

Impact case study (REF3)

Institution: University of Hull		
Unit of Assessment: 4 Psychology, Psychiatry and Neuroscience		
Title of case study: The impact of synthetic phonics on reading standards in English and Australian schools		
Period when the underpinning research was undertaken: 2001-2012		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Rhona Johnston	Professor	2001-2015
Period when the claimed impact occurred: August 2013 – December 2020		
Is this case study continued from a case study submitted in 2014? No		
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Johnston's research on synthetic phonics teaching has had significant impact on reading standards in England and Australia.</p> <p>Her evidence to the UK Education & Skills Select Committee led first to the introduction of synthetic phonics teaching in England and later to the introduction of the Phonics Screening Check (PSC). In 2014, synthetic phonics teaching was mandated in the National Curriculum in England. An additional 404,000 children have passed the PSC since 2013. England has moved up the international league table of reading ability from 10th in 2011 to 8th in 2016.</p> <p>The state of South Australia mandated the PSC in 2018. In 2020, 63% of Year 1 pupils passed the test, up 20% from 2018. Tasmania and New South Wales began piloting the PSC in 2020 and there has been considerable Governmental debate about the need to roll it out nationally.</p>		
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>Concerns in England about reading standards were heightened by a Progress in International Reading Literacy Study (PIRLS, 2006) in which England was ranked 15th, behind the USA and many other EU countries including Sweden, Germany, the Netherlands and Denmark. There were also more underachievers in England than in any of these countries. Furthermore, when rank-ordered by the gap in attainment between boys and girls, England was 29th, so there was considerable concern about low attainment in boys.</p> <p>Whilst at the University of St Andrews, longitudinal studies were commenced by Johnston which examined the effectiveness of a method of phonics teaching, synthetic phonics, which was not at that time considered to be appropriate for initial readers due to the irregularity of English spelling. The last 3 years of the research (2001- 2004) were carried out by Johnston whilst at the University of Hull [3e & 3f].</p> <p>The following findings were produced at Hull from 2001. Gains from teaching intervention programmes often wash out within a few years. Johnston found, however, that children's reading and spelling skills increased over age expectations year on year (Johnston and Watson, 2004 [3a]; Johnston et al., 2012 [3b]). Although nearly half of the 300+ sample came from areas of deprivation, at the end of their seventh year of school 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. Notably, boys performed better than girls - boys were 11 months ahead of the girls in word reading at the end of the study, and 8.6 months ahead in spelling. Levels of underachievement were very low. For example, at the end of their fourth year of school, no child was more than two years behind chronological age in word reading. These findings were summarised by Johnston and Watson in a report to the Scottish Executive [3d].</p> <p>Further research was then carried out at Hull comparing these children at age 10 with children in England who had learnt by the National Literacy Strategy (NLS) analytic phonics-based programme (Johnston et al, 2012 [3b]). Children taught synthetic phonics were ahead of those taught analytic phonics in word reading, spelling and reading comprehension. A further study by</p>		

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McGeown, Johnston, and Medford (2012) [3c] found that Reception children in England learning by this method read better than those learning by the NLS analytic phonics programme.

Together, these findings supported the conclusion that synthetic phonics teaching is more effective than analytic phonics teaching.

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

3a. **Johnston**, R.S and Watson, J. (2004) Accelerating the development of reading, spelling and phonemic awareness. *Reading and Writing*, 17 (4), 327-357.

<https://doi.org/10.1023/B:READ.0000032666.66359.62>

3b. **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. <https://doi.org/10.1007/s11145-011-9323-x>

3c. 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>

Final grant report to the Scottish Executive

3d. **Johnston**, R.S, and Watson, J. (2005) The effects of synthetic phonics teaching on reading and spelling attainment, a 7 year longitudinal study. Published by the Scottish Executive Education Department. Available:

https://www.researchgate.net/publication/301477015_The_effects_of_synthetic_phonics_teaching_on_reading_and_spelling_attainment_a_seven_year_longitudinal_study

Grants held by Johnston whilst at the University of Hull

3e. 2000-2002: £30,000 'The Clackmannanshire sample: a long- term follow-up focusing on gender issues and reading disorders' from Scottish Executive Education Department.

