# NAACE

## THE EDUCATION TECHNOLOGY ASSOCIATION

# Turbulent Times

# A letter from the chair of Naace

Dear Members,

As I write this the new Prime Minister Rishi Sunak is in the process of appointing his cabinet, which sees the fifth Secretary of State for Education in the last 12 months. Clearly with such a turnover of incumbents and periods of office stretching from 9 months for Nadhim Zahawi, to just 35 hours in Michelle Donelan's case, it's not surprising that the opportunity for Secretaries of State to lay out their vision, engage with the education community and implement policy has been somewhat lacking.

In July I represented Naace at the All-Party Parliamentary Group for EdTech, and it was clear from discussions with colleagues from schools, universities, the EdTech industry and parliamentarians that much work remains to ensure curriculum opportunities that meet the needs of young people in schools, attract a diverse intake of students to university courses, whilst at the same time try to meet the future demands of the industry. Given the opinions expressed from a range of stakeholders at the APPG, it felt that the only thing lacking was a DfE strategy to frame our discussions and to plan effectively for the future. Let's hope that the new Secretary of State, or a member of her ministerial team, can join the next meeting of the APPG to contribute to the debate.

A recent contribution from the DfE has been an update to the "Digital and technology standards for schools and colleges", first released in March 2022, to include standards relating to Cyber Security Standards. This strand adds to the existing standards of:

- Broadband infrastructure
- Switch standards
- Network cabling
- Wireless network

Whilst these standards are technical rather than pedagogical or curricular, invariably technical aspects can be difficult for professionals in schools to navigate their way through, and any support to schools in this area is welcome. The standards are detailed and provide questions for schools and importantly their technical support provider to ensure that schools and colleges are supported when:

- budgeting for technology procurement and maintenance
- buying technology equipment and services

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- renewing a contract with a technology provider to ensure their purchases meet your needs
- correctly installing new equipment

A link to the standards can be found [here](here)

Having a set of technical standards for schools and colleges to strive to is important, but it is equally essential that innovative and aspirational curriculum opportunities and the latest research are shared by the professional community. Fortunately, Christina has again succeeded in collating a range of thought provoking and informative articles that contribute to pedagogical and curriculum development.

I'd like to draw your attention particularly to the article by Nadya French (Naace Board Member and Computer Science teacher), who shares her thoughts on education technology in schools from a teacher perspective, including some thinking on collaborative learning for practitioners. This is certainly an area which, as an education community, we should try harder to facilitate.

There is an enormous amount of inspirational and creative work undertaken in schools, colleges and universities by students and teachers alike which should be shared as widely as possible. This journal strives to do that, and as always, I'd like to place on record my thanks to Christina and her team and all the contributors for sharing their inspirational work.

*Gavin Hawkins*
*Chair Naace Board of Management*

*Hanefa Osman, Proof Editor*



*Hanefa Osman studied Education Studies at undergraduate level at De Montfort University, Leicester. She then went on to complete Education Practice at Masters level. Whilst working as a teaching assistant at a school during the COVID-19 pandemic, Hanefa realised the importance of technology in education and hopes to use her knowledge on digital technologies to make a difference.*

# Contents

## Editorial

We have weathered Brexit, Covid, the death of the Queen, and an exceptionally hot summer, parts of Europe are at war, and we have our fifth prime minister since 2010 not to mention numerous education secretaries.

So let's look for consistency. The first two articles in the section, People Matter, are about two educators of exceptional integrity who have kept to their principles no matter what is happening in their countries.

The first is Dr Bozena Mannova who Naace members may remember at our conferences in Brighton and Torquay. She had come to the Women in Computing conference in Manchester in 1994 keen to learn what we knew about computing in education in the West after the Wall came down. She came up to me after my keynote. "Please come to speak to my Department", she said, "I need you - I am the only woman amongst ninety one men." Thus began a productive relationship with the colleagues in the Czech Republic, that has focused on effective modes of teaching teachers about digital technologies. But on the way I have learnt much about the Russian occupation and the triumph this year when all Communists were voted out of the Czech government finally.

Readers may be interested that I used Google Translate to convert the article from Czech. I was surprised at the accuracy of the English version and had to make very few changes. I now hear that these algorithms can imitate the styles of great writers like Austen and Joyce seamlessly, as well as the art of painters like Reubens and Van Gogh. Those of us in the edtech profession have much to consider about the ethics of putting artists and writers out of work.

The second person, Howard Sharron is another edtech industry veteran in the UK. Howard wrote in several publications in the 1990s. 'Interactive' was an early print supplement on technology and started in 1999 as a termly update focused mainly on assistive technology and basic Information and Communication Technology (ICT) skills. In interviewing him, Sal McKeown found that his belief is that the first step on the ladder of reflective practice for teachers must be to evaluate their own experience and performance against the best in the country or internationally. Over the years he has developed the outreach of his publication, Teaching Times, to be a library of best practice that allows for this self-assessment and exploration.

In the second section on 'Collaborative learning through digital technologies', Nadya French who is on the Naace Board, writes about the use of educational technology in schools from her perspective. This is a valuable article for practitioners in schools with interesting reflections on collaborative learning that were stimulated by her participation in the symposium on collaborative online learning at the ICET conference

*Professor Christina Preston*

*Dr Christina Preston, a member of Naace for 28years, joins the Naace Board of Management from an academic background, offering the association a great deal of insight into research about education technology and also effective professional development programmes for teachers. As a retired professor of education innovation she brings an international slant to Naace as she has worked with teachers and researchers in Argentina, Brazil, Chile, China, the Czech Republic, India, Mexico, Pakistan, Saudi Arabia, South Africa and Syria. This led her to create a professional organisation, the MirandaNet Fellowship, which seeks to explore the integration between edtech learning and practice. Christina has plenty of experience in providing advice – both academic and practical – to curious education practitioners. As the Editor of Naace's Advancing Education Journal, Christina plays a pivotal role for the association in organising, collecting and reviewing relevant academic material which will benefit the association's membership.*

in June 2022. The second article in this section is called 'The Activity System of Online Learning' by Professor Caroline Haythornthwaite tackles the perspectives of international academics on the theory behind collaborative learning online.

The report on the International Council for Teacher Education (ICET) conference in June in Bath covers the two symposia where Nacce BOM members, Gavin Hawkins and Nadya French contributed on ICT Professional Development and Collaborative online learning. It was the first time in four years that the four key organisations, Technology, Pedagogy and Education Association (TPEA), The MirandaNet Fellowship, Naace and MESHGuides, had met face to face. Much was gained in knowledge and expertise as reported by one of the international delegates from Gambia, Poncelet.

Finally, Dr Harvey Mellar and his colleagues, Maria Kambouri, Sally Betts and Barbara Nance, have been looking back again through research findings of the past to see what is still relevant now in the MirandaNet, Back to the Future, project. This time they report on the findings from ICT and Skills for Life @ National Research and Development Centre for adult literacy and numeracy (2002-2007). This article describes research on the use of ICT in teaching basic skills (skills for life) conducted between 2002 and 2007.

I hope you enjoy reading the views of our expert colleagues. Here's hoping the future looks hopeful as we emerge from our various crises.

Professor Christina Preston

# People Matter

## A woman in a man's world

*Interview with Dr Božena Mannová, Computing Department, Czech Technical University*



*Czech Technical University Prague. Image Credit:* _Bernal Saborio;_

In the world of computer science, she is known as Boba Mann - a recognized international expert on computers and programming. After the Wall came down in 1989 she came to England to attend MirandaNet Fellowship and Naace conferences, keen to catch up with computer advanced in the West.

