Blending online learning with traditional approaches: changing practices

Rae Condie and Kay Livingston

Rae Condie is Deputy Principal of the University of Strathclyde and undertakes research through the Quality in Education Centre in the Faculty of Education. Address for correspondence: Dr Rae Condie, Deputy Principal, University of Strathclyde, McCance Building, Richmond Street, GLASGOW, G1 1XQ, UK. Email: rae.condie@strath.ac.uk. Kay Livingston is a former director of the Quality in Education Centre at the University of Strathclyde and is currently the director of research for the Scottish Teachers for A New Era Project at the University of Aberdeen. They have worked together and individually on a number of studies into the impact of ICT on the teaching and learning process.

Abstract

Considerable claims have been made for the development of e-learning, either as stand-alone programmes or alongside more traditional approaches to teaching and learning, for students across school and tertiary education. National initiatives have improved the position of schools in terms of access to hardware and electronic networking, software and educational resources, and staff development. The potential of e-learning to improve learning and teaching, and in turn, attainment, may be contested by academics but the policy makers are generally positive. Many countries across Europe and North America have adopted information and communication technology (ICT) as a central plank in school improvement and effectiveness planning. At the centre, however, remain the teacher and the learner. The impact of ICT on the learning experience will depend upon the roles adopted by each, the model of the learner held by the teacher and the pedagogy adopted. This paper considers the ways in which teachers and students responded to the implementation of one particular online programme and considers the approaches adopted and the attitudes to its use. The SCHOLAR programme is designed to complement rather than replace traditional teaching and learning approaches within schools and is aimed at students in the post-compulsory years of secondary school working towards external certification. It has a number of features including course materials, revision exercises, self-assessment facilities and a discussion forum. The independent evaluation of SCHOLAR looked at the impact that its use made on learning and teaching in the post-16 classroom and the differing ways in which teachers and students used the various elements of the programme. While it did appear to have a positive impact on attainment, the evidence indicates that this might have been greater had the teachers modified their practice, blending learning through SCHOLAR with more traditional methods.
Introduction

One of the most significant changes in education in recent years has been the almost universal availability of a range of information and communication technologies (ICT) at work, school and, most significantly, at home. In Scotland, as in other countries, national education policy includes the expectation that all students will acquire and develop competence across a range of technologies, beginning with their first experience of formal education (SEED, 2000). It is recognised that ICT literacy will be important in terms of future employment, given the ubiquitous nature of technology in business and industry, and that students will need knowledge and skills in handling the new technologies. While learning about computers is therefore important, learning through computers also features strongly. The increased access to information, knowledge and resources that the Internet offers has already transformed the world of work and is beginning to impact upon learning and teaching in schools (Condie, Simpson, Payne & Gray, 2002; Prior & Hall, 2004).

Attitudes to ICT and computers in particular vary significantly (Cummings et al, 2002), and some have cautioned against expecting too much of the new technologies in solving the ills of education (Oppenheimer, 2003; Rose, 2000). However, the penetration of the new technologies into work and the home means that they cannot be ignored and, given the cost, should be used to support learning and teaching. This raises the question of the extent to which teachers are required to adapt their practice or adopt new approaches in order to maximise the potential of the new technologies to support learning and teaching. The teaching strategies that teachers use depend upon a range of factors such as attitudes, confidence, views of the nature of the learner and perceptions of themselves as practitioners (Dillemans, Lowyck, van der Perre, Claeys & Elen, 1998). In considering the teachers’ responses to working with SCHOLAR, it is also necessary to consider their attitudes to the new technologies, alongside current views on the nature of knowledge and learning. As Scrimshaw (2004) points out, the implementation of ICT in the classroom is “both an innovation in technology and teaching” (p. 9). He cites Fabry and Higgs (1997), who suggest that teachers must make two radical changes—they must learn how to use technology and they must fundamentally change how they teach.

New models of learning and teaching

Traditionally, the content of the school curriculum has included the acquisition of knowledge and understanding across a range of subject areas, practical and process skills and, perhaps to a lesser extent, the development of attitudes in line with societal values and beliefs. National certification was typically by written examination, where the key aim was to demonstrate secure knowledge and understanding of the relevant, previously taught ‘facts’. Facts were relatively stable entities that could confidently be passed from generation to generation with little alteration.

