Institution: University of Hull

Unit of Assessment: A4: Psychology, Psychiatry and Neuroscience

Title of case study: The effectiveness of synthetic phonics teaching in developing reading skills

1. Summary of the impact (indicative maximum 100 words)

This is a case study of the impact of theoretically-motivated research in psychology on children's reading development. In 1990 an educational psychologist found that reading standards in England were in decline, which was thought to be due to the lack of phonics teaching. The underpinning research showed that synthetic phonics teaching was very much more effective at developing reading and spelling skills than the analytic phonics approach adopted in England in 1999. The Education Select Committee took evidence on this research from Johnston, and synthetic phonics became the recommended method in England. The Key Stage 1 national reading assessment carried out in 2012 showed that 2% more children (estimated to be around 7,500) reached the expected level in reading in 2012 than the previous year, and in 2013 it went up a further 2%. In 2012, 58% of children in Year 1 passed the new Phonics Check, and in 2013 69% passed.

2. Underpinning research (indicative maximum 500 words)

By the 1980s, most teachers in England no longer used phonics, but the method was still used in Scotland. Johnston, in collaboration with Thompson in New Zealand, showed that children in Scotland, who learnt by the phonics approach, had better nonword, i.e. phonological, reading skills than non-phonics taught New Zealand children. This explained why Johnston had repeatedly found Scottish poor readers to be less phonologically disordered than in other studies. Johnston and Watson examined phonics teaching and found that that when the sounding and blending of letters (the core element of a synthetic phonics approach) was introduced late on, children rapidly developed independent reading skills. This was confirmed in an experimental study (Johnston and Watson, 2004, Experiment 2, section 3a) where sounding and blending was taught right from the start of schooling, i.e. a synthetic phonics approach was used.

Johnston and Watson's subsequent longitudinal experimental research in Clackmannanshire, Scotland, showed that towards the end of the first year at school a synthetic phonics-taught group was reading and spelling 7 months ahead of chronological age. They read words around 7 months ahead of two groups taught by analytic phonics, and were 8 to 9 months ahead in spelling. The two analytic phonics groups then carried out the synthetic phonics programme, completing it by the end of the first year at school. The children's progress was followed altogether for 7 years. Towards the end of the second year of the study Johnston moved to the University of Birmingham (1999-2001), and after the children had been studied at the end of their third year of school she moved to the University of Hull (2001). The data collection continued for another 3.5 years.

All of the publications underpinning the research were prepared and published while Johnston was at Hull (3a,b), and the following findings were made during this period. Most gains from intervention programmes wash out within a few years; however, the longitudinal study showed that the children's reading and spelling skills increased over age expectations across time (Johnston and Watson, 2005, 3b; Johnston et al, 2012, 3a). At the end of the seventh year at school, the children's word reading was 3.5 years ahead of chronological age, spelling was 1.7 years ahead, and reading comprehension was 3.5 months ahead, even though nearly half of the sample came from areas of deprivation. In international surveys, boys' reading comprehension is significantly behind that of girls'. In this study, boys were a significant 11 months ahead of the girls in word reading at the end of the study, and 8.6 months ahead in spelling. They were also 3 months ahead of girls in reading comprehension, although this difference was not statistically significant. Children from disadvantaged homes perform less well in literacy tasks than those from advantaged homes right from the start of schooling. However, it was found that disadvantaged children in the study did not fall behind until the seventh year at school for word reading and spelling, and until the fifth year at school for reading comprehension. Levels of underachievement were very low. For example, it was found at the end of the fourth year of school that no children were more than two years behind chronological age in word reading, with only 0.4% being behind in spelling, and 1.6% being behind in reading comprehension.

A new study was carried out at Hull, comparing these children at age 10 with children in England who had learnt by the analytic-phonics based approach recommended by the National

Literacy Strategy (Johnston et al, 2012, 3a). This showed that the synthetic phonics taught children were ahead of the National Literacy Strategy (NLS) taught children in word reading, spelling and reading comprehension. An experimental study by McGeown, Johnston, and Medford (2012, 3a) has further shown that Reception children in England learning by this method read better than those learning by the NLS programme. These findings support the conclusion that the gains found in the 2012 and 2013 Key Stage 1 reading assessments, and the 2013 Phonics Check, were due to the introduction of synthetic phonics teaching. Another study has been carried out in Karnataka State in India, showing that the method also works well for children learning English as a second language.

Timeline of research programme:

The underpinning research started at the University of St Andrews in 1995 with a small scale study; the larger scale longitudinal study reported above was started in 1997. From 1999, Johnston continued the larger scale study while at the University of Birmingham, until February 2001.

Half of the underpinning longitudinal study was carried out, and all of it was written up, while Johnston was at the University of Hull, from 2001; it is this part of the study that came to the attention of the Education Select Committee, when the report published in 2005 (3b) showed that the gains in reading were not only maintained but increased year after year. A journal article covering the first two years of the study was published in 2004 (3a) whilst Johnston was at Hull (Professor, 2001 to present). The two studies which compared synthetic phonics teaching with the English NLS programme were carried out at Hull, as was the study in India (3a).

