Developing regional research capacity and impact in North Wales: Case Study

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In this case study, we describe the work undertaken since 2004 in the journey to develop a collaborative model of working aimed at building the capacity and relevance of education research and evaluation across the North Wales region. The work has culminated in the recent creation of a collaborative research institute, the *Collaborative Institute for Education Research, Evidence and Impact* (CIEREI). CIEREI is a formal strategic collaboration between GwE (the Regional School Effectiveness and Improvement Service for North Wales), Bangor University, schools, and other bodies and institutions interested in education outcomes. The primary aim of CIEREI is to support improving outcomes for children through schools. CIEREI's establishment is the third phase in the development of a regional research and evaluation collaboration in North Wales.

The regional and national context in Wales

Since devolution in 1999, the provision of education policy in primary and secondary schools in Wales, including political accountability for national and international comparative standards, has been the responsibility of the Welsh Government. The 22 local authorities (LAs) in Wales have the responsibility for maintaining 1574 nursery, primary, secondary, and special schools (Welsh Government, 2016c). The LAs allocate school budgets, maintain school buildings, and support staffing and human resource management. They also have responsibility for statutory and legal requirements such as monitoring school attendance data and the provision for pupils with additional learning needs.

Since April 2013, the responsibility for school improvement services in Wales has been devolved to four regional consortia established by groups of local authorities (Hill, 2013). The primary aim of these four consortia is to increase the impact of school improvement services through a more consistent approach to both challenge and support within a national model (Welsh Government, 2015b). This has been achieved through a network of school improvement officers ("challenge advisers") linked to groups of schools. These officers have responsibility for assessing school performance data and, when necessary, arranging commissioned support (Hill, 2013). The regional consortia are also tasked with delivering regional support programmes to improve teaching and leadership quality, together with maintaining networks of school-to-school support. This assessment of support is based on the Welsh national school categorisation model, and is the product of

an evaluation of school attainment data and the quality of leadership and governance (Welsh Government, 2016b).

GwE is the consortia responsible for providing school improvement services for the six LAs across North Wales. GwE provides support and challenge to 436 maintained schools (364 nursery and primary schools; 55 secondary schools; 9 special schools; and 8 pupil referral units). GwE's remit includes 28% of all state maintained schools in Wales across a geographically and linguistically diverse area, with 31% of the population identified as Welsh speakers (Estyn, 2016). GwE employs 74 school improvement professionals with a range of subject-specific and leadership expertise.

When the regional consortia were created, there were no specialised roles that focused on research and evaluation expertise, reflecting the dislocation between sections of the Welsh education system (Furlong, 2015; OECD, 2014). Historically, there has been very little systematic collaboration between schools and local education authorities in Wales to disseminate research findings and inform policy decisions. A small number of useful, research-informed teacher guides have been produced by Welsh Government over recent years (Welsh Government, 2015c & 2015d). However, there remained a disconnect between the general improved awareness of teachers as to the need to implement evidence-based interventions through the Education Endowment Foundation Teaching and Learning Toolkit (Higgins et al., 2012) and improved knowledge of specific teaching strategies and interventions that have been impactful in schools.

Over recent years a number of active education research centres and institutes have been created in Wales in an attempt to improve the impact of research work in mainstream education. These bodies include the *Wales Institute of Social and Economic Research, Data & Methods*, WISERD (across Aberystwyth, Bangor, Cardiff, South Wales, and Swansea universities) and the *Wales Centre for Equity in Education* (jointly between the University of Wales and the University of Wales Trinity St. David). These organisations have provided a number of review reports for teachers and school leaders (Welsh Government, 2015; Egan et al., 2014).

Following Wales's disappointing performance in the 2009 Programme for International Student Assessment (PISA), the Welsh Government embarked on a series school improvement reforms. The aspiration for a more research-informed approach to education provision in Wales was identified following an OECD review in 2014. The resulting

report, *Improving Schools in Wales: An OECD Perspective* (OECD, 2014), provided the foundation for a number of strategic policy shifts in the Welsh education system. This revised vision became the new strategic plan published by Welsh Government, *Qualified for Life: An Education Improvement Plan* (Welsh Government, 2014a), and was introduced alongside significant curriculum reforms, including a focus on introducing a Literacy and Numeracy Framework (LNF) to improve standards across the curriculum (Welsh Government, 2013). *Qualified for Life* also identified the need for Wales to develop a more research-informed infrastructure underpinned by *'…a strong pedagogy based on an understanding of what works.'* (Welsh Government, 2014a).

