

Digital technologies and the teaching profession

How can education technology improve recruitment, reduce workload, and support teacher retention?

Collated by Professor Christina Preston, Chair of TPEA

Summary

As an association of teachers and teacher educators, our members have welcomed the DfE's increased focus on teacher recruitment and retention in recent years and the clear desire to improve the morale of the teaching profession, reduce unnecessary workload and ensure teachers have long and fulfilling careers.

In this context TPEA members were pleased to see the Secretary of State for Education speak with authority at BETT 2018 and this August write in the Telegraph that *"...disappointingly, despite some remarkable innovation, there is one sector where the impact of technology remains surprisingly limited: education ... Schools, colleges and universities have the power to choose the tech tools which are best for them and their budgets. But they cannot do this alone. It's only by forging a strong partnership between government, technology innovators and the education sector that there will be sustainable, focused solutions which will ultimately support and inspire the learners of today and tomorrow."*¹

This is an area where our members have considerable experience and expertise and would like to offer our advice and support. We believe that the most productive way of making use of our expertise would be to arrange an exploratory meeting to discuss what we might bring and to explore opportunities for developing projects together. As an indication of some of the areas that might be discussed in an initial meeting, our members have identified the following opportunities:

- Re-recruit the ICT teachers
- Provide guidance on ways of working digitally
- Ensure the sustainability of teacher resources
- Provide a CPD entitlement
- Provide access to research and best practice
- Portfolios of professional achievement

¹<https://www.telegraph.co.uk/education/2018/08/07/schools-must-harness-cutting-edge-technology-engage-inspire/>

- Involve edtech companies

Re-recruit the ICT teachers

There is currently a shortage of secondary Computing teachers and, despite generous financial incentives, insufficient numbers of new teachers are starting their training. IT professionals are not being persuaded to join or stay in the profession.

We believe that there is an opportunity to re-recruit the many Information and Communications Technology (ICT) teachers who were disenfranchised when ICT was first disappplied and then replaced. Our members suggest that many of the ICT teachers who stopped teaching this subject would welcome further professional development to enable them to teach Computing. These are experienced teachers who wish to teach but have been left behind by curriculum developments.

These teachers can also help us to address another growing problem: recent figures show that nearly 23,000 fewer pupils left school this year without a qualification in a computer-related subject, a drop of 17 per cent from last year.

To address this, the content and range of GCSE qualifications should be reviewed. BCS director of education, Julia Adamson, said that when the body proposed a more “theoretical” computer science qualification, they assumed the ICT GCSE would continue as an alternative. However, with this being removed, “Now we’re in a position where ICT is no longer available and the focus is too narrow.”

Alterations to the curriculum and qualification offer, along with re-recruiting skilled ICT teachers, will allow schools to ensure that pupils gain the full range of digital skills that employers require.

Provide guidance on ways of working digitally

The DfE is clearly committed to collecting robust evidence on teacher workload and working with schools and OfSTED to reduced this. To their credit, the authors of the first DfE workload report have already suggesting some technological solutions, for example, providing new online resources for teachers to reduce time spent on 'unnecessary' tasks, videos on good practice for teachers and online guidance for leaders². But in our experience, sometimes digital solutions can themselves negatively impact on workload. For example, the time spent teaching online is often not adequately accounted for. Thereful careful estimates of the impact of any edtech solutions on workload are essential and teachers need to be trained to use digital tools effectively.

Professor Andrew Connell, Chester University, TPEA member and Chair of CfSA warns, “We need to avoid the old chestnut that workload is reduced if we simply put lessons on the web and just download them. Publishers obviously love the opportunity to make money this way and

² <https://www.gov.uk/government/publications/reducing-teachers-workload/reducing-teachers-workload>

sharing ideas and resources is very supportive. But teachers need the skills to plan schemes of work first, then to find and evaluate appropriate resources, then adapt them to context". Good initial teacher education and professional development programmes should include unbiased strategies for web navigation and understanding the provenance of content. Teachers should be given more guidance in using web content wisely and efficiently through focussed professional development activities.

Ensure the sustainability of teacher resources

A clear recommendation of the recent working groups on reducing teacher workload has been that access to high-quality resources saves teachers time and can improve the quality of their work. This has led to a renewed appreciation of the need to develop resources and make them widely available.

However, recent experience has shown that without careful planning, we risk wasting precious time and resource. For example, many of our members were involved in creating resources for the British Educational Communications and Technology Agency (BECTA), Teacher Training Resource Bank (TTRB), or other government agencies. These evidence-based resources, funded by government and highly regarded by teachers were archived in 2010 and the resulting archives have made many resources inaccessible and all of them impossible to update.