3. References to the research (indicative maximum of six references)

a) Journal articles

Johnston, R.S and Watson, J. (2004) Accelerating the development of reading, spelling and phonemic awareness. Reading and Writing,17 (4), 327-357. This article can be supplied in electronic form on request.

Johnston, R.S, McGeown, S, and Watson, J. (2012) Long-term effects of synthetic versus analytic phonics teaching on the reading and spelling ability of 10 year old boys and girls. Reading and Writing, 6, 1365-1384. DOI:10.1007/s11145-011-9323-x.

McGeown, S, Johnston, R.S. and Medford, E. (2012) Reading instruction affects the cognitive skills supporting early reading development. Learning and Individual Differences, 22, 3, 360-364. http://www.sciencedirect.com/science/article/pii/S1041608012000210.

Nishanimut, S.P., Padakannaya, P, Johnston, R.S, Joshi, R.M., Thomas, P.J. (2013) Effect of synthetic phonics instruction on literacy skills in an ESL setting. Learning and Individual Differences, 27, 47–53. http://dx.doi.org/10.1016/j.lindif.2013.06.007.

b) Final grant report to the Scottish Executive

Johnston, R.S, and Watson, J. (2005) The effects of synthetic phonics teaching on reading and spelling attainment, a seven year longitudinal study. Published by the Scottish Executive Education Department. Available on http://www.scotland.gov.uk/Publications/2005/02/20688/52449

c) Evidence of the quality of report

The House of Commons Education and Skills Committee acknowledged the quality of the research in its 2005 report Teaching children to read (Eighth Report of Session 2004-05). The Stationery Office Ltd: London. Available online at http://www.publications.parliament.uk/pa/cm200405/cmselect/cmeduski/121/121.pdf) Paragraphs 49 to 50 (p 22) refer to the study.

d) Grants awarded to Johnston whilst at the University of Hull (2 prior to this held whilst at the Universities of St. Andrews and Birmingham)

2000-2002, £30,000 'The Clackmannanshire sample: a long- term follow-up focusing on gender issues and reading disorders' from Scottish Executive Education Department.

2002-2005, £35,000 'The effects of synthetic phonics teaching on reading and spelling in 10 and 11 year old children' from Scottish Executive Education Department.

e) Quality of research

The journal articles are published in peer reviewed journals; the Scottish Executive Report was used by the Select Committee to make recommendations to Department for Education and Skills for an immediate review of the National Literacy Strategy.

4. Details of the impact (indicative maximum 750 words)

Most psychological research on reading does not have any impact on practice in schools. Fortuitously, the publication of a report on the long term gains found in the Scottish study coincided

with the House of Commons Education & Skills Committee considering methods of teaching reading. Verbal and written submissions by Johnston on the underpinning research largely led to the impacts described here. The written submission reported on the longitudinal study, where the analytic phonics condition was identified as being similar to the NLS programme; it also included a small scale study comparing NLS phonics with synthetic phonics in a school in England (Ev61-67). There was also verbal evidence from Lloyd (teacher and author) about the effectiveness of her commercial synthetic phonics programme in one school compared to the average on the NLS programme; Stuart (Professor, Institute of Education, University of London) gave verbal evidence that when using Lloyd's programme she had also found good results, but pointed out that the comparison was with a class not using phonics at all. The resulting Select Committee report, Teaching Children to Read (2005), summarised the evidence on the effectiveness of using phonics 'first and fast' (the term used to distinguish the kind of phonics used by Johnston from that used by the NLS, also claimed to be synthetic phonics). The committee recommended an immediate review of the NLS programme in view of Johnston's experimental evidence and the informal evidence from schools in England using the approach (paragraph 52, p23); it seems very unlikely that this recommendation would have been made without Johnston's published research evidence. The committee noted that in Johnston and Watson's (2005, 3b) study the control groups had learnt by the analytic phonics method, but that as these children had subsequently carried out the synthetic phonics programme, there was no long-term comparison involving an NLS type phonics programme. The committee recommended that the government should commission a large scale study to compare 'phonics first and fast' with the NLS approach. Following on from this recommendation, the 2006 Rose Review was set up. This recommended that all primary schools in England should use a synthetic phonics programme like the one used in Johnston and Watson's study, and this in turn led to the new government programme *Letters and Sounds* (2007). Thereafter, government documents and the media have mostly referred to synthetic phonics, rather than directly citing Johnston's research.

In its 2010 White Paper *The Importance of Teaching*, the Government stated that it wanted to ensure that synthetic phonics is used in every school (5a). In 2012, the government expressed concern about the decline in reading standards compared with international benchmarks, and reviewed the evidence in favour of using synthetic phonics (5b), citing Johnston and Watson (2004). It made the case for focussing on decoding, i.e. word and nonword reading, which Johnston's underpinning research showed was greatly enhanced by synthetic phonics teaching. The Government then provided matched funding for the purchase by schools of approved commercial phonics schemes to improve phonics teaching, and in 2012 the Phonics Check was introduced to test decoding skills at the end of Year 1(5c). In 2102, 58% of children passed the Phonics Check, and in 2013, 69% of children passed (see press release, 5d); this document also corroborates the influence of the Clackmannanshire Study on government policy.

