

'Breaking the Moulds'

A Discussion of Some of the Issues Emerging from the Use of ICT in Education

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Introduction

The massive investment by the Irish Government into the IT 2000 Initiative has succeeded in putting technology at the fingertips of every school student in the country, both at Primary and Post Primary level. It has been argued, however, that the advent of Information Technology into the educational arena has added yet another factor into the divisions in our society between the 'haves' and 'the have nots', be this on a material, intellectual or physical plane. Nath (2000)

This focus of this paper is to examine the positive role that Information Communication Technology (ICT) can play in the breaking down of Social, Physical and Political Divisions within Education, when used within the context of collaborative and constructive project work.

Through the examination of case studies carried out on collaborative projects between various schools in Ireland and Europe (Gilleran. 2001), it is argued that, through the active use of ICT within the curriculum, students can be helped to experience a sense of achievement and acceptance of their own self worth.

It is further argued that the current modes of assessment, in second level education, actively disadvantage students by not taking into account the work done and the skills gained by the use of new media.

The Irish Government and other government administrations in both Europe and internationally have wholeheartedly embraced the Information Age. The Irish Government is investing heavily in the provision of hardware, Internet access and teacher training for schools at all levels across the country with the IT 2000 initiative, which has been on-going since 1997. The National Centre for Technology in Education was established in 1998 to facilitate the £40 million pound investment in the IT 2000 programme.

A worldwide commitment to promote the integrating of ICT in Education is evidenced by the abundance of national strategies for ICT and learning. Examples of parallel initiatives include the USA strategy, the National Grid for Learning in the UK, 'Schulen ans Netz' in Germany, 'Thinking Schools, Learning Nation' in Singapore. In hand with their significant investment in educational strategies, common themes that emerge among all policies are varying visions to transform learning and to improve student achievement.

Freeman, Holmes and Tangney (2000) in a recent analytic study of European National ICT strategy approaches have commended the Finnish policy 2000-2004 for its comprehensive attempt to *reshape* the role of learning within, and outside the school system.

A similar approach is being taken in Sweden where the National Plan ITIS (2001) places the emphasis on the social aspects of learning. "Learning in groups is important. The knowledge acquired by different individuals becomes an asset to group work" (p.2).

Mr Dominick Flitcroft Head, European Union and International Team, Department for Education and Employment in the UK, described the €3 billion National Grid for Learning as an "architecture and a brand to focus attention on ICT to improve standards" (p.5).

Part 1 Case Study Background

Gilleran 2001, from the evidence provided in a set of case studies involving collaborative cross cultural projects, argues that one of the best means of integrating ICT within a school is to use it in the context of an activity in which the use of ICT is integral to the outcome of the activity. This has what is termed as a “ripple effect” (p.68) within the school. One teacher or set of teachers experience success with ICT and thereby encourage other teachers to experiment. The overall effect of engagement in projects of this nature has a recognisable positive effect both on the teachers and the students involved.

The case studies are based on the experience of six schools, both at Primary and Post Primary level, during their involvement in collaborative and constructive projects both in a European and in an Irish Cross Border context.

One set of studies looked at a set of schools involved in a project, called Dissolving Boundaries through Technology in Education, was set up in November 1999 and is due to complete its first phase of operations in August 2001. This project arose from discussions between the British Prime Minister Mr Tony Blair, and the Republic of Ireland’s, Taoiseach Mr Bertie Ahern, as part of the peace process. This major cross-border project was managed by the University of Ulster and the National University of Ireland, Maynooth, and funded by the Department of Education Northern Ireland, and the Department of Education and Science, Dell computers and the telecommunications company Eircom. 52 schools were selected to participate in the project. These schools included a mixture of primary and second level

schools. The selection ensured a geographical spread and included some schools in socially disadvantaged areas, and some schools with little experience of ICT.

The second set of case studies is an overview of two schools, one in Ireland, and the other in France, both of which were involved in European funded projects under the Comenius and Tandem initiatives respectively.

The data collected and analysed during these case studies consisted of digital audio and video interviews with teachers and students, together with teacher responses evoked by the use of Email questionnaires. To ensure the ‘triangulation of data’ Yin (1984), it also included on-line communication between groups in the form of Emails, Web-based interactive communities, Video Conferencing and completed project work.

Case Study Findings

Breaking Down of Social, Cultural & Physical Barriers – The Transformative Effect

One of the great promises of the continuing development of ICT as a communications tool is the ability it offers to create communities and networks which, although they are separated physically are drawn together virtually.

The interviews and classroom observations of the students involved in these projects suggest that that engagement of the student was at its peak when they were using ICT in a constructivist manner to actively produce something or when they were communicating with their project partners.

This was strongly evident in the Irish Comenius project, where the most enthusiastic responses came from the groups who were engaged in communicating with the partner schools or designing web pages in a collaborative setting, as opposed to the groups who were involved in typing up material on other aspects of the project.

