

Institution: University of Reading		
Unit of Assessment: 23, Education		
Title of case study: Changing Classroom Practice for Literacy Through Improved Subject Knowledge		
Period when the underpinning research was undertaken: 2012–19		
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:
Naomi Flynn	Associate Professor	2015 - present
Holly Joseph	Associate Professor	2015 - present
Daisy Powell	Reader; Associate Professor	2012 - present
Rhona Stainthorp	Professor	2007 - present
Period when the claimed impact occurred: August 2013–20		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact		
<p>Development of literacy skills in children is crucial to their life outcomes. Research on the varied cognitive processes involved in acquiring literacy has changed the teaching of literacy in two inter-related ways. Firstly, it has influenced policy on the teaching and assessment of phonics and early reading, affecting all primary state school learners in England and across two states in Australia, and thus impacting over 4,000,000 children. Secondly it has changed literacy teaching practice in over 10 countries, affecting learners who speak English as a first language, as well as those for whom it is an additional or second language. The research has therefore made a vital contribution towards addressing low pupil attainment through improving teachers' knowledge of the processes involved in gaining literacy.</p>		
2. Underpinning research		
<p>Research at the University of Reading has shown the importance of understanding that children learn to read through a variety of cognitive processes; moreover, the efficacy of these different processes varies from child to child and between bilingual children (for whom English is an additional language, EAL) and monolingual children whose first language is English [Section 3, refs 2–5]. For this reason, if children are to receive the most appropriate materials and forms of classroom instruction, it is crucial that teachers understand these varied processes [refs 1 and 6].</p>		
<p><i>Understanding the cognitive processes underpinning the reading and spelling of words</i> Through two ESRC-funded experimental, longitudinal studies (GBP306,621), the research identified RAN (the ability to name letters and symbols quickly and automatically) as an additional factor in the successful development of literacy in English. Critically, it found that RAN was independent of phonological awareness [refs 2 and 3] (the ability to identify the sounds in words by matching letters to sounds). Phonological awareness is strongly linked to reading development, and previous research had suggested that it was the phonological aspect of RAN that explained its link to reading. However, the ground-breaking work at Reading showed that, beyond phonology, there was also a role for visual factors in the link between RAN and both the reading and the spelling of words. Importantly, the research [ref 3] showed that RAN was linked to the storing and accessing of the written forms of words. This is crucial in English for words with unpredictable spellings (for example, <i>the</i>, <i>what</i>, <i>yacht</i>) [refs 2 and 3], where the processes that RAN draws on are vital in accessing the written forms of whole words quickly and accurately. Consequently, if teachers are to be able to develop children's reading effectively, it is essential that they are knowledgeable about these cognitive factors. Furthermore, the research demonstrated that RAN was an independent, potentially causal factor in early abilities to read and spell words. This indicates RAN's significant value as a screening tool, particularly for the early identification of reading problems such as dyslexia [refs 2 and 3].</p>		
<p><i>Children with good comprehension skills learn new words through context</i> The Reading research has also shown that children differ in the extent to which they can increase their vocabulary through reading. A study using eye-tracking explored the reading processes of</p>		

40 children [ref 4] and showed that children with good (as opposed to poor) comprehension skills could learn new words incidentally by reading texts. It was found that children used contextual information to guide their reading behaviour, thus learning about both the spelling and the meaning of new words presented to them in sentences.

Bilingual children learn vocabulary through reading but face other challenges in the development of literacy

EAL children form around 21% of the primary school population, making it vital to understand how they develop literacy. Research carried out at Reading has identified two important aspects of such development. In a second eye-tracking study, the project funded by the British Academy (GBP9,967) established that EAL children were very efficient at using context to learn new words, and that their bilingualism thus gave them an important strength. At the same time, a qualitative longitudinal study involving interviews with 10 learners, seven teachers and four parents from five schools [ref 5] established that learning to be literate in two languages brought with it tensions as these multilingual children tried to meet the differing expectations of family and school.

Teachers need advanced knowledge for teaching literacy to different learners

In line with the above findings on the different cognitive processes employed by different learners, further research has informed the knowledge base on the importance of teacher understanding of such processes. This is essential, in order to deploy the most appropriate pedagogy for individual learners. University of Reading research, shared in an accessible format in 2016 showed that, in order to teach phonics successfully, teachers needed to raise their own explicit phonemic awareness [ref 1]; they also need to improve their knowledge of other cognitive processes involved in reading and spelling different types of words (regular words and exceptions) [refs 2 and 3].