The 2012 Key Stage 1 Assessment showed that the percentage of pupils achieving the expected level in reading comprehension in Year 2 had increased by 2 percentage points from 2011; it is estimated that a further 7,500 pupils performed at this level over the previous year. The gender gap favouring girls also narrowed by 1% point, supporting Johnston's findings. The 2013 Key Stage 1 assessment (5e) has just shown a further 2% rise from 2012 in children reaching the expected standard, and a further 1% gain by the boys relative to the girls. A letter from one of the authors of *Letters and Sounds* corroborates the impact of the research on i) the government's synthetic phonics programme *Letters and Sounds*, ii) the associated teacher training programme, iii) the Phonics Check, iv) the increase in attainment in 2012, and v) the revised National Curriculum for English (5f).

In recognition of her services to education, Johnston was awarded an MBE in 2012. The underpinning research has made a significant contribution to stimulating, informing and moving forward public and policy debate around synthetic phonics teaching, particularly amongst teaching practitioners and parents (5 g,h,i,).

Economic impacts

The research described in section 2 has also led to large sales of a number of commercial synthetic phonics programmes. Estimated sales of two synthetic phonics programmes from 1st January 2008 to May 2013 are: out of around 16,000 primary schools in England, 6,203 are using Phonics Bug (Watson and Johnston, published by Pearson http://tinyurl.com/cxwmqwu), and an estimated 7,000 are using Read Write Inc (Miskin, published by Oxford University Press

http://www.oup.com/oxed/primary/rwi/(5j).There are also a number of other publishing companies selling synthetic phonics programmes.

Contribution of other HEIs

Two years of the experimental underpinning research (for two studies) was carried out by Johnston at the University of St Andrews. Since then, the research has concentrated on a longitudinal follow up, to look at the gains in reading at the end of primary school, and the effects on low SES children, boys and underachievers. One year of the follow up data collection was carried out while Johnston was at St Andrews, 1.5 years were carried out whilst Johnston was at the University of Birmingham, and 3.5 years were carried out at Hull (where further underpinning experimental studies were carried out and published).

5. Sources to corroborate the impact (indicative maximum of 10 references)

Most sources now just refer to synthetic phonics, but 5(b), (c) and (d) specifically cite Johnston'sunderpinning research.

Government documents:

a) The Schools White paper (2010) *The Importance of Teaching*. pp 11, 22, 41, 43, 44. http://www.education.gov.uk/publications/eOrderingDownload/CM-7980.pdf

b) Department for Education (2012) *The Importance of Phonics: Securing Confident Reading*. p 3. http://www.lancsngfl.ac.uk/curriculum/assessment/download/file/3.pdf

c) Response to public consultation on the Year 1 phonics screening check (Department for Education, 2011). https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-00155-2011 – corroborating the ongoing influence of the Scottish study on the Government's Phonics Check (Annex C, pp 27 to 29).

d) https://www.gov.uk/government/news/phonics-check-and-key-stage-1-results

e) Improvements in reading at Key Stage 1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245813/SFR37-2013_Text.pdf

Testimonial from literacy expert:

f) Letter from Author of *Letters and Sounds* for Department of Education and Skills, corroborating the impact of the underpinning research on reading attainment in England.

Stimulating public debate:

g) Scott, S (2010) Phonics: lost in translation. Guardian 19th January 2010 (including comments). http://www.guardian.co.uk/education/2010/jan/19/phonics-child-literacy.

h) National Union of Teachers (2012) "Conference asserts that the introduction of statutory testing of phonics for all Year One pupils is unnecessary and inappropriate. Conference maintains that there is no evidence that learning phonics 'fast and first' has a positive impact on children's long-term reading ability or enjoyment of reading." http://www.huffingtonpost.co.uk/2012/03/25/nut-teachers-union-boycott-reading-tests-6-year-olds_n_1377821.html

i) 'You and Yours', Radio 4, 10th April 2012. Should 5 year olds be tested? 'The government in England wants all children to be taught to read using phonics, where they learn the sounds of letters and groups of letters, then tested on progress saying it will help identify children who need extra help. But the National Union of Teachers says it will not tell teachers anything new and that it risks branding very young children as failures. You can have your say by emailing via our web page; www.bbc.co.uk/radio4/youandyours and don't forget to leave a contact number where we can reach you'. http://www.bbc.co.uk/iplayer/episode/b01ddxc0/You_and_Yours_Should_fiveyearolds_be_tested/

Economic impact:

j) Head of Primary Literacy Publishing, Pearson – testimonial corroborating sales of the Phonics Bug materials since 2008 and the number of schools in which they are used.