

2014

Training of School Teachers in West Africa: Remediation of Reading Difficulties through Training in Phonological Awareness and Letter Names

Sophie Briquet-Duhazé
ESPE de l'Université de Rouen, sophie.briquet@univ-rouen.fr

Follow this and additional works at: <https://preserve.lehigh.edu/fire>



Part of the [Adult and Continuing Education and Teaching Commons](#), [Bilingual, Multilingual, and Multicultural Education Commons](#), and the [International and Comparative Education Commons](#)

Recommended Citation

Briquet-Duhazé, S. (2014). Training of School Teachers in West Africa: Remediation of Reading Difficulties through Training in Phonological Awareness and Letter Names. *FIRE: Forum for International Research in Education*, 1(1). <http://dx.doi.org/10.18275/fire201401011001>

This Article is brought to you for free and open access by Lehigh Preserve. It has been accepted for inclusion in FIRE: Forum for International Research in Education by an authorized editor of Lehigh Preserve. For more information, please contact preserve@lehigh.edu.

Training of School Teachers in West Africa: Remediation of Reading Difficulties through Training in Phonological Awareness and Letter Names

Abstract

The training of teachers of West Africa is carried out by the Academy of Rouen (France) and organized around an annual training plan approved by the AEFÉ. Each trainer only supervises twenty teachers for 5 days. Teachers from eight countries (Mauritania, Cape Verde, Senegal, Gambia, Mali, Guinea, Côte d'Ivoire and Burkina Faso), come to Dakar for a week. We have been asked four times in Dakar (Senegal) to provide training for teachers of West Africa. It is all about being trained in order to resolve reading difficulties for students using our scientific research. This paper presents the theoretical framework of phonological awareness and letter names and the 0 phase and the beginning of Phase 1 of our research. We use these predictors as remedial reading difficulties among students aged 8 to 11 years. We present the first results.

Résumé: La formation continue des professeurs des écoles en Afrique de l'Ouest est réalisée par l'Académie de Rouen (France) et est organisée autour d'un plan de formation annuel validé par l'AEFE. Chaque formateur organise un stage de 5 jours pour une vingtaine d'enseignants. Ceux-ci sont issus de huit pays (Mauritanie, Cap Vert, Sénégal, Gambie, Mali, Guinée, Côte d'Ivoire et le Burkina Faso) et viennent à Dakar pour une semaine. Nous avons encadré quatre fois un stage à Dakar (Sénégal). Tous avaient pour objectif de contribuer à résorber les difficultés en lecture des élèves en nous appuyant sur notre recherche scientifique. Cet article présente le cadre théorique du nom des lettres et de la conscience phonologique lors de la phase 0 et du début de la phase 1 de notre recherche. Nous utilisons ces prédicteurs des difficultés comme remédiation en lecture chez les élèves âgés de 8 à 11 ans. Nous présentons ici les premiers résultats.

Die Lehrerbildung Westafrikas wird von der Akademie von Rouen (Frankreich) durchgeführt; sie wird entlang eines von der AEFÉ genehmigten Jahresplans organisiert. Jeder Trainer betreut zwanzig Lehrer_innen für 5 Tage; und Lehrpersonen aus acht Ländern (Mauretanien, Kapverden, Senegal, Gambia, Mali, Guinea, Elfenbeinküste und Burkina Faso) kommen für eine Woche nach Dakar. Die Autorin nahm viermal in diesem Lehrgang teil und beteiligte sich an der Aus- und Weiterbildung für Lehrer_innen aus Westafrika. Dieser Beitrag fokussiert die Inhalte des Lehrgangs, welche auf die Behebung von Leseschwierigkeiten der Schüler_innen abzielen. Der Artikel stellt den theoretischen Rahmen der phonologischen Bewusstheit und Buchstabennamen (phonological awareness and letter names) sowie Phasen 0 und Beginn der Phase 1 unserer Forschung. Wir nutzen diese Prädiktoren als Fördermaßnahmen für die Behebung von Leseschwierigkeiten bei Schüler_innen im Alter von 8 bis 11 Jahren und stellen erste Ergebnisse vor.

Keywords

continuing education, African studies, phonological awareness, letters, oral language, reading difficulties

TRAINING OF SCHOOL TEACHERS IN WEST AFRICA: REMEDIATION OF READING DIFFICULTIES THROUGH TRAINING IN PHONOLOGICAL AWARENESS AND LETTER NAMES

Sophie Briquet-Duhazé¹

ESPE de l'Académie de Rouen, France

Introduction

In France, the continuing education of teachers from West Africa is a mainstay of the teaching profession. This continuing education revolves around an annual training program approved by the AEFÉ (Agency for French Teaching Abroad) in a special partnership with the school district of Rouen, France. The AEFÉ-approved training program was established and is comprised of 29 hours of training over five days each year. Each trainer participating in this program asked to cover specific themes and then independently supervises about twenty teachers. The West African teachers come from French schools in seven countries (Mauritania, Cape Verde, Senegal, Gambia, Mali, Guinea and Burkina Faso) to Dakar, Senegal, to take part in the training course. Participating teachers are expected to pass the content taught during the training session on to their colleagues in each of their home countries. The inspection of French schools in West Africa is led by a school inspector from the French Department of Education and two education consultant managers based in Dakar, Senegal, and Abidjan, Ivory-Coast – where the training also took place during 2009-2010.

