

A BFI EDUCATION RESEARCH REPORT

■ **EDIT-PLAY** ▶

HOW CHILDREN USE EDUTAINMENT SOFTWARE TO TELL STORIES

Julian Sefton-Green & David Parker

SUMMARY

This report describes a small-scale action research project which observed primary school children's uses of 'edutainment' software for telling or making stories. The report was commissioned by the British Film Institute as a pilot study which could lead to more extended studies of children's creative work with moving images.

The starting point for the research was the recognition that editing is the key creative act in the production of moving image 'texts' such as films or television programmes; however, the software available for this age range supports animation and composition, rather than conventional editing.

The report argues that existing edutainment software packages aimed at children are severely limited in their creative potential. Sefton-Green and Parker make a strong case for simpler versions of non-linear editing software to be created for school use. This would not only benefit children as individual creators of moving image stories, but would also support the more traditional literacy skills that schools are working so hard to improve.

This is essential reading for anyone involved in curriculum development, software innovation and the development of literacy in an age of rapidly expanding audiovisual communication. It sets an agenda for further research which must be undertaken if we are to make full use of the hardware and the broadband networks now being installed in UK schools.

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INTRODUCTION

In the spring term of 1999, the British Film Institute (BFI), Weekend Arts College and King's College, University of London, funded Julian Sefton-Green and David Parker to undertake a research project investigating how primary-school-aged children might use a range of edutainment software to construct narratives. The authors developed and taught a unit of work to students in Year 1 (5- to 6-year-olds) and Year 5 (9- to 10-year-olds).

The research was devised as a small-scale action research or case study, with the aim of generating further questions about a range of issues pertinent to information and communications technology (ICT), literacy and media education. In particular, it was hoped that the research would form the basis for further studies on the ways in which children might benefit from having opportunities to edit moving images.

This report describes the project. Section 1 deals with the questions and concerns which underpin the research within the current educational context. It outlines the nature and scope of the research proposal and discusses the project's methodological limitations. It also describes the school selected as the research site and gives brief background of pupil data, including their home computer use. Section 2 discusses the findings of the research, examining editing, software interfaces, pedagogy and the making process. The final section explores the curriculum implications of the project, looking at learning progress in media education.

About the Authors

JULIAN SEFTON-GREEN is the media education development officer at Weekend Arts College (InterChange Trust), where he directs a range of digital media activities for young people. He has taught in secondary and higher education, and has researched and written widely on many aspects of media education and new technologies, including *Cultural Studies Goes to School* (with David Buckingham) (Taylor and Francis, 1994), *Digital Diversions* (UCL Press, 1998), *Creativity, Young People and New Technologies* (Routledge, 1999) and *Evaluating Creativity: Making and Learning by Young People* (Routledge, 2000).

DAVID PARKER taught in the London borough of Hounslow for four years before leaving to complete his PhD. His thesis explored the relationship between film and novel narratives, looking specifically at the process of film adaptation. Currently a research associate at King's College London in the School of Education, he has been able to combine his interests in film, literature and language by undertaking studies in primary schools investigating the ways in which moving image media relates to various literacy practices.

Acknowledgments

We would like to thank the staff and pupils at Coldfall Primary School, North London, for their support during this project. Evelyn Davies, the head teacher, and class teachers Jadwiga Hutber and Cheryl Milner made us both feel very welcome. The students were extremely enthusiastic about this work and could not have been more helpful and interested in the project. Fleeta Siegel (Weekend Arts College) provided technical support at key stages of the project.

Cary Bazalgette and Chris Abbott acted as a steering group for the project and we would like to thank them for their advice and encouragement. In addition, the BFI hosted a seminar to provide feedback on the work's progress in June 1999 and we would like to thank the participants at that meeting.

BACKGROUND
TO THE RESEARCH

Four key areas of interest motivated this research: discussion about the educational significance of editing within the construction of moving image texts; debates about the relationship between information and communications technology (ICT) education and its place in literacy and media education programmes; the implication of children's exposure to edutainment software outside the school arena; and discussion about the need to devise and develop educational editing software for use within schools. These themes derive from a diverse set of concerns and interests which were drawn together for the purposes of this research.

The term 'editing' describes a series of practices which vary from medium to medium—for example, what subeditors and editors do on newspapers, to the work of film or video editors. Here it also describes discrete technical processes, from changing text in a word-processing package to cutting up strips of film or, most relevant for this research, using digital programs in non-linear editing. At the same time, it also refers to an intellectual process: how we summarise or cut down larger units of text or story.

From the perspective of moving images, editing describes the mechanisms by which narrative is constructed. In classic film narrative (Bordwell and Thompson, 1993) editing is the key to making meaning in moving image narratives. The way in which images, scenes and sequence are combined, with or without the inclusion of music or soundtracks, effectively organises the narrative. On a technical and conceptual level, editing is central to how moving images make meaning or communicate; and editing is equally important to contemporary forms of moving image culture, such as multimedia or computer games. Also, the etymology of the word (edire, meaning 'to give out') suggests that it was the editor's original publishing function which lay at the heart of the term, rather than the contemporary notion of composing or constructing. Whereas the term now emphasises ideas of revision, cutting out, rephrasing (both visually and verbally) and so on, it originally denoted the dissemination of a text.

From a media education perspective, the concept has had two distinct inflections. Teaching young people to edit has, obviously, been central to the strand of syllabuses or activities which have

Editing

offered the opportunity to make practical media productions (Sefton-Green, 1995). Considerable attention has been given both to the teaching of the technical procedures used in editing and to a critical understanding of the codes used by editors from a variety of cultural traditions. Thus, analysing the continuity editing system developed by Hollywood in the early years of the twentieth century, still the dominant means by which moving image narratives create their meanings, is an important part of young people's general social competence. Learning how to make moving image media is not only a means to understanding these editing conventions; it also offers expressive possibilities for young people brought up in a moving image culture. Learning how to edit (on both a technical and a conceptual level) thus becomes a necessary part of all-round creative capabilities.

Working in the moving image medium suggests the second key inflection: the role which editing might play in any linguistic model of 'film language'. There is a long tradition of approaching editing from a linguistic perspective. Classic film texts bear titles such as *Grammar of the Film Language* (Arijon, 1971) and, right from the early days of film theory, among early practitioners such as Eisenstein and Pudovkin, it became acceptable to talk about moving image media as a kind of language. This has a number of important implications for media education.