Moreover, the research [ref 4] also showed the importance of teachers understanding two key principles. First, that EAL learning needs are not the same as those of pupils with literacy difficulties. Second, that classroom activities should be tailored to the needs of different learners, namely by providing more independent reading experiences for EAL learners and/or providing vocabulary support to aid reading comprehension for those who need it. All of these research findings underline the importance of teacher subject knowledge. In addressing the challenges in teaching literacy to EAL children, evidence from Flynn's 2019 article in *Teacher Development* [ref 6] demonstrates that classroom practice and subject knowledge can be improved through research-informed support tools created as part of practitioner–researcher collaborations.

Overall, the combined work of literacy researchers based at Reading has advanced our understanding of the cognitive processes involved in learning to read and spell, both of children whose first language is English and of EAL children, as well as among those potentially at risk of failing to learn to read. Knowledge of the implications that these processes have for learning to read and spell words is often lacking among teachers, yet an understanding of them can help teachers to become more effective in deploying the most appropriate classroom strategies. On the basis of this research, revised education policy and teaching strategies have been implemented globally, and materials for literacy have been widely revised too.

3. References to the research

2* threshold: The research constitutes a cohesive body of work that is unique in its combined focus on the cognitive processes underpinning the development of literacy among monolingual and bilingual learners and the crucial role of teachers' subject knowledge in teaching literacy to both groups. Through longitudinal and cross-sectional experimental studies applying novel research methods such as eye-tracking, as well as those using longitudinal, qualitative techniques of investigation or analysis, it has contributed significantly to the advancement of knowledge and, in turn, to changes in policy and practice. The research has spanned a period of significant shift in policy on the teaching of English. All of the above is reflected in the work's funding through competitive, peer-reviewed grants, and publication in peer-reviewed international journals.

1. Stuart, M. and Stainthorp, R. (2016) *Reading Development and Teaching* Sage, pp240. ISBN 9781446249031
2. Stainthorp, R., Powell, D. and Stuart, M. (2013) '[The relationship between rapid naming and word spelling in English](#)'. *Journal of Research in Reading*, 36 (4). pp. 371–388. doi: <https://doi.org/10.1111/jrir.12002>
3. Powell, D., Stainthorp, R. and Stuart, M. (2014) '[Deficits in orthographic knowledge in children poor at rapid automatized naming \(RAN\) tasks?](#)' *Scientific Studies of Reading*, 18 (3). pp. 192–207. doi: <https://doi.org/10.1080/10888438.2013.862249>
4. Joseph, H. and Nation, K. (2018) '[Examining incidental word learning during reading in children: The role of context](#)'. *Journal of Experimental Child Psychology*, 166. pp. 190–211. doi: <https://doi.org/10.1016/j.jecp.2017.08.010>
5. Flynn, N. (2019) '[Teachers and Polish children: Capturing changes in the linguistic field](#)'. *British Journal of Sociology of Education*, 40 (1). pp. 65–82. doi: <https://doi.org/10.1080/01425692.2018.1481366>
6. Flynn, N. (2019) '[Facilitating evidence-informed practice](#)'. *Teacher Development*, 23 (1). pp. 64–82. doi: <https://doi.org/10.1080/13664530.2018.1505649>

4. Details of the impact

Changing teachers' practice in order to improve pupil outcomes in literacy is of vital importance because literacy is the gateway to economic and social success. Through their research insights into the cognitive processes that underpin literacy, and the teaching strategies that can improve learning for EAL children, researchers at Reading have influenced and changed teaching practice and education policy on literacy in England and Australia. Their research has led to the development of important tools for assessing progress in early reading in all state primary schools in England (impacting the practice of around 30,000 teachers of around 500,000 six-year-olds each year) and two states in Australia impacting around 8,000 teachers each year in 500 schools. It has also been used to train and improve the classroom practice of nearly 7,000 practising teachers in England and a further 1,800 in Malaysia and New Zealand, as well as influence materials and practices for teaching bilingual learners, across at least 10 countries.