The French school district in West Africa gathers twenty-eight schools together (9 subsidized, 2 in direct management, 15 accredited, and 2 authorized). That is 10,300 pupils of diverse origins and nationalities all mixed together in elementary school. As the inspection report suggests, it is “*marked, as it is seen, by a strong diversity, the whole of our establishment in West Africa does not constitute just one network of schools and teachers federated in united actions but on the level of cultural projects and teaching only of the continuous development of the training program.*”² The public is sometimes very heterogeneous, including children from more than twenty nationalities who all learn in French. Children can enter the first grade without speaking any French because while some establishments gather more than 90% of French pupils,

¹ Correspondence: Sophie Briquet-Duhazé, ESPE de l'Académie de Rouen, 2 rue du Tronquet, 76130 Mont-Saint-Aignan, France; Email: sophie.briquet@univ-rouen.fr.

² www.ipefdakar.org

some others gather less than 15%. Buildings differ from one school to another in terms of equipment, electricity (power cuts), resources and access to teaching materials. Pre-school education for pupils is not even possible in several schools.

Like teachers in France, the official framework of the teaching profession in West Africa is made of programs in force (Bulletin Officiel de l'Éducation Nationale Hors-Série n°3 du 19 juin 2008). This noticeable framework offers, through the district site or the library, the same distinctive features shared by every single teacher. Needs and expectations are many and varied, however a consensus exists concerning school failure in terms of reading. Special attention has been given to the training, thus teachers are taking part in training sessions every two years.

Situation and Problematic Issues

The ESPE de l'Académie de Rouen have been invited four times to Dakar to provide training for West African teachers. These invitations are specifically about being trained to use scientific research on phonological awareness and letter names to resolve reading difficulties for students. Presented here are the results of a longitudinal study from a control of available data demonstrated by the knowledge of phonological awareness with pupils in their last year of nursery school along with reading success. Knowledge of phonological awareness is indicated by measures of training of phonological awareness, knowledge of letter names and improvement of reader's skills. The rationale for the training program is based on the fact that even if this training cannot overcome all difficulties, there is evidence of a real effect on a certain amount of pupils.

Phonological Awareness

In order to learn how to read, the child must understand the alphabetical principle that consists, when a word is read, in making a succession of letters match with the equivalent succession of sounds (Rieben & Perfetti, 1989). In France, this procedure is generally called decoding, and is learnt in second grade (GS, CP, CE1, CE2 in French). The more this procedure becomes automatic, the more the pupil will focus his attention on the understanding of the text read (Gentaz & Dessus, 2004; Demont & Gombert, 2004). However, the French alphabetical system is not as simple; letters do not correspond with oral syllables but instead correspond with smaller units called phonemes. For this reason a conscious analysis of oral language is needed. Gombert (1990, p. 29) defines the metaphonological capacity as being "the capacity to identify the phonological components of the linguistic units and to handle them in a deliberated way." The designation and intentional manipulation of word units (syllables, rhymes, and phonemes) are two different competences, but both are important to master.

Many scientific works have shown a correlation between the level of phonological awareness and the success of learning to read. These are mainly related to the English language (Tunmer, 1991; Bradley & Bryant, 1991; Bryant, 1993), but also languages such as Italian, German and Spanish. In this sense French studies are unusual, yet still converge with the previous ones (Lecocq, 1986; Morais, 1994; Ecalle, 2000). It is important to understand that these results are greatly affected by dyslexic children in which important difficulties have been observed concerning this phonological process (Lecocq, 1991; Sprenger-Charolles & Casalis, 1996; Sprenger-Charolles & Colé, 2003). Liberman (1973) and Liberman, Shankweiler et al. (1974) serve as a reference concerning syllables and phonemes authentication. Children between four and six years old have been asked to demonstrate the number of syllables within a word by taping them out on a table. To carry out this task, the recorded number of trial mistakes is measured for each age bracket. If the distinction of syllables is generally a success as a whole,

the six year old will be the only one able to count phonemes. Like many other authors (Vellutino & Scalon, 1987; Tummer, 1989), their conclusion states that this development may occur later.

The first work about the identification of rhymes is dated from the 1980s (Lenel & Cantor, 1981; Smith & Flusberg, 1982) and concerns children between 3 and 7 years old. With a choice of two words, children have been asked by the authors to identify the one that rhymes with the word initially given. For the 3 year old children the percentage of success is more than 60%, whilst 7 year olds reach a success rate of 90%. Bradley and Bryant (1983) suggest to older children from four to five years old to pick out the odd word amongst three to four words which are spoken. The odd word is the word which does not rhyme and the training consists in using them. The experimental group has recorded results higher than the control group, ahead of the latter by approximately one school year. However, the nature of the most common units to work (syllables, rhymes or phonemes) is still subjected to discussion, as Bara, Gentaz and Colé (2004) emphasize. In this respect, Goswami (1993) believes that rhyme awareness is most important. However others believe that phonemic awareness itself makes it possible to predict the success of the reading training (Ehri et al, 2001; Sprenger-Charolle & Colé, 2003). Most scientific support seems to focus its attention on this last thought.

