; 3) nursery rhymes supplemented with a combination of explicit phonological awareness and musical instruction; and 4) passive listening to nursery rhymes. Results indicated that only children in conditions 1, 3, and 4 showed significant improvement in their musical skills such as tonal and rhythm perception. Also, children in conditions 1, 2, and 3 showed significant improvement in their phonological awareness development. However, only the children in the two conditions in which the music component was integrated (conditions 1 and 3) showed significant improvement in another phonological processing skill that predicts reading success: verbal memory. This study supports the addition of explicit language and musical teachings into the nursery rhyme activity in order to provide a more profitable learning experience for children than the passive listening to nursery rhymes, even if it requires children to focus their attention for a longer period of time.

The theory of socio-constructivism (Vygotsky, 1978) provides an ideal framework for understanding how learning occurs during early childhood activities, such as learning and reciting nursery rhymes. According to Vygotsky's theory, children internalize new knowledge and skills through their mediated interactions with more experienced peers and adults. Relationships between children and adults are thus the primary vehicle though which learning occurs, especially in literacy (Pianta, 2006). The most primary function of these relationships is to support the development of basic processes, such as attention, motivation and interest in literacy. In other words, the way adults value literacy activities directly influences children's interest (Dickinson and Tabors, 2001, Morrow, 1983; Ortiz, Stowe, & Arnold, 2001). Children's literacy interest is positively associated with their engagement in literacy activities, which leads to better emergent literacy skill development (Adamson, & Bakeman, 2006; Bracken & Fischel, 2008; Deckner). In the same manner as storybook reading, nursery rhymes learning provide a pleasant context in which these mediated interactions can unfold. However, in order for learning to take place, these interactions must focus on concepts within children's zones of proximal development. In other words, the emphasis should not be put on what children have already

mastered, but rather on new knowledge and skills that they can acquire under guidance. Therefore, in order for linguistic and musical development to occur within the context of nursery rhymes, educators should focus on new concepts while teaching and reciting nursery rhymes with children. Linguistic and musical challenges that children encounter in those nursery rhymes then become unique learning opportunities that can lead to the addition of explicit teaching from the teacher. This embedded-explicit approach leads to better emergent literacy learning in children (Justice & Kaderavek, 2004). An example of an embedded-explicit approach teaching strategy in the context of nursery rhymes would be to write down or illustrate words from the nursery rhyme and to verify which one starts with the same sounds. This explicit teaching could be done between two recitations of the same nursery rhyme. The teacher can put even more emphasis on the first sound of the words that start with the same sound during the second recitation. More instructional time is thus required when explicit instruction is embedded in the natural context of nursery rhymes. In addition, repetitive exposure to nursery rhymes, which also requires more time, has been identified as critical in emergent literacy and musical development in children (Dunst, Meter, & Hamby, 2011; Gordon 2003). In sum, the teacher-child relationships that include the teacher's impression of nursery rhymes and the child's interest in them, as well as the time spent on learning nursery rhymes and the presence of linguistic and musical challenges in nursery rhymes, are important factors that are involved in learning emergent literacy and musical skills during nursery rhyme activities.

Teachers' Practices and Training Related to Nursery Rhymes

Hawken, Johnston, and McDonnell (2005) conducted a national survey in the US of Head Start preschool teachers regarding their practices related to emergent literacy. They found that teachers often used many strategies to target emergent literacy skill, such as book and print awareness, but less frequently to target phonological awareness. They also found that the teachers tended to use more strategies that encourage children to interact with print-related material instead of strategies that involve explicit teaching and adult-child interaction. These conclusions tend to show that direct phonological awareness teachings embedded in the adult-child interaction involved during nursery rhymes is not a practice widely adopted by preschool teachers. In fact, Green, Peterson, and Lewis (2006) surveyed 180 center-based early childhood educators in the U.S. about the nature of their language and literacy activities. They found that approximately 85% reported having children sing or say a familiar nursery rhyme or song. These results show that nursery rhyme is a widely used activity in early childhood settings. However, Layton and Upton (1992) found that explicit phonological awareness training is not part of the usual nursery rhyme routines of educators in nursery classes; the educators valued those activities for the opportunity they provide for group participation, not for phonological awareness training.