First, it suggests that our consumption of the media is not simply a natural process, but one that requires all of us to learn how to 'read' the media, how to decode the language of film or television. It also suggests that young people might need to learn the language of film-making and that this can be taught in the kinds of ways we teach other languages in school. This idea of media languages also opens the door to an exploration of moving images—film, television, multimedia CR Roms and the Internet—as a type of literacy and therefore having a place within the spectrum of literacy teaching (Buckingham, 1993b). Although the current prescriptions about the teaching of literacy define that concept very narrowly in terms of mastering the codes of verbal language, a general acceptance of media languages does permeate the UK curricula, at least for older students. The idea of media languages also raises a set a questions about how children's competence in one language domain might be transferred to, or affect learning in, another. Important here is the idea that children's understanding of, say, narrative on television could influence their learning of print literacy or vice versa (Robinson, 1997).

Finally, and importantly for our purpose, it suggests that editing lies at the heart of competence in any moving image language because it is the central process in possible meaning-making activities. Editing allows 'writers' of moving image media to manipulate at both the syntactical level and in terms of larger

units of sense. Understanding how editing creates meaning is crucial in interpreting moving image narratives. In practical terms, most editing now takes place in a digital environment, on computers. At a technical level, digital editing allows unprecedented experimentation and flexibility, so it also seems to bring the editing process closer to the idea of learning to write (Buckingham *et al.*, 1995, ch. 3). It is no coincidence, as Bazalgette (1999) points out, that we can address our interest in editing at a time when it has become such a technically accessible process. It is suggested that the advent of non-linear editing, on computers, has encouraged this rethink of the meaning of editing itself.

The preceding section sketched out a number of theoretical implications stemming from the idea that moving image texts can be considered as a language. Here, we want to describe some of the practical challenges which arise from trying to apply this principle to the school curriculum. First of all, we run into the intense political debate surrounding the term 'literacy'. It is a contested area and suggesting that it may be helpful to consider exploring moving image languages within the literacy paradigm may not seem an obvious way forward. Within the subject English, however, it is generally accepted that study of moving images has a place—although inviting students to 'write' in such language is not common practice. Editing does not feature explicitly there. Obviously, the subject Media Studies requires students to consider how editing works and young people taking this subject option are likely to have some practical editing experience, even in a limited way (Dickson, 1994).

In general, however, it is reasonable to assume that young children (KS 1 and 2) do not get any practical experience of editing. Yet, our hunch is that these young people are at exactly the stage of their literacy development to benefit from teaching and learning strategies which explore the inter-relationship and influence across literacy domains. This research did set out to develop these connections. At the same time, we wanted to develop links with ICT education, given, as was suggested above, how significant editing on a digital platform can be.

Unlike literacy or media education, where the climate is heavily proscriptive, ICT is usually defined in terms of acquiring a range of practical competencies and curriculum content is frequently vague. From this point of view, it seemed worthwhile exploring whether digital editing could offer ICT education a range of activities to develop ICT skills. In general, the ICT field needs to integrate more creative and artistic activities within its remit (Sefton-Green, 1999) and developing editing skills brings a whole host of opportunities to the computer screen. It also offers teachers new and culturally dynamic areas of content with which to connect ICT and literacy activities. Developing the creative use of ICT in

ICT, Literacy and
Media Education:
The Curriculum
Challenge

Edutainment

both the primary curriculum and in the arts and expressive subjects is a key challenge for the contemporary 'technological vision' of The Learning Society; this research was aimed at developing practical and theoretical material to meet that challenge.

The word 'edutainment' is a marketing term describing a genre of software which mixes entertainment and education. Leaving aside the question of how original the concept is—in other words, whether there has always been a mixture of motives between these domains—the recent explosion in the software industries has led to a spate of titles aimed at the home market, but including activities more usually found within the education system (see Nixon 1998 for a discussion of the political context surrounding this phenomenon). Many of these titles actually involve activities which require children to undertake a kind of editing. Although the precise nature of the 'editing' in a selection of titles is discussed below, in general terms, this editing might involve selecting images to form a sequence, adding or dubbing sound over pictures, or constructing a complete story using customised animation and pre-set storylines derived from popular comics and cartoons, such as Spiderman. In edutainment software, children might perform this editing as part of another activity, the game pretext of a specific title; we have not come across examples where the editing is held up as an explicit aim of the title. On the other hand, the general educational tenor of many children's software titles would suggest they include the sort of skills and ideas implied by a formal editing activity.

Also, a number of business presentation packages embed the idea of moving-image editing within their options. Microsoft's Powerpoint and Kai's Power SHOW, for example, can be used effectively as tape-slide presentations and the Kai package even uses a film style interface to represent how users can combine images and overlay sound in order to make their presentation. The availability of this kind of software, coupled with the range of edutainment packages (mainly on CD-ROM format), does force us to consider the implications of the home computer for children's access to forms of media production.

If digital technology can actually make the editing process more explicit, and if it is now more accessible given the widespread penetration of high-end PCs into the domestic and education market, can we assume that children will have increased access to some kind of editing activity as a matter of course? There are two immediate issues here. First, there are the classic questions of equity and access. Although it is true that much more editing is now possible on computers, and that there are both edutainment and editing software packages widely available at a variety of prices, it is not true that all young people now have access to the

technology. Edutainment packages are marketed to appeal to parental anxiety about their children's education and are not distributed equally in homes across all social classes. There is a raft of government initiatives aimed at ameliorating inequalities in computer access, but this problem is an ongoing political concern.

The second issue relates to the kind of learning which might go on when children use these packages in the home. When children make things at home, in what sense is that 'working'? And although they may well be learning new skills, do they, or we, know that they are learning them? These kinds of questions are particularly acute when it comes to the question of media languages because, as already suggested, there is an argument that children learn to read the languages of the media through everyday consumption and perhaps immediate family interaction. The kind of play-editing available at home may well fit in with this model of informal learning and is thus often marginalised by the school and the formal academic curriculum.

There is a whole educational movement, however, associated with the 'Constructionism' of Seymour Papert and the work of the Media Lab at MIT (see Goldman-Segall, 1998), which suggests that the pedagogy of learning through play, especially around the computer, is a more effective way of supporting children's learning than through direct transmission. In this instance, playing with editing software in an informal environment may well be a more effective means of learning about editing than other approaches. Edutainment software is frequently formally pedagogic in its structure and the way it invites children to experiment—how different that play-pedagogy may be from other kinds of media education activities used in the classroom, or even just other classroom activities—is a question that can be profitably researched.

The previous section explored the impact of the edutainment market on children's exposure to editing. As we suggested, however, not only might the pedagogic strategies of such software be different from educational software, but also its existence does not ensure that all children can gain practical experience of editing and it does not deal with how such experiences could be integrated into a media education course of study. One solution would be the existence of bespoke educational software and this is a challenge the BFI has recently tried to address. Indeed, one motive for the research reported in this paper was to explore the variety of editing software available in the edutainment marketplace in order to identify what might be needed in any educational software more explicitly dedicated to editing.