The training of these metaphonologic competences has a significant effect on the success of reading, by particularly increasing competences in decoding, orthography and writing skills (Lecocq, 1991). It appears it is essential to train the phonological awareness, the phonemic awareness in particular and to involve the corresponding letter-sounds. We define phonological awareness as the conscious knowledge that words of the oral language are made up of smaller units. If children acquire this knowledge when they learn how to read (beginning in first grade) it appears to be a prediction for success in the process of learning to read, so long as it is progressive, regular and continual.

In this respect, didactic tools are at the disposal of teachers (Adams, 2000; Goigoux, Cèbe, & Paour, 2004) and assist the progression of the learning process (Lecocq, 1992; Gombert, 1990; Gombert & Colé, 2000) by first taking on syllables (available at around 4 years), then phonemes whose study must remain extensive. However, the position of the rhymes awareness study is still vague and highlights issues to measure its level of success.

If phonological awareness is recognized as a predictor of learning to read, only a few have studied results on pupils aged from eight to ten years old. In France, as far as is known, only a few studies on the effects of the training of phonological awareness have been conducted on children aged between eight and eleven in order to measure the impact it may have on their reading progress. In 2000, Chardon evaluated the effects of tutoring sessions on pupils expressing difficulties (comprehension and decoding) in three classes of second grade. Pupils were divided into three groups: training of oral language, segmental analysis of speech (rhymes, syllables, phonemes) and manipulation of grapho-phonetic code. In turn, these showed no significant difference in terms of level (A and B taking the same training and a reference group). The hypothesis of research rests on the fact that if decoding problems is the reason for poor understanding, acting on word recognition should improve reading comprehension.

Results show that A and B progressed more significantly than the reference group in both reading aloud and improvement in understanding, which most concerned children who did not understand much of what they read. Some Anglo-Saxon works (Caravolas et al, 2005) have provided evidence that phonemic awareness is important in reading fluency and spelling. They

compared two groups of children aged between six and twelve years old. The first group is composed of Czech children (Czech has a transparent orthography) and the second with English children (English spelling is called non-transparent). Whatever the group, the consistency of spelling and phonemic awareness appears to be a particularly strong predictor for reading speed, but also understanding skills. An older study from Gillon and Dodd (1995) is directly related to our research because it looked into the effectiveness of a program carried out on children aged between ten and twelve years old with school difficulties. On one hand this training aims for a performance improvement in phonological awareness and on the other, an enhancement of semantics and syntactic skills. The first group completed the program with phonological awareness first and then semantics and syntax. The second group completed it the other way around. It is important to notice that this training took place at school two hours per week for six weeks. Results show that these two gaps can be diminished one after the other and also have shown good effects on the quality of reading and understanding. The phonological awareness training seems to be more efficient regarding the quality of reading; nevertheless, both of these programs have positive effects. It is relevant to note that this research concerns only a dozen children with school difficulties.

The Knowledge of Letter Names

The recognition of letters is a basis of reading (Longcamp, Lagarrigue, & Velay, 2010) and is composed of three units: name, sound and the written form of letters. The authors above specify that when this recognition is not carried out by an adult, individuals will produce a slow and laborious reading. For Coltheart et al (2001), it is about the mental process of lines detection that have to be all put together in order to result in a visual representation of each letter that forms a word. Longcamp et al (2010) develop a pattern of recognition, mainly visual, based on scientific research, which uses measurements in medical imaging.

Bonnefoy and Rey (2008), reinforce that knowledge of letters is the first form of training, mixing both written and oral units. When children do not master knowledge of letters enough, they cannot develop their writing knowledge. Treiman (2006) assures that the knowledge of letters name enables a child to deduce letters sounds; that way the pupil manages to establish a first grapheme/phoneme connection. However, it seems that it is as important for the child to recognize the letters as it is to name them as soon as possible (Bonnefoy & Rey, 2008). This knowledge and these automatic reflexes would be two significant factors in reading development.

This ability to name letters is one of the most powerful predictors in reading training and orthography (Foulin & Pacton, 2006). Children who control the name of letters at the beginning of first grade (CP in French) learn how to read faster and better than others. For Foulin (2007) a letters name is far from being a knowledge acquired by all the pupils at the entrance of CP. After three weeks of first grade, the average amount of letters known is about 17 out of 26. 20% of pupils would name less than twelve letters. Differences can be noticed between children who acquire automatic reflexes, while others seek this knowledge acquisition.