Few studies addressed directly the training of teachers on how to use nursery rhymes in their classroom settings. Tibi (2005) used a questionnaire to assess elementary school teachers' knowledge and skills in phonological awareness, including the use of nursery rhymes, in the United Arab Emirates. The results revealed that teachers showed poor knowledge and skills related to using nursery rhymes and songs to promote phonological awareness development. The author argues that pre-service education program neither adequately prepared nor trained the teachers to practice or apply such skills. In fact, reviews by Moats (2009), and Cunningham, Zibulsky, and Callahan (2009) revealed that elementary school teachers in the U.S. show an inadequate knowledge base in literacy and language, especially in phonological awareness, along

with a tendency to overestimate their knowledge (Cunningham, Perry, Stanovich, and Stanovich, 2004; McCutchen, Harry et al., 2002; Moats, 1994). This might partially explain why teachers tend to not take advantage of nursery rhymes to teach emergent literacy skills.

Research Objective

The research literature has shown that the learning and recitation of nursery rhymes promotes the development of phonological awareness and musical skills that foster literacy development. Explicit instruction to help children facing the linguistic and musical challenges embedded in the nursery rhyme can accelerate this development. However, there is little evidence on how educators use nursery rhymes in kindergarten and which factors influence their use. Therefore, in the current pilot study, new nursery rhymes that included linguistic and musical challenges were created and proposed to kindergarten teachers in order to start to document whether they see these challenges as learning opportunities for their pupils. More specifically, the current pilot study aimed to document teachers' reaction to nursery rhyme as measured by: 1) teachers' overall impression of nursery rhymes; 2) teachers' perception of pupils' enjoyment of nursery rhymes; and 3) the time spent using nursery rhymes in class. Those reaction measures were put in relation to teachers' rating of the linguistic and musical difficulty of the nursery rhymes. Higher values on the teachers' reaction measure in relation to higher values of teachers' assessment of linguistic and musical difficulty would be considered to provide better learning conditions for children. In fact, better teachers' impressions, better teachers' perception of pupils' enjoyment and greater amount of time spent on nursery rhymes that are linguistically and musically more challenging should lead to more learning in children according to theory of socioconstructivism (Vygotsky, 1978).

Methods

Participants

Eighty-eight female kindergarten teachers working in 14 francophone school boards in the provinces of Ontario and Quebec (Canada) participated in the study. The gender distribution of teachers, that is, elementary school and kindergarten teachers, are 81.0% female in Ontario and 87.4% female in Quebec (Ontario Ministry of Education, 2014; Service Canada, 2014). These numbers underestimate the proportion of female teachers working in kindergarten only. In Quebec, this proportion rises to 99.1% if it takes into account kindergarten teachers only (Minister of Education, Recreation and Sports, 2014). No information about kindergarten teachers only is available for Ontario. All participants had a Bachelor of Education degree. Each participating teacher worked in a different school. The schools were located in both rural and urban environments and included pupils from a variety of socio-economic backgrounds. No data was collected on the participants' previous training and current practices regarding music education in relation to emergent literacy. In order to insure a minimal homogeneity of expertise in this domain among the participants, the teachers participated before the data collection in a 90-minute training session given by an early childhood music educator (the second author) on the integration of music education and emergent literacy into their curricula. More precisely, background knowledge was provided to teachers about key elements of music (pitch, duration, intensity, and timber). Then, activities, such as nursery rhymes, were demonstrated by addressing these four elements in relation to emergent literacy skills, including phonological awareness.