The impact of the Well-being of Future Generations (Wales) Act (2015) (WFG Act) that came into force on April 1st 2016 is also relevant. The WFG Act is aimed at "*improving the social, economic, environmental and cultural well-being of Wales*" (p. 1) and as such clearly identifies many priorities that are relevant to schooling. The WFG Act is predicated on one '*sustainable development principle*'; that is, a public body must act such that "*the needs of the present are met without compromising the ability of future generations to meet their own needs*" [p. 5]). This is to be done in the context of four pillars of sustainability, which must be considered of equal importance: the economy, the environment, society, and culture. As an outcome of applying the sustainable development principle, the WFG Act specifies seven well-being goals: a globally responsible Wales, a prosperous Wales, a resilient Wales, a healthier Wales, a more equal Wales, a Wales of cohesive communities, and a Wales of vibrant culture and thriving Welsh language (p. 4). Importantly for the present case study, the WFG Act identifies a collaborative working model - the '*five ways of working*', as a framework for achieving its aim: thinking long-term, prevention, integration, collaboration, and involvement. Additionally, the WFG Act has specified 46 national indicators, and 23 are directly and indirectly relevant to schooling.

Since April 2016, 44 public bodies in Wales have a duty under the WFG Act and must apply the sustainable development principle in their work and demonstrate that they are making progress on and strategic alignment to all seven goals. Bangor University had already made a strategic decision to become 'the Sustainable University' (BU Strategic Plan 2015-2020) and has since elected to adopt the WFG Act as a framework for action. Later, we describe how we have also used this as a basis for the working model for CIEREI.

The School of Education at Bangor University delivers initial teacher training through both undergraduate and postgraduate tracks, with between 100 and 200 trainees graduating each year. Additionally, there are masters and doctoral level programmes aimed at providing further professional development and research opportunities for current educational practitioners. There are also a number of active researchers within the School, researching bilingual education, inclusion and special educational needs, teacher education and professional development, and the effectiveness and implementation of literacy programmes.

Whilst this potentially offers some direct lines of influence in terms of developing research literacy and capacity amongst teachers, The Furlong report (Furlong, 2015) highlighted some very real challenges faced across University education departments in Wales at the national, institutional, and programme level. For example, at the national level, standards for QTS can restrict resources available to develop and maintain research active lecturers; at the institutional level, there is substantial underinvestment and insufficient support for high quality research; and at the programme level, there is a lack of a robust research culture. As outlined here, we believe that a strategic collaboration across university departments and other stakeholders in the region can make a significant positive impact on both the capacity to undertake high-quality research (including accessing alternative sources of funding) and the embedding of a research culture at the institutional and programme level. Thinking more long-term, as the formal collaborations develop, the vision and work of CIEREI will help to clarify processes and policy that impact these issues at a national level.

A journey to a collaborative working model for education research in North Wales

There have been three phases to date in the journey to develop a model of working that is clearly driven jointly and collaboratively by three equal partners: university researchers (across a number of departments and centres), schools across the region, and GwE. This phased development is illustrated in Figure 1.

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Phase 1: Researcher-driven projects

Bangor University has a long and extensive history of world-class research on

interventions for the benefit of children – to improve their health, wellbeing, and education. This research has concentrated on direct intervention and evaluation with children themselves or with parents, guardians, and teachers and has focused on both early and preventative approaches. Some specific targets include special educational needs (e.g., Foran, Hoerger, Philpott & Morgan, 2015; Ware & Thorpe, 2007), bilingualism (e.g., Thomas, Apolloni & Lewis, 2014; Rhys & Thomas, 2013), childhood disorders and conduct disorder (e.g., Hutchings, Martin-Forbes, Daley & Williams, 2013), bullying in schools (e.g., Clarkson et al., 2016), mindfulness in education (e.g., Gold et al., 2010), healthy eating and behaviours (e.g., Horne et al., 2009), academic failure (e.g., Hughes, Beverley, & Whitehead, 2017), literacy (e.g., Caravalos & Landel, 2010; Tyler, Hughes, Beverley & Hastings, 2015), and numeracy (e.g., Hunter, Beverley, Parkinson & Hughes, 2016). Although this research has had impact on education practice and settings in North Wales, it was largely researcher-led and not part of a strategic collaboration as we describe in Phase 2.