We strongly advise that a clear strategy is needed to ensure the sustainability of current resources and maintain the maximum return on investment.

Provide a CPD entitlement

Training teachers to work digitally is one example of continuous professional development (CPD). Regular opportunities for high-quality professional learning motivate and inspire teachers. And therefore, ensuring an entitlement to Continuing Professional Development (CPD) will aid retention.

While schools offer INSET days, the impact of these is variable and they rarely allow teachers to address their individual development needs. Technology provides a way of delivering this and the DfE could fund the creation of specific online CPD packages. These should be academically rigorous, taught at Master's level and provide teachers with opportunities to engage with current thinking and evidence.

There are a number of tools that could be used to support this. For example, Knowledge Hub (KHub), funded by local authorities, is a tool for enabling online discourse among communities of like-minded teachers. Other opportunities include online support systems, e.g. lesson video and coaching; and online support from more experienced teachers. Many of our members have experience with designing Specialist Open Online Courses (SPOCs), Massive Open Online

Courses (MOOCs) and more specifically Community Open Online Courses (COOCs). A related initiative is also under development in Wales.

In particular, over the past decade or more, our members have undertaken, or are currently using, a range of tools and techniques in online learning for and with trainee teachers. This provides a sound starting point for initial developments which could be achieved fairly quickly. For example, FutureLearn from the Open University is universally available, provides a robust infrastructure with clear pedagogical design, and would be a relatively low-cost solution to online learning. FutureLearn Partner status could be acquired by an appropriate body such as the TPEA with the aim to provide an easily accessible, well-supported platform geared towards initial teacher training and professional development educational ends with a range of alternatives: certified/non-certified, accredited/non-accredited and so on. But this will cost £40,000 before we begin transferring our existing resources.

Provide access to research and best practice

Given the increasing emphasis on basing practice on research evidence, we recommend greater access for practitioners to education research journals. Access should be extended to include all teachers in England enabling them to draw on a wide variety of edtech research findings from initial teacher training through to Masters (including practice based research) and leadership development.

However, just providing access is insufficient as finding and understanding research can be time-consuming. Teachers also benefit from robust, evidence-informed research summaries that demonstrate ways of improving pupil outcomes.

Members of TPEA are already working closely with MESH guides³ and have provided scholarships for professionals to work on updatable research summaries developed by teachers and researchers working together to support evidence-informed teaching. MESH are at the beginning of a long journey pooling, sharing and testing our collective research-based knowledge. Educators from 188 countries are reading about, using and contributing to MESH - the Mapping Educational Specialist knowHow system. MESH provides a sustainable system using resources already in the education system to generate, quality assure and update evidence-based summaries written for educators.

Portfolios of professional achievement

In order to increase a career and accountability focus more attention is given to records of professional development for teachers. This approach could help retention as teachers would have written evidence of how much they have achieved.

³ <http://www.meshguides.org/>

We recommend this practice starting as it is in some cases when a trainee is accepted onto a teacher training programme. Many programmes will include, or have included at different times, pre-course tasks or activities (sometimes reading, sometimes classroom observation, or both). With a supportive digital infrastructure the process of assembling evidence of relevant professional activity should begin as early as possible. Over time, the habit becomes ingrained and normalised.

This portfolio of evidence as a means to show professional learning and development can be built-in to the process of becoming a teacher, so much so that in relation to the problem of matching evidence to the 'Teaching Standards' there have been a number of localised, bespoke digital initiatives developed over many years by individual departments of education within teacher training institutions. This background indicates the value that such tools can add to the recruitment and training process, and provides a body of experience to draw from in building approaches with wider reach.

Learning will also be enhanced if trainee teachers join professional communities like TPEA where they can publish their portfolio ideas for a wider audience. Teachers in fact already gain a Fellowship when they publish with our partner, the MirandaNet Fellowship: the website has archives of teachers' publications going back to 1994. In addition, MirandaNet teachers and trainee teachers can also gain awards for sharing in the case of articles, blogs, talking heads and conference and workshop presentations. This is a practice that TPEA will be replicating with the first membership level.

Involve edtech companies

The UK edtech industry is a vibrant source of innovation. Our evidence suggests that the edtech companies have much to offer but that innovation should not be led by products or technologies. It is vital that all companies take responsibility for research into the efficacy of their own products and we have worked alongside a large number of companies to evaluate and develop technologies.