Material

With preschoolers' linguistic and musical development in mind, two speech-language pathologists (including the first author), in collaboration with an early childhood music educator (the second author), composed 20 nursery rhymes in French. Each of these nursery rhymes contained common words of varying syllabic structure (vowel-consonant, consonant-vowel, consonant-vowel, consonant), words sharing the same initial sound, rhyming words, and also two pseudo-words: the name of an invented character and an invented verb. Also, 10 of them had a binary rhythmic structure (4/4, like a march), while the other 10 had a ternary rhythmic structure (12/8, like a lullaby or waltz). Hence, half of the nursery rhymes used a common rhythm and the other half a challenging rhythm. Also, each nursery rhyme included both common and challenging words. In addition, all of them included target words that could be used for a variety of phonological awareness tasks such as syllable segmentation or blending, rhyming, and initial sound comparison. The nursery rhymes contained between 13 and 23 words and extended over approximately 20 seconds each. An example of the nursery rhymes can be found in Appendix A.

A questionnaire was also developed to collect data. This questionnaire was customized to each nursery rhyme by including its words and a list of potential phonological awareness activities with appropriate target words. For each nursery rhyme the teachers used, they were asked to indicate the amount of time spent on it in the classroom within the one-week period dedicated to the rhyme. Then, they were asked to use Likert scales to document four dimensions of their perception of the nursery rhyme. First, they had to rate their general impression of the nursery rhyme on a four-point scale: bad / good / very good / excellent. Second, they were asked to rate their perception of their pupils' enjoyment of the nursery rhyme on a three-point scale: a little / fairly / a lot. Third, the teachers were asked to assess word difficulty on three-point scale: difficult / fairly easy / easy. Fourth, the teachers had to assess the rhythm difficulty on a three-point scale identical to the previous one. An English translation of this questionnaire can be found in Appendix B.

Procedures

This pilot study took place within the context of a larger experimental study for which ethical approval was obtained from the home university of the authors. Teachers were contacted by e-mail at the beginning of the school year to determine if they were interested in evaluating 5 out of a set of 20 nursery rhymes. Four groups were formed randomly (n1 = 21, n2 = 21, n3 = 23, n4 = 23). Each teacher received the text of five nursery rhymes on paper together with an audio recording on CD, including two versions of each: the rhythm alone and the rhythm with the words. The nursery rhymes were assigned to each teacher randomly, except that each rhythmic structure was represented in each set. The teachers were asked to introduce one nursery rhyme into their classrooms each week over a period of five weeks between October and December. Apart from the initial 90-minute training session given by the second author, no additional guidance was provided to the teachers on pedagogical strategies or scheduling. Only optional phonological awareness tasks with their target words were listed in the questionnaire for each nursery rhyme. The teachers were asked to complete a copy of the questionnaire for each of the five nursery rhymes provided to them.

Analyses

Answers to the five questions of the questionnaire were entered into a spreadsheet for statistical analysis. The answers to the questions that used a Likert scale were coded into numbers (lower numbers corresponding to more negative responses and higher number for more positive responses, ranging from 1 to 4 for the question regarding teachers' impression of the nursery rhymes, and from 1 to 3 for the three other questions). Descriptive statistics were used to report the teachers' questionnaire responses. Because preliminary analyses showed that normal distribution, linearity, and homoscedasticity of the data could not be assumed, and because most of the data were ordinal (not interval/ratio), the relationships among all the variables were investigated by using the Spearman rank order correlation coefficient.

Results

The results of the questionnaires revealed that teachers dedicated a mean time of 25.8 minutes (SD = 13.8 min) on a single nursery rhyme each week. Table 1 shows the median scores and range for all other variables from the questionnaire.