Labat, Ecalle and Magnan (2010) tried out three different trainings: graphomotor (to highlight letters), haptic (to touch a foam-rubber letter) and visual (to look at the letter). Graphomotor and haptic effects are more effective at the age of five. The knowledge of a letters name results in the phonetic knowledge (Hilaret de Boisféron, Colé, & Gentaz, 2010). According to Biot-Chevrier, Ecalle and Magnan (2008) only children knowing a letters name

have the ability to segment words into attack-rhymes. Young children able to put a name on letters get better results in orthography and phonological awareness in the study produced by the previous authors. In this way, to be aware of a letters name could affect the syllabic and the phonemic awareness. Early knowledge of letters contributes to the first orthographic works (Biot-Chevrier, Ecalle, & Magnan, 2008). In French:

- the name of vowels equals their phonemic value (sound): a-e-i-o-u ;
- the phonemic value of consonants is generally included in their name:
 - Into the initial position (structure CV): b-d-j-k-p-q-t-v-z;
 - Into the final position (VC): f-l-m-n-r-s;
- the relation name-sound is less perceptible for: c-g-w-x ;
- h, y. The letter "h" has no sound and the letter y (i in French) has a name like the "i" and more sounds.

Each letter has only one name but can make up several sounds. The knowledge of a letters sound is clearly taught at school, yet the knowledge of a letters name is not always taught. It is usually easier to learn a letters name than sounds (Share, 2004; Ecalle, 2004; Foulin & Pacton, 2006).

- If the sound is within the name of the letter it seems easier to learn. Example: the name of "d" makes the acquisition of [d] easier.
- Letters with several sounds are more difficult to memorize. Example: "c" [s] [k].
- When the sound is heard at the beginning of the letter's name, it is easier to remember: "d".
- When the sound is heard at the end of the letter's name, it is more difficult to retain: "f".

What are the factors taking part in the knowledge of letters? According to Justice and al. (2006): three points have to be tackled:

- Letters from the first name are better known than letters that do not appear in the name (1.5 times). Children know the first letter the most. Letters from the first name do not seem to have any effect on the knowledge of their sound. (Treiman & Broderick, 1998).
- The order of letters in the alphabet: the first ones are the most known.
- Children learn letters in which the name is told within the sound more quickly: b, f, and p are better known than c ([s] - [k]), g ([j] - [g]), h ([]).

Research Training and Teacher Training: Data and Methods

We wanted to do this longitudinal research with a large sample of pupils, whole classes, the training being carried out by the school teachers themselves so that the results may be reproduced, as far as possible, by other teachers in other classes, either in France or West Africa. From the start the sample was made up 445 pupils from five schools who were aged between 8 and 10 years old. The objective of this exploratory research (called stage 0) is to check the transposition of the results previously described in the theoretical framework. Compared to stage 0, stage 1 will be the object of a statistics processing. In September 2007, the 445 students were assessed in order to know exactly what their level of phonological awareness was. The

evaluation was individually conducted by teaching staff from schools, for example: teachers, principals or headmasters, and school monitors.

The assessment was strictly identical for everyone and was recorded on tape (voice, speed, instructions, return instructions, explanations, and examples) in order to eliminate "the teacher effect" as much as possible. However, for a certain amount of pupils, it was possible to pause the recording in order to provide additional time for response. We noticed that French pupils would rather not answer a question than say something wrong. So, we decided to adapt the assessment taking this observation on board. Highlighted by some international assessments programs such as PISA (Program for International Student Assessment) this observation hides the source of errors and the possibility to solve it more efficiently. On the contrary, for example, American pupils provide an answer based on their general knowledge, whatever the question is.

The assessment consists of checking the notion of word (item one) which allows us to look into the mental representations of writing when it is supposed to be understood for most pupils of a certain age. Then follows the notion of rhyme (items 2 and 3), the notion of syllable (items 4, 5 and 6), and the notion of phoneme (items 7 and 8). Questions are composed of various instructions (remove, add, count ...). The evaluation lasts about 17 uninterrupted minutes and the appraiser reports pupils' answers in a file prepared in advance.

In October 2007, when the results were released and the success rate established for each pupil in every single item (example: 1/3, 3/4 ...), individual results were presented to every teacher according to the following coding:

Pupils "in difficulties"

- Dark gray: pupil who failed 5, 6, 7 or all items. They are called the "difficulty" group of students or "great difficulty".

Pupils 'average'

- White: pupil who failed 2, 3 or 4 items. This category is called "average" pupils.

"Good" pupils

- Light gray: pupil who failed one item or passed all items. The latter is the pupil's good level.

A training procedure was developed in accordance with all the pupils' results. It is defined according to the following development: The first sequence conducted in November and December 2007 included 5 weeks (10 sessions spread in 2 weekly sessions of 20 minutes). This first sequence focused on rhymes work (recognition, proposition) and syllables (segmentation, fusion, in order or disorder). The second sequence lasted 12 weeks, 24 sessions, which took place between January and April 2008. This sequence dealt with phonemes (recognition, ranking, deleting, adding, merging, and locating).

