LEARNING ONLINE: E-LEARNING AND THE DOMESTIC MARKET

(REF: R000223819)

FULL REPORT OF RESEARCH ACTIVITIES AND RESULTS

1.   BACKGROUND

This project was concerned with the production, textual characteristics and uses of 'educational' websites aimed at the domestic market. It built on a previous ESRC project 'Changing Sites of Education: Educational Media and the Domestic Market' (R000238218), which looked at information books, CD-ROMs and magazines.

The research took place against a background of growing interest in home education, on the part of government and commercial corporations. Government initiatives and publications increasingly emphasise the value of parental involvement in home learning as means of raising standards of achievement and addressing social exclusion. Meanwhile, commercial corporations are increasingly regarding the home as a significant new market for educational goods and services. In the process, there has arguably been a blurring of boundaries - between home and school, parents and teachers, learning and leisure, and education and entertainment.

The project therefore stood at the intersection of several areas of research, and sought to contribute to them in the following ways:

1.   The political economy of the cultural industries
The project focused on the early growth of the e-learning industry, and the interpenetration of public and private interests in this field. While this sector is intimately connected with other sectors of the media and cultural industries, its economic aspects have yet to be investigated by academic research.

1.   The relationship between 'education' and 'entertainment'
The project analysed the pedagogic style of these sites, addressing questions about mode of address, navigation, multimodality and interactivity. Again, there has been relatively little previous analysis of these aspects of educational texts.

2.   Parental involvement, media and home learning
The project investigated children's and parents' orientations towards home learning, and specifically towards the use of media in this context. While there is a growing body of research about parental involvement, and about domestic uses of the internet, there has been relatively little work about the use of new media for educational purposes (rather than for leisure).

2.   AIMS AND OBJECTIVES

The objectives identified in the original proposal are given below, followed by a brief summary of how they were addressed. In general, all these objectives were met successfully.

1.   To analyse the current market for educational websites, the economic models on which this industry is based, the types of companies involved and the marketing of websites to parents and children.

Data here were gathered by reading relevant trade publications and reports, attending industry conferences, conducting web-based research and interviewing industry personnel. The analysis of this material is discussed in section 4.1 below.

2.   To categorise the different kinds of educational websites currently available, in terms of target age group, relationship to the national curriculum, relationship to other media, etc.
A broad overview of the range of material available was obtained via the above sources, and through an overview survey of sites. Key points from the analysis are presented in section 4.2.1.

3.   To identify the main characteristics and pedagogy or teaching style of a representative sample of educational websites designed for use in the home.
Three comparative case studies were undertaken, covering a range of sites and subject areas. Main themes are outlined in sections 4.2.2 and 4.2.3.

4.   To identify how educational websites are used as a resource in the home, using case studies of a small number of families.
Interviews were conducted with 8 families in homes. Children and the parents were interviewed separately, and then together; and children were observed and videotaped using educational sites. The analysis is discussed in section 4.3.

The project also investigated new policy initiatives in this field not identified in the original proposal, particularly the BBC's Digital Curriculum (see section 4.1.5).

3.   METHODS

This project used several methods, including:

- Face-to-face and telephone interviews with 10 industry personnel and other relevant informants: these were selected to obtain a balance between representatives of larger and smaller companies, broadcasters, individuals and interest groups.
- Data-gathering from trade publications, industry reports, websites, conferences, etc.
- An overview survey of available sites, conducted via the National Grid for Learning portal and the Parents' Information Network site: these aim to provide comprehensive listings of educational sites.
- Textual analysis of case study sites: these were selected on the basis that they were UK-based 'fun education' sites aimed at both home and school, which targeted our main age range (7-11), which covered a range of subject areas, and which were produced by companies with different funding mechanisms.
- Home interviews with 8 case study families, contacted via schools and via the Parents' Information Network. These families needed to be existing users of the web, and to include children aged 7-11.

The project was co-directed by Margaret Scanlon and Professor David Buckingham. We were also able to involve a new member of staff, Dr. Andrew Burn, who contributed expertise in textual analysis of educational media.