Table 1Median Scores and Range for Variables from the Questionnaire

Variables	Median	Range
Impression of the nursery rhymes	Good	Bad - excellent
Perception of their pupils' enjoyment of the nursery rhymes	A lot	A little - a lot
Assessment of word difficulty	Fairly easy	Difficult - easy
Assessment of rhythm difficulty	Fairly easy	Difficult - easy

Another way to consider the data is to look at the proportion of the responses to the questionnaire that were more positive or indicative of greater ease. First, 92% of the responses on the question about the teachers' overall impression of the nursery rhymes were positive (good to excellent). Also, 85% of the responses on the question about teachers' perception of their pupils' enjoyment of the nursery rhyme were positive (fairly or a lot). In addition, 78% of the responses on the question about the word difficulty of the nursery rhymes were rated as easier (fairly easy and easy). Finally, 79% of the responses on the question about the rhythmic difficulty of the nursery rhymes were also rated as easier (fairly easy and easy).

According to the Spearman Rank-Order Correlation analysis, all variables were positively and significantly correlated to each other, except "time spent on nursery rhyme" and "assessment

of rhythm difficulty". Table 2 displays the correlation matrix that was generated by displaying correlation values (rho) between all variables from the questionnaire.

Table 2Spearman Rank-Order Correlations Among all Variables from the Questionnaire

Variables	1	2	3	4	5
1. Time spent on nursery rhymes	-	.21**	.20**	.12*	.05
2. Impression of the nursery rhymes		-	.72**	54**	.44**
3. Perception of pupils' enjoyment of the nursery rhymes			-	.61**	.55**
4. Assessment of word difficulty				-	.56**
5. Assessment of rhythm difficulty					-

^{*} p < .05 (2-tailed), ** p < .01 (2-tailed)

Another way to consider the results presented in Table 2 is to use Cohen's criteria (1988, pp. 79-81) in order to evaluate the strength of the correlation among the variables. There were small positive correlations between "time dedicated to the nursery rhymes" and all the other variables, except "assessment of rhythm difficulty." A large positive correlation was identified between "impression of the nursery rhymes" and "perception of pupils' enjoyment of the nursery rhymes." Large positive correlations were also found between "assessment of vocabulary difficulty" and both "impressions of nursery rhymes" and "perception of pupils' enjoyment of the nursery rhymes." There was a medium positive correlation between "assessment of rhythm difficulty" and "impression of the nursery rhymes," but a large positive one between "assessment of rhythm difficulty" and "perception of pupils' enjoyment of the nursery rhymes." Finally, there was a large positive correlation between "assessment of word difficulty" and "assessment of rhythm difficulty."

Discussion

The current pilot study aimed to start documenting how kindergarten teachers react to linguistic and musical challenges in nursery rhymes in their classes. In fact, the results revealed that teachers tended to spend more time, to have a better impression, and to perceive their pupils' enjoyment as more positive when nursery rhymes were judged easier from a linguistic or musical point of view. Moreover, a large proportion of the teachers' informal comments in the questionnaires expressed concerns about the pseudo-words, the level of vocabulary difficulty and

the musical structures of the nursery rhymes. They often suggested simplifying these in order to make the nursery rhymes more accessible and more meaningful to their pupils. The teachers' apparent conception that the meaning and the structure of a nursery rhyme should be easy to understand goes against what has been reported in the literature. De Santis (1986) and Kenney (2005) highlighted that nursery rhymes' educational potential lies in their rhythmic and often non-nonsensical nature. Also, according to Vygotsky's theory (1978), these challenges can become ideal learning opportunities for children if they are within the range of their zone of proximal development and if teachers provide guidance to meet those challenges. By putting more emphasis on easier nursery rhymes, teachers might target what children have already mastered, leaving less opportunity for new learning to occur. As Ezell and Justice (2005) mentioned, an interaction in which children can easily answer the adult's questions might appear more enjoyable than one inside the children's zone of proximal development, which requires more effort on the part of both parties. One explanation would be related to what Layton and Upton (1992) found: educators tend not to value nursery rhymes for the opportunity they provide for development emergent literacy and musical skills, but rather for group participation. Another important finding is the appearance of minimal impact of the initial 90-minute training workshop provided by the second author. Even if its content did not address the value of linguistic and rhythmic challenges in nursery rhymes specifically, the results regarding their reactions to these challenges and the nature of their informal comments tend to show that teachers tend to invest more in easier nursery rhymes.