The essential challenge for further research will be to review the commercially available editing programs for the computer—the best known of which are Adobe Premiere and Apple's iMovie—to see whether such software may or may not be suitable for school

Editing Software for Schools

use. Section 2 will explore the theme of interface design theme in depth; here we want to discuss the rationale for such a project. In essence, the BFI would support the argument that, given the accessibility of digital editing programs, and given the educational need to offer editing activities within the literacy, ICT and media curricula, schools would only take up this challenge if provided with appropriate curriculum support—in this case, bespoke software. The need for such software has to be contextualised within the current market, that is, what software is available, how much it costs and how much it supports children's learning about editing.

The current market offers two such pieces of software, Picture Power (published by the English and Media Centre) and Backtracks (published by the BFI). The packages differ significantly in that Picture Power deals with sequencing still images and Backtracks deals with adding sound to moving images. Nevertheless, they both invite students to construct narratives and overlay sound and image. Both are aimed at age groups older than the ones with whom we undertook this research. (See figures 1.1 and 1.2.)

Both packages are available as a CD-ROM and are necessarily limited from a number of technical perspectives. They are clearly aimed at focusing attention on some of the details of editing and, to that extent, construct the editing as an exercise; on the whole, the edutainment packages do not. The Picture Power package can be used with students' own material, but neither program is capable of acting as a complete digital editing package. There is, in our view, no software currently on the market that is simple enough to fulfil the functions we envisage that would enable primary school children to gain a real understanding of the editing process. Establishing how one might design an interface or software



Figure 1.1 Screen shot of Backtracks



Figure 1.2 Screen shot of Picture Power

package to fit this purpose raises a number of questions about how children learn about editing in the first place, and what kinds of activities can develop or structure that understanding. Broadly, the existence of such a package would advance the study and practice of editing within the curriculum, in that it would provide a simple resource; however, the resource of and by itself will not assist teachers in determining the kinds of learning which should go on or, indeed, how to integrate that resource within a syllabus.

2

THE
RESEARCH PROJECT

Objectives

The aim of the research was to develop a more informed understanding of the questions arising from the discussion outlined in chapter 1. Specifically:

- ▶ to explore how edutainment software might develop pupils' understanding of what is involved in composing a story through moving images;
- ▶ to examine how the interface design of edutainment software might assist in the development of other kinds of software aimed at developing students' understanding of editing;
- ▶ to develop a better understanding of the significance of editing and related compositional activities within the media curriculum; and
- ▶ to devise an ICT-based activity which would bring together curriculum objectives from media and literacy education.

These questions can, of course, be investigated at a number of different levels and it is important to note that the resources available were limited. This research explicitly set out to generate further questions and hypothesise about the meaning and place of editing within the media curriculum, although, as will be seen later, the software we worked with only allowed the exploration of editing in a very limited sense. It does not pretend to offer complete answers to the research questions, but rather to act as a pilot for further work. In any case, the questions are framed in terms of shedding further light on a complex picture, rather than offering simple solutions. We used a range of qualitative methods, derived from an action research or case study model of research. Again, it is important to be clear about the limitations of such methods and to reflect carefully about the claims we can make about the significance of our findings.

The Research
Process

We selected a range of edutainment software, and worked first with 9- to 10-year-olds (Year 5), and then 5- to 6-year-olds (Year 1), in a primary school in North London. A unit of work was devised for both age ranges and taught with the help of the regular class teachers. During this process, we collected a variety of data. Our discussion of this process is divided into three sections: the software, the teaching and our interpretation of the data.

The Software

There is a large market in edutainment software, although, obviously, we were only interested in the titles which drew on notions of editing. An immediate and obvious limitation on our choice, however, was that there is no software solely centred on the editing process which is suitable for younger children. What we selected, therefore, were five animation packages. This, of course, introduced a significant new element to the research by ensuring that the children were all working within a very particular field of moving image production. Animation, at least in theory, provides the film-maker with complete control over everything that is on the screen and renders the editing process part of the initial process of composition rather than as part of post-production. We return to this issue on page 40.

The five titles selected from this range of edutainment software were chosen on grounds of variety (not repeating types), availability and platform compatibility (the school used mainly Apple computers). We wanted programs that allowed children some say in determining the content of the narratives they made, in order to give us fuller insight into the compositional processes of constructing moving image narratives. This in turn would, we hoped, illuminate editing-style choices. We ended up with five kinds of animation package. These are described in detail below, as the specifics of each program are significant in our account of their use in the classroom.

KidPix Studio (Broderbund)

KidPix Studio is a modular program which allows users to make a moving image slide show. There are six kinds of possible activities (see figure 1.3). KidPix itself is a drawing program (figure 1.4). It

