

How do Swedish children handle the PhonicStick and will it affect their phonological awareness?

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Short Abstract

Phonological awareness - the ability to identify and manipulate sounds in words - is an important part in early literacy learning. The PhonicStick is a device developed for literacy learning and speech production. In this study, the PhonicStick was tested on Swedish children aged 5 and 6 years to evaluate the use of it and its use for improvement of phonological awareness. A test group of 21 children and a control group of 20 children participated. All children were pre- and post-tested to analyse the possible improvement of phonological awareness. The test group conducted three PhonicStick sessions, including games and five tests. The tests of phonological awareness showed no significant differences between test and control group in pre- and post-test. Four PhonicStick tests showed significant improvements between session 1 and session 3. This shows that the children were able to handle the PhonicStick, including remembering the phonics without visual information and producing words including two or three phonics.

Keywords: Phonological awareness, The PhonicStick, Literacy teaching, Literacy learning, Pre-school class

Extended Abstract

Background

Phonological awareness is the ability to recognise, identify or manipulate components in words (Goswami, 2006; Stahl & Murray, 1994). Research has shown a strong correlation between phonological awareness and reading and spelling ability (Stahl & Murray, 1994; Goswami, 2006), although researchers disagree on how this relationship occurs (Morais et al., 1986).

A recommended approach for teaching learning in British schools is synthetic phonics, a method which focuses on connecting phonemes to graphemes (Torgerson et al., 2006). Some researchers suggest the synthetic phonics to be the most effective approach in literacy learning (Bowey, 2006), while other researchers disagree (Wyse & Styles, 2007).

One common literacy teaching approach based on synthetic phonics is called Jolly Phonics. The pupils are taught all 42 phonics in the English language in intervals of six phonics, in a certain order. The Jolly Phonics has a multi-sensory approach to facilitate the learning of sounds and the connection to letters (Lloyd, 1998).

The PhonicStick is a joystick, which can be used for speech production and literacy learning without any demands on visual ability. It is made out of a joystick to make it useable for people with physical disabilities (Black et al., 2008).

The prototype of the PhonicStick contains the first six phonics taught in the Jolly Phonics programme. The phonics can be blended together into existing and non-existing words with two or three phonics. To access a phonic, the joystick is moved in some of the 6 directions and auditory feedback is given when reaching a phonic position (Black et al., 2008).

Aim

The aim of the study was to evaluate the impact of the PhonicStick on phonological awareness (phoneme identification and phoneme segmentation) in Swedish children age 5 and 6 and to see in what way they were capable to use the PhonicStick, remember the positions of the phonics and be able to produce words with the PhonicStick.

Methodology

The children in the study were recruited from two different schools, in total 5 pre-school classes. The inclusion criteria were that the children should attend pre-school class (5 and 6 years old) and there were no exclusion criteria. The children were divided into two groups and after some children leaving the study, there were 21 children in the test group and 20 children in the control group.

When designing the Swedish version of the PhonicStick, phonics that when combined, generated a large amount of real Swedish words, were chosen. The 6 phonics chosen (/a/, /o/, /m/, /l/, /t/ and /k/) generated 24 real words consisting of 3 phonics, and 5 real words consisting of 2 phonics. The directions used for the positions of the Swedish phonics followed the English version of the PhonicStick.

Both the test group and the control group were assessed with a set of pre- and post-tests to evaluate parts of their phonological awareness in order to evaluate what role the PhonicStick had on the phonological awareness among the children in the test group.

The test group performed three sessions with the PhonicStick between the pre- and post-tests.

During the PhonicStick sessions, two games were used to facilitate the learning of the phonic positions and the word production with the PhonicStick. A third game tested the ability to produce one or two phonics in a given word.

Above this, five tests were used in order to analyse the use of the PhonicStick; to remember the positions of the phonics, to produce words spontaneously (with picture support and by dictation) and finally producing one of the phonics in a given word.

In session 1, the first two games were played, and all the five tests were used. In session 2, all three games were played. In session 3, all three games were played and all tests were used.

Results

Pre- and post-test of parts of the phonological awareness

The comparison between the test group and the control group regarding the difference between pre-test and post-test, showed only small differences. In all three tests, the mean differences between the two groups were less than 1 point. The differences between the two groups were non-significant.

Testing with the PhonicStick

The four first tests with the PhonicStick all showed a significant improvement between session 1 and session 3. The last test (producing one of the phonics in a word) was the only test that did not show significant results.

Discussion

Phonological awareness

One key question in this study was if the PhonicStick would result in improvements of phonological awareness among the children in the test group compared to the control group. No significant results in improved phonological awareness could be seen, maybe due to the limited number of sessions or a high level of test results in the pre-test. The high results in the pre-test might indicate that higher results would be difficult to achieve during such short time. A third possible explanation to the results could be that the PhonicStick might not have trained the parts of the phonological awareness tested in the pre- and post-tests.

The PhonicStick

The results from the PhonicStick tests show that the children in the study could remember the different positions of the phonics without any visual information. These results are of importance when evaluating devices for impaired users. The children could also combine phonics into words with the PhonicStick after only three sessions, according to the significant results of the three tests evaluating the children's ability to produce words with the PhonicStick. The last test with the PhonicStick did not show significant improvement, which may reflect similar results in the pre- and post-tests of phonological awareness.

The PhonicStick enables the user to express words, which are not pre-recorded. Most of the children found it very satisfying when managing to produce real words with the PhonicStick, which increases the ability to have more spontaneity and variation in communication. This is of great importance when further evaluating AAC devices.

The variety of the three games during the PhonicStick sessions also ensured a variety of activities to avoid the children losing their interest, and motivation. Although, some children had difficulties staying concentrated and motivated during the sessions.

Limitations of the Study

The researchers met half of the children each. The adjustments that had to be done dependent on each child's needs might have affected the given instructions or judgments, and they might not have

performed the sessions and tests in exactly the same way. Some of the premises used for the testing might have been too distractive for the children to be able to keep focused and concentrated.

However, most of the children seemed to find the sessions fun and exciting. Since this was the case for most of the children, it can be assumed that the length and the contents of the sessions were of good balance.

Conclusion

The study aimed to evaluate the use of the PhonicStick and its use for improvement of phonological awareness. No improvements in phonological awareness could be seen in the test group in relation to the control group. Significant improvements in four of the five tests to evaluate the improvement in the use of the PhonicStick showed that the children in the test group learned to handle the PhonicStick after only three sessions, including remembering the phonic positions without visual information and the capability to produce words with two and three phonics spontaneously, with picture support and by dictation. Further research could include a longitudinal study with children who have difficulties in phonological awareness and with a more intense and/or longer training period with the PhonicStick, to evaluate possible effects on parts of the phonological awareness. Another area of interest is the use of the PhonicStick for people with aphasia who have problems expressing themselves verbally.

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