Limits of the Study

First, the nursery rhymes employed were developed specifically for this study and had never been used in a preschool setting before; results about teachers' reaction to those nursery rhymes may not reflect the reaction they would have towards more traditional one. However, early childhood practitioners who had extensive experience in preschool settings created them. Second, the teachers provided only their name, school or school board identification in responding to the questionnaire; no information was collected about their professional status, such as their years of experience as kindergarten teachers, their knowledge of phonological awareness, their own music education or their previous training and current practices regarding the integration of nursery rhymes in their classroom. Having this additional information would have allowed a more detailed interpretation of the results. Third, from a methodological point of view, correlational studies allow the observation of links among variables; though they can suggest the existence of a relationship, they cannot prove that one variable causes a change in another variable. In other words, correlation does not imply causation. It would have been more informative to observe teachers directly in their classrooms. Finally, the data collection method (self-reporting through questionnaires) may not reflect accurately teachers' reactions to the nursery rhymes. Here again, direct observation of the teachers in their classrooms would have provided more accurate results.

Education and Research Outcomes

The results of the current study suggest a necessity to improve initial university training and continuing education for kindergarten teachers regarding nursery rhymes as an educational tool. This training should allow more emphasis on the importance of the rhythmic and non-sensical nature of nursery rhymes, the rhythm being a key component of musical education, and

the advantage of sonority of the words over their meaning a key component for phonological awareness development. It should also integrate the principle of "scaffolding," which, according to Bruner (1983), is tailored to the needs of the children the support provided during learning activities. This calls educators to adjust the support they provide to their pupils in order to guide them toward the mastery of new skills. This principle could encourage teachers to go beyond the recitation of easier nursery rhymes and exploit the full educational potential of more challenging nursery rhymes. To do so, between two recitations of the same nursery rhymes, the educators could choose words, even if they are not well understood, in order to focus children's attention on their phonological features, such as syllables, rhymes and sounds, or reproduce the rhythmic structure of the nursery rhyme using wooden blocks. The teacher would have to initially provide explicit instruction to model the phonological awareness or musical skills in front of the children. Then, he would encourage them to try to execute the skill previously demonstrated with support to help them (e.g, multiple choice questions or working as a group). Finally, the teacher could withdraw the support he provided in order to let the children execute the task independently. The addition of carefully "scaffolded" instruction that targets emergent literacy and musical skills could contribute to pupils' success in school.

As a pilot study, it is clear that the current research project provides only initial findings regarding teachers' use of nursery rhymes as an educational tool. In-depth studies requiring more resources allowing for direct observation would yield more accurate information about teachers' pedagogical behaviors within the context of nursery rhymes. This information would guide more precisely the content of pre-service training and professional development workshops offered to teachers in order to guide them further in more efficient promotion of pupils' development in school.

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Appendix A

Example of nursery rhyme

Title: Laco le loup

Laco gentil loup

Plein de poils tout partout

Petite bouche et sans dentier

Tu peux nous prouler

Appendix B

Questionnaire

Name:	School	:				
	Easy syllable segme	ntation		(target words)		
	Advanced syllable so	egmentation		(target words)		
	Easy syllable blendi	(target words)				
Nursery rhyme #	Advanced syllable blending					
	Rhyme awareness	(target words)				
(Nursery rhyme words)	Easy initial phoneme awareness			(target words)		
	Advanced initial pho	oneme awareness		(target words)		
	Nursery rhyme character name (pseudo word)			(target word)		
	Pseudo verb					
How much time did you spend on this nursery rhyme during the week?	Approximately:	minutes		*		
What is your general impression of this nursery rhyme?	bad	good	very go	od excellent		
Did your pupils enjoy this nursery rhyme?	a little		fairly	a lot		
The words were:	difficult		fairly easy	easy		
The rhythm was	difficult		fairly easy	easy		