In the French Classroom the students were very active and involved when working at their Web Quest on the computers. They were engaged by the activity and, as has been described already, were anxious to show off and explain what they were doing, in a very confident manner. From reading some of the correspondence it was observed that many of the boys had developed strong relationships with their language partners particularly where there was a shared interest or hobby.

In both of these projects the student's work produced results on many levels. Not only were they improving their understanding and use of a second language, they were also improving their skills at controlling the complex medium that is Internet. More importantly, they were also learning that cultures can both differ and converge through communication with their European partners.

However, it was within the Dissolving Boundaries project that this assimilation and appreciation of cultural divergence was most marked. There was a universal desire among all the students, not only to meet in person the groups they communicated with only through ICT, but also to sustain the relationships formed beyond the time frame of the current project. Some groups who were on the second year of the project spoke about the difficulties of starting again with a new group. (i.e. some of the students had experience of this project with a different group in the first year.) Where this happened they expressed disappointment that,

they could not continue to work with the original group where the relationships had been formed.

Although the preconceptions about people from Northern Ireland were quite strong, some of the student remarking on the difference in accents, others expressing fear about meeting student from the North, there was evidence to suggest that there was a change in attitudes. “They are not aliens”, “They are just like us”, “we’re the future so it’s a good thing that we start dissolving boundaries”, “you begin to realise they are all human”. One teacher remarked “there seems to be a lot of tolerance across the board, there are no marked differences, the children are focusing on what the similarities are, but kids do I suppose”

Teachers reports focused on motivation rather than learning gains. All of the teachers interviewed remarked on the enthusiasm and excitement the project has generated among the students, in particular around those activities involving videoconferencing. One teacher said:

“I would see some of those students I would have for this and I would have them also for a normal class of English once a week, Macbeth or something. For this they’re are totally different, more motivated, they’ll do the work, they’ll do it without me harassing them, they’re always keen to go into the computer room...”

The students themselves spoke of the project as being “fun” and “different”. One student summed it up with the words, “you’re learning at the same time despite the fact that you don’t even realise it” In those schools where the students managed the project, there is strong evidence to suggest that there was a gain in the student’s levels of confidence and self-esteem.

The Role of Assessment Policy

“Assessment has a role to play in supporting educational reform .We need to integrate assessment and instruction so that they support learning. But unless the content of assessment (what schools assess) and the format of assessment (how schools assess) match what is taught and how it is taught, the results are meaningless, if not potentially harmful” (NCREL 1991)

While the evidence is there to support the argument that students can benefit in many ways from the use and integration of ICT in their education, Gilleran et al 2001 and Ewing, Dowling and Coutts. (1997), the assessment policy of governments appear to act as a definite barrier to the adoption and integration of ICT in schools, most markedly in post primary education.

In Ireland within the Schools Integration Project (SIP), a major government initiative to further the integration of ICT into the curriculum, the majority of these projects involve primary schools. This is hardly surprising as student and teachers in these schools are not confined by national assessment structures. Assessments are largely internal and serve more formative and diagnostic purposes. Of those projects at second-level schools, the majority are undertaken by students and teachers in Transition Year. There are only a small minority of projects integrated in other year groups at second-level and practically none in state examination years.

In recent report published by the Points Commission to ascertain the views of the educational stakeholders with regard to the role of the Leaving Certificate Examination and entry to higher education, many recommendations for complementary assessment were put forward by interested parties. One of the research papers, for example, focused on a survey carried out by

Transition Year students and administered to Leaving Certificate students. While the sample size involved is small, it is worth noting the trend in answering.

Many of the students interviewed believe that the points system appears to acknowledge only those with the ability to regurgitate large volumes of information on the day of the exams. 69% of students rated their satisfaction level in the lower half of the rating scale. The general feeling was much closer to dissatisfaction than satisfaction. The system is perceived by 76.4% of students to promote competition between students and by 55.7% to reward the ability to work on your own. The system is not perceived as rewarding students who can work well on a team (58.9% disagreed with the statement that it rewarded those who can work well on a team) and who relate well to others (59.9% disagreed with the statement that it rewarded those who relate well to others). Among the alternative suggestions for modes and techniques of assessment, were continuous assessment, interviews portfolios and aptitude tests.

“The purpose of assessment and evaluation in constructive learning situations and with Mindtools is not to provide society with the information it needs to judge the individual, but rather to provide learners with feedback that will enable them to comprehend how much they have learned in order to better direct their learning”
(Jonassen p.272)

Even though this survey does not make any direct reference to ICT, we believe that there is a link between the limitation of terminal examinations to adequately assess students learning and thinking skills with slow uptake of more project and practical work facilitated by ICT particularly in senior-cycle classrooms.