Phase 2: Collaborative working and scaling up

With the formation of GwE in 2013, colleagues in Bangor University and GwE identified the need to widen education research and disseminate findings across the region in line with the strategic priorities set by GwE. This collaborative approach started with a focus on the outcomes and evaluation of a reading programme called Headsprout Early Reading©. An important part of Phase 2 was combining researcher interests with GwE's priorities for educational attainment and our broader aim to progress from small experimental studies to larger scale effectiveness and, ultimately, to large-scale implementation of evidenced-based interventions that could work in real-world settings without researcher support. This was a critical next step for the school improvement service; seeking cost-effective interventions that can be introduced at scale and with minimal ongoing support.

Initially, we collaboratively identified schools deemed 'at risk' at a regional and local level to prioritise engagement with Headsprout implementation research using performance data from Welsh National Reading tests and other intelligence gathered by Challenge Advisers working with individual schools. This represented a significant shift in the process of conducting research in schools from researcher-driven to a more collaborative model where the research team, GwE officers, and school personnel co-constructed project

plans. It is worth noting that this initial collaborative work was based on a shared vision that the use of a more systematic and scientific approach to the provision and evaluation of teaching strategies would improve outcomes for all learners in Wales.

To develop this programme of research and potentially improve the impact on practice, we identified the need to consider larger scale evaluations and in particular running 'gold-standard' randomised control trials (RCTs). This required a more sophisticated approach to research, but also a process that would ensure significant buy-in from larger numbers of schools across the region. We, and others (Furlong, 2015), have identified a number of barriers, both knowledge-based and practical, to the engagement with research from schools (e.g., lack of research knowledge in the setting, readiness to adopt new practices, staff resources, clarity of the benefits of involvement and use of research). We considered the benefits and resource requirements affecting schools' participation during the process of designing these projects.

These considerations also included the need to focus projects on national policy objectives, including effective use of school improvement funding and alignment with national priorities, such as the LNF initiative and improving outcomes for disadvantaged pupils (Welsh Government, 2013, 2014b, 2015c). GwE has a central role in monitoring school's expenditure of the Welsh Government Pupil Development Grant (PDG). This is a core funding arm delegated directly to schools based on the number of pupils eligible for free school meals (eFSM), and is an important policy lever for improving outcomes for disadvantaged learners (Welsh Government, 2015f). Through its monitoring and evaluation role in tracking PDG expenditure, GwE was able to align new projects with school's PDG funding. This, together with the consortium's ability to access, and communicate with, large numbers of schools, enabled very rapid take-up of new projects and a route to funding high-quality research in a '*collaborative stakeholder funding model*'; we were able to fund large-scale RCTs with resources internal to the system through a model where each partner contributed part of the funding through strategic use of PDG funding from participating schools, other local funding, and matched funding. GwE's involvement as a core collaborating partner was instrumental in the success of scaling-up this research, improving school participation, and enabling the collaborative funding model to work. For example, as we were able to describe how the proposed RCT studies supported key national priorities, it was possible to access additional funding from Bangor University, local charities, and

individual local education authorities. Further discussion of how key barriers and enablers for schools were considered in the design of these projects are outlined, along with the funding model, in the case example below (also see Table 1).

Case example: Headsprout Online Reading

In a context of poor overall performance of Welsh children in reading in comparison to other nations, we saw a strategic priority for research was to identify and evaluate evidence-based reading programmes that had the potential to support reading instruction cost effectively in a large number of schools across the region. We identified Headsprout™ as a possible solution because it has a robust instructional design, extensive formative evaluation, and an emerging evidence-base from US-based evaluations (Layng, Twyman & Stikeleather, 2003; Huffstetter et al., 2010; Twyman, Layng & Layng, 2011). Headsprout programmes offered the potential of a large-scale roll-out of a cost-effective intervention providing a standardised approach to all children without a need to train large numbers of expensive 'reading specialists'. Headsprout™ comprises two online programmes, the *Headsprout Early Reading* programme and the *Headsprout Reading Comprehension* and so covers all of the skills necessary to become a competent reader (more details of the Headsprout programmes and our earlier research with diverse populations can be found in previous publications; Tyler et al., 2015a; Tyler et al., 2015b; Grindle et al., 2013, O'Sullivan, Grindle & Hughes, 2017).

During Phase 1, Headsprout™ research consisted of researcher-driven small pilot studies with individual schools (see Table 1). Typically, schools would be approached by the research team and invited to participate. Participating schools would then select a target group of pupils (e.g., older struggling readers, children with EAL), and we would lead the implementation of the programme, taking pre and post measures of reading skills, typically completing the project within one academic year. Following encouraging results throughout this pilot work, this individual school approach culminated in a randomised control trial in a primary school (Tyler et al., 2015a), a matched-group design in a secondary school (Hulson-Jones et al., in prep), and a feasibility RCT across three special schools (Tyler et al., under review).