Through practice based research in the classroom, industry representatives can also engage in learning, which in turn will raise the quality of thinking in this area. Our current industry partners are BESA companies including 2Simple, BrainPOP, Gaia Technologies, IRIS Connect, Just2Easy, OutSet, SAM Learning, Tablet Academy. Companies working alongside teachers through small scale school-based research projects provides teachers and their leaders with in classroom opportunities to reflect, often with the involvement of pupils and parents as well.

The DfE could work with these companies to ensure that they are focussed on addressing the issues of workload, recruitment and retention and could support small-scale projects to evaluate potential impacts.

Conclusion

While we make no claims for easy solutions or quick technological fixes for difficult problems, we do believe that there are opportunities to make more effective use of technology. This will take time to implement and evaluate and will require an agile approach to educational innovation that is dynamic, interactive and responsive to the alignment between solution and problem.

We must be cautious, however, about assuming that solutions that work locally for some will work at a scale sufficient to help solve professional problems that are regional or national in scope. Any of these proposals would need to be accompanied by a programme of rigorous research and evaluation to ensure good value for money and to maximise impact.

In the light of this report TPEA are well placed to undertake a feasibility study investigating how effective planning and usage of edtech can reduce a teacher's workload, improve recruitment and ensure retention of trained teachers and leaders. This study would seek to identify the benefits as well as the challenges of using edtech and the forms of professional development that are most effective.

Appendix: Technology, Pedagogy and Education Association (TPEA)

The Technology, Pedagogy and Education Association (TPEA) is a new subject association formed in 2018 from the partnership between two learned societies: The Association for Information Technology in Teacher Education (ITTE) and the MirandaNet Fellowship.

The Association for Information Technology in Teacher Education (ITTE - www.itte.org.uk) is a professional subject association which focuses on supporting and representing the views of those involved in training pre-service and in-service teachers. Founded in 1986, it has a specific focus on improving learning through the application of digital technology in teaching and through the effective teaching of Computing as a subject. Our concerns include: the pedagogical application of digital technology by all teachers; developing the teaching of computing and digital capability; and the effective use of digital technology in teacher education itself. We are an independent organisation with a membership drawn from Higher Education institutions, schools, colleges, SCITTs and supporting organisations.

Founded in 1992, the MirandaNet Fellowship is free to more than 1,000 members in 80 countries. Over the years the organization that has been successful in many bid applications, has built up a web store of research findings, members' publications, relevant reports and conference proceedings that attract a growing number of global visitors: students, practitioners and academics with a specialist interest.

In order to strengthen their voice as professional experts advising on computing and educational technology strategy, in 2018, the two organisations agreed to formalise their existing partnership under the new name Technology, Pedagogy and Education Association (TPEA). This restructured learned society, to be formally launched in 2019, aims to continue the work of the partners in influencing policy and practice in education technology. The TPEA name was chosen to align with ITTE's well established international journal, Technology, Pedagogy and Education (<https://www.tandfonline.com/toc/rtpe20/current>) published by Taylor Francis, and one of the top-ranked international journals in educational research.

TPEA's 1,500 international members represent a wide range of education technology (edtech) experts including university and college lecturers, advisory services and independent consultants, school leaders, classroom teachers, researchers and edtech companies who all share an interest in improving learning through the application of digital technology in teaching and through the effective teaching of Computing as a curriculum subject. Our unique contribution to this field is in edtech research and initial teacher education and our remit includes: the pedagogical application of digital technology by all teachers; developing the teaching of computing and digital capability; attention to the strands of information technology and digital/media literacy; and the effective use of digital technology in initial teacher education as well as continuing professional development (CPD) programmes and research. We also work closely with a number of edtech companies in research and development. We also have strong partnerships with organisations like the Council for Subject Associations, Computers at School, BareFoot Computing, MESH and the Chartered College of Teachers. Using practice-based research as a method of professional development, teachers and leaders work with our researchers and edtech companies as co-researchers in collecting evidence about the impact of technology. Members' extensive publications are currently collated on the three websites.

TPEA is funded through membership subscriptions and income from our internationally rated academic journal. We have a track record of delivering on external projects from a range of funders including the the UK government (notably through the TDA) and the European Union.

We hold regular conferences including our annual conference to be held in Winchester in Summer 2019, and, in partnership with MESH, the Global Teacher Education Knowledge Mobilisation Summit in October 2019 <https://www.eventbrite.com/e/3rd-global-teacher-ed-knowledge-mobilisation-summit-supporting-the-uns-sdg4c-registration-34395535974>

In summary, over the last forty years, our members have built up shared knowledge and experience in edtech policy and practice internationally. We are keen to work in partnership with other organisations in this field in government departments, education and the edtech industry to ensure that this country once again leads in this vital field of innovation.

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