Past retirement age she is still working at Czech Technical University in Prague and is newly leading the Prague 6 programming club as well as training new great IT experts, some of whom she can boast of knowing.

"In the 1990s, I led, and actually still lead, a software engineering course at the Faculty of Electrical Engineering, where students present the great things they invent as part of their projects. Back then the student, Ivo Luçkçovi came and said to me: I will show you my project. He showed how to search all the sites on the Internet and look for answers to questions. I would like you to realise that what I am going to show you here now is a great future. And he was right, he demonstrated the idea of the future Seznam search engine in my classes," recalls Božena Mannová. Now he is famous.

Here is the transcript of the interview she gave recently to a local Prague newspaper.

*Are today's children in danger because of their use of computers, tablets and mobile phones, or have they simply adapted to the times? How much are we as adults responsible for helping them?*

The answer is complex. Of course, it's bad when children are always on mobile phones. I have grandchildren and great-grandchildren and their parents have taken a strong stand. The children don't have a TV at home and their parents don't even let them use a computer. But you often see a mother putting a tablet in her child's hand as well as looking at something on her mobile phone. It is wrong when parents give their children mobile phones in order to avoid talking to them. But on the other hand, we should teach children to use technology so that it will help them in the future.

*Is it an advantage in that children no longer have to fiddle with data and information because they can find anything they want at any time on the Internet and therefore have more time for other projects?*

However, even searching on the Internet has its own rules and you need some skills for that. To find what you want to know, you need to be able to ask a question in a search engine. Maria Theresa established a school that was called trivial, because the so-called trivium, i.e. writing, reading and arithmetic, was taught there. We have abandoned counting, children have calculators and cannot add two to three. I think that one of the biggest mistakes of our Czech education

system was the abolition of the high school diploma in mathematics. But many of us can't do that and we all have calculators in our mobile phones...

It's a shame that the subject is called mathematics. Why is it not counting? Counting can be so interesting to learn! Although calculators will calculate the result accurately, we should still have the basic information in our heads, and not look for everything. It seems to me that the information we find on the Internet is taken out of context. And children will not learn that context from the Internet.

### What led you to get into computers and programming?

As a child, I wanted to be an actress, my friends even brought me an application for the Czech Drama School, because I was always acting, reciting and singing somewhere. But I was also good at maths and my father decided that I would go into electrical engineering. So that is what I did.

### I believe that you met your husband at school, you went to Canada with him in 1969...

Yes, and there I studied Computer Science at the Faculty of Mathematics of the University of Waterloo in Ontario. The university was relatively young at the time, it was founded in 1957, and today it is one of the best in the world for computer science.

### Was there a big difference between education in Czechoslovakia at the time and in Canada?

Above all, the difference was that we left before the Russian invasion. My husband taught at the university there, and since he believed that a woman should work so she did not get bored, I applied to the university, which I paid for. I graduated with a master's degree. There was a big IBM computer there then, which we knew nothing about in my country. And that wasn't the only difference. In the morning, I sent our child to school and went to the university library to get a coffee, a table and books. Yet, there were none about computers there.

In this context, I could also recall our later SOFSEM seminars in Czechoslovakia after my return, in which the philosopher Jan Sokol and Ivan Havel were also involved. This was so much more than the opportunity to find a book about computers and programming. The two of them would lecture us for six hours and then we would talk about what was new.

### Why did you return from Canada in 1971?

You couldn't really put your computer science knowledge to good use here. My daughter wanted to come back and I also have strong roots here. Reciting poetry in English is simply not possible.

### Didn't you regret it later?

No. In 1989, when the Wall came down, I went to Wenceslas Square in Prague to celebrate and I realised how glad I was that we came back. And I'm still happy even now, though the almost twenty years of normalisation were difficult.

### What kind of work did you find here?

When I returned, I wanted to work as an assistant at the Faculty of Electrical Engineering, but since I didn't have the personnel requirements for that, I joined the Computer Center. There everyone had been expelled from the party because they had returned from abroad or because they had signed the Charter against Communist rule. As you can imagine it was a great group of people, with many ideas in common forged together by comradeship. Because I was seen as against the regime I was not given the opportunity to study until after the year eighty-nine, when I moved to the university computer department.

### Before coming to the Faculty of Electrical Engineering, I am told you also worked at a secondary school and taught at the Arabská High School in Prague?

Yes at the school, we collaborated with the Faculty of Education and, for example, in 1986 we helped introduce the subject of Informatics to secondary schools. I wrote a number of textbooks on it. I started teaching at Arabská School in 1973,

and those experiences came in handy when writing textbooks. At the time, we lived across the street from Arabská. I was on maternity leave and a friend who taught there came to see me, saying that she was struggling with her nerves and asked whether I would take over part of her work. I only had graduation classes for about three hours a week and I enjoyed it. Programming can be fun and these classes were attended by extremely smart kids.

### Now I believe you work with even younger children and lead a programming club at the Bílá Elementary School?

Yes, I was approached by the Prague 6 area councillor, Ms Kubíková, to see if I would like to help with a project promoting cooperation between the Czech Technical University and ZŠ Bílá primary school in Prague 6. As I wanted to try teaching programming as part of the project, I offered to lead a group for children from fifth to eighth grade. In order to be a good teacher, a person has to be, I don't want to say, a psychopath, but a driven personality, because you are selling yourself as an expert guide and, at the same time, you can't be perfect all the time. Especially in programming, because there will be children who can do more than you.

### Do you have such children of genius in your circle?

Of course, and above all, these special children think faster. But they also need to be well managed, because only two or three percent of the population can become good programmers. It's similar to music, if you don't have talent, you won't succeed. And just like in music, in programming you have to find and capture these children. I went into teaching programming with the surety that I understand it, that I know what is essential and that I know what to teach. But it was too complicated for the children. I told my grandson and he replied, grandma, teach them SCRATCH. This is a graphical language that you work with visually and you don't need to know much about it. I learned it in three hours, showed it to the children, and in half an hour they programmed a walking cat that meowed. They

were better than me.

### Using that language, these students who are not computer geniuses could also succeed in the ICPC competition, i.e. the International Collegiate Programming Contest. What kind of competition is this?

It is a world competition in programming, which was established in 1974 in the United States at the University of Texas. The university teachers there then thought that they would start a very unusual event- a programming competition for students. And it turned out, the competition has been going on for almost fifty years and still has the same rules, and currently 75,000 students from 3,500 universities take part in it every year around the world. Student teams of three have one computer, now a laptop, and ten to fifteen tasks. Whoever solves the most tasks first wins. They have five hours to do it. An automatic evaluation system runs above them, which checks the solutions, which can be programmed differently and in different languages, and the system decides whether the solution is correct.

### And you are the director of this competition for Europe?

It's one of my hobbies. And the only woman among many men!  The final will be in November, I'm looking forward to it. The other hobby is the history of computers. We had an exhibition prepared at the National Technical Museum last year, it was beautiful and unfortunately no one saw it, as it did not open due to Covid.

### What fascinates you about programming?

Everything, I'm still programming, when there's a competition.  I'll take the easiest example, and if I can solve it, I'm happy.

### Do Czech competitors also bring prizes from the ICPC?

Unfortunately, the Russians win rather often, because they have been trained since childhood. There are always one to three teams from Europe among the twelve best out of one hundred and fifty finalists. Poles are regularly among

them, because I know the Rector from the University of Warsaw, so I know that they have also been working with their students since elementary school. Programming must be practised. But in 1998, the team from the MFF University Karlovy Vary from Prague won the world final. They are still among the best in the world.