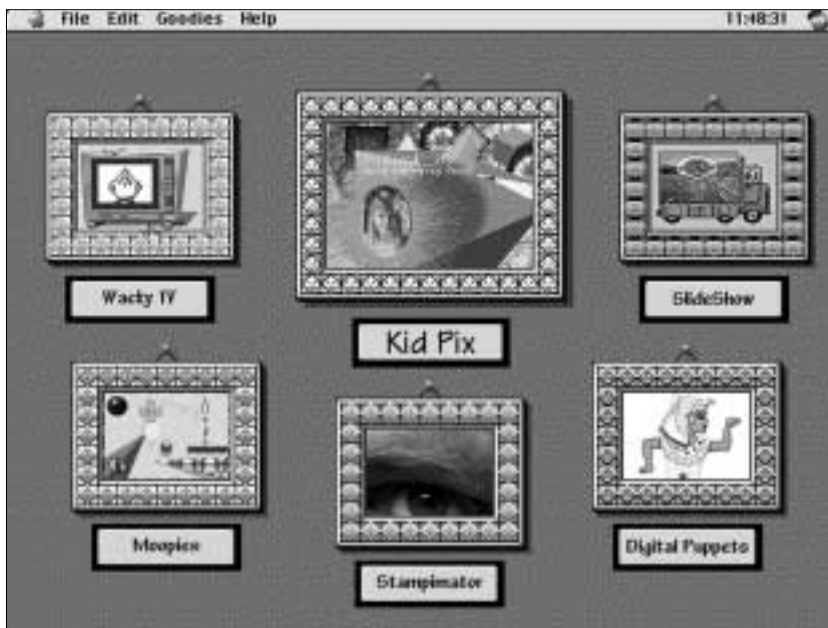


Figure 1.3 KidPix Studio



Figure 1.4 KidPix

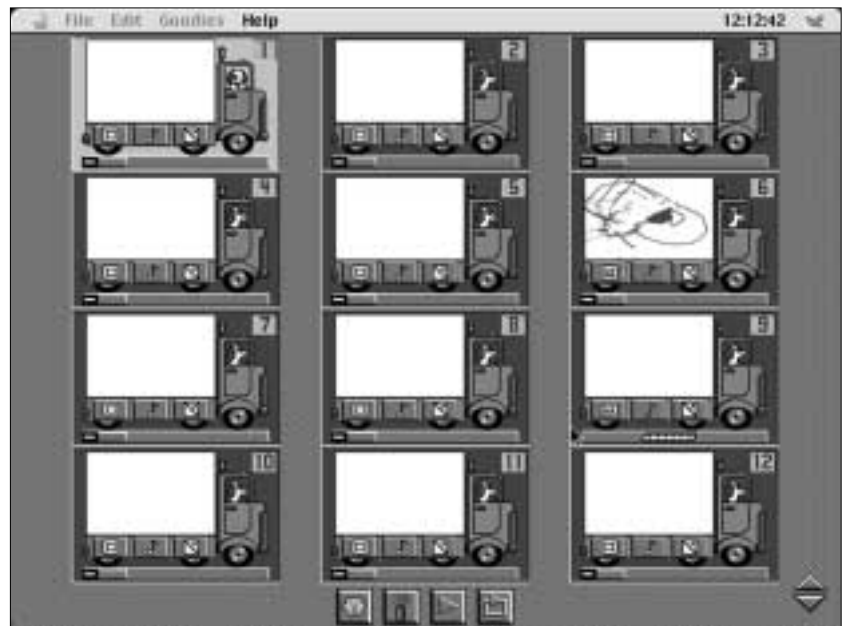


Figure 1.5 SlideShow

has a colourful and simple interface with a very childish style of icon. There are a number of pre-set 'stamps' or images, and a huge range of sounds which are played when you carry out specific actions. The SlideShow (figure 1.5) offers the possibility of making a continuous sequence. Images can be stored in each of the 'lorry' frames. Sound (either from a bank of pre-sets, or newly recorded) can be added over each frame and the duration of each frame, as well as different kinds of transition (how one frame is cut or dissolved into the next), can also be added. This SlideShow option thus offers the technology of making animated sequences, either at the level of stop-frame animation (i.e. changing the action from

frame to frame) or in terms of making scenes and then playing the scenes in sequence (Parker, 1999). The other modules are not really relevant to this discussion, except to point out that some of them (i.e. Moopies or Stampimator) do allow users to make drag'n'drop animated sequences, where an object can be placed on the screen. The user keeps the mouse depressed and moves the object around the screen. When the mouse is released, the object will then follow the path traced by the mouse. This kind of animation process is used by some of the other programs we discuss, even though the option was not used by the children who worked with KidPix on this project.

Magic Artist (Disney)

Magic Artist is similarly constructed to KidPix in that the moving image construction set-up is separate from the drawing/image generating module within the program. The drawing interface is orientated towards the pleasures of making marks with paint or pencil, and also deliberately aimed at a child user (figure 1.6). The program allows users to draw on a bank of images and sequences taken from the Disney back catalogue (featuring Mickey Mouse, Goofy etc.) and also to work on backgrounds from these works (figure 1.7). The software lets users scale and position characters and then render (colour in) in a variety of textures. The completed images are then put in a folder where they can be laid out in frames (figure 1.8). As with the KidPix Studio Slideshow, these frames can be played in sequence with the addition of sounds and music, although there is no control over the duration of the images. In theory, users can batch-process images (i.e. copy the same picture with slight variations to produce the effect of movement);



Figure 1.6 Disney Magic Artist



Figure 1.7 Disney—cartoons

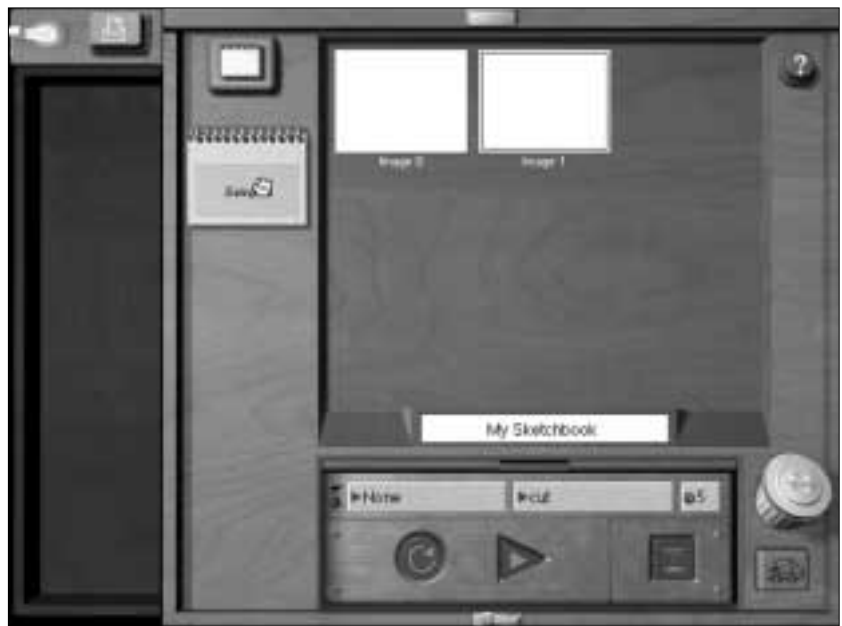


Figure 1.8 Disney animation framework

in reality, neither we nor the children ever managed to do this. In effect, the program offers the same animation possibilities as KidPix, but the images available and the strong emphasis on helping children with pre-prepared Disney sequences inevitably suggest narratives which draw on the Disney repertoire.

The Adventures of Batman and Robin Cartoon Maker
(Knowledge Adventure Inc. and Instinct Corporation)

Batman and Robin is one in series of animation packages including Spiderman and other popular TV cartoon series. The interface here is quite different from the previous two packages and uses

drag'n'drop animation capabilities. The user is presented with a blank screen surrounded by a number of options (figure 1.9). Users select an item from a palette behind these options (figure 1.10) and then drop either backgrounds or characters in place. These can be scaled. Some of the characters possess actions and sounds which can be activated if they are dragged and dropped, as described above. Users can thus create action within a scene and then combine scenes in a sequence. It is possible to dub sound (dialogue or music) onto scenes and sequences. It is also possible to draw, albeit with a crude range of tools (see the palette on the left-