3f. 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.

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

Key points (each point is expanded below with evidence)

(i) Johnston's research led to synthetic phonics teaching being mandated in the English National Curriculum in 2014. Associated with this, there has been an increase in the percentage of children passing the Phonics Screening Check (PSC) as well as significant improvements in reading standards in England in Key Stage 2 (KS2), with a rise also in the international rankings.

(ii) According to the UK Government, the introduction of synthetic phonics teaching will benefit the UK economy to the tune of several billion pounds. Additionally, economic impacts for the UK producers of commercial synthetic phonics materials have continued to accrue.

(iii) The PSC was made compulsory in South Australia in 2018 and other states are piloting it. A national roll out of a PSC is being debated in the Australian Parliament.

The route to impact: Johnston's research impact began when she reported her findings on the long-term gains in reading from her **Clackmannanshire study** as evidence (twice) to the UK Education & Skills Select Committee's review of methods of teaching reading in 2005. Johnston's evidence, together with the Johnston and Watson (2005) report to the Scottish Executive [3d] led to the Select Committee's 2005 report *Teaching Children to Read* [5a]. This report concluded that "in view of the evidence from the Clackmannanshire study, as well as evidence from other schools where synthetic phonics programmes have been introduced, we recommend that the Government should undertake an immediate review of the National Literacy Strategy". In 2006 the DfES commissioned Sir Jim Rose to examine this evidence and he recommended that all primary schools use a synthetic phonics system. In 2007 the government published the synthetic phonics

scheme Letter and Sounds, which was based on the method used in Johnston's Clackmannanshire study, and this became the recommended method. In 2011, the DfE introduced a pilot PSC in 300 schools to test decoding skills of children at the end of Year 1, and cited the Clackmannanshire study as the evidence base [5b]. Since 2012, the PSC has been carried out every year in all schools in England. In 2014, synthetic phonics teaching for *all* children was mandated in the National Curriculum in England.

Impact in this REF period

1) Impact for UK schoolchildren & teachers

Synthetic phonics teaching mandated in the National Curriculum in 2014: In 2017, the Schools Minister, the Rt. Hon Nick Gibb, gave a speech about PIRLS where he justified the inclusion of synthetic phonics in the English National Curriculum based on sound scientific evidence from Johnston's Clackmannanshire data "*Decades of evidence from around the world – including the influential longitudinal study from Clackmannanshire in Scotland – pointed to systematic phonics as the most effective way to teach children to read.*" He also went on, "*When we came into office...one of the first things we did was to strengthen the National Curriculum, explicitly requiring schools to teach reading using phonics... And, most controversial of all, we introduced a test for all six-year-olds, called the Phonics Screening Check.*" [5c].

Improved reading outcomes in the REF period: The DfE reports that 82% of Year 1 children passed the PSC in 2019, compared to 69% in 2013. The cumulative gain in the number of additional children passing since 2013 is estimated to be 404,981 [see 5d for our calculation of this figure and the sources of data upon which it is based].

The association between performance on the PSC and KS2 reading comprehension is shown by the fact that, in 2019, 85% of the children passing the PSC in Year 1 reached the expected standard in KS2 reading - of those children not passing the PSC even on re-test in Year 2, only 23% reached the expected standard. Furthermore, the number of children reaching the KS2 expected standard increased 7% after the introduction of the PSC [5d].

Further evidence of the link between the introduction of synthetic phonics and improved reading outcomes comes from the PIRLS 2016 data. As Nick Gibb reported in his speech referred to above "*Today, we received the first set of international evidence that confirms that our approach [synthetic phonics] is working. The international study of 9-year-olds' reading ability in 50 countries showed that England has risen from joint 10th place in 2011 to joint 8th place in 2016.*" [5c].