4.   RESULTS

4.1   Production

4.1.1 Overview of the market

The provision of online educational materials for the home market is still in its early stages. At present, many different players are jostling for position in an underdeveloped – but nonetheless very competitive - market. A few of the companies involved have a public remit to offer educational content, such as the BBC and Channel 4. Others are commercial companies with stakes in other media, for example Granada, Pearson, the *Times Educational Supplement* and *The Guardian*. Software companies like Europress and TLC (The Learning Company) are interested in the internet because of the decline in the CD-ROM market; others are newcomers specialising in e-learning (such as Spark Learning); and some (such as RM) which originally supplied ICT hardware are diversifying into educational content. Meanwhile, other companies (from Macdonalds to Cadbury's) are using broadly 'educational' sites to promote their products or services; and there is a wide range of non-profit organisations, charities, schools and individuals offering educational sites.

1.1.2 Economic models

One of the main issues facing commercial companies is how to make a return on their investment. Subscription and advertising are two leading possibilities, but both have limitations. One problem with subscription fees is that consumers have become so accustomed to free content that it is now difficult to persuade them to pay. While subscription is an established method in some other areas, it is unlikely to be effective in relation to education – even for parents who identify education as one of the reasons for connecting to the internet in the first place. (This was confirmed by our interviews with parents: see section 4.3.2.) Some companies have attempted to operate a 'loss-leader' principle, although this approach is only feasible for those who can sustain losses in the short term: several sites which began as free services are now subject to subscription or pay-per-view charges. Others are encouraging parents to subscribe to another product (such as a magazine) which is linked to the web site in an attempt to overcome this barrier.

Advertising and sponsorship raise different problems. The internet is increasingly being used as a means of advertising to children, though it is generally considered far less acceptable to advertise on *educational* websites. For example, the Eligibility Rules for the DfES's Curriculum Online portal state that advertising should be kept to a minimum. Nevertheless, marketers have found ways of introducing advertising, product placements and company branding into educational websites. However, finding companies who are willing to advertise or provide sponsorship is not always easy in the current economic climate; and even large multi-media companies like Channel 4 are having difficulties in finding the 'right' sponsors.

Some company sites are not intended to generate direct revenue in their own right: companies like Cadbury (whose main business is selling chocolate) are using their educational website as a means of company branding, associating their products with the 'feel-good' factor of education – although they are also offering a particular account of the nature of trade with the developing world (see 4.2.3). Several companies operate a 'mixed economy', generating income from advertising, subscription fees from parents and schools, and sponsorship, or developing sites to be used in conjunction with other media, either print or digital. Amid uncertainty about the most appropriate economic model, and the general insecurity of the sector, this approach is likely to continue for some time.

4.1.3 ADVANTAGES OF LARGER COMPANIES

At present, established media companies have significant advantages over new entrants to the market. Such companies are often better placed to sustain losses in

the medium term. They are able to exploit libraries of available content that can be adapted for the new medium. They also find it significantly easier to reach the target market. For example, broadcasters advertise their own websites, or provide programmes linked to websites; and the sites also serve as means of selling merchandise related to programmes. For smaller companies, reaching the target audience is far more difficult; and by comparison with schools, there is little market research on home uses of educational software. There is hardly any advertising of websites in publications targeting the home market, for example parenting or computer magazines; and producers argue that the cost of advertising would not necessarily be offset by the increase in customers. Company branding is therefore particularly important here. Given the amount and diversity of content available on the Web, and the lack of 'quality control', parents are inclined to choose well-known brands like the BBC or Channel 4, thereby making the task of smaller, lesser-known companies even more difficult. (Again, this was confirmed by our interviews with parents: section 4.3.2.) For all these reasons, technological changes may reinforce the tendency of changing patterns of media ownership to create a more centralised industry: rather than challenging traditional media structures, the internet seems to be helping to reinforce and extend them.