Figure 1.9 Batman interface

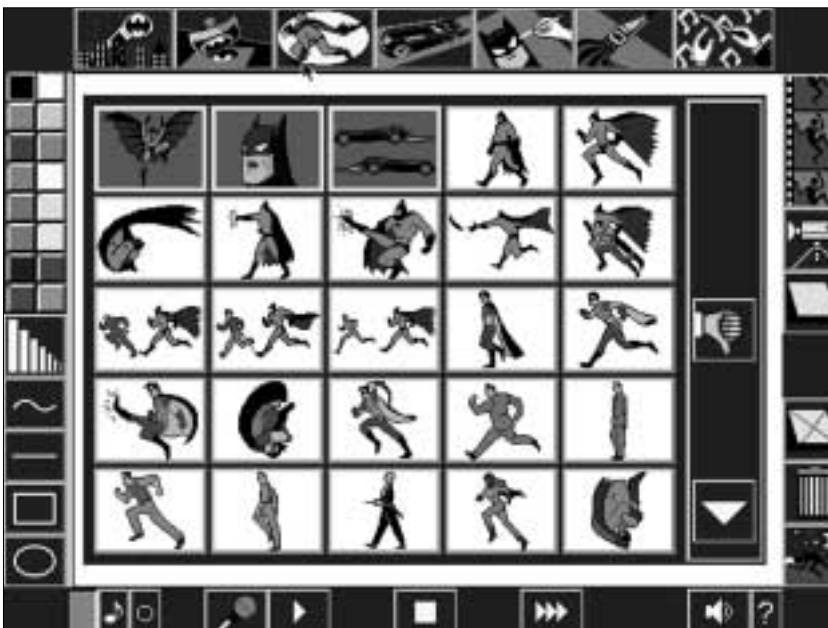


Figure 1.10 An open palette on Batman



Figure 1.11 The Simpsons



Figure 1.12 The Simpsons with an open palette

hand side of figure 1.9), and also to animate the marks one makes, using the drag'n'drop techniques. As with the other two packages, the finished film can be played in a projector format. It is not really possible to affect the duration of sequences, except through the length of time the mouse is depressed during the drag'n'drop process. Obviously, content is heavily determined by the range and scope of the images, backgrounds and characters contained within the palette libraries. Like the Disney program, the package draws on users' knowledge of, and pleasure in, the cartoon's underlying storyline or backstory, and the characters themselves.

The Simpsons Cartoon Studio (Fox Interactive)

This package is based on a similar premise to the Batman program; it allows users to manipulate characters and scenes from the TV program's library and, from this point of view, users have to have some knowledge of 'The Simpsons' to make sense of the options provided. The interface (figure 1.11) is in a childish cartoon style and, like the Batman and Robin program, users choose from a palette with pre-set drag'n'drop options. (Figure 1.12 shows some of the options available using the Bart character.) All of these movements are already animated in terms of gesture etc. Unlike the other programs considered so far, The Simpsons Cartoon Studio allows users to affect duration. There is a timeline at the bottom of the screen and it is possible to cut frames and sequences from the completed film. It is possible to 'stretch' or 'shrink' sequences using a simple tool in any given scene. Music and sound effects are already provided, however, without the possibility of dubbing over sound. In essence, users select background and characters, apply drag'n'drop movements and combine these into a narrative. This process is similar to the Batman program, although the interface is different.

The Complete Animator (Iota Software)

The Complete Animator, as its name suggests, is a dedicated animation package. It was the only program we ran on a PC/Windows platform. It does not conceal its editing within other edutainment functions. It is marketed as a complete animation package and, interestingly enough, even comes with teacher's notes showing how the package fulfils various National Curriculum needs. It is obviously produced for a young market and its design reflects this

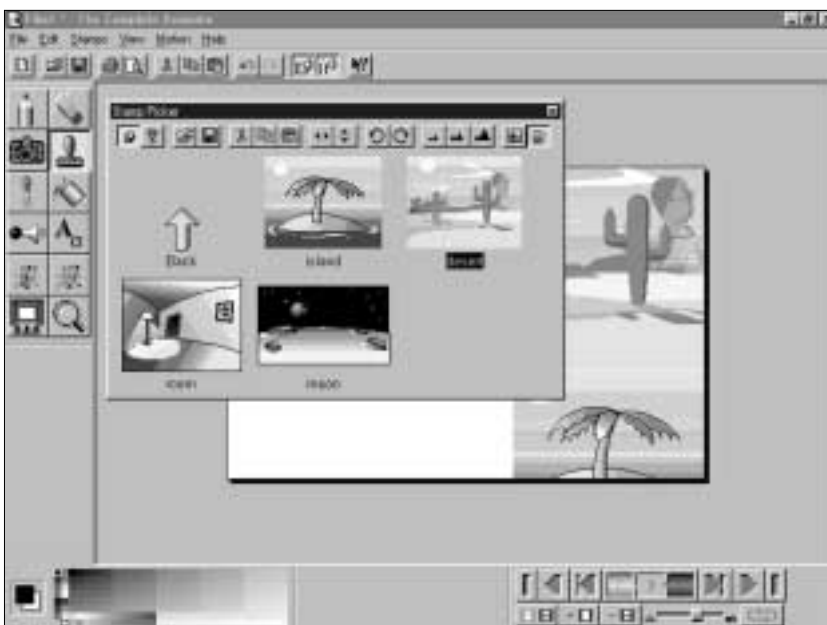


Figure 1.13 Complete Animator

(figure 1.13). The program does include a library of scenes and characters, but these are for illustration and are clearly drawable within the draw options provided by the program. The program uses a similar model of pop palettes to that described above, but in this instance the capacity to create movement in between frames and how they are arranged over a timeline are quite different. In a sense, this is a dedicated production program designed to be fun, while the others are clearly fun programs which incidentally include the opportunity to make animated sequences or stories. From a research perspective, the use of this program was a significant contrast to the others; there are a number of buttons and functions which allow very detailed control over each function and the arrangement of frames within sequence.

All in all, these programs provided an interesting range of contrasts. Complete Animator, Disney and KidPix allow stop-frame animation and focus on creating narrative through the movement of frames. Complete Animator and The Simpsons Cartoon Studio most explicitly invite users to consider duration and time in their sequences. The Simpsons and Batman programs use drag'n'drop techniques; the others require the images to be drawn first. Disney, The Simpsons and Batman all draw on intertextual knowledge and pleasure; the world they offer is related to consumer interests and involvement in the TV shows or films to which they refer.

We will return later (page 40) to a consideration of the relationship between editing and animation, but we want to note here that it was only as the project progressed that we realised there were some inbuilt tensions between our objectives and the programs we chose. Wells (1998) has outlined some of the differences between cartoons, comics and animation, and it is fair to say that some of the confusion between these genres or forms was equally present in our work. There is clearly an overlap between learning to animate and learning to edit. Equally, the boundaries between cartoons, comic book-style animation and animation itself are frequently blurred. At times, the fact that Batman and the Simpsons invite users to make cartoons does enforce a different perspective on how we make sense of children's attempts to edit and it is important to acknowledge these elisions across media traditions.