### And why don't we also train children in programming?

Programming is now to be introduced in elementary schools, but I am afraid that it will be a problem to find teachers. There are a lot of people here who know how to program, for example our graduates from the Faculty of Electrical Engineering win competitions with drones and robots. But they lack methodology and pedagogy. They can explain it to the clever, but hardly less gifted girls. And every child – a person who knows how to program, won't work for low wages in school when he can gain so much more in industry. Few women dare to enter this field as well.  We do not feel strong enough against men. I've been working at this for a long time and I don't mind. But being a woman in Information Technology  is still not common. The guys will accept you, but, God forbid, you are better than them. But now even that is possible. Last year, a girl from our department won the IT SPY competition for the best informatics graduate.

### Is the Bílá elementary school an exception in the teaching of programming and computers?

There is a good principal there and I think it is very good that we are trying to pick up the children and point them in the right direction. As part of the cooperation project between CTU and ZŠ Bila, we have agreed that each class will go on an excursion to our electrical engineering faculty, where we will introduce them to what the field can offer. So, we don't teach them directly, but we explain to them what biomedicine is, what a robot can do, how a TV studio works, how lightning is created. And it is up to them to then say, Teacher, we are interested, we want to know more.

### And is it successful?

I just had a dad email me that his son was on a field trip and would really like to attend my club. But it's for fifth grade and up, and he's only in fourth, so he wondered if I could make an exception. Of course,  I will!

**Dr Bozena Mannová**



*Boba Mann  graduated from the Faculty of Electrical Engineering at the Czech Technical University and later worked at the Faculty of Electrical Engineering. She was the first woman to work  in the Computer Center. After the Wall came down in 1989 she continued to teach at the Department of Computers.  In their early marriage, Bozena lived with her husband in Sudan and Canada, where she also devoted herself to computers. She graduated in Computer Science and received the degree of M. Math. at the University of Waterloo, Canada.*
*After 1989 she received her Ph.D. Her achievements include:*
*Director of ICPC competitions for Europe*
*European Union Woman of Achievement for the creation of the British-Czech educational community of teachers with Professor Christina Preston, founder of the MirandaNet Fellowship*
*Holder of a medal from the Ministry of Foreign Affairs of the Czech Republic for representing the Czech Republic abroad teacher at Arabská Gymnasium*
*Now leads the programming club at ZŠ Bílá*

## The role of Howard Sharron's Teaching Times when national education policy is being neglected

*Sal McKeown: education journalist*
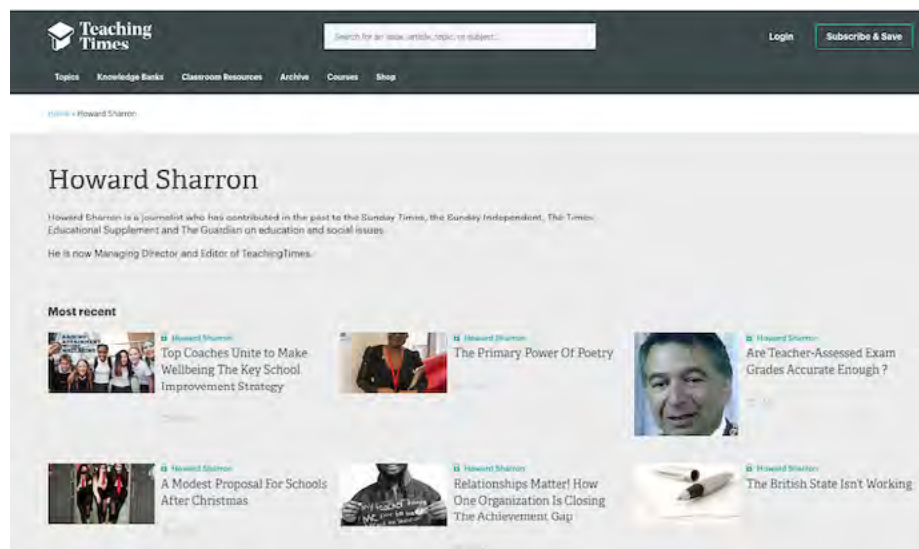


Education policy seems to have dropped to the bottom of the pile in the attention afforded this subject by our recent tribe of Tory politicians. When we are all looking for integrity in turbulent times I was impressed by Associate Professor of Education, Plymouth University Institute of Education who published a critique of the Teaching Times:

'This publication for teachers doesn't do news or product reviews and it doesn't advertise jobs – so what does it offer the education community? Teaching Times is a fantastic one stop shop for everything progressive and impactful that education practitioners need to know. Covering a vast range of areas needed for professionals working and studying in Early Years, Primary and Secondary, TT provides a critical eye into what's happening in the education world today, and

how the issues affecting you can be more fully understood and responded to'.

The material empowers readers to consider new best practice in their areas, enabling them to come to their workspaces critically informed and energised with new ideas/materials and very importantly new connections to collaborate with. One of its many novel offers is the Knowledge Bank platform. Here readers can publish and share their thoughts, critical insights and best practice with others. Teaching Times has enabled me to grow my network, share my expertise, continue to learn and develop 'know how' in key areas of my professional practice.'

### A difficult time for the profession

Professor Gibson's opinion of the value of Teaching Times clearly is heartfelt. So interviewing Howard Sharron, the owner of Teaching Times, seemed important in this turbulent period of our history politically when education policy seems to have been all but forgotten. It seems to me that this kind of publication is needed now more than ever. Support for those working at all levels in education is essential. In April this year the National Education Union (NEU) published a survey of 1,788 teachers. Nearly half plan to quit the profession within the next five years; 44% said they would leave by 2027, while a fifth said they would leave as soon as within the next two years. Anecdotal evidence shows new recruits moving on before their third year. Life in the classroom is stressful but senior management is struggling too. They feel they are pulled in all directions, absorbing pressure from above, including external accountability measures, plus trying to deal with staff's concerns, as well as parental and pupil worries.

Howard Sharron, the CEO of Teaching Times and its publisher, has been publishing books, magazines and resources for over 30 years. He explained, "We want to help teachers to be reflective about their practice and informed about current research in the fields of teaching and learning. When they are buffeted by government rhetoric or OFSTED Deep Dives, we want to help them to be confident about their subject knowledge, their role and their capabilities.

The first step on the ladder of reflective practice for teachers must be to evaluate their own experience and performance against the best in the country or internationally. TeachingTimes' library of best practice allows for this self-assessment and exploration. It also allows teachers to share their research and draw on colleagues' knowledge and expertise to be more experimental in class. And if they want to know more about how to assess the effectiveness of their teaching, there are articles and KnowledgeBanks – collections of articles and resources on a theme – to help them with this too.

## The road to publishing

After a degree in English at Birmingham University, Howard took up a place at the Centre for Cultural Studies in Birmingham. This was opened in 1964 and its first director was Richard Hoggart. His seminal book 'The Uses of Literacy', was published in 1957 and looked at literature, media, culture and class. He became an academic celebrity and  was called on as a star witness for the defence at the obscenity trial of DH Lawrence's 'Lady Chatterley's Lover'. Following in his footsteps, studies at the centre brought together culture, sociology and politics. Howard wrote articles for the New Society and went on to be a senior reporter on Social Work Today, edited by Des Wilson who eventually became one of the founders of Shelter.