The final evaluation took place in June 2009 with the 267 pupils remaining (those who did not change school or pass onto junior high school yet). Instructions remained the same, but the content was different. We used the same coding which enabled us to establish a comparative table for each student. It is important to note that a few years ago school teachers (three cycles combined) received training in phonological awareness in this district. This situation also applies to teachers in West Africa.

Altogether we observed that 4.12% of students in difficulty (dark gray) out of 13.48% are out of this category. Pupils in difficulty seem to benefit most from this training.

Table 1: Results for both assessments regarding the 267 pupils.

	Pupils «in difficulties»	Pupils 'average'	"Good" pupils	Total
2007-08	36 13,48%	145 54,31 %	86 32,21%	267 100%
2008-09	25 9,36%	141 52,81%	101 37,83%	267 100%
	-11 - 4,12%	-4 - 1,5%	+15 + 5,62%	

During the initial assessment, pupils were not familiar with the concept of word (12 words in a sentence like "I play with a ball"). They had a little rhyme awareness (find a word that rhymes with "plug" response "mouth", inability to find a word rhyming with "boat"). Exercises on syllables are less problematic. However, if the scansion is almost always successful (how many syllables are there in the word "chocolate"?), the merger of syllables is very irregular (for syllables said in the right order (co chon = pig), but is almost always a failure for syllables said in a random order (der-bin = "file" or "no answer" or "other answer"). We observe that when it comes to phonemes the manipulation causes less failure, but the results in case of failure are strongly associated with a lack of building up concepts concerning oral word and rhyme. Profiles from other classes show better success in total and also suggest that when training lasts beyond 7 years old, pupils do not fail, especially when we compare results from different classes belonging to the same establishment. After years of education, it seems that the non-mastered skills registered at the end of kindergarten are still not digested and school cannot instill these essential skills in pupils if there is no settled training scheduled.

We have compared the results of pupils in difficulty during the first assessment, that is to say pupils who failed more than four out of eight items. They were 36 pupils during the initial assessment and 25 after training. We have seen some improvement either with syllables or rhymes exercises. Even pupils with only two or three items failed have shown progress.

Training Methodology

The training for the West African teachers typically begins by soliciting the staff, who are responsible for dealing with all teacher training courses, to provide objectives and titles of training sessions. The program is then decided after the needs of teachers are established, the official texts they will use identified, and the characteristic of the particular West Africa zone the teachers are from is carefully considered. Contents are suggested by the trainer and are subject of debate with the Inspector of National Education (IEN). The training is planned to align with a schedule prepared ahead of time.

As a participant in these ongoing training programs, my objective is to teach the ability to read in French and aim for success regardless of the reality of the teaching conditions. As we have seen before, there is a strong heterogeneity between teachers (some have a French college education, while others are just locally-recruited teachers). There is also strong heterogeneity among pupils (many nationalities, French is not always spoken as a native language during their first school year), and there are cultural differences as well. The control of the oral language and especially the phonological awareness and the training of a letters name are important in this training as it is considered a premise for the learning process of reading.

Formation by Research

In various countries, a training course always starts with a mutual presentation and an introduction to the reading practices in class, as well as drawing an inventory of questions that participants may ask regarding the topic. The first day of the training course begins with a summary of the latest research concerning the reading training in order to be able to include answers to the questions previously asked. The participant (also known as an “intern”) only has one tutor during the week so that it is possible to take some time to deal with theoretical contributions in depth, to establish a link between all linguistic extents, to put into perspective the research development with the practice extent and also to be reassured. It means making sure that the link required between “theory and application” exists.

In France, because of isolated, interspersed and hardly coordinated interventions, it remains difficult. However, we have been asked to maintain and respect a balance between all theoretical contributions, work groups, productions and experimentations. In West Africa, it seems that all the possible quirks coming across from continuing education could be the object of special attention because the geographical framework of the district is a possible source of difficulty.

Teaching Training

In conjunction with the previous one, the teaching training consists of producing tools and experimental references in classes. Interns’ testimonies from various countries help us to adjust these tools as closely as possible but the framework always remains common. During a recent training session, for example, based on reading process courses and on the production of written works - trainees of primary school had the opportunity, to carry out the progression of work activities for the three years of primary (called GS, CP and CE1 in French).

Thus, per two months period, from September to June, teachers have listed different activities connecting a topic, a field of phonological awareness, a lexicon to be mastered and connected graphemes/phonemes. The unit was developed with a dictation for the adult (teacher) and independent work groups in class. The construction of this tool requires a solid scientific contribution, an institutional composition, tools put at the disposal of trainees such as the list of the most frequent phonemes, and the most common words, lexical skills to work on. It also requires enough time for reflection and development. If each teacher used the most frequent words, he or she also used specific words using his or her background (from various countries). Setting these factors back in context is only possible when a common way of working applies, offering the West Africa zone the consistency necessary for a unified training.

After the training course, the tutor provides a report, which is available online to allow the teachers attending and also for all those from the zone, to have access to the documents. At

the end, the training course is then evaluated by the person in charge of the organizer establishment. Trainees also evaluate it on the site of the AEFÉ about a month after its closure. The trainer is allowed to consult the individual evaluation.