We worked in the school for one afternoon a week over the whole term, spending five weeks with Year 5 and four with Year 1. The school had distributed its IT resources to each classroom, so we took over the library for the afternoon, rearranged the tables and carried the machines from the classrooms into the library. The school was equipped with Apple computers (Performa 5400s), but the IT coordinator and the head teacher also lent us their Toshiba

portables on which we ran Complete Animator. For the Year 5 class, we ran six groups, including two Complete Animator packages; for Year 1, we also had six groups, but here we used two machines running the Batman program. We wanted to offer a similar experience to both age groups, not only to identify possible progression between these ages, but also simply to offer us comparisons. Inevitably, however, in practice we had to frame the teaching differently.

We introduced the project to both classes as work ‘making stories with computers’ and, on the whole, the classes saw this project as a computer-based activity. When we saw the children around the school, they referred to us as ‘the computer teachers’. We spent the first session with the groups showing them how each program worked, but allowing them to experiment with the programs. In reality, this meant we were in a support role, answering technical questions or sometimes demonstrating aspects of the program. We then asked the students to plan and make a narrative or story, or film which they could ‘tell’ using the software to which they had been introduced. The content of the product we left for them to determine, given that they would interpret the constraints of the software in different ways. In other words, the pupils’ ‘brief’ was deliberately quite broad: we did not want to predetermine their assumptions about what the software was ‘for’.

Year 5

The teacher divided the class into same-sex mixed-ability groups. Our experience of work with media technology suggests that same-sex grouping can provide constructive environments in this context. The pupils worked in the same groups at the same machine for the following two weeks. At the beginning and end of each session, the whole class looked at work in progress and discussed some of the issues or problems emerging. We stopped for a short exercise break halfway through the afternoon for health and safety reasons.

At the end of the third week, the groups had finished their first product so we moved the groups to other programs. As the types of programs we had on offer were markedly different, we tried to offer the children complementary experiences. The KidPix, Complete Animator (x 2) groups swapped with Batman and The Simpsons and Disney. One member of the first group stayed with their program to act as a peer tutor when the groups moved round. This provided some interesting discussions, although it may have influenced the kind of product the second group made on each computer. Again, we used the beginning and end of each session for the students to talk about and share their work. All the groups made something during their time on each program. As we shall see, however, this did not always mean that they produced completed narratives.

The Unit of Work

The Researchers’ Role

Year 1

We had intended to use a similar structure for the work with the Year 1 class. For a number of reasons relating to how the Year 1 class responded to the challenge of this work, this was not possible, so we modified the structure as we went along. Right from the first session with Year 1, we used students from Year 5 to act as tutor assistants. Each week, six students from the Year 5 class helped us working on each machine with the younger children. Although it had not been our intention to investigate the pedagogy of teaching and learning with computers, having the Year 5 students in this teaching role did enable us to reflect on this process. It also allowed us to use the Year 5 students as 'informants' interpreting the work of the younger children.

The Year 1 class took a play break toward the end of the afternoon (at 2.50 p.m.), so rather than reconvene for a final 20 minutes at the end of the day, we finished these sessions at the earlier time. This meant that the Year 1 sessions lasted for 1 hour 20 minutes, unlike the full 2 hours offered to the Year 5 class.

Our aim of gathering the students together for group discussion and sharing of work was also more difficult to manage with this age group, so we curtailed the time spent on this activity, as it seemed to cause more problems than it was worth. Equally, the children were unable to sustain work on one product for more than one session and, as we shall discuss, found the challenge of group work more problematic than their older counterparts. For these reasons, we moved the groups around in the third week, using the same principles as with the Year 5 class; however, in the final session (week 4 in this instance), we arranged for the children to work in pairs for half the session, then swapping round with the other half of the class, in order to allow a different and more sustained experience.

Although we had asked the teacher to divide the class into mixed-ability groups, as with the Year 5 class, it is not quite so easy to discern what this actually means with this age group and we were left with impression that the groups had been divided by ability or on the grounds of social maturity. Of course, this may have been just as appropriate or meaningful from our point of view. The Year 1 children were also divided into mixed-sex groups, although, as we shall see, the fact we ended up with same-sex pair group work rather proves that gender as much as group size affects children's learning at this age.

3

INTERPRETING
THE DATA

We effectively ran the sessions for the pupils, although the class teachers were present and also exercised a supervisory function. We recorded a large portion of the sessions on video, albeit in a haphazard fashion given our dual role as teachers and researchers. Although there were a few times when this filming actively intruded on the students' work, the fact that we were a familiar presence in the class made the filming relatively unobtrusive. Filming children at a computer screen from behind is an interesting challenge because it helps to have the on-screen actions at the same time as the children's conversation or response is recorded. Goldman-Segall (1998) offers helpful advice on videoing in a classroom situation, but without additional resources to plan and capture learning the video can act as a rather random collecting device. The four hours of footage we have is useful in re-creating the atmosphere of the classroom and there are some very interesting sequences, which we draw on later in this report, which detail a number of learning transactions. We also videoed all of the finished products made by the students on the computers, often at the end of the sessions when some of the children were helping us tidy up. This provided an interesting number of informally gleaned observations and, we think, is analogous to focus or small group discussions about the project.

In addition to the video, we left tape recorders by some of the computers for some of the sessions and collected any additional paperwork carried out by the students for this project. Whole class discussions were recorded or annotated by one of us. After each session, we made extensive field notes as we reflected on the day's work. The following discussion is based on all four kinds of data: video footage, tape recording, pupil data and fieldwork notes and reflection.

The audio tapes were transcribed. The video is more complicated to interpret (see Hodge and Tripp, 1986; Goldman-Segall, 1998). We made notes on the video transcript, but, as with the audio tapes, we have not made any extensive codings of the material (see Buckingham, 1993). As with previous research in media classrooms (Buckingham and Sefton-Green, 1996), we paid attention to the socially constructed nature of the discourse in the classroom (see also Edwards and Mercer, 1987). We do not view

The School Context

children's utterances as a direct insight into their thought processes, but as a result of the context in which those utterances were produced and as part of the social dynamics of the situation.

This short section gives an overall impression of the school we were working in before moving on to consider some of the data pupils provided us with regarding the kinds of software they were interested in or had access to out of school.

The School

The participating school is situated in Muswell Hill, North London, and has a mixture of pupils drawn from diverse catchment areas. These range from middle-class suburbs to modern redbrick council estates. The ethnicity of the pupils within the school is equally varied and the classes we worked with broadly reflected this mix.

The school was enthusiastic about making use of ICT within the context of moving image media. A number of staff members expressed a wish to have the project run in their classes and during our visits to the school, as we moved computers from classrooms to the library area, these teachers were interested to hear about general progress and the ideas which underpinned the research.