This situation is not confined to Ireland. A recently published executive report from Portugal also points to the existence of exams at the end of secondary education and on admission to university acts as a stumbling block to the use and dissemination of ICT or of any other “innovation” that may “distract” the students from exams. “This is a critical factor and is frequently mentioned by teachers of these teaching levels as an obstacle to integrating ICT into the curricula” (OECD 2001 p.2)

Further evidence is provided by the findings of Irish research on the barriers to student and teacher involvement in a National web-publishing competition. Primary and second level teachers were interviewed on their main reasons for non - participation in Spin A Web. One of the key issues was the fact that the learning skills were not assessed in state exams. (Mc Kibben 2001).

Furthermore, in the findings of the Dissolving Boundaries project, discussed earlier, it was reported that most fundamentally,

“the pressure of examinations in post primary schools (and the 11+ examination in Northern primary schools) made it difficult for schools to devote time to a project which as perceived as irrelevant to the examination. Although the content of the project was often directly related to the school curriculum, it is clear that teachers did not perceive the project as appropriate for exam classes .(Gillera et al. 2001)

This pattern seems to be repeated in many European countries. In France, for example, a study of the pattern of schools involved in a similar initiative throughout the 30 Academies or educational authorities shows a similar picture {Table 1.},

Table 1

National ICT Projects - France 20/08/2001			
Total Registered	Primary	Lower Secondary	Upper Secondary
1025	55.20%	25.51%	16.08%

Academy of Grenoble, France, August 2001

This evidence appears to testify that there is a strong relationship between the demands of national terminal examinations and its influence on the integration of ICT.

It is worth highlighting the UK's approach where there is a defined national curriculum for ICT, compulsory for all students to the age of 14 with a defined requirement to extend knowledge and capability for students to the age of 16. [Jones, Freeman & Tangney 2001]. Assessment is, however, not defined and so teachers are free to choose how it is assessed. This has led to a situation where assessment is, to a large extent, influenced by the provision of data for the national league tables. What is alarming in this situation is that schools, in some cases, are choosing a variety of examinable courses based "on the imposed school improvement targets" [ibid]. Skills based certificates such as CLAIT (Computer Literacy and Information Technology) are accordingly a popular choice.

"The benefits from a strategic point of view are tangible: the prospects for attrition are very much limited and the motivation to succeed for both teacher and student is high – everyone, regardless of ability, has the opportunity to leave with a symbol of successful learning" [ibid, p 4].

In Ireland it seems to amount to a situation where 'what is not assessed is to a large extent not taught'. The lack of nationally accredited assessment, among other reasons, has resulted in a

small numbers of teachers integrating ICT in learning and teaching and the uptake of courses such as ECDL(European Computer Driving Licence). We have to concern ourselves more with “constructing assignments and learning environments which arise from authentic work situations, and to better utilising learning material made by the students themselves”. (Sitra 1998, p143)

Conclusion

From the evidence presented in this paper, there are strong arguments to support the positive role that ICT has to play as an instrument for change; firstly by connecting groups separated culturally and geographically and, secondly in the self esteem that students feel in the achievement and exercise of new skills in a collaborative and constructivist setting.

It is therefore, incumbent upon curriculum planners at policy level, head teachers and principals at school management level, and teachers in the classroom to remember that with the advent of the new technologies, knowledge has become a perishable good. Consequently, the traditional transmission of knowledge and skills as part and parcel of the strategic approach to learning is no longer the only viable goal for education.

In a recent report on Comparative International Research on Best Practice and Innovation in Learning, prepared by CRITE for the Information Society in Ireland, it was argued that assessment is a key aspect of curriculum intervention and that constructivist, open-ended group-project based collaborative learning does not sit easily in those parts of the current formal Irish education system which are exam focused. (CRITE 2000).

“There is considerably greater flexibility in primary and transition year and it should be no surprise that it is in these areas that much innovation is taking place” (p.15)

‘Learning to learn’ is one of key indicators in a recent EU report on the quality of school education [EU 2000]. The purpose of education is to produce autonomous life long learners, and as a consequence the emphasis needs to be placed on assessing students' ability not only to acquire and use information, but also their ability to transfer and use this information in a wide range of situations. (Jones, Freeman & Tangney 2001).

The Irish government has voted 81 million for the continuance of the aims of IT 2000. Ireland is now at a critical junction as the policy framework moves to an action strategy. It is imperative that planning gives careful consideration to the delivery and assessment of learning for the whole school community. Dr. Seymour Papert, at a recent talk in Ireland (21 June 2001), spoke passionately about the transformative role of ICT for education. He urged the Irish to take action and ‘lead the way’ to build a vision for the future of learning.

“Let’s start by removing one of the first order change barriers”¹(Brickner, 1995)

Endnotes

¹ First Order barriers to change are those considered external to the teacher.

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