Analysis and Relevance of this Training Course

My research perspectives focus on the practice of phonological awareness and a letters name seen as a way to help students aged between 8 and 10 years old who demonstrate difficulties in reading (after the process of learning how to read). One limitation of this training course is that it is not possible to follow the accomplishment in each classroom from all African countries. However, personal experiences suggests that there is significant positive feedback from teachers in other courses. In a complicated context, the methodology of the oral language training (phonological awareness and a letters name) has a prevention objective as well as to contend with school failure concerning reading. This training can be common in relation to the pursued goal but also can be reproduced.

The first stage of the research (called stage 1) consists in doing the same initial and terminal assessments with 300 pupils divided in two groups (experimental: 235 pupils and control 65 pupils); pupils having low scores in reading. The length of the training has been extended to three years. The initial assessment at the beginning of CE2 (8 years old) is about the knowledge of letters name and phonemic awareness as well as sentences read out loud, regular words, irregular and pseudo-words.

In December 2012, a partial assessment was carried out with a class of CM1 pupils (9 years old), the final evaluation will take place in June 2014 with CM2 (10 years old). The experimental group was divided in two groups, one group following a training in phonological awareness and knowledge of a letters name (110 pupils), while the other one only follows a phonological awareness training (125 pupils). Results are used for statistical processing in order to update potential relationships comparing groups horizontally or longitudinally. One out of two pupils does not know all the letters in the alphabet. We have observed mistakes and made a note of the different propositions. For all pupils the number of mistakes per letter has been registered in a table (an example is provided in Table 2).

Table 2: Number of errors in the name of each letter.

a	b	c	d	e	f	g	h	I	j	k	l	m
0	9	7	17	1	0	18	4	0	28	9	32	1
n	o	p	q	r	s	t	u	v	w	x	y	z
2	0	10	54	0	18	2	1	0	8	14	31	2

Letters known by the 300 pupils are a-f-i-o-r-v. No confusion has been made between "f" and "v" for example. Letters have been subjected to many mistakes, in the order of growth: q-y-j. We have noticed same mistakes among pupils in stage 0. It is therefore important to analyze the type of mistake and if it is recurrent in or with many children. "l" is mostly confused with the "i" (24 mistakes and six pupils name it "one") while the letter "y" is called many different ways ("x", "j", " i ", " k ", " w "). In phonological awareness, results show highest in the pupils with difficulties in comparison to phase 0.

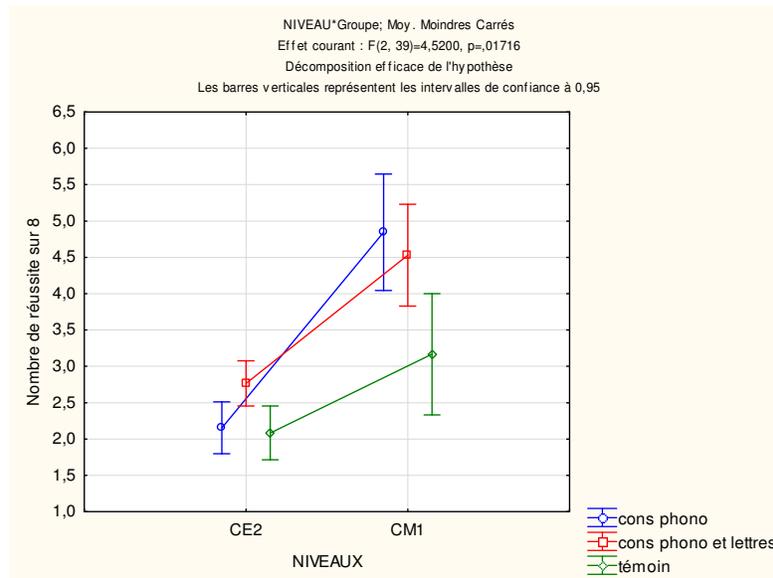
Through the follow-up work and the comparison with the three groups we will fulfil the function of the training of phonological awareness related or not with the letters name for pupils having difficulties in reading more effectively, both in France and West Africa.

Table 3: Results of phonological awareness in the initial assessment, phase 1.

	Pupils «in difficulties »	Pupils 'average'	"Good" pupils	Total
Initial evaluation	119	150	31	300
2011	40%	50%	10%	100%

After the initial evaluation in September 2011, teachers of CE2 (8 years old) conducted training of phonological awareness from January to June 2012 (experimental group 1 and 2) and letters name (experimental group 2) in a progression established by the research worker and a file. In December 2012, a certain amount of pupils (N = 42) spent a middle evaluation in CM1 (9 years old), which allows us to have a look at the level improvement of pupils, at time "T". Results were subjected to a statistical processing using "SPSS 20" and "10 Statistica" software³.

Table 4: Level improvement of 42 students "in difficulty" between CE2 (8 years) and CM1 (9 years) for each of the three subgroups (blue: phonological awareness; red: phonological awareness and letters name; green: control group).