4.1.4   The home market and the schools market

Total expenditure by UK schools on curriculum software and electronically delivered content was recently estimated to be £70-80 million per year. By contrast, sales of educational software to homes – which could in principle represent a much bigger market - are estimated at around £35 million. One consequence of this is that the available content comes to be dominated by the National Curriculum. There are few commercial incentives for companies to provide diverse and innovative content, or to cater for areas outside the core subjects, particularly as the market becomes more competitive. As with book publishing, the tendency may therefore be for the home market to be led by developments in the schools market. The schools market is more predicable and more easily reached; and at least in the short term, it is more obviously lucrative. Producers also argue that the way to reach the home is through the school, particularly if schools endorse a particular site. The advent of 'managed learning environments' (MLEs), which give children access at home to material they use in school, may enable some companies to corner both markets. In this context, smaller companies will find it harder to survive, and may have little option but to work with larger conglomerates.

4.1.5   THE ROLE OF GOVERNMENT

In respect of online learning, the government has acted as a 'developmental state'. Via initiatives like the National Grid for Learning, Curriculum Online and (indirectly) the BBC's Digital Curriculum, it has invested significant expenditure in stimulating the e-learning industry, and attempting to increase Britain's global competitiveness. The BBC's Digital Curriculum has been especially controversial in this respect. As a well-established multi-media company, the BBC is ideally placed to play a leading role in the e-learning market. It has a strong brand and a reputation for producing educational materials for homes and schools. It has access to content and expertise; and its websites can be linked to other products, for which customers have to pay. It has now been given permission by the government to use license fee income to fund its e-learning provision – despite the fact that this will not be available to all license fee payers. Not only will homes require internet access, but in order to fully utilise the service they will need a broadband connection. There are no proposals as yet to make content available via more accessible platforms such as digital television, games consoles or mobile phones. The BBC's plans have attracted widespread

opposition, both from its commercial rivals and from defenders of public service broadcasting.

The DfES's Curriculum Online involves the establishment of a portal and the provision of 'e-learning credits', enabling schools to buy online digital resources. However, e-learning credits are not available to homes; and so for parents, the free resources on the COL portal will have a considerable advantage over the priced ones. The BBC is likely to be one of the main beneficiaries here. Some parents may subscribe to priced sites if these are being used in school; but it seems more likely that teachers will use free sites in school in order that children can continue using them at home (assuming they have internet access), or recommend free sites only.

4.2   Texts

4.2.1   Overview of sites

The second aspect of the project involved an analysis of educational sites themselves. We began with a descriptive survey of sites available via the National Grid for Learning portal and PIN (Parents' Information Network). We surveyed a total of 47 subject-specific and cross-curricular sites. The following findings emerged.

- The pattern of provision is strongly determined by the organisation of the National Curriculum, and the prominence of particular subjects within it. Maths and literacy/English are the two most common areas, both in the form of subject-specific sites and as part of cross-curricular sites. Science and history are also well represented, followed by geography, with subjects like music, art, foreign languages and PSHE trailing well behind.

- The number of dedicated homework and revision sites is increasing. Both BBC and Channel 4 have sites through which children can e-mail teachers with homework queries or check a database of previous questions. A SATs revision section has recently been added to Channel 4's Gridclub.

- There are considerable variations in the levels of interactivity on different sites, depending on subject area, producer and target audience. Maths sites tend to be more interactive and games-oriented compared with English or information-based subjects like history. However the type of producer and the budget also have an impact. Channel 4's Gridclub, for example, has several games based on historical themes whereas those produced by individuals or small organisations tend to be predominantly text-based. Interviews with the latter suggest that this is a result of limited budgets rather than a conviction that history is best taught through written text. Levels of interactivity may also be related to the target audience (e.g. parents as well as children) and the purpose of the site (homework and revision sites versus more broadly educative sites).

- Many sites include detailed notes to parents, relating both to the educational content and to broader school-related issues. These sites seek to demystify the education system and position themselves as the parent's ally in their dealings with schools. Parents' notes often make claims about the educational benefits of ICTs and warn parents about what might happen if their child is 'left behind' – even looking as far ahead as university entrance.

- These 'edutainment' sites target a dual audience – parents and children – though in the case of subscription sites a more direct appeal is made to parents, for example through detailed parents' notes, linking content to the

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National Curriculum, SATs, etc. This is reflected in their greater 'formality' of address, and their reliance on written text (see 4.2.2).

- Even where users have access to broadband (currently less than 10% of homes), they are likely to experience technical difficulties when using many sites. Several of the sites we used had long loading times, non-functioning links, missing information and key elements 'under construction' (see 4.3.3).