As he developed an interest in education, Howard made a speculative trip to Israel. One of the people that he interviewed there was Reuven Feuerstein, an influential developmental, and cognitive psychologist. The interview was the basis of an article in the Guardian and generated more letters than any other education feature they had published up to then. He followed it up with a book called Changing Children's Minds which sold over 30,000 copies.  'It brought into focus everything that was problematic about education in the UK, especially its failure to deal with some of the issues of assessing and improving the education of working class children.' Feuerstein believed that intelligence was not fixed and

that with the right interventions people could develop the strategies and skills to become  independent learners. His work has been the model for many successful enrichment programmes around the world, including support for newly arrived refugees, children with SEND, psychiatric patients, adult retraining courses as well as gifted and talented pupils who are underachieving.

Howard started Questions Publishing in 1986. 'I noticed that the UK did not have any serious professional journals for education,' he said. 'There were academic journals that covered university research and there were newspapers but there was nothing producing serious in depth articles that brought theory and practise together.' Early successes were Special Children magazine which ran till 2018 and Questions of Science which was a response to the then new National Curriculum. It went from zero subscribers to 5,000 in just a few weeks.

## A focus on technology



Howard explains his role in several publications in the 1990s. 'Interactive' was an early print supplement on technology and started in 1999 as a termly update focused mainly on assistive technology and basic Information and Communication Technology (ICT) skills. I was Commissioning Editor and wrote articles on dyslexia,

technology for travellers and fairground people and a piece on the then social media phenomenon that was Friends Reunited. This turned out to be one the most popular articles that I have ever written because it was light hearted, timely and assumed no technical knowledge. Those three attributes have coincided but rarely in the myriad articles I have written in the succeeding 25 years. I also wrote about many software and hardware companies which are still around today including Widgit symbols, Clicker and Dolphin. In 2004 it moved to being a fully fledged magazine edited by Brian Astbury and then became E-Learning Today. Questions Publishing became Imaginative Minds, with the magazine arm known as Teaching Times, and adapted to change. There were more and different magazines for curriculum and management and to support vulnerable children. The company was an early adopter of publishing technology and popular because there were pull out materials that teachers could use in the classroom.

These days Teaching Times is totally digital. The features look in-depth at a specific topic. Articles are generally around 1500 words but may be up to 2500. The homepage shows the latest articles from all topic areas that we cover. New articles go up every week and then the best articles are curated and sent out as digital magazines.

Many of our subscribers read Teaching Times on their phone so we have changed the format. Gone are lengthy sentences and paragraphs and instead there are six magazine areas: Leadership, Professional Development, Digital Learning, Inclusion, Learning Spaces and Creative Teaching and Learning. There are also buttons for key topic areas such as blogs from commentators, climate curriculum and governance. Many of the articles are written by well-known experts, leaders in their field both from the UK and internationally. Others are from the classroom and reflect the best practice in classrooms, pastoral care and management we have an online professional learning portal that gives teachers, school leaders, and anyone who is interested in education, access to a very extensive library of best

practice, CPD teaching and learning and leadership articles and resources in a digital friendly format'.

## Easy navigation



"With instant access to thousands of articles, we've provided tools to offer different search routes," Howard explains. "Just simply type in one or two keywords in the search box and the most relevant articles will appear. If you want the full list of relevant articles, simply press enter on the keyboard and then filter by broad topic area, author or key stage.

Another way of searching the site is to go via topics on the top menu bar. This is more of a browser search and here you can find articles related to each of these browse terms. For instance, if you choose 'digital classroom', you will see a series of articles about developing a digital classroom. The important thing to remember is that this is just a recent selection.

There's a third way of searching by going via the archives. If you found the publication you particularly like, perhaps School Leadership Today, you can browse through the past issues and this can be very rewarding because there are so many articles in the library.

### Helping teachers on their journey

Howard is pleased with the opportunity given to professionals to create their own space. Users can bookmark articles that they like which will be stored in the teachers' own area for easy access later on. One of the things that we've done on site in certain areas is a digest of key searches. These are the Knowledge Banks that Dr Suanne Gibson praised. They are a collection of articles, resources and videos on key themes. and a series of resources and videos that's been taken from either Teaching Times site or collated from resources teachers have tracked down or a school's internal library.

Knowledge Banks can be a useful tool to use with the School Improvement Plan. Let's just look at one of the most popular Talking about oracy. This was created by a teacher, but we liked it, so we published it on our site with their agreement. If the Knowledge Bank is distributed to all the teachers in the school's network prior to a meeting, then the teachers have the opportunity to study the content, gain knowledge, get an overview of key points and consider its significance in their setting. The discussion is likely to be more fruitful and better informed.

Information in the Knowledge Bank can be repurposed to suit the individual school. It can be created, edited and amended. And the author can decide if it is to be a private resource, shared with others on the network or for public consumption, in which case, one of our team will check it before it goes live'.

### Courses for teachers

Over the years the Teaching Times have run many courses and webinars for teachers and school leaders. Our latest venture is RAW - The Raising Attainment with Wellbeing Programme which we are running in partnership with Microlink. It has been designed by five top national coaches, led by Marius Frank, to help schools raise attainment levels by improving the emotional wellbeing and mental health of both pupils and staff. Put simply, better results and happier students.

### There are five core modules:

1. Raising attainment with well-being for school leaders
2. Well-being and core strength
3. Making sense of behaviour
4. Changing culture and climate
5. Accelerating development

There is an option for in-person coaching for schools as well. For further details see https://courses.teachingtimes.com/

### Resources for learners

There have been books and resources for the classroom too. The government emphasis on Catch Up has brought one of our most popular resources into the limelight. MALS stands for Myself as a Learner Scale 8-16+ and in an echo of Feuerstein looks at ways to combat loss of confidence and learning anxiety after lockdown. It is a diagnostic questionnaire. It assesses a child's self-concept as a learner and can pick out children who have lost faith in their own ability to succeed at learning. Often this is at complete odds with their real ability.

The Education Endowment Fund EEF - the government supported agency that evaluates the effectiveness of different resources and strategies has endorsed the use of MALS to diagnose children struggling after lockdown. The EEF Update says:

'We can consider what primary school rituals and goodbyes James missed last summer, or the crucial bonds between his peers that have weakened in the past months. In response, his school may use a useful diagnostic questionnaire, such as the 'Myself-as-a-Learner (MALs) scale' to help explore James' confidence and well-being in school.

All these diagnostic assessments will offer a manageable and meaningful route supporting pupils that is more instructive than the averages of national data.'

## The reviews are encouraging

I spoke to Kalpana Jegendirabos, Assistant Headteacher at Haringey Learning Partnership who told me, "Teaching Times has much to offer to teachers who are on their career journey. Thank you so much for giving me access to the site.  It is awesome and couldn't have come at a better time. I have just begun my Masters in Research and didn't realise until yesterday when I logged in to the website what it was all about.'

And so I return to  Professor Gibson for the last word, The Teaching Times as ' a fantastic one stop shop for everything progressive and impactful that education practitioners need to know'. Schools and universities are signing up to our magazines and courses and finding that it offers routes to career development.