Changes to national and international policy on the teaching and assessment of literacy

Research carried out at Reading established the important role played by teachers' own phonological knowledge in classroom practice [ref 1]. The findings of that research, published as a teacher guide, have become enshrined in the OFSTED (2019) framework for the inspection of early reading in primary schools in England and Wales [Section 5, source1], which requires that teacher subject knowledge for teaching reading is explicitly commented on by school inspectors. The research also underpins the guidance for teachers of 7–11-year-olds in the UK published by The Education Endowment Foundation [source 1].

Based on its expertise in phonics research, the University of Reading was commissioned to work with the Department for Education (DfE, England) in developing the year 1 Phonics Screening Check (PSC; 2012). This is a national assessment tool used to benchmark reading skills in all schools providing teaching at key stage (KS) 1. Subsequently, in 2013 and 2016, researchers at Reading were asked by the DfE to provide test items for further versions of the PSC. The implementation of the PSC had an important impact on classroom practice, because it "led to schools making changes to their phonics teaching", prompted teachers to "review or revise phonics teaching plans in general", and to use "evidence from the check to make decisions about extra support for individuals" [source 2]. The use of the PSC in England has been associated with a rise in reading performance. In 2019, 82% of year 1 pupils achieved the benchmark standard compared with 58% in 2012 when the PSC was first introduced. Moreover, the PSC's introduction is correlated with raised literacy attainment at the end of KS2 [source 2]. Therefore, literacy research at Reading has had a direct and sustained impact on raising national standards in literacy for 6 and 11-year-olds in England, because the PSC has improved teachers' understanding of the crucial role of developing strong phonic knowledge during KS1.

The reach of the PSC has since extended into the international context. It has informed policy and practice for the assessment of early reading in South Australia, where it is used in all state primary schools, and was introduced state-wide in New South Wales in 2020. The research from Reading has been used "to inform educators and policymakers ... and therefore improve literacy

levels among children” [source 2]. In New Zealand, a new series of classroom books (funded by the New Zealand Ministry of Education) is being developed using Reading’s “research on the predictors of irregular word reading” which “is influencing the way materials are being developed and the guidance given to teachers”. This is a significant shift in policy on the use of phonics-based methods in reading programmes across New Zealand and is aimed at improving the literacy outcomes of pupils at risk from reading failure [source 2].

Impact on training and practice in the teaching and assessment of literacy

As a result of their research demonstrating the need to understand cognitive processes which underpin learning to read [see refs 1, 2, 3 and 6], further funding from the DfE was won to deliver phonics training for parts of England where pupil progress in reading was below the national average. These events, known as “The Phonics Roadshows”, were attended by over 600 teachers in 2017, from 14 designated Opportunity Areas, covering five of the nine England governmental regions. In a one-year-on follow-up survey to the roadshows, 70% of teachers had actively implemented changes in their practices [source 3]. Moreover, impact at a regional level, affecting around 439,000 children, was recorded in interviews with nine local authority phonics leads (in south-east and south-west England, East Anglia and the Midlands), noting that “as a result of [this] work we have given a high priority to the leadership of phonics in the local authority. This has already impacted on the quality of Continuing Professional Development offered” [source 3].

The research carried out at Reading has also underpinned the GL Diagnostic Test of Word Reading Processes (DTWRP), an aid to improve teaching practice. The tool, used in around 170 primary schools across the UK since 2014, includes explicit guidance on targeted research-informed interventions for specific literacy difficulties, providing invaluable training for classroom practitioners [source 4]. Similarly, research from Reading on RAN and phonological awareness has been used by others providing training for practitioners working in the area of specific learning difficulties [ref 3]. For example, a provider of continuing professional development (CPD) has used it in her training of teachers working with over 16,500 learners in England, thus enabling them to support children with difficulties such as Dyslexia [source 5]. Extending the reach, researchers from Reading delivered invited practitioner workshops in Malaysia (2016–18). These included teachers, specialist regional literacy support staff, Ministry of Education staff and speech and language therapists. Attendees reported improved knowledge of literacy development from sessions that “shared valuable information to take away and put into practice” [source 6].