4.2.2 Textual analysis

Three broad pedagogic issues emerged from this survey, and from our analysis of case study sites. These provide an analytical framework which can be used in further studies:

1. MULTIMODALITY

The emphasis here is on how sites use different modes of communication, including verbal language (spoken and written), still and moving images, music and sound, and so on. These different modes carry different 'functional loads'; and they can be combined or related in many ways. Although some more conventionally 'educational' sites are heavily text-based, producers generally assume that children are unwilling to read extensive amounts of print on screen. Such assumptions were largely borne out by our observations (see 4.3.3): children often flicked restlessly through the sites and appeared impatient with written instructions. In this respect, such sites appear to cater for a style of learning that is more characteristic of the informal setting of the home than the print-dominated setting of the school.

2. NAVIGATION

Users of websites follow 'trajectories' or 'reading paths', determined partly by their own motivations and partly by the 'invitations' or 'directions' the site offers. Sites vary in terms of how this process is structured, for example in the number of options available, the 'depth' of the site, the linearity of the organisation and the extent to which it is hierarchically structured. Navigation can be based on visual and/or verbal cues. Web producers tend to prefer an 'intuitive' (and more visual) approach, arguing that children will find their way around through trial-and-error, rather than having to be instructed or given verbal 'scaffolding' – although this was only partly borne out by our observations (4.3.3). The speed of connection and the capacity of the site server are also important variables here.

3. INTERACTIVITY

Interactivity relates to the degree of control afforded to the learner and to the kind of feedback. It tends to function in different ways in different software 'genres'; and these genres tend to be employed in different ways according to subject content. *'Drill and practice'* activities (for example in maths or literacy) offer learners very little control over the sequence or selection of activities, and generally provide feedback only in terms of test scores. In practice, most activities of this kind are concerned with testing rather than teaching. The sites we examined also contained *educational games*, which can offer greater interactivity; although feedback here is still relatively limited, and there is little incentive for users to realise underlying conceptual principles. Some sites offer *software 'tools'*, which allow for creative production and input by learners. Yet in each case, the degree of interactivity afforded by such sites is significantly less than in many CD-ROM packages aimed at the same age group.

4.2.3 Case Studies

We explored these and other related issues through three comparative case studies.

1. Constructing the learner

Here we focused on the 'address' to the user of two sites, Spark Island (a subscription site produced by an independent company) and Gridclub (the official DfES free site for 7-11-year-olds, produced by Channel 4). We considered how the sites construct an appearance of informality and 'personalisation', both verbally and visually – for example, through the use of on-screen characters, personal greetings to the user, and offering opportunities to users to 'customise' the site. While Spark Island appears to address the family, Gridclub addresses (and constructs) the child in relation to its peer group, both real and virtual. It attempts to bridge the gap between the adult producer and the child user, through using informal language, through displays of 'anti-adult' rhetoric and through its references to 'tween' popular culture – although this sometimes jars with its more formal educational intentions.

2. Educational games

Here, we explored one aspect of the sites in more detail, namely the use of games in teaching mathematics. In particular, we looked at how the sites attempted to place mathematical skills in context, both 'everyday' and fantastical. One significant problem here was that the mathematical content was effectively detached from the context of the games – both from the scenario and narrative, and from the element of 'game play'. There was also a separation between visual and verbal modes: broadly, the visual mode was used to entertain, while the verbal was used to educate. As a result, these sites are far less engaging than computer games; and they teach maths as a series of disembodied skills, reinforcing the 'content-based' view of maths as a subject of absolutes in which learners are either right or wrong.

3. Education and advertising

The third case study was based on a comparison between two sites, both on the theme of chocolate: the Cadbury Learning Zone (which is affiliated to Gridclub) and the Dubble site (based on the 'fair trade' chocolate bar). In terms of our pedagogic criteria (4.2.2), the Cadbury site is more text-based, less multimodal, more hierarchically structured, and less interactive than the Dubble site. As such, it does not exploit the specific affordances of the web as a medium. These pedagogic differences reflect differences in the advertising strategy of the two sites – the extent to which they 'demand' rather than merely 'offer'; their ideological differences, in terms of how they represent the commodity of chocolate and the processes by which it is produced and marketed; and the extent to which they address and represent the child learner as 'active'.