You can find out all you need to know at this website https://www.teachingtimes.com/

*Sal McKeown*



*Sal is  a writer and freelance journalist with a keen interest in all aspects of special needs from dyslexia to physical disabilities, deafness to mental health issues, and the ways in which technology can level the playing field for young people who struggle in school, college or the workplace. In the past, she has been a teacher, a lecturer in further education, the Open University and Workers' Educational Association, and have worked for many charities and government agencies. Sal now writes for various national newspapers and magazines about disabilities, education and ICT. I am also the author of several books, most recently Brilliant Ideas for using ICT in the Inclusive Classroom for Routledge, and How to Help your Dyslexic and Dyspraxic Child for Crimson Publishing.*

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# Collaborative Learning online

## The use of educational technology in schools

*Nadya French*

Use of collaborative learning in schools allows teachers to broaden the ways in which they can teach their subjects to students and make their lessons more interesting. Lessons become interactive, challenging, requiring different learning skills from students in terms of learning. Students who would otherwise (perhaps) 'tune out' of a lesson, or decide that it is not for them, can have their curiosity sparked by the use of technology. Greater reliance on remote learning has meant that teachers have had to find new ways to measure what students are learning, as well as to maintain levels of engagement and knowledge progression.

Edtech tools are designed for most students and teachers to use with little to no training.

Google, Microsoft, Fronter and other VLE providers have excellent websites which offer learning tools. In my experience, teachers learn best through fellow colleagues; training works better when taught within the context of the school where it will be used, and using examples of the type of work and projects teachers will typically set within that school.

There was excellent use of shared knowledge by other teachers within my school on how to use different aspects of it. Videos were created and shared giving quick start guides on what to do, which benefited the school community greatly.

The best tools tend to share these characteristics:

a. Clear interface and good use of graphics

b. Easy sign-ups via existing student school accounts e.g. one click sign up via Gmail or Teams

c. Straightforward set up/importing of classes

d. Clear layout of assignment completion, formative assessment results, feedback and feed forward methods for continuous assessment

The effectiveness of collaborative learning using this technology however, depends on many factors such as:

- how often it is used in lessons.

- if students have low digital-literacy and confidence, time will need to be taken to build these skills

- how much skill the teacher feels they have in using collaborative learning tools. Some teachers may lack sufficient confidence with digital tools, or may have had negative experiences with previous software

Parental inclusion is an important factor in the use of these platforms outside of school settings. Parents are interested and engaged in their child's education,

and are keen to know what they are studying, what homework is being set, and when assignments are due. Where a parent cannot find this information for themselves, they will contact the teacher for help. In my experience, this problem is better solved using video conferencing to show the parent where the information is. The reason for this is that many ed tech platforms have different interface views: one for the teacher, one for the student and one for the parent.

For example, when the teacher is setting classwork, it is not always possible, without then logging on separately with a student account, to see what the workspace looks like from the student's point of view. Inclusion of 'student view' or 'parent view' tools would make this process easier.

### The future of educational technology

Following widespread use of remote learning during the pandemic, educational technology has moved from a useful tool occasionally used by some departments, to a must have and an expectation within all state schools. The impact of these tools can be seen in the latest Ofsted Framework for September 2021. It makes clear that the delivery of remote education should have influenced '…changes or adaptations to the school's curriculum.' Although Ofsted makes clear in this report that it does not have a preferred model for how remote education should be taught, there is a clear expectation that leaders have strategies in place for the quality of that curriculum, supporting materials and work completion.

It will be interesting to note if a preferred model does emerge in the near future, and if so, what effect this has on the educational publishing industry. For example, many schools used the Oak Academy classroom and resource hub . This was created rapidly to meet the demands of schooling during the lockdown, and is now a permanent feature. An educational think tank, Institute for Government, has said that Ofsted should be evaluating their curriculum to provide quality assurance. Oak Academy have disagreed with this approach, but agree that more could be done in terms of annual evaluations and independent analysis .

The second aspect to the use of educational technology is how it is accessed outside of school settings. In the light of the cost of living crisis, some schools have expressed concerns about having to introduce a four day week to cope with soaring energy bills . If this becomes a reality, the use of remote learning will once again become key to schools. However, it became clear during lockdown that successful remote learning relies on many factors and assumptions e.g. a quiet space to study, access to appropriate devices e.g. laptop or PC, access to broadband with sufficient speeds.

The reality for many students was having to access their learning via mobile phones on pay as you go mobiles, tablets and games consoles; many of these devices had to be shared between siblings who attended different schools and / or different key stages of education. Added to this was limited access to data; usual workarounds, such as use of public Wi-Fi at restaurants, shopping malls and libraries was not available, making the problem even more acute.

Educational websites were not zero-rated for data going in to the pandemic. This was changed after all the telecoms providers agreed to zero-rate content until lockdown ended, like Oak Academy, for all their customers. It remains to be seen if this scheme will be reintroduced in future. For now, other initiatives have been introduced such as The National Databank, backed by the digital inclusion charity Good Things Foundation. This provides free mobile data, texts and calls for those experiencing digital exclusion.

In summary, the use of educational technology at all stages of education has become a permanent feature of everyday life, and is very successful where it has been used well, supported by sufficient training of all stakeholders, and has a well-maintained infrastructure. The looming cost of living crisis is set to exacerbate existing issues with digital poverty and exclusion, and affects those students who would benefit the most from this use of technology, without a clear national plan for the future as to how these challenges should be met.

*Nadya French*



*Nadya is Head of Computer Science at Longhill High School in Brighton. She brings with her a wealth of experience of delivering the secondary curriculum and the first-hand perspective of teaching through lockdown. She is passionate about broadening access to the study of Computer Science and generally making it a little less daunting for students (and parents) alike. As recently appointed board member of NAACE, she will be looking at the impact that the pandemic has played on the delivery of the Computing curriculum and the role that educational technology strategies can play in helping students to move forward.*

## The Activity System of Online Learning

*Caroline Haythornthwaite*



Colleagues and I have engaged in observation and study of the turn to online learning over a number of years. In this work, our emphasis has been on educational and learning practice, i.e., new ways of engaging in learning, rather than the pedagogy or psychology of learning. As educators and information scientists, our attention has been on the transition of educational programs from offline to online and the societal wide changes associated with open, online information. Our studies reinforce a socio-technical view of learning that acknowledges the way practice emerges from both technology and how it is used. Online learning has been a grand experiment in finding out how both instructors and learners use, adapt, and create new technologies for learning effectively. But, this is not just about learning in formal education settings because the experiment is also ongoing on how people learn on and through the Internet. Neither are these domains separate. Information and communication technologies have

been driving new ways of presenting and exchanging information, which in turn affects educational practice. From our perspective online learning – or 'e-learning' – is not (just) the movement of education from offline to online, but rather a societal transformation in how, where, when, what, and with whom we learn (Haythornthwaite & Andrews, 2011).

We are living in a time when the transformation is not static; new technologies and new information practices are continuously emerging, challenging established practice. Some of these changes are very rapid, leaving components of education and learning practice out of synch, e.g., when new social media appear and change communication practices, e.g., Twitter, Instagram, TikTok. Since, as a sociotechnical phenomenon, the transformation arises from the interaction of technology and its use, who uses it with whom and for what purpose affects the resulting practice for learning, work or social interaction. The embedding context can have a minor to major effect on transformative processes and emergent configurations. The Covid 19 pandemic certainly counts as a major contextual influence, generating a rapid online response for formal education, as discussed further below.

There are a number of ways to describe and view this continuously emergent transformation in learning. One way is to consider the elements that contribute to the transformation outcome, i.e., as an activity system of technologies, people and embedding contexts. Activity theory, as developed by Engeström (2009), has been applied to many settings to address how knowledge and practice emerge from the confluence of influences such as the purpose of the system, tools or technologies, embedding context, and the rules, division of labour and structures of institutions.