Undergraduate or postgraduate research students supported the majority of these pilot projects, often with little direct involvement of school staff in the implementation.

Schools were often fairly passive partners. Releasing university students to support research represents a clear enabler in building capacity to develop and implement research projects within schools. However, with this researcher-driven approach, capacity within the schools for delivering the programme is often not developed, and many schools did not continue programme use following the projects. This presented two main barriers for us in terms of scaling-up and implementation evaluation. First, to conduct larger-scale evaluations without significant external funding we would need school staff to be responsible for delivering the intervention and ensure this was integrated into the schools' schedule (i.e., not 'done to' by a research team). Second, without involving and training school staff, we were not able to answer crucial questions as to the effectiveness of the intervention (under less than ideal circumstances), or the feasibility and sustained use of the programme more broadly.

The focus of Phase 2 was to develop larger-scale evaluations and expand school recruitment to implementation and evaluation projects (see Figure 1 and Table 1). A key part of this process was to closely consider the barriers and enablers for schools and to ensure that we were helping with some of the challenges they faced. A key aspect was the relationship of the work to educational attainment and national priorities. Schools in Wales are required to evidence the impact of their PDG funding on reducing the attainment gap between pupils eligible for free school means (eFSM) and non-eFSM pupils. Given this context, we worked on developing projects focusing on attainment (reading in this case example), as well as considering what progress data and feedback would be useful to schools.

It was important that the design of the proposed projects was constrained by factors that ensured they aligned with regional and national priorities, and would be a long-term benefit to schools. These 'boundary' conditions include a focus on: improving standards in literacy and numeracy using research-informed interventions and strategies; improving outcomes for eFSM pupils through the use of PDG funding; using national test data to help identify 'at risk' pupils to receive the intervention; improving schools' use of test data to make more evaluative judgements on pupil progress (including the use of Effect Sizes); and, ensuring the long-term sustainability of the intervention.

We developed a system of feedback with evaluative impact reports for each school that described the school's implementation quality and impact on outcomes (including pre-post data and analysis of effects sizes) for all their children and how they had performed

relative to other schools in the project. These reports were adaptations of a standard GwE reporting template and have proved extremely useful for individual schools. Through these reports, we raised awareness of the use and interpretation of effect size data in education to head teachers and middle leaders (Education Endowment Foundation, 2013; Hattie, 2009, 2012). This has been a particularly successful strategy, helping teachers make more informed and evaluative judgements on pupil progress. Importantly, this has also enabled GwE and schools to identify the size of the 'effect' of the intervention on a cohort of pupils (Watkins et al., 2016). The success of these collaborative projects was recognised during the inspection of the North Wales Consortium in 2016 (Estyn, 2016).

As described above, a further implication of the PDG funds allocated to schools was the potential for exploring an alternative model for funding educational research. PDG funds can be used to purchase resources and training relating to evidence-based interventions to target eFSM learners. With this in mind, we began to develop projects that could feasibly be run on minimal funding that would be received directly from the PDG funds of participating schools. This has had a significant impact on the scale of research possible without large research grants. As detailed in Table 1, in 2016 we completed a 22-school cluster RCT investigating the Headsprout early reading programme and the importance of implementation support on outcomes for 270 children. In 2016-2017, we commenced a 24-school cluster RCT (involving over 140 children) investigating the use of the programme when delivered at home by parents and supported by schools.

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Phase 3: The Collaborative Institute for Education Research, Evidence and Impact (CIEREI): A globally relevant collaborative model of developing a research-driven education ecosystem

Although Phase 1 and 2 have resulted in a number of impactful programmes of research that have started to develop a significant evidence base in important areas of practice across North Wales schools, we recognised that a research-informed education ecosystem required a more systematic and strategic approach to embedding research and evidence within practice as outlined by the OECD (OECD, 2017) and Qualified for Life (Welsh Government, 2014a). We also recognised that the research agenda could not be led solely form the interest of the university researchers, but that a true partnership model would be one that was driven by the priorities of schools and GwE (close-to-practice research), and

supported with university expertise. This would ensure that education research in North Wales would be more closely aligned with the strategic objectives of Welsh Government. Phase 3 represents the development of the Collaborative Institute for Education Research, Evidence and Impact (CIEREI).