Broadly speaking, our analysis points to significant limitations in the forms of learning currently available to children via educational websites. These are partly technical in origin; and they partly reflect an inadequate recognition of the specific affordances of the new medium. However, they are also symptomatic of broader difficulties that characterise contemporary attempts to combine 'education' and 'entertainment'. The gap between the forms of learning currently promoted within formal education and those that characterise children's media cultures appears to be widening. Using entertainment to 'sugar the pill' of education is fraught with difficulties.

4.3   Consumption and use

Eight case studies of families were conducted. These included interviews with parents and children (separately and together), and observing and videotaping children as they navigated around two of our case study sites, Gridclub and Spark Island. The interviews were held during the summer of 2002. Most of the families were middle-class; and all the children were aged 7-11. We also revisited data from

our previous ESRC project, which was conducted at an earlier stage in the dissemination of the internet.

4.3.1 PARENTS' ATTITUDES TO COMPUTERS

In our previous project we distinguished between three groups in terms of their attitudes towards the educational value of computers. The *enthusiasts* believed strongly in the educational potential of computers; while at the opposite end of the spectrum were the *resisters*, who seemed to have reluctantly given in to the need for a home computer. The *followers* were somewhere in between: although they had reservations, they seemed to feel that computers were something that everyone had, and therefore they had to get one too. Most of the parents in the current study could be described as followers. One parent, for example, described the decision to buy a computer thus: 'it was a feeling of being left behind, wanting to join the rest of the planet'. On the other hand, the resisters (who tended to be more vocal) complained that computers were replacing books, that the information was not always reliable and that using the internet for project work was a form of 'cheating'. One mother, for example, described how once her son reached year 5 she 'had to relinquish' and buy a computer, under pressure from school. Although she had now started to use the computer herself, she still disapproved of her son's use of the internet for project work, on the grounds that books were 'better' and 'more reliable', and less likely to encourage copying. In general, fathers were more knowledgeable and more interested in computers and the internet, while mothers were more likely to be resisters. Nonetheless, some who were initially reluctant were gradually using the internet more themselves. In some cases, there were concerns about safety, which some children shared with their parents.

4.3.2 EDUCATIONAL USES OF COMPUTERS

Education was one of the main reasons given for families' computer purchase. However, parents reported that their children tended to use the computer for entertainment rather than education. Some argued that this was because children aged 7-11 are still quite young to be using the internet on a regular basis for education. When computers were used for education, it was usually for school projects in subjects like history or geography. Despite the substantial number of maths sites available (see 4.2.1), children rarely accessed these sites. Project work provided a context for using history and geography sites, although in most cases this was simply for information retrieval. Broadly speaking, children appeared to be accessing sites which are little more than books in digital form – thereby providing support for complaints that the internet does not provide anything which children could not get from books. Nonetheless, children generally preferred using the computer to reading books for information. Although they did not always seem to know where to go on the internet to find the information they needed, they still preferred this method to using book indexes in the library. Their schools did not often recommend sites, and children generally found sites by using search engines. Alternatively they would return to a site they had found useful in the past or go to well-known sites like the BBC, reflecting the importance of branding (see 4.1.3). None of the children, and only one of the parents, had heard of either of our case study sites, which confirms the difficulties producers face in reaching this market. None of the parents was especially proactive in terms of helping their child locate educational sites; and none said they would be inclined to subscribe to such a site (see 4.1.2).

4.3.3 Responses to case study sites

Most of the parents and children were highly critical of the Spark Island site, mainly because of the length of time it takes to load different areas of the site. Having a broadband connection did not appear to make any difference, which would suggest that the delay results from the limitations of the site's server. All the families whom we interviewed had found this extremely frustrating, and several of the children had abandoned using it for this reason. (This was common on several sites we surveyed: 4.2.1.) Several of the parents and children commented that the activities supposedly geared to their child's 'Key Stage' level were inappropriate for them – and, in most cases, far too easy. A few also suggested that the site looked too 'babyish' for children in the 9-11 age group. This would suggest that its attempts at 'personalisation' (4.2.3) are less than effective. However whilst the learning activities themselves were found to be too easy, the physical act of playing the games was sometimes quite difficult. In such instances, the failure of the software to respond in the expected way was an additional frustration for the children, rather than a challenge to their gaming skills. Whilst most children found it relatively easy to find their way around, only one worked out how the rewards system operates. However, several were able to subvert the educational purpose of the games, for example by choosing a level of difficulty that was well below their own competence as a way of accumulating rewards more easily.