### Technology, People and Context

The obvious technological catalyst for transformation has been the ongoing changing forms of information and communication technologies. Access to the Internet has literally been put in our hands with smartphones, making anywhere,

anytime access possible, and, at many times, invasive. But technology alone does not tell the story. People devise and innovate in the uses of these technologies. New communication practices arise, the Internet becomes a shared location and means of exchanging information, and institutions and society become increasingly dependent on electronic communication. The information and resource landscape has expanded and become much more user-generated. Adding content to the Internet has become easier, creating a growing library of information in a variety of electronic formats (articles, books, news, movies, music, and videos). Conversing online through discussion sites, Q&A sites, and social media enable forums for discussing such information. Social media such as Twitter, Instagram, and TikTok implemented new forms of information exchange such as short texts, pictures and images, and new communication practices.

the activity system [1]. Forms of technology – from the pen to the computer, from books to e-books – have changed how we learn. Practices co-evolve with the technologies: reading practices change from paper to screen; information authority changes from vetted texts to open, online information; formats change from fixed to collaborative texts, from spoken to recorded records.

The network of who talks to, learns from, and collaborates with whom changes with computer networks. Computer networks are social networks, and never so true as now with social media (Wellman, 2002; Gruzd & Wellman, 2014). Computer networks make learning networks, exhibited in online communities brought together for the purpose of learning (Preston [1]; Haythornthwaite, [1]; Gilbert, 2016). As communication networks reach across geography and
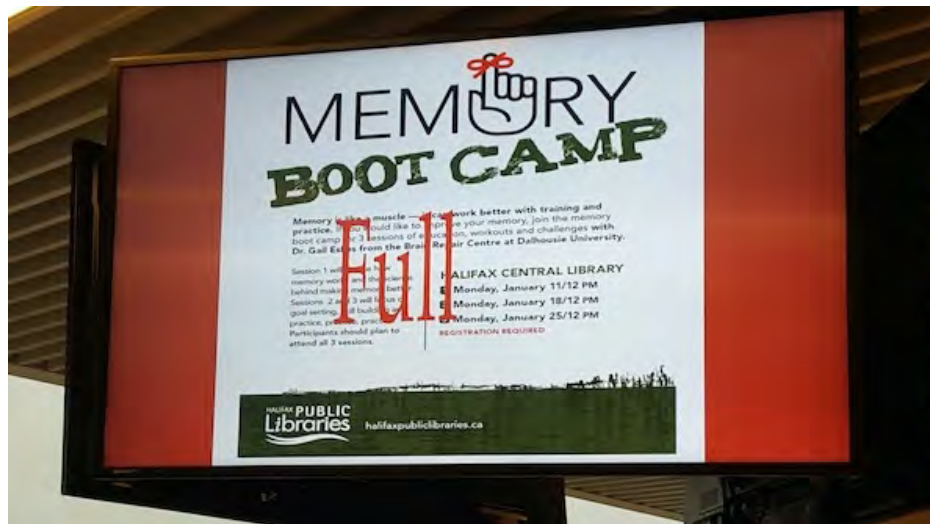


A key aspect of activity theory is that the elements are in continuous tension. The components are not fixed and permanent. Rather, this is a living system [1] that grows and matures, with changes in both technologies and practices. Learning in all its guises— formal, informal, non-formal – co-evolves with other elements of

social groupings, where, when, and with whom we learn changes as traditional and institutional barriers are removed. But local context still matters. While learning may happen with anyone, anywhere, the learners' locale remains relevant because learning online can seed information to the local context. Online

learners take their knowledge home where fellow workers, family, organizations benefit directly or indirectly from the online learning (Kazmer [1]). Distributed learning communities can assemble local meetings that connect and adapt central knowledge to local contexts. Over the years, the importance of embedding contexts has become more evident, both for the kinds of knowledge transfer noted above, but also for the difficulties of 'at home' formal learning. Online learners were the early pioneers of juggling home environments and obligations with online classes (Haythornthwaite & Kazmer, 2001). Embedding contexts have become particularly evident in the recent 'work from home' contexts that has become common as the Covid pandemic required people to stay home from workplaces.

Learners in these activity systems begin to recognise needs and take on new roles. Individuals step in to facilitate learning: as learner-leaders moving the learning process along (Montague [1]); as braiders bringing strands together for others as they consolidate knowledge (Preston [1]); as FAQ finders in Reddit who scour past posts to bring together previous answers to questions (Gilbert, 2018). The process of learning, and what it means to engage in learning changes with online practices.

More recent work emphasises even further how learning has left the classroom and, in some cases, has left civil spaces. 'Learning in the wild' happens in open, online social media spaces, such as the discussion environments of Reddit, Quora, Stack Overflow. Rules, accepted topics and behaviours are derived and enforced as the communities evolve. New configurations of the activity system are emerging where online debate, argument, and moderation set the stage for learning practice and community (Haythornthwaite et al, 2018; Gilbert, 2020). The success of such sites has also generated the problem on mis-information and anti-social behaviours. Emerging issues now are ways of keeping the engagement genuine by blocking fake accounts, spam, inappropriate and egregious content at

the platform and moderator level (Gruzd, Mai & Vahedi, 2022). Making headway against fake news, misinformation and disinformation is another hurdle and requires readers adopting new practices for evaluating information.

## The Grand Covid Online Learning Experiment



We could not leave a consideration of online learning without comment on the latest grand experiment. In the last 2 years, the Covid pandemic has kept educators and learners at a distance. During this time, online learning has been both a saviour and a bête noir. The emergency transition went into effect so quickly that few had time to do more than learn on the fly. Pre-covid online programs had the luxury of time for planning, with educators and learners who (for the most part) came voluntarily to this new environment. With Covid, online learning became the only game in town, and learning had left the building. The wholesale change to 'at home' education could only have been possible because of the information and communication technologies already present for distributed learning, as well as the general familiarity with the practice of being online. A rapid change such as this can be expected to succeed to the extent that technologies and familiarity were in place, i.e., the readiness of a number of constituents to embark on this work.

This rapid adoption of online learning is a living example of an activity system in action. Education and learning practices across all sectors – schools, universities,

work environments – came together through a combination of interacting elements: the contemporary tools and infrastructures of information and communication technologies, embedding contexts and communities, and the rules, division of labour and structures of educational institutions. While we are yet to evaluate fully how successful this experiment has been, considering the activity system elements helps identify areas of most interest and concern in choosing how to continue with this experiment.

## Acknowledgement

## Endnote

[1] The theoretical perspectives of each author are more fully elaborated in "Theories and models of and for online learning" by Haythornthwaite, Andrews, Kazmer, Bruce, Montague and Preston (2007).

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All images: Haythornthwaite, C.

## Conference report

### Back to the Future Project

*Contributions about the International Council for the Education of teachers (ICET) edtech unconference in Bath June 2022*



Joining a professional organisation can be a valuable strategy for teachers who want to improve their subject knowledge when professional development programmes are not easily available. Since the 1980s when computers were first used in schools and higher education, teachers and academics have set up four professional organisations in the UK that deal specifically with different aspects of using edtech in teaching and learning. The four key organisations, Technology, Pedagogy and Education Association (TPEA), The MirandaNet Fellowship, Naace and MESHGuides, met face to face at the 2022 International Council for the Education of Teachers (ICET) conference in June at Bath Spa University
https://www.icet4u.org/upcoming_world_assembly.php
In the last edition of the Naace journal we reported on some of the keynotes. This time we are reporting on the two symposia that were set up to share ideas about how to improve collaborative learning online and edtech professional development. In the symposium about collaborative learning members of these organisations found they could build on the theories that they had been developing over time. Braided Learning, Communal Constructivism, MirandaMods and Liminal Learning were the terms that they shared. Now an international movement has been set up called Rhizomatic Learning which takes as its metaphor the complicated roots of a Rhizome. In the symposium about edtech professional development the participants shared their personal learning journeys that emphasised the lack of any agreed pathways for teachers in England currently. From these encounters will come two book chapters for teachers and two MESHGuides that will help busy teachers pick up the main research findings. The participants are also experimenting with more visual ways of communicating these ideas in a MESHGuide Snapshot and a collaborative concept map.