CIEREI is a collaborative, bilingual, multi-disciplinary institute for the creation of research evidence with the primary aim of positively impacting learning and wellbeing for children through schools. CIEREI represents a strategic partnership between GwE, Bangor University (led by the Schools of Education and Psychology), Local Education Authorities, schools, the University of Warwick (CEDAR), The Future Generations Commissioners office for Wales, and other stakeholders invested in improving educational outcomes and the wellbeing of our children.

CIEREI is also a strategic response to ensuring that Bangor University provides a strong lead in developing international level research that informs teaching practice and underpins the training of the next generation of teachers in Wales. CIEREI represents a strategic and ambitious response to the vision described by Professor Donaldson (Welsh Government, 2015a), and Professor Furlong (Furlong, 2015) on the role of universities and the changing landscape that will be necessary to build a research informed education economy in Wales.

In the medium to long term, CIEREI aims to achieve this through building a vibrant research community that builds the foundation that feeds directly into current educational practice, initial teacher education (ITE) programmes and on-going professional development of teachers. This will help ensure that all newly qualified teachers understand research, best evidence practice, and will help to foster a 'scientist-practitioner mind-set' within education settings. CIEREI has the status of 'Institute' within the university system because one of the main functions will be to bring together existing groups and centres that are undertaking educationally relevant research to work collaboratively and strategically with GwE and schools (e.g., Centres for Evidence Based Early Intervention, Centre for Mindfulness Research and Practice, Miles Dyslexia Centre, Bilingualism Centre, Bangor Literacy Lab).

One of the ultimate aims is to build capacity within the North Wales system to help teachers and school leaders understand and apply a greater range of evidence-based practices, and to create an environment where teachers and educators are supported to innovate and evaluate educational practice (OECD, 2017; Welsh Government, 2014a). As

well as the impact of the reading research projects outlined previously, GwE is also working collaboratively with Bangor University research teams to evaluate the quality of school improvement programmes and the impact of poverty on attainment in rural areas.

On a national level, the aim is to support the vision of the Welsh Government's Qualified for Life initiative (Welsh Government, 2014a), and to contribute to existing 'what works' guidelines to support schools in improving outcomes for pupils. Through the expansion and diversification of collaborative school projects, we aim to accumulate an evidence-base of cost effective programmes for schools. As noted by Jones (2015), the term 'evidence-based practice' defines a range of behaviours and knowledge that teachers can employ to maximise the impact of teaching on the outcomes learners achieve, including the evaluation of classroom data and knowledge of research-informed strategies and interventions. This does not necessarily require teachers to be active researchers, but it is important that teachers have the ability to use research findings to inform and improve their provision. As such, 'research-informed practice' is a subset of evidence-based practice (Jones, 2015), and is one of the important boundary conditions we described in the previous Headsprout case example. These boundary conditions are designed as enablers towards evidence-based practice. We believe the work undertaken so far, and the creation of CIEREI marks an important step towards the creation of an evidence-based culture in schools.

Main lessons learned

What we have described this far is our journey to a collaborative working model that has been formally defined in CIEREI. Although we are early in this journey, we believe there are a number of important lessons relevant to other contexts within and outside Wales.

Collaboration (personal relationships). The barriers to building a research informed education ecosystem, improving the profile and relevance of research, and providing avenues to fund research internal to the system, can only be overcome with a collaborative working model. We believe that the most important aspect of the success of our model is a strong working relationship between individuals who share a similar vision across the relevant organisations. It is then possible to align the priorities of different organisations and ensure that they work to achieve the same outcomes. The reality is that the goals of different organisations often compete and are focused on short term ends (e.g., school inspections, research publications), and this focus can be to the detriment of the ultimate

aims of an education system (i.e., providing a system that leads to good outcomes for our children). Collaboration is often mentioned in policy (e.g., the WFG Act, 2015) but there are few examples of how to make it work.

Co-developed / school led. A model that encourages research and evaluations co-developed with practice settings is likely to have larger impact and break down barriers between research and practice settings. Strategic collaboration is needed in the development of research projects that align with local, regional and national priorities, and where schools set the research agenda. When research is co-developed and focused on the priorities of practice settings, the relevance of research as an activity is clearer to schools. Clarity on the relevance of research may encourage schools to use funds internal to the system to support projects and evaluation.

Practice settings are often divorced from education research, researchers struggle to demonstrate practical relevance to practitioners, and funding to conduct systematic evaluations and research is difficult to secure. Our approach has the potential to offer some solutions to these problems, and is enabling a step change in the quality and quantity of education research being conducted across North Wales.

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