More recently, however, it has been acknowledged that facts are much more transient and that views and theories develop and change. This is particularly evident in the
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The evaluation of the SCHOLAR programme

This paper explores how ICT can contribute to the development of new learning and teaching strategies and whether or not the classroom is ready to exploit the new technologies to the benefit of learning. This depends, at least in part, on the practices of the
teachers and the extent to which they modify these to accommodate e-learning within existing strategies or develop new ones. In considering these questions, this paper draws on the evaluation of an online learning programme (SCHOLAR) which was initially designed to support pupils in the post-compulsory years of schooling in Scotland studying for national examinations (Higher and Advanced Higher) in the key areas of science, mathematics and computing studies. The evaluation, undertaken in 2001–03 (Livingston & Condie, 2004) aimed to determine the impact of the SCHOLAR programme on the learning and teaching experiences and achievements of students in the range of the subjects covered. It gathered a range of quantitative and qualitative data from students, teachers and co-ordinators in schools and local authorities across Scotland on attitudes to and the usage of the programme, ICT-supported learning generally, and strategies for integrating the SCHOLAR programme into the day-to-day learning of the students. Quantitative data were gathered through a series of questionnaires (875 students, 234 teachers), while follow-up interviews and focus groups provided qualitative data from students and teachers. The SCHOLAR management team was primarily concerned with providing quality materials to support learning in schools, but the evaluation sought to find out the extent to which the teachers’ practices had been influenced by the introduction of the online/e-learning components. This paper discusses the data that relate specifically to the impact on learning and teaching in an attempt to determine how SCHOLAR impacts upon the classroom experience.

The SCHOLAR programme is one of the first examples of e-learning to be widely available in schools. The definition of e-learning provided in the publication Transforming the way we learn: a vision for the future of ICT in schools (DfES, 2002) was used during the analysis of the data in order to determine the impact of the programme on those involved. This publication describes e-learning as ‘a range of activities, from the effective use of digital resources and learning technologies in the classroom, through to a personal learning experience enabled through individual access at home or elsewhere’ (p. 6).

SCHOLAR consists of text booklets complemented by online resources, including electronic versions of the texts with additional animations and simulations, revision materials, short assessment exercises, a notice board and a discussion forum. In the evaluation period, all 32 local authorities in Scotland had registered with the programme and made it available to schools. However, not all schools registered their students for the programme. Those who did so had access to all of these resources, and access was available to the staff and the students out of school hours. The uptake and use of the programme was highest in science (physics, chemistry and biology) and mathematics.

The evaluation explored the students’ and the teachers’ patterns of usage of the range of SCHOLAR materials. It was interesting to note that the students reported using all the materials considerably more than their teachers thought they did. Fifty-six percent of the students said that they worked with the online materials at home for up to 2 hours per week, while teacher responses showed a limited awareness of student use of the programme outside the classroom. The teachers had access to an online reporting
system that could help them monitor their students’ progress, but teachers in the study reported a limited awareness of this facility too and the results show that the majority of the teachers did not engage with the online dimensions of SCHOLAR.

Only a quarter of the teachers reported working with students on the online materials and where this was the case, it was often only the animations that were used as a learning aid. The teachers’ lack of awareness and use of the online monitoring facility meant that they did not know how students were using the online components out of class, nor did they use this information to build on the students’ independent learning at home. As a result, teachers frequently missed an opportunity to add value and depth to the learning experience by creating a bridge between classroom and independent (out of school) study. Effective e-learning opportunities require teachers to appreciate ‘the implications of learning that takes place outside of school and exploiting such opportunities to the full’ (DfES, 2002, p. 18).

The vast majority of teachers reported that they spent between 0 and 3 hours per week on SCHOLAR-related work. While some of that time was spent on administrative or technical tasks, the key activities were working with the students, most frequently using the text materials to support traditional classroom tasks. In practice, the SCHOLAR programme was used in a variety of ways that fit a pattern similar to the three levels of ICT use identified in the research conducted by Ertmer, Addison, Lane, Ross & Woods (1999), cited in Scrimshaw (2004). These were:

• a supplement to the curriculum;
• a reinforcement or enrichment of the current curriculum;
• a facilitator for an emerging curriculum.