### ICET: communities working together across the world

*Poncelet Ileleji, Jokkolabs Banjul, Gambia*

EdTech is evolving; especially with the impact of the COVID 19 pandemic that hit the globe from March 2020 educators are reaching new heights in innovation.

At the ICET edtech unconference in Bath this June 2022 one clear thing that I learned from all the educators present and online was how they have added innovation to teaching and learning especially as it applies to Continuing Professional Development (CPD). In this CPD symposium that members of Naace contributed to it was very obvious to me that educationalists in academia have to become innovators and adapt to the changes of time as "Charles Darwin" stated in the "Origin of the Species".

Our community will face challenges but one clear thing the ICET edtech unconference in Bath in June 2022 has taught us is that collaboration in CPD is important and our work can become better through using the best appropriate tools in teaching and learning without complicating issues. The collaborative tools

well laid out by Helen Caldwell and her colleagues from Northampton University was a case in point.  It brought out salient points that will aid our overall teaching, research and learning processes.  Overall it pointed to one direction that education needs innovation to thrive in the times we live in and moving forward.

I have been a member of the MirandaNet Fellowship since 2002 but this is the first time I have been able to meet my colleagues face to face thanks to a scholarship grant from the Technology, Pedagogy and Education Association. In academia and research you need those who see beyond and are ready to guide you professionally and correct you. My special thanks go to Professors Christina Preston and Sarah Younie who have been so helpful with their advice over the years.

*Poncelet O. Ilelej*

*Poncelet has been a member of the MirandaNet Fellowship since 2002,  is now a member of TPEA, He is a Computer Scientist  by profession with over 25 years in the field; he has been involved with the use of ICT as a tool for sustainable development both as the Lead / CEO of Jokkolabs Banjul(www.jokkolabs.net), in The Gambia and on the board of the Jokkolabs global network. Amongst his many roles he has also served as consultant for several projects in Africa covering ICT for D, Learning / Digital Technologies and Education, Internet Governance and Health Informatics. He also served as an International Coordinator for the International YMCA of New York, International Camp Counselor Program and  the country coordinator for the World.*

# Research news

## ICT and Skills for Life @ National Research and Development Centre for adult literacy and numeracy (2002-2007)

*Maria Kambouri, Sally Betts, Barbara Nance, Harvey Mellar*
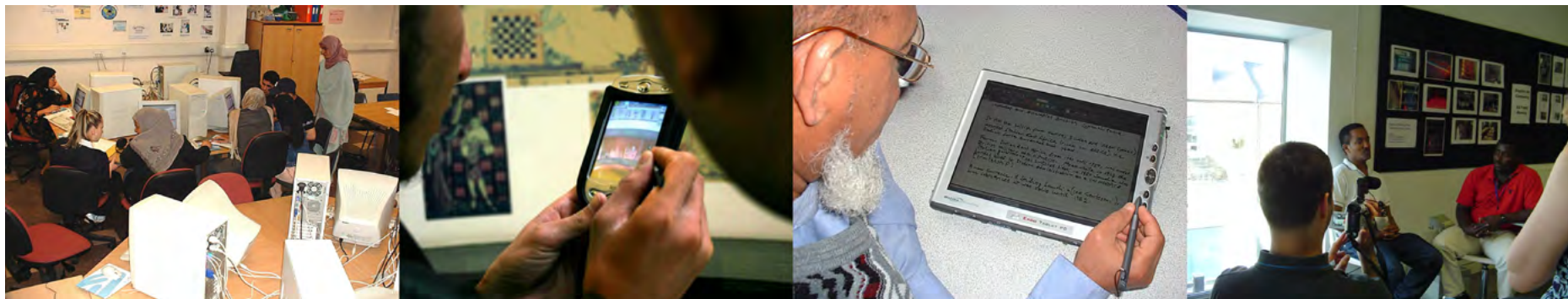


This article describes research on the use of ICT in teaching basic skills (skills for life) conducted between 2002 and 2007 within the National Research and Development Centre for adult literacy and numeracy (NRDC).

The New Labour government elected in 1997 put particular emphasis on improving education and skills. As one element of this, it set up the Working Group on Post-school Basic Skills which published the Moser Report (DfEE 1999) which highlighted the poor levels of basic skills:

Something like one adult in five in this country is not functionally literate and far more people have problems with numeracy. This is a shocking situation and a sad reflection on past decades of schooling. It is one of the reasons for the relatively low productivity in our economy, and it cramps the lives of millions of people. We owe it to them to remedy at public expense the shortcomings of the past.

The report proposed a Skills for Life (SfL) strategy, in which it placed emphasis on the role of ICT, proposing that 'At the heart of improved quality in delivery and materials must be increased use of Information and Communication Technologies to improve basic skills', and arguing that 'Learners who use ICT for basic skills double the value of their study time acquiring two sets of skills at the same time'.

The NRDC, based at the Institute of Education in London, was set up in 2002 as part of this SfL strategy, with the intention of fostering collaborations across the UK for innovative research on the promotion of SfL. NRDC continued working until the end of 2015, and its more than 150 publications are still available at http://www.nrdc.org.uk/.

### NRDC studies

During the lifetime of the NRDC we carried out many studies related to the use of ICT in SfL, including: evaluation studies for the Basic Skills Agency (BSA), Cambridge Training and Development, and Ufi/learndirect; work with National Institute of Adult Continuing Education (NIACE) on ICT as a skill for life: a

European Commission project on drug prevention in prisons, a series of NRDC initiated projects on ICT and basic skills (described below); and an action research study on numeracy and ICT (Coben et al 2007).

In a study conducted for Ufi/learndirect to examine the potential of ICT for supporting basic skills (Mellar et al 2001) we found ICT to be a strong motivator for adult learners and identified successes in terms of widening participation and increased confidence in using technology but found relatively few examples of effective use of ICT in the teaching of adult literacy and numeracy.

In an evaluation study we carried out for the BSA on laptops in teaching basic skills in which we conducted interviews and observations with staff and students in 15 centres and gathered reports from 55 organisations, we identified the main benefits that learners perceived in using technology related to the themes of inclusion, confidence, employability, community and access. The study also produced a handbook (Kambouri et al 2003) intended as a reference source for tutors who want to use laptop computers to teach adult basic skills.

These two studies, together with much of the existing literature in the field, were primarily based on surveys and interviews, which, whilst supplying some insights, did not provide detailed accounts of how tutors were actually using ICT in basic skills teaching. We, therefore, set out to conduct detailed observational research in the classrooms of eleven tutors who were identified as 'early-adopters' in making use of ICT in adult literacy, numeracy or ESOL (Mellar et al. 2004, 2005). This study found several aspects of good practice:

Clear lesson aims coupled with a review of what has been learnt at the end of the session. (This has particular importance in directing the learners' attention to what they are expected to learn from the use of the technology and how they are expected to do this.)

- A combination of multiple ways of providing information, such as demonstration through a data projector, handouts, and computer materials.

- Providing opportunities for peer learning both through small group work and through the projection of learners' work for whole class discussion.