Pupils' Prior Experience with Animation or Editing Software

During the first session, we also took some time to explore briefly the children's previous out-of-school IT experience. The Year 5 class—which was made up of 13 girls and 14 boys—were asked a series of questions about their home use of computers and various software packages. Overall, 15 pupils had access to computers at home. This group comprised 7 girls and 8 boys. When asked whether they had ever completed work of this sort before—i.e. storymaking/animating—9 children said that they had. When asked to indicate what sorts of packages they were using at home, a varied list emerged:

- ▶ Paintbrush
- ▶ Themepark
- ▶ Lion King Animated Storybook
- ▶ Wallace & Gromit
- ▶ Simpark
- ▶ Printshop
- ▶ SimCity

While not all of these packages could be said to incorporate animation facilities, there is a sense in which each of them invites the user to construct and edit images. These images do not necessarily tell a story (Paintbrush, Themepark, Simpark, Printshop, SimCity), but the fact that children saw them as linked to the project suggests that they picked up on the notion of image

construction and manipulation, essentially the particular visual discourse we were interested in exploring.

Similarly, the Year 1 class of 30 children indicated a high level of home computer use. In response to the question 'Do you have a computer at home?', 20 children said they did and, of this number, 18 were allowed to play on the machine unsupervised. There were 8 children who played on their computer with a parent/sibling/friend. A number of children in the Year 1 class (7) did not have access to a computer, but did use a PlayStation or Nintendo 64 games machine. The range of software used by the Year 1 class out of school reflects their widely differing tastes and cultural practices:

- ▶ Jolly Postman
- ▶ Little Mermaid Storybook
- ▶ Adi-Boo
- ▶ Drawing
- ▶ Paintbox
- ▶ Musicmaker
- ▶ KidPix
- ▶ Quake
- ▶ Doom
- ▶ Terminal Velocity
- ▶ Ray-Man
- ▶ Medieval Role Play

Clearly, the majority of pupils in both classes were involved in the culture of computers and/or gaming in their out-of-school practices and their knowledge and understanding would inevitably influence the ways in which they interpreted the software we brought into the classroom. The responses they gave to our questions certainly confirmed for us that the kind of work we wished to undertake would have a resonance for the children and speak directly to the cultural interests they were already developing out of school.

4

INTERFACES

▼ The process of editing moving images is inextricably related to technology. Film is the movement of still images, cut or spliced together at the rate of 24 frames a second. This creates the illusion of real-time movement in real spaces. At its most basic, the editing process for film involves cutting up strips of film and sticking them together in the desired order. This allows film editors to see the edits or joins between sequences, and the length of the film strip they are working with gives an indication of the duration of the sequence. On the other hand, video editing characteristically offers the editors a two-screen set-up, showing the source film on the left-hand screen and the edited product on the right. Editors select 'in' and 'out' points from the source film and then copy it onto the right-hand machine at the desired 'in' point. Editors cannot 'see' the duration of sequences they are working with in the way film editors can—although the time code obviously records the length of time. Video editors have to learn by experience what an edit looks like in context, and by playing the edited sequence back to themselves, whereas traditional film editing allows the editors to see the edit at the level of one frame joining the next.

Non-linear editing software draws on both of these traditions. It is important to note that the actual technology of non-linear editing—that is, combining digitised film sequences—does not in and of itself require either of these modes: the computer interface is merely a metaphor (Laurel, 1993) for the editing process. Software designers, however, have obviously used the technology editors are familiar with as a basis for their programs. Thus Adobe Premiere uses a timeline and the 'film' is shown as a series of frames along the timeline. On the other hand, the Avid system uses the two-monitor set-up as a basis for its program, replicating the source/edit structure inherited from video. There are obviously a huge number of differences between non-linear editing and film and video (Buckingham *et al.*, 1995, ch. 3; Thompson, 1994; Stafford, 1996), of which the range of special effects (filters and transitions) and capacity to experiment are the most salient. This section, however, will focus on how the children used the different metaphors offered by the range of software we used, in order to explore how each interface supports the process

of editing. It is important to bear in mind that these children had not had any previous experience of making moving image media and thus the traditions inherent in the software discussed above would have no relevance for them. Equally, there is no inherent technological reason why the editing process needs to be represented by either of the models which have dominated the process in the past.



The Complete Animator and KidPix programs explicitly offer the idea of frame-by-frame animation. KidPix lays out the frames as series of lorries—though what this might suggest is difficult to fathom—and does offer the possibility of altering the duration of a frame and the kind of transition between frames (wipe/fade etc.). There was little evidence in any of the groups who used this program that they were interested in this facility; however, what did surprise us was the fact that the first group (of Year 5 boys) who used the program immediately saw its possibility as a tool for stop-frame animation. We had introduced the SlideShow facility in KidPix as offering the possibility to make moving image narratives, but had refrained from suggesting that the narrative had to be constructed at the level of the individual frame. Indeed, Parker's (1998) study of Year 4 children using this program suggested that they used the 'lorry' not as a frame in a moving image sequence, but as an illustrative scene from a narrative. The Year 5 boys in our study drew a footballer in the first frame and worked out amongst themselves that the next frame should show continuous movement and so on. Although they did not complete the sequence, the intention is clear enough.

It was not clear why they interpreted the interface in this way. While a cursory look at their work suggests they used the program 'correctly' and discovered stop-frame animation, a more considered evaluation of their work points to other factors at play. First, although the sequence they made demonstrates continuity of action, the 'character'

Figure 2.1 Year 5 football sequence

The Frame

Figure 2.2 Year 5 KidPix sequence (girls group)

does not move from facing the camera. He is not re-framed or scaled in size. When watching the sequence with the whole class, some of the students commented that the duration of each frame was inappropriate, but they made no attempt to affect time during the making of their sequence. Describing the character's actions—lifting the cup—as narrative is also stretching a point.

We would suggest that the governing principle of using this interface to construct a narrative was in fact the social conditions of the group. The boys enjoyed making the Arsenal footballer and the accompanying talk indicated that any narrative depth to the history (lifting the cup) was really carried by the prevailing discussion, rather than the moving image narrative. The boys were very focused on an equitable division of labour and the fact that the main image could be reproduced and altered to suggest movement meant that they could transform the production process into a Fordist factory line. In fact, they even used their watches to time each student's turn and it is not unreasonable to suggest that they decided on the kind of story they ended up with simply because it offered a narrative so easily managed by group production. The success of this group's work clearly influenced the other Year 5 narratives using this program and they modelled their work (see figure 2.2) on the stop-frame process. By contrast, the Year 1 students did not really succeed in using this program to make a coherent narrative and, as we discuss below, homed in on other visual aspects of the program.