Individual teachers varied the approach used, depending on the level of study and the number of students involved. For example, where numbers were small and contact time limited, the teacher focused on text materials during class and students worked online out of class time. Where numbers were higher, making a class viable, little use was made of any aspect of SCHOLAR during class time. Some teachers suggested that students used the SCHOLAR programme out of class to reinforce or enrich work carried out in class, particularly to support revision work before tests. Evidence also indicates that some teachers did not actively encourage its use or make any reference to it during class.

As part of the evaluation, performance levels in the national certification examinations were analysed, comparing the attainment levels of those students registered for SCHOLAR with those who were not. The analysis of performance, undertaken in collaboration with the Scottish Qualifications Authority (SQA) and including the entire national cohort for each of the 2 years, showed superior performance by SCHOLAR students, although the differences varied across the subjects and the level of examination. However, when teachers were asked whether the programme had impacted on student learning, over half of them (56%) did not think so. This finding may at least partially be explained by the teachers’ lack of awareness of the additional (online) work that students were doing at home. It is argued that the impact on the students’ academic
results could have been greater had SCHOLAR been more effectively used to engage the students more actively in the learning process.

Although no direct link between increased opportunity for independent study and improved attainment levels is in evidence, it seems reasonable to suggest that the opportunity to interact with a range of materials in different formats, in a way that is appropriate to the students’ own needs at a time of their own choosing, may have contributed to an increase in confidence and motivation to study, the intensity of the learning and the depth of knowledge and understanding. The results of the evaluation indicate that SCHOLAR provided the students with opportunities to take control of their own learning. They used the programme to personalise their learning and to choose what to learn and when. In particular, they used the revision materials to check their own learning and to identify gaps in their understanding. The evidence suggests that many students were taking responsibility for their own learning through SCHOLAR, actively using the material to clarify their understanding of specific concepts. These independent learning strategies were either not apparent to the majority of the teachers or were not acknowledged.

Interestingly, the majority of the teachers claimed that they had not found it necessary to make any changes to their teaching strategies in order to implement the SCHOLAR programme. This limits the possibilities of blending learning from traditional and online sources, both in and out of school, to encourage students to take a more active role in the learning process. Cox, Preston & Cox (1999), cited in Jones (2004), highlight the challenge that the teachers’ lack of awareness of the need to change presents to the effective implementation of ICT. They found that if teachers do not see the need to change their professional practice, they are unlikely to make use of ICT.

When SCHOLAR was used in the classroom, it was usually incorporated into routine teacher-led activities. While this could be viewed as a useful starting point in blending traditional teaching strategies with online learning programmes, the teachers used the resources in a way that enabled them to stay within their comfort zone in that they typically used the textbooks to support learning. More generally, the majority of the teachers commented that the SCHOLAR resources, of all kinds, were used mainly as support materials for classroom activities. As a result, the potential of the online facilities to enhance learning was not explored.

The use made of SCHOLAR by teachers may have been influenced by their views about the effectiveness of teacher-led or student-centred approaches to learning and/or views about its perceived usefulness in their subject. Teachers tended to respond to SCHOLAR in one of three ways. Some never used it in the classroom, nor referred to it, although students were registered for it and could use it out of class. Others did not use it in class but encouraged students to access it at other times. A few others identified specific elements, often the animations/simulations, and used them selectively to aid understanding: ‘the teaching power of the animations (they provide a visual
background). Many were unconvinced that the time spent on familiarising themselves with the various elements of SCHOLAR would pay off: ‘We already have a course and deciding how to use the materials with our current arrangements will take time’.

Reynolds, Treharne & Tripp (2003) say, ‘...teachers need to have faith that ICT will improve their teaching and their students’ learning’ (p. 166); this was not in evidence. Scrimshaw (2004) suggests that there is a risk that if ICT use is seen as integrally linked with a student-centred view of teaching and learning, it may be viewed less positively by teachers who do not subscribe to this standpoint. He says, ‘This situation will not change unless and until experience of using ICT leads teachers to revise their original position on learning and teaching’ (pp. 13–14). Consequently, the way in which teachers take up an innovation such as the SCHOLAR programme and make use of it is likely to be influenced by a complex mix of factors that need to be more fully understood.

Teacher readiness
According to Hargreaves (1992), the teacher is the ultimate key to educational change. Therefore, one element of the successful implementation of online learning is related to teacher readiness. Differences in levels of readiness may arise for a range of reasons, including a lack of teacher confidence in the technical aspects of using ICT, a level of scepticism about the benefits of ICT use in their subject, reluctance to relinquish the role of expert transmitter of knowledge, or a lack of understanding of how to work with ICT to promote learning. The presence of any or all of these perceptions is likely to have an effect on the teachers’ readiness to make full use of the SCHOLAR programme.