- Flexibility in classroom management – accepting collaboration when it occurs naturally, directing learners to specific reinforcement activities if necessary and sometimes standing back from intervention as part of a process of encouraging student autonomy.

- For classes adopting an 'instructional tool' approach – a close integration of literacy and numeracy learning objectives with ICT learning objectives and the use of technology in a wide variety of ways.

- For classes adopting a 'complement to instruction approach' – careful preparation of materials and thorough familiarisation with teaching materials before using them with learners. Consolidation of learning through doing the same tasks with and without ICT.

In 2003, the NRDC launched a series of effectiveness studies in reading, writing, numeracy and ESOL, seeking to observe the strategies teachers used, and to correlate those strategies with changes in the learners' attainment and attitudes. We developed an effectiveness study in the use of ICT, though we modified the research approach because of the lack of existing exemplars of good practice in the use of ICT for basic skills. We adopted a more interventionist approach, firstly iteratively developing approaches to using ICT in basic skills alongside developing tutors' skills, and only then examining their effectiveness (Kambouri et al 2006, Mellar et al 2007a, 2007b).

In the first (development) phase of this effectiveness study we worked with nine tutors as practitioner-researchers in devising tutor led action research projects. Tutors had one day a week release time and worked closely with two development officers. Throughout the year, the tutors met monthly for one-day workshops,

where they examined uses of ICT in learning from both practical and theoretical viewpoints and presented and collaboratively refined their own teaching designs. The development of each project went through three iterations (one per term) of design, implementation, and informal evaluation.

The CAVA model for the use of ICT in supporting SfL was used to help to support teaching design. This model was derived from a conceptual framework of the relationship between teaching and learning (Ivanic, R. and Tseng, M.-i. L. 2005) interpreted in terms of the findings from our earlier studies. The CAVA model comprised four elements:

- encouraging collaborative learning
- encouraging learner autonomy, and consequently releasing teacher time to get to know learners better and to better adapt teaching to learners' needs
- use of a wide variety of technologies, and in particular mobile technologies to support greater flexibility
- the use of technology to construct (usually shared) artefacts – which often allowed learners to experiment with a variety of roles and allowed for differentiation in activities

At the end of this development phase, the tutors created case studies, including ones on the use of WebQuests, e-portfolios, tablets, m-learning, digital video, mindmaps, online games, and social networking – see descriptions in Mellar and Kambouri (2004) and in the project reports (Mellar et al 2007a and 2007 b). These case-studies were also used as a basis for a practitioner guide developed for NIACE (Nance et al 2007).

In the second (evaluation) phase, 150 students engaged in 40 hours of class time, with 80 students completing both pre- and post-tests. Each classroom was observed four times, and a sample of individual learners was also observed. Detailed observational schedules enabled the capture of quantitative data

alongside qualitative accounts of classroom practice. It was found that, in almost all cases, learners improved in both literacy/ESOL skills and ICT skills as well as building confidence, thus providing support for the claim in the Moser Report (DfEE 1999) that using ICT for basic skills enables learners to acquire two sets of skills at the same time.

The project report (Mellar et al 2007a,2007b) explores the relationship between the learners' experience, the teachers' practice, and the learners' progress, partly through correlations between the quantitative measures, and partly through the qualitative data from the classroom and student observations. Some of the specific findings were:

- The most effective teaching strategy was 'Extending', where the tutor built on/added to material previously introduced by them or added to a comment by a learner.
- The teaching strategy of 'Explaining' (where the tutor tells the learner 'How to do something') was found to be negatively correlated with changes in ICT skills and confidence, whereas 'Modelling' (where the tutor demonstrated what was to be done) was much more successful.
- The amount of time learners spent using technology in the classroom was positively correlated with change in ICT skills and confidence.
- Tutor use of PowerPoint in class had a negative correlation with improvement in ICT skills.
- Classes where learners spent more time working individually showed better gains in ICT skills than those where more time was spent working in groups.
- Teaching strategies that aimed to increase the autonomy of learners led to gains in both ICT skills and confidence.
- When collaborative work was forced by the need to share technology it

was not as successful as when tutors developed tasks that required peer interaction.

- Construction of artefacts and role-play often provided a useful focus, generating motivation, collaboration, and purposeful action.

### Influence

The NRDC work had continuing impact on our work on ICT and SfL both in terms of the specific approaches to teaching language and numeracy alongside ICT skills and in terms of the model of teacher support which Sally and Barbara further developed through their work with NIACE and then later with their own company (Ideas4learning Ltd). Maria also took forward the model of teacher development into a model of e-mentoring in special schools which sought to develop the skills of teachers (e-mentors) who were comfortable using technology and could model specific aspects of pedagogy to a colleague (buddy), supporting their developing practice through an action research process based around the use of reflective diaries.

Between 2006 - 2011 Barbara and Sally worked at NIACE and were involved in the writing, delivery and management of the national training programme E-Guides (2003-2010) the aim of which was to develop teachers' digital technology and pedagogical skills to support the delivery of teaching and learning in Adult and Community Learning so they could cascade these skills to their colleagues.

Between 2010 and 2020 there was a rapid increase in the technologies and tools available to teachers and the development of teachers' and learners' digital skills was increasingly needed across the curricula. Barbara and Sally played a role in national training programmes to support these developments, adapting the model of teacher development of the NRDC projects to new contexts:

- Involvement in delivery of the Professional Development Advisor Programme, built in part on the NIACE E-Guides programme.

- Creating and running the development programme for ACL (Adult and Community Learning) staff run by HOLEX, holding practice sharing events to support their members.
- Contributing to Education and Training Foundation projects developing and delivering CPD webinars and mentoring on the Reflective Exploration projects.

### Back to the future

Despite the gains that were made in adult literacy and numeracy under the Skills for Life strategy up to 2010, basic skills levels today are again at the low level they were 20 years ago (Stevenson 2019), and 11.3 million people in the UK (21%) are estimated to lack full basic digital skills (DfE 2019). In response to this data, the Further Education Trust for Leadership has called for a new Skills for Life strategy (FETL 2021): "DfE should create a new Skills for Life strategy for English, maths, digital and ESOL provision. This should sit alongside Skills for Jobs and be recognised as vital element in improving productivity, creating a dynamic economy, and ensuring individual life chances".

This call perhaps provides an opportunity to go back and revisit the approaches we developed 20 years ago to teach ESOL, language and numeracy alongside digital skills, in which the two enhance and support one another.

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### Sally Betts

*Sally started her career as a Software Engineer before moving into teaching adults as a Basic Skills Teacher. At the time, technology wasn't used in any classroom other than to deliver IT skills. Recognising the potential technology could bring, Sally designed an accredited course, Literacy Through IT. This led to a change in career direction from teaching to training other teachers. Sally and Barbara Nance met when they developed one of the first online CPD courses for basic skills teachers, which they delivered to staff across 22 colleges across Hampshire. Sally became the National Lead for Online Learning at NIACE (L&WI) before setting up Ideas4Learning Limited with Barbara. She continues to push EdTech boundaries supporting teachers working on projects using online and hybrid delivery, AI, and augmented, virtual and mixed reality.*

### Barbara Nance
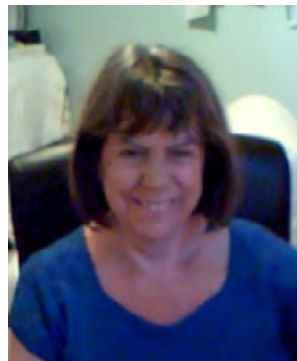
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### Dr Harvey Mellar

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