2) Impact for UK policy makers

The underpinning research has made a significant contribution to stimulating, informing and moving forward UK Government policy debate around synthetic phonics teaching. For example, in the DfE's 2015 *Reading: the next steps report* [5e], the Government re-iterated the importance of synthetic phonics for improving reading: "*Progress has been made since the introduction of the phonics screening check in 2012 and the funding for phonics training and resources provided by the government. To build on this, we have announced a phonics partnership grant programme that will enable excellent schools to work with others to improve the quality of phonics teaching*" (p.5). They also outlined future developments based on the success of the PSC, with the introduction of book clubs in KS2 as "*an excellent way of encouraging pupils to read widely and frequently, inside as well as outside school, and of improving both reading and spoken language skills. . .the book clubs will give children the chance to discuss in a non-classroom setting the books they have read and to develop their love of literature through discovering new authors and new stories*" (p 20). And a second development linked to library use: "*The government would like all children to be active members of a public library, and we are asking all schools to arrange library membership for all their year 3 pupils*".

3) Impact for Australian policy-makers, educators and schoolchildren

Australia was 21st in PIRLS 2016 and this has caused understandable concern about reading standards. Johnston's research led to a report in 2016 by the policy think tank *Centre for Independent Studies* proposing that the PSC be introduced into Australian schools in order to

reinforce the use of the phonics method and improve reading standards [5f]. In the report, author Jennifer Buckingham noted (p11) that Johnston's Clackmannanshire longitudinal studies were particularly influential in the decision to use synthetic phonics in the UK.

The introduction of phonics has since been debated in the Australian parliament, [5g] and as part of that debate Senator Birmingham (South Australia) commented (p57) "*My view is [the debate] should be firmly rooted in and based upon evidence. The evidence is very clear that direct instruction around phonics is of benefit to a large cohort of students and helps them to develop skills to be able to decode words. The UK example appears to be showing that, some years down the track, the increasing number of students who have succeeded in the phonics check as years have gone by has also corresponded to an increase in literacy results in the UK, in assessments such as the PIRLS assessment.*"

Synthetic phonics has also been debated amongst Australian educators. In 2018, the journal *Professional Educator* devoted a special edition to *The Great Literacy Debate* [5h] in which contributor Troy Verey said (p11) "... I began learning about and teaching systematic synthetic phonics and I haven't looked back. I've put in many hours to develop my understanding of the science behind reading... I now know and have substantial evidence (e.g., Johnston and Watson 2005) to support the notion that if novice readers are explicitly and systematically taught synthetic phonics they are most likely to achieve reading success. For my students, I no longer leave reading to chance."

In 2017, the PSC was trialled in South Australia on 4406 children in 56 schools. In 2018, the PSC was made compulsory in all state schools (14000 children in 431 schools). In 2020, 63% of Year 1 pupils passed the test, up 20% from 2018 [5i]. Of note were the significant improvements achieved between 2019 and 2020 for student cohorts who have typically struggled to read most: Aboriginal students (up 11%), students with a verified disability (up 14%), students who speak English as an additional language or dialect (up 13%), and schools serving the most disadvantaged communities (up 12%).

Piloting of the PSC is now underway in two other states: New South Wales (518 schools) with results due in December 2020 [5j] and Tasmania (35 schools) which started piloting in September 2020 [5k].

4) Economic impacts

UK economy: The World Literacy Foundation (WLF) and the United Nations Educational, Scientific & Cultural Organisation (UNESCO) have for years reported on the link between illiteracy and a nation's GDP. In 2009, the National Adult Literacy Agency (NALA) in Ireland commissioned a cost benefit analysis of adult literacy training and concluded that there were economic gains for individuals as well as the economy and the country as a whole. In this vein, the UK Government (in a Department for Business, Energy & Industrial Strategy policy paper) explicitly linked the introduction of synthetic phonics to increased national wealth "*Being taught synthetic phonics up to the age of 7 leads to . . . improvement in reading scores at age 11. This effect is about the same as reducing class sizes by a third and is worth between £3,300 and £8,800 per student . . . This impact has transformed lives and created billions of pounds of additional value in the UK economy each year.*" [5l].