Jones (2004) suggests that a significant determinant of the teachers’ levels of engagement in ICT is their level of confidence in using technology. He says, ‘Many teachers who do not consider themselves to be well skilled in using ICT feel anxious about using it in front of a class who perhaps know more than they do’ (p. 7). The SCHOLAR findings suggest, however, that confidence in relation to ICT use is not straightforward.

The majority of the teachers were experienced practitioners (90%) who believed that they had the necessary teaching and ICT skills to work with SCHOLAR. A significant majority of the teachers had access to computers and the Internet at school and at home and most felt that they had sufficient ICT skills to cope with the demands of an online programme. Many had been involved with the programme for more than 1 year and had participated in induction and other staff development events provided by the programme team.

However, confidence in ICT skills is not the same as understanding how to use it to its full potential to support and enhance learning. Fabry and Higgs (1997), cited in Jones (2004), suggest that the teachers’ fears of ICT stems from concerns that they will lose
their professional status, where the increasing use of computers is perceived as leading to the removal or downgrading of traditional pedagogical skills. It appears that, on the whole, the teachers involved with SCHOLAR were competent and confident in using a computer for word processing, emailing and using the Internet, but this does not mean that they felt confident in knowing how to integrate the use of the online learning programme into their classroom practice. This is most evident in their comments concerning the type of support that they received in implementing the programme.

While most teachers had participated in induction events and some in other staff development events (eg, seminars, conferences), the focus of these tended to be on the nature of the programme, its components and resources, rather than on the consideration of which teaching strategies and approaches might be effective in a blended learning environment. They regarded such events as useful but the majority acknowledged that they needed to know more about online learning. Almost half wanted more staff development, particularly in relation to using SCHOLAR to support and enhance learning. Few had received support in implementing the programme from their own school/local authority other than the administrative procedures of registration, etc.

No teacher reported using SCHOLAR as the main resource for learning and teaching although some had experienced a degree of success through the judicious selection of specific elements of the programme, most frequently animations. In contrast, one of the focus groups of students recommended SCHOLAR as ‘a replacement to textbooks, as everyone now has experience with computers’. One enthusiastic teacher described how she had gone through the course and identified areas where she thought that learning would be enhanced by SCHOLAR and other areas where traditional classroom activities were more appropriate. This was the only response of this kind, however.

The results point to a need to provide pedagogical support for teachers. This is in line with Veen (1993), who suggests that courses that lack pedagogical aspects are likely to be unsuccessful, and with Reynolds et al (2003), who say, ‘ICT in the curriculum has been broken-backed without the pedagogic spine to provide the necessary structure and support’. Similarly, McCarney (2004) says ‘there is tremendous potential for innovative and creative learning to take place in the classroom, but the teacher must be fully competent and confident in the pedagogy of using ICT’. Therefore, induction and staff development should not be restricted to raising awareness of the ‘product’, ie, the various components and their interrelationships, but also the ‘processes’—what it means to be a learner in an online learning environment and what the effective teaching strategies are for supporting that learning.

The blending of traditional and online learning approaches needs to be more fully understood, particularly the issues that have to do with: (1) the appropriate balance between these two, (2) the methods of optimising the links between teacher-directed and independent student study and (3) the implications for the role of the teacher and the student when sharing the learning process. Encouraging and enabling students to take a more active role in their own learning means that the teacher has
to take on a facilitator, guide and/or mentor role. These dimensions of the teacher’s role have been around for some time, but the teacher’s understanding of what they mean and how they should fulfil these roles has not been adequately explored. The changes are not simple: they represent a fundamental challenge to the identity of the teacher and the student. This can be an uncomfortable experience, particularly for those holding fast to the ‘teacher–expert’ model. Such models are deeply embedded and the culture of schools often works against challenging well-established roles and practices.