³ Work done in collaboration with A. Rezrazi, Maître de Conférences in Psychology, Psynga Laboratory, University of Rouen, France.

Students from experimental groups significantly get better. For each of the three groups, the breakdown of items allows us to identify items in which progress is significant. The three groups significantly improve in the second and third rhyme items (unlike what we observed in stage 0). The control group does not improve other items. The experimental group "training in phonological awareness" improves items number 6 (abolition of the last syllable) and number 7 (phoneme discrimination). The experimental group "training in phonological awareness and a letters name" substantially improves item 1 (concept of word).

Conclusion

We had the wish in stage 0 of our research, to test deductive hypotheses with studies dealing with phonological awareness as predictors of reading. The positive results in this stage have enabled the training of school teachers from West Africa, but also the establishment of stage 1. Our research on training phonological awareness and knowledge of letter names ended in June 2014. The statistical processing performed allowed us to uncover some correlations and compare groups according to an initial assessment (CE2, November-December 2011), intermediate assessment (CM1, December 2012 - January 2013), and terminal assessment (CM2, June 2014).

We need to check the effectiveness of skills mastered in terms of reading performance beyond the improvement of metaphonological skills among pupils in difficulty (aged from 8 to 10). That is why we have results of reading out loud, regular words, irregular and pseudo-words assessments. If our initial results had shown a significant improvement in the greatest difficulty demonstrated by the experimental groups after a year and a half (between CE2 and CM1), we must, of course, wait for the drive to measure differences or not between the initial level and terminal among all students in the three groups. However, these results contradict the non-effectiveness of training phonological awareness in older students. This final analysis is provided for all three groups, particularly in relation to the decoding rate of growth. As a result, these results suggest that the training of teachers from West Africa is having a measurable impact.

References

- Adams Jager, M. et al (2000). *Conscience phonologique*. Montréal : Chenelière/McGraw-Hill.
- Bara, F. Gentaz, E., Colé, P. (2004). Les effets des entraînements phonologiques et multisensoriels destinés à favoriser l'apprentissage de la lecture chez les jeunes enfants, *Enfance*, 4 (vol 56), 387-403.
- Biot-Chevrier, C., Ecalle, J., Magnan, A. (2008). Pourquoi la connaissance du nom des lettres est-elle si importante dans l'apprentissage de la langue ? *Revue Française de pédagogie*, 162, 15-27.
- Bonnefoy B., Rey A. (2008). Automatisation des lettres chez l'apprenti-lecteur. *L'Année Psychologique*, 108 (2), 187-206.
- Bradley, L., Bryant P.E. (1983). Categorizing sounds and learning to read: A causal connection. *Nature*, 310, 419-421.

- Bradley, L., Bryant, P.E. (1991). Phonological skills before and after learning to read, in Brady, S., Shankweiler D, (Eds). *Phonological processes in literacy: a tribute to Isabelle Y. Liberman* (pp. 1-34). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Bryant, P.E. (1993). Conscience phonologique et apprentissage de la lecture. In J.P. Jaffré, L. Sprenger-Charolles, M. Fayol (Eds). *Lecture-Écriture : acquisition* (pp. 176-192.). Paris : Nathan.
- Caravolas, M., Volin, J., Hulme C. (2005). Phoneme awareness is a key component of alphabetic literacy skills in consistent and inconsistent orthographies: Evidence from Czech and English children. *Journal of Experimental Child Psychology*, 92, 107-139.
- Chardon S.C. (2000). Expérience de soutien en lecture auprès de faibles lecteurs de fin de cycle 3. *Revue Française de Pédagogie*, 130, 107-119.
- Coltheart M. et al (2001). DRC: a dual route cascaded model of visual word recognition and reading aloud. *Psychological Review*, 108, p. 204-256.
- Demont, E., Gombert, J.E. (2004). L'apprentissage de la lecture : évolution des procédures et apprentissage implicite, *Enfance*, 3, 245-257.
- Ecalte, J. (2004). Les connaissances des lettres et l'écriture du prénom chez l'enfant français avant l'enseignement formel de la lecture-écriture. *Psychologie Canadienne*, 45 (1), p. 111-119.
- Ecalte, J., (2000). Prédiction de réussite scolaire en lecture-écriture au cycle II. *Revue européenne de Psychologie appliquée*, 50, 81-85.
- Ehri, L. C., Nunes, S.R., Willows, D.M., et al (2001). Phonemic awareness instruction helps children learn to read: evidence from the National reading Panel's meta-analysis. *Reading Research Quarterly*, 36, 250-287.
- Foulin, J.N. (2007). La connaissance des lettres chez les prélecteurs : aspects pronostiques, fonctionnels et diagnostiques, *Psychologie Française*, 52, 431-444.
- Foulin, J.N., Pacton, S. (2006). La connaissance du nom des lettres : précurseur de l'apprentissage du son des lettres, *Education et Francophonie*, XXXIV-2, 28-55.
- Gentaz, E., Dessus, P. (éd.) (2004). *Comprendre les apprentissages. Sciences cognitives et éducation*. Paris : Dunod.
- Gillon G., Dodd B. (1995). The effects of training phonological, semantic and syntactic processing skills in spoken language on reading ability. *Language, Speech and hearing services in schools*, 26, 58-68.
- Goigoux, R., Cèbe, S., Paour, J.L. (2004). *Phono. Développer les compétences phonologiques*. Paris : Hatier.
- Gombert, J.E. (1990). *Le développement métalinguistique*. Paris : PUF.
- Gombert, J.E., Colé, P. (2000). Activités métalinguistiques, lecture et illettrisme In M. Kail & M. Fayol (Ed.). *L'acquisition du langage : le langage en émergence de la naissance à trois ans*. T1. Paris: PUF.