By comparison, Gridclub was far more popular – there were few delays in loading, a more diverse range of subjects and greater visual interest (which clearly reflects the available budget: see 4.2.1). Unlike Spark Island, Gridclub provides children with information (e.g. on history, football, fashion) as well as games. However, the children either avoided the text altogether, heading straight for the games, or read for a few minutes before becoming bored (cf. 4.2.2). Some claimed to access text-based history sites for homework, but when given the choice (as they were in our interviews) they opted for games.

4.2.4   Conclusion

This part of the research involved a small sample. It assisted in developing our analysis of the case study sites, and confirmed some of the findings of the industry research; but it does not support generalisations about family uses of the internet for education. Although all our families had internet access (in some cases for several years), we found little evidence of intensive use of educational sites. There were several reasons for this: parents' lack of knowledge of the sites available; the limited nature of homework assignments; the greater appeal for children of other (entertainment) uses of the computer; technical difficulties in accessing sites; and the lack of engagement offered by the sites that were known to be available (including the sites we had introduced).

5.   ACTIVITIES, OUTPUTS, IMPACTS

The primary outcome of the project is in the form of academic articles and book chapters. Articles completed are as follows:

'Learning online: e-learning and the domestic market in the UK', pp. 137-148 in G. Marshall and Y. Katz (eds) *Learning in School, Home and Community* Boston: Kluwer, 2003 [Scanlon and Buckingham]

'Debating the digital curriculum: intersections of the public and the private in educational and cultural policy', submitted to *London Review of Education* [Scanlon and Buckingham]

'Selling learning: towards a political economy of edutainment', submitted to *Media, Culture and Society* [Buckingham and Scanlon]

'Chocolate politics: analysing websites', Chapter 3 of A. Burn and D. Parker *Analysing Multimodal Texts* London: Continuum, in press [Burn]

'Connecting the family? 'Edutainment' websites and learning in the home', submitted to *Education, Communication and Information* [Buckingham and Scanlon]

Articles 2 and 5 are appended.

Further articles are in preparation:

A user's guide to evaluating educational websites – for submission to *Times Educational Supplement*. Based on research in section 4.2 above. [Buckingham and Scanlon]

A critique of educational games – for submission to *Cambridge Journal of Education*. Based on research in sections 4.2.3 and 4.3 above. [Scanlon and Burn]

A broader theoretical overview of 'edutainment' and its role in contemporary educational policy – for submission to *British Journal of Sociology of Education*. Based on this project and our earlier ESRC project. [Buckingham]

Papers have also been presented at conferences and seminars including:
- International Federation for Information Processing Conference, Manchester, July 2002
- CSCYM Public Seminar, Institute of Education, December 2002

We also hosted and chaired a conference organised by the Voice of the Listener and Viewer concerned with the BBC's Digital Curriculum proposals (April 2002). Some of the research has also fed into MA teaching at the Institute.

Opportunities for dissemination within the 11-month duration of the project have been limited, but we will be exploring further possibilities. Together with colleagues in this field, we are holding a full day seminar at the Institute of Education on 30th June 2003. This will present our own and other related research to an invited audience of researchers, educationalists, policy-makers and industry representatives.

In addition to academic dissemination, we have built a useful connection with the organisation PIN (Parents' Information Network), which provides independent advice on educational software. The Institute formally endorses its Software Evaluation Scheme, which has recently been extended to educational websites.

6. FUTURE RESEARCH PRIORITIES

The project suggested several lines for future research. These include:

- The relationship between cultural industries and the state in developing education markets.

- The nature and meaning of 'informal' learning.

- Multimodality, interactivity and pedagogy in educational text