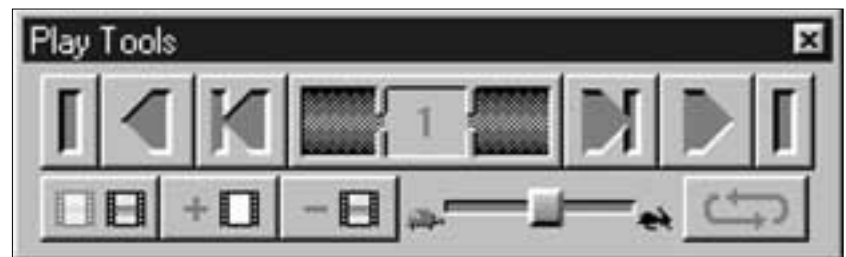


Figure 2.3 Complete Animator control panel

Figure 2.4 Spaceman sequence from Complete Animator (Year 1)

In the Complete Animator program, the individual frame is given priority as the key unit in making narrative. This program uses a number of, what might be called meta-level devices, such as the control panel (figure 2.3). By this, we mean the use of icons which indirectly represent the filmic process and which rely on users' understanding of the software conventions to apply to the editing process.* The Simpsons uses a timeline to perform this function. Other programs, especially those aimed at the younger age market, try not to incorporate such design features as they suggest that users need to understand software conventions as well as the editing process to be able to make sense of them.

Although we did not get the impression that any of the students failed to comprehend what they had to do with this program, there were very few sequences produced by either age group which suggested that they understood that movement and duration in narrative should be produced frame-by-frame. In fact, and counter to what we might have expected from younger children, only one group of Year 1 students produced a sequence (consisting of 3 frames) in Complete Animator which showed they understood how to utilise the idea of movement with stop-frame animation (figure 2.4). In general, the idea of using the frame as a moment along a film strip was, even if it were understood, not used by these students—although the problem may well have been one of production discipline, rather than cognitive ineptitude. In other words, it requires a lot of repeated labour to produce the effect of movement. The fact that



* In the subsection 'Planning' on pages 45–7, we refer to this distinction between meta-level and intuitive software in terms derived from narrative theory (Rimmon-Kenan, 1983). Software which draws attention to the act of narration is akin to the notion of 'discourse'; software which naturalises or effaces the methods of its construction resembles the notion of 'story'. While we would not claim an absolute validity in this comparison, it proved helpful to us in teasing out how the software actually works on the level of making narrative.

this did not happen is not absolute proof that the students could not understand the process.

The Disney program also uses the idea of frame-by-frame animation, but it sets out the frames as a sort of chart (like the KidPix lorries), rather than a sequence. None of the children, from either age group, interpreted this program in the way it is intended. They all focused on the frame as a scene. As we discuss below, editing visual narratives sometimes takes the form of making significant scenes from a narrative, rather than true moving image narrative. This is not to suggest that there cannot be movement within scenes (see the discussion of Batman below), but that the interface seems to have encouraged this mode of narrative construction. It would seem that these interfaces, in and of themselves, do not promote the facility to make moving image narrative at the level of the frame.

Time

As many of the students commented in group discussion, the sequences they made were too long or too short. It is perhaps predictable that it took presentation to a wider audience for the makers of these pieces to realise this, as duration is quite typically something to which one is more sensitive as an audience, rather than as a maker. Indeed, learning to internalise the viewer's perspective is an important lesson for all creative production. However, here we want to explore how the interface supported or hindered the makers' awareness of time. The Simpsons and Complete Animator were the only programs which used extensive visual representations of time.

As already mentioned, The Simpsons has a timeline showing the number of frames and the capacity to move around the film, frame-by-frame. The editing table also uses the icon of a stretched or squeezed film frame to denote changing the duration of a sequence. Complete Animator uses a numbering system as well—the control panel shows the duration of sequences through a counter attached to the image of a reel of film. The fact that both of these programs use imagery derived from film (and, equally, the other programs used film terminology, even the phrase 'film' in the Batman program, for example) shows how software designers imagine the concepts of editing are related to moments in the history of specific technologies. It is unclear how the students interpreted the use of these icons: if, for example, they do not know about film, what sense do these images make? There are few references in either the video or taped discussions to either of these time devices which make explicit how the children used them, so our understanding of the students' work here is based on our reading of the products.

Here again, as with our discussion of the boys' KidPix work above, it is difficult to concentrate on the one factor to the exclusion of others. We can see that The Simpsons and Complete

Animator products show very little use of time. The Simpsons scenes seem to meander on (both age groups) with attention to drag'n'drop features, such as Bart mooning. It is probable that the computer used for this program could not really cope with the software (not enough RAM) and actions were often unwieldy. The interface did not appear to respond immediately to keyboard/mouse instructions. This may have slowed the character's actions and detracted from directing the children's attention to the effect of duration. On the other hand, this was not an issue with Complete Animator, but here we would suggest that this was such a demanding program that duration appeared to be of secondary import. This implies that programs can, in effect, prioritise activities in order of importance and that duration would not really impinge on students until they had learned to cope with other issues such as constructing action. It took exposure of the products to an audience to really hammer home the effect of time and again this kind of learning factor is, to an extent, independent of the program.

The fact that the frame-by-frame control in *The Simpsons*—which is highly visible and, it seems to us, intuitive (the edit point can be moved by the mouse)—was not used by the students also points to the ways in which the unit of the scene was perhaps more significant than the frame. This carries its own rules about duration. This is very similar to the *Batman* program. In *Batman*, the students selected background and then used drag'n'drop animation sequentially. That is, *Batman*, might 'come in', then *Catwoman*, followed by a third action and so on. Neither age group would change the background, perspective or point of view between any of these actions, leading to a form of narration of movement within scenes, with the scenes occupying key moments in the narrative.

Students focused on the sequence of actions in this process (*Simpsons* and *Batman*), rather than their duration. Indeed, narrative was constructed through the relationship between these actions—for example, who came from where; who threw nets etc. at whom. Unlike *The Simpsons*, the duration of actions in *Batman* is governed by how long the user holds down the mouse when effecting drag'n'drop movement and there is no capacity to represent duration. (Even *KidPix* shows the duration of frames in seconds—a facility that no one seemed to use.)

One interpretation of this attention to the actions within a scene is that children learn to construct narrative through building actions around key moments. Duration, it would seem in this context, is less salient than action itself—although whether this is true for all children of this age remains to be seen. From a film-narrative perspective, the process is more akin to making tape-slide presentations (effectively the kind of narrative offered by *Picture Power* and other kinds of media education activities that do not use moving images). Whatever the interface, it seems as if this

mode of construction predominated, suggesting that making moving image narrative out of key moments is how children learn to construct narrative. It would be interesting to