- Goswami, U. (1993). Toward an interactive analogy model of reading development: decoding vowel graphemes in beginning reading. *Journal of experimental Child Psychology*, 56, 443-475.
- Hillairet de Boisféron A., Colé P., Gentaz E. (2010). Connaissance du nom et du son des lettres, habiletés métaphonémiques et capacités de décodage en GS. *Psychologie française*, vol 55(2), 91-111.
- Justice L. M., Pence K., Bowles R., Wiggins A. K. (2006). An investigation of four hypotheses concerning the order by which 4-year-old children learn the alphabet letters. *Early Childhood Research Quarterly*, 21, 374-389.
- Labat H., Ecalle J., Magnan A. (2010). Effet d'entraînements bimodaux à la connaissance des lettres. Etude transversale chez des enfants de trois à cinq ans. *Psychologie Française*, 55 (2), 113-127.
- Lecocq, P. (1986). Sensibilité à la similarité phonétique chez les enfants dyslexiques et les bons lecteurs. *L'Année Psychologique*, 86, 201-221.
- Lecocq, P. (1992). *La lecture : processus, apprentissage, troubles*. Lille: Presses Universitaires de Lille.
- Lecocq, P. (1991). *Apprentissage de la lecture et dyslexie*. Liège: Mardaga.
- Lenel, J.C., Cantor, J.H. (1981). Rhyme recognition and phonemic perception in young children. *Journal of Psycholinguistic Research*, 10, 57-67.
- Lieberman, I. Y. (1973). Segmentation of the spoken word and reading acquisition, *Bulletin of the Orton Society*, 23, 65-77.
- Lieberman, I. Y., Shankweiler, D. et al. (1974). Explicite syllable and phoneme segmentation in the young child. *Journal of Experimental Child Psychology*, 18 (2), 201-212.
- Longcamp M., Lagarrigue A., Velay J.L. (2010). Contribution de la motricité graphique à la reconnaissance visuelle des lettres. *Psychologie Française*, 55 (2), 181-194.
- Morais, J. (1994). *L'art de lire*. Paris: Odile Jacob.
- Rieben, L., Perfetti, L. (1989). *L'apprenti lecteur*. Paris: Delachaux et Niestlé.
- Share D.L. (2004). Knowing letter names and learning letter sounds: a causal connexion. *Journal of Experimental Child Psychology*, 88, 213-233.
- Smith, C.L., Tager-Flusberg, H. (1982). Metalinguistic awareness and language development. *Journal of Experimental Child Psychology*, 34, 449-468.
- Sprenger-Charolles, L., Casalis S. (1996). *Lire. Lecture et écriture : acquisition et troubles du développement*. Paris: PUF.
- Sprenger-Charolles, L., Colé P. (2003). *Lecture et dyslexie. Approche cognitive*. Paris: Dunod.
- Treiman R. (2006). Knowledge about letters as a foundation for reading and spelling. In R.M. Joshi & P.G. Aaron. *Handbook of orthography and literacy*. Nahwah, NJ: Erlbaum.
- Treiman R., Broderick V. (1998). What's in a name: Children's knowledge about the letters in their own names? *Journal of Experimental Child Psychology*, 70, 97-116.

- Turner, W. E. (1989). Conscience phonologique et acquisition de la langue écrite. In Rieben L., Perfetti C. *L'apprenti-lecteur : recherches empiriques et implications pédagogiques* (pp. 197-220). Paris: Delachaux et Niestlé.
- Turner, W. E. (1991), Phonological awareness and literacy acquisition. In Rieben L., Perfetti C. (Eds). *Learning to read*. New Jersey: Lawrence Erlbaum Associates.
- Vellutino, F. R., Scanlon, D.M. (1987). Phonological coding, phonological awareness and reading ability: Evidence from a longitudinal and experimental Study. *Merrill-Palmer Quarterly*, 33, 321-363.

About the Author

Sophie Briquet-Duhazé is the Maître de Conférences HDR en Sciences de l'Éducation at the École Supérieure de Professorat et d'Éducation de l'Académie de Rouen, CIVIIC Laboratory, University of Rouen, France. More information is available here: <http://shs-app.univ-rouen.fr/civiic/>.