The Reading research has also underpinned Initial Teacher Education (ITE) with the inclusion of the team’s publications [refs 1–6] in ITE syllabi at universities across England, including University College London, York, Leicester and Newcastle. It has also influenced ITE internationally: in 2018, researchers from Reading delivered three practitioner workshops in Malaysia, attended by teacher educators and trainee teachers from the Kuala Lumpur, Selangor, Seremban and Negeri Sembilan areas. Event feedback indicates improved understanding of the processes underpinning reading and how to adapt classroom practice accordingly [source 6].

Impact on training and practice in literacy instruction for bilingual learners internationally

The team’s combined research insights into the role of phonics and the teaching of pupils with EAL [refs 2, 3, 5, and 6] led to an invitation from Oxford University Press to write guidelines for the creators of phonics programmes used in English as a foreign language (EFL) contexts. These have been used by editors at the Press to ensure that EFL materials are planned and written in accordance with the findings established by the literacy researchers at Reading, thereby influencing teaching and learning in China, Japan, Taiwan, Spain, Italy, Turkey and Egypt, among other countries [source 7].

Drawing on their finding [refs 4 and 6] that teacher understanding of the specific needs of EAL learners is critical but under-developed, the team has worked with practitioners to provide much-needed CPD. Currently, there is no UK national policy to support the teaching of EAL learners. To address this gap, they developed an online tool, now used in the UK and 48 other countries, that was collaboratively constructed with teachers and Local Authority EAL experts [ref 6]. The

tool includes case studies which provide evidence of change, based on teachers' reports of improved pupil literacy outcomes resulting from the evidence-informed practice. Though aimed mainly at teachers in the UK, it also used by EFL teachers abroad; for example, by those in Ecuador [source 8].

Furthermore, the research team has also engaged with and changed teaching practice in schools with a high proportion of EAL learners in Oxfordshire, Hampshire and the North West. One Headteacher notes that “[Reading’s] research on children with specific comprehension difficulties means that we are better placed to identify these children and support them appropriately” [source 9]. The team also provided training to all staff in a school where 98% of learners had English as an additional language. This has enhanced the practice of 20 teachers and raised overall learning outcomes for its 360 pupils [source 9]. Regionally, the research has been used within the CPD offer of local authorities in Berkshire, Hampshire and Portsmouth, and by a training hub for schools in the north-west. In Hampshire, the long-term partnership with the University of Reading means that the research has had “far-reaching impact” on an annual average of over 700 EAL learners across 479 schools [source 9]. In May 2020 the research supported webinars hosted by The Bell Foundation (around 600 teachers registered). Described by Bell as “the most popular webinar we have broadcast”, the event offered guidance for teachers on the home-schooling of EAL learners during the COVID-19 pandemic.

In summary, failure to gain literacy skills in childhood leads to a poorer quality of life in adulthood. To address this, the research has demonstrated the necessity for appropriate instruction, tailored towards individual needs and based on strong teacher understanding of the cognitive processes that underlie the development of literacy among both monolingual and bilingual students. The research and engagement practices of the team have filled gaps in education policy and practice. Through the provision of research-informed tools and continuing professional development across 10 countries, teachers of literacy are now better equipped for significantly improving the life chances of millions of children.

5. Sources to corroborate the impact

- [S1] Extract from Ofsted (2019) and Education Endowment Foundation (2017) guidance showing the impact of the research on inspection frameworks and advice for teachers.
- [S2] Impact of the PSC: final NFER report (2015); impact on teaching in England; DfE (2019) – improved reading outcomes; evidence of impact in Australia and New Zealand.
- [S3] Feedback on the impact of the Phonics Roadshows: report for the DfE in England supplemented by survey data one year after the Roadshows; Letter from West Berkshire evidencing authority-wide impact of the Roadshows.
- [S4] Letter from GL Assessment on the impact of the research with DTRWP assessment tool.
- [S5] Webpage and email correspondence from CPD provider confirming extent of the use of the research in her training for schools in the area of reading difficulties.
- [S6] Feedback on training events for practitioners and teachers in Malaysia.
- [S7] Email correspondence from editors at Oxford University Press showing impact on the development of their publications.
- [S8] [Meshguides](#) - Google analytics, case study data and email showing reach of online tool and its impact on literacy teaching practices and outcomes.
- [S9] Letters from headteachers and Hampshire Ethnic Minority and Traveller Achievement Service evidencing authority-wide impact from the research on the teaching of pupils with EAL.