Commercial sales: Johnston and Watson's Clackmannanshire research led to the development of a commercially-produced phonics program (*Bug Club Phonics*, formerly *Phonics Bug*). According to Pearson, who publish the program, it was sold to [REDACTED] schools during the REF period with a total sales figure of £[REDACTED] [5m].

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

Routes to impact

5a. The House of Commons Education and Skills Committee acknowledged the influence of Johnston's research (the Clackmannanshire study) in its 2005 report *Teaching children to read* (paragraphs 49 to 50 (p22) refer to the study). Available as pdf on request or at <https://publications.parliament.uk/pa/cm200405/cmselect/cmmeduski/121/121.pdf>

5b. Response to public consultation on the Year 1 Phonics Screening Check (Department for Education, 2011) (corroborates the influence of the Clackmannanshire study on the introduction of the Government's Phonics Check (Annex C, pp27 to 29)). Available as pdf on request or at <https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-00155-2011>

Impacts for UK schoolchildren & teachers

5c. The Rt Hon Nick Gibb's speech about PIRLS in 2017. Available as pdf on request or at <https://core.ac.uk/download/pdf/143474474.pdf>

5d. Document detailing calculations of the extra number of children passing the PSC since 2013

Impacts for UK policy makers

5e. Department for Education (2015) *Reading: the next steps* (reference to Clackmannanshire study on p15). Available as pdf on request or at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/409409/Reading_the_next_steps.pdf)

Impacts for Australian policy makers & schoolchildren

5f. Think tank report proposing that the PSC be introduced in Australia. *Focus on Phonics: Why Australia should adopt the Year 1 Phonics Screening Check*, Dr Jennifer Buckingham, The Centre for Independent Studies, Report 22 (mentions Clackmannanshire Study, pp10-11, paragraph 8). Available as pdf on request or at https://www.researchgate.net/profile/Jennifer-Buckingham/publication/311228044_Focus_on_Phonics_Why_Australia_Should_Adopt_the_Year_1_Phonics_Check/links/583fbb2b08ae61f75dc79b43/Focus-on-Phonics-Why-Australia-Should-Adopt-the-Year-1-Phonics-Check.pdf

5g. Debate in Australian Parliament: Education and Employment Legislation Committee, 31st May 2018 (discussion of phonics teaching and phonics check on pp55-58). Available as pdf on request or at https://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/daa77e2d-0563-46cd-b8ab-da5beda55061/toc_pdf/Education%20and%20Employment%20Legislation%20Committee%202018_05_31_6157_Official.pdf;fileType=application/pdf

5h. The Great Literacy Debate (between those for and against phonics): *Professional Educator*, Journal of the Australian College of Educators (Johnston and Watson's research referenced on pp11 and 43). Available as pdf on request or at <https://www.austcolled.com.au/wp-content/uploads/2018/10/Prof-Ed-Special-Edition-Oct-2018-1.pdf>

5i. Phonics Check figures for South Australia. Available as pdf on request or at <https://www.premier.sa.gov.au/news/media-releases/news/lift-in-year-1-literacy-levels-as-phonics-check-results-are-in>

5j. NSW piloting the PSC in 2020 (Sydney Morning Herald article). Available as pdf on request or at <https://www.smh.com.au/education/one-in-three-schools-agree-to-phonics-reading-check-as-critics-sound-alarm-20200731-p55heb.html>

5k. Tasmania piloting the PSC in 2020 (Tasmania Government media release). Available as pdf on request or at http://www.premier.tas.gov.au/releases/year_one_phonics_check_pilot

Economic

5l. Department for Business, Energy & Industrial Strategy's *UK Research & Development Roadmap*. Available as pdf on request or at <https://www.gov.uk/government/publications/uk-research-and-development-roadmap/uk-research-and-development-roadmap>

5m. Confidentiality agreement from Pearson (confirms the sales of *Bug Club Phonics* from 1st August 2013 to 9th December 2020 and the number of schools using the product)