How can phonic training improve learning to read in first–grade children?

Marie Van Reybroeck & Alain Content

Laboratoire de Psychologie Expérimentale, Université Libre de Bruxelles

marie.vanreybroeck@ulb.ac.be

Introduction

It is well established that children must explicitly learn the correspondences between letters and speech segments to acquire reading in an alphabetic system.

Moreover, training Grapheme-Phoneme Correspondences (GPCs) and phonemic awareness simultaneously has beneficial effects on learning to read (see for review, Bus & van Ijzendoorn, 1999).

However, there have been relatively few investigations of how these abilities should be taught or if different teaching techniques lead to different results. For example :

- Do all correspondences need to be taught explicitly or can children learn these implicitly?
- Are concrete supports (e.g. images, gestures) helpful to acquire grapheme-phoneme correspondences ?

Aim of the study

The present study aims at investigating the effect of various procedures of phonic training with first-grade children at the onset of formal reading instruction.

We evaluated the effect of two phonic programs on the acquisition of phoneme-grapheme correspondences and on reading abilities. The two programs included the same activities and differed by the presence of a story context in which the abstract GP correspondences were embodied by different characters.

Method

Participants

Sixty-seven first-grade children —39 boys and 28 girls— were selected from 10 classes in a primary school in Brussels (Evere). The school advocates the whole-word method of learning to read.
On average, children were 6;4 years old (5;9 - 6;9) at the beginning of the study.

Measures

- **Pre & Post-test** Children were individually tested immediately before and after the training with tasks assessing
  - knowledge of the "Alphas" characters
  - phoneme-grapheme correspondence knowledge
  - word reading
- **Long term Post-test** Reading and spelling skills were assessed collectively three months after the immediate post-test.

Procedure

Participants were assigned to one of three training groups :

- **"Alphas" :** This group was trained with « La Planète des Alphas », a set of learning supports based on a story and card games in which each story character « sings » a different phoneme and looks like the corresponding grapheme. Children were successively trained to associate the story characters with their names, with their songs, and with their visual shape. Finally, the training transfered to standard letter-phoneme associations.

- **"Letter–sound":** This group played exactly the same games, but without the story context and personages. For card games, story characters were replaced by the standard graphemes.

- **"Control" :** This group received the same number of training sessions with attention and concentration games.
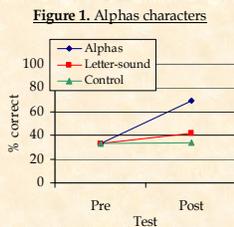
The training program began in October 2001, and lasted two months, with weekly 40-minute sessions. Children participated in small groups (5 to 10 participants), run by the first author.

Results

Pre & Post-test

Alphas characters

Children had to name 10 characters. **Figure 1** shows the mean performance for the three groups.

Figure 1. Alphas characters

The ANOVA yielded significant main effects for test ($F(1,64) = 85.97$; $p<.0001$), group ($F(2,64) = 15.28$; $p<.0001$) and an interaction between the two factors ($F(2,64) = 40.16$; $p<.0001$).

So, unsurprisingly, children from the "Alphas" group learned the names of the characters better than the other groups.

#### Phoneme-grapheme correspondences

Ten letters were presented on a card and children had to sound out "the sound of the letter" (**Figure 2**). An ANOVA indicated a significant difference between pre and posttests ($F(1,56) = 96.22$; $p< .0001$), between groups ($F(2,56) = 6.55$; $p< .01$) as well as a significant interaction between the two factors ($F(2,56) = 18.19$; $p<.0001$).

Figure 2. Phoneme-grapheme correspondences
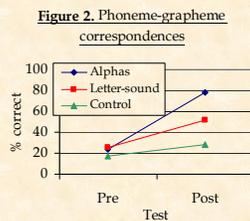
So, the "Alphas" group have learned GPCs better than the two other groups. The "Letter and Sound" group was also better at the post-test than the control group.

Word Reading

Children had to read two words and two non-words. **Figure 3** shows the mean performance for the three groups.

Figure 3. Word reading
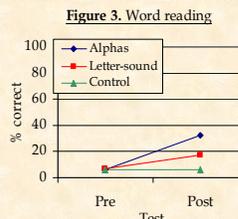
There was a significant pre vs post-test difference ($F(1,56) = 9.22$; $p<.01$), no main effect for groups ($F(2,56) = .77$; $p =.47$), but a significant interaction between the two factors ($F(2,56) = 3.43$; $p<.05$). Contrast tests indicated that the "Alphas" group achieved higher scores than the "Letters and Sound" and the control groups ($p =.08$; $p <.05$), whereas the latter did not differ from each other ($p =.31$).

Thus, at the outset of the training, the "Alphas" were better at decoding, even though this ability had not been explicitly trained in the program.

Long term post-test

Reading & Spelling skills

The "Test de Lecture pour le Cours Préparatoire" (TLCP, D. Pasquier, 1979) was used. Children had to read silently and write vowels, consonants and words. **Figure 4** shows the overall performance for the three groups. The ANOVA suggests that the three groups differ significantly ($F(2,49) = 2.90$; $p =.06$). Contrasts showed that the "Alphas" group scored higher than both the "Letters and Sound" group ($F(1,49) = 4.07$; $p<.05$) and the control group ($F(1,49) = 4.11$; $p<.05$), which did not differ from each other ($F(1, 49) = 11$; $p =.74$).

Figure 4. Reading and spelling skills
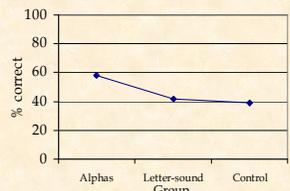
Thus, the advantage of the "Alphas" training appears to remain present with time.

Discussion

The results show that the children of the "Alphas" group learn the graphemes-phonemes correspondences better than the other groups. Moreover, they were able to transfer knowledge of GPCs to decoding skill.

So, our study suggests that a story context and the personification of abstract concepts such as graphemes/phonemes may help children to acquire the alphabetic principle and produce faster progress in early learning to read.

More generally, these findings indicate that different phonic training methods may not lead to the same results and they suggest that it might be useful to further investigate the details of phonic training applications.

References

- Bus, A. G., & van Ijzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology, 91(3)*, 403-414.

- La Planète des Alphas. Place du Samedi, 13; 1000 Bruxelles; 02.223.47.15; http://www.planete-alphas.com