Blending online learning with traditional practices sets a number of challenges that can be perceived as threats. For example, some teachers may feel threatened by changing from whole-class teaching to supporting groups of students learning on their own. Others may fear a loss of identity and control of the students and be unsure about how or when to intervene. Yet others may not believe that students are capable of taking responsibility in the learning process. In the evaluation, some of the teachers who were interviewed suggested that online learning programme and independent study are not appropriate for students of all abilities, and some suggested that students need to be mature and self-motivated. Perhaps high-achieving, mature students (as these were) posed less of a threat.

Using the SCHOLAR programme has provided an introduction to online learning for some teachers and has offered them opportunities to begin to consider how such a programme might be integrated into existing teaching approaches. Some teachers made some modifications to their practice but they were marginal, in the main. Making significant changes to teaching and learning strategies needs real reflection on practice and on the implications of the new technologies for the classroom. The successful integration of ICT depends on a number of factors, not least the way in which teachers are supported in the process. The DfES report (2002) points out that, ‘In looking to the future it will be crucial that all teachers are properly supported through these fundamental changes in its [ICT] application’ (p. 17).

Changing practices
The main purpose of the SCHOLAR programme is to support students as they study towards national certification. However, it also provides the opportunity to encourage students to go beyond passive learning, to become more engaged in and responsible for their own learning. There was evidence that this was happening with some students. In the focus groups, for example, students reported using SCHOLAR for a variety of purposes, both in and out of school. In school it was used: ‘when (I am) not understanding something’; ‘to catch up with a topic’; ‘when the teacher is off’; and ‘when the teacher does not teach the course’. They used it at home: ‘if something is not understood’; ‘to use the simulations’; ‘to check information’; and ‘to find out more about something you are interested in’. Students were accessing the programme out of school, on their own initiative, and to improve their understanding of specific topics. In addition, students often used the revision facility at home and in school.
For the teacher, blending online learning with traditional approaches requires new pedagogic skills in order that the learner gains the most from online programmes such as SCHOLAR. The evaluation of SCHOLAR revealed some of the barriers to developing such skills. While some teachers continue to display a reluctance to engage with new technology, others remain fearful of trying new approaches which they perceive might have a negative impact on exam results. It may be that external drivers such as high-risk national examinations inhibit innovation. Making use of technology to support learning and teaching and using more constructivist approaches appear to be perceived as risky strategies for some teachers and they prefer to stick with tried and tested methods which they believe enable them to predict and control outcomes more easily. This reluctance to test new approaches with students who are studying at higher and advanced higher levels is understandable, particularly as evidence to support the use of technology as a vehicle to enhance learning has up to now been limited.

It is unclear as to whether the differences in use and perceptions of the usefulness of the programme were because of generational differences between the teachers and the students ie, whether the gaps identified are because the students are ‘digital natives’ while the teachers are ‘digital immigrants’ (Prensky, 2003). It is clear, though, that the students were much more at home with the technology and accepted it as part of their wider culture than did the teachers, who tended to use it less creatively or flexibly. This finding has been replicated in other studies (Condie & Munro, 2005; Stark, Simpson, Gray & Payne, 2002).

In spite of the lack of teacher engagement with the online components of SCHOLAR, the evaluation has provided evidence of the positive impact that an online learning programme can have on the students’ exam results. (This was established through the statistical analysis of the national certification grades awarded by the SQA.) It also offered them scope to take some decisions about their own learning. However, teachers need support to enable them to use technology effectively to support learning and to understand the importance of valuing, recognising, acknowledging and building on students’ own learning.

The SCHOLAR management team has responded to the evaluation’s findings and has made significant changes to its support programme. For example, the annual SCHOLAR conference in 2005 included workshops entitled, Planning for blended learning and Blended learning in the classroom. Both of these workshops were designed to encourage and support teachers to reflect on and embrace new learning and teaching methodologies. However, to effect change in deeply embedded teaching approaches and shift the balance from transfer of knowledge to passive students to the production of knowledge by students will require an ongoing support for teachers. The evidence indicates that many teachers are confident in and have the skills to work with ICT. They need to be supported to integrate it into their practice in ways that benefit both teacher and students. No single strategy of support is likely to be sufficient to meet the needs of teachers, as the readiness to embrace change will differ as will the context for change. Teachers will be required to move out of their comfort zones and will need to
be convinced that the upheaval and discomfort that this brings will be worth it, in educational terms. To capitalise on the potential of blending ICT with more traditional learning and teaching strategies and engage learners, a significant and far-reaching change will be necessary. New learning contexts demand new learning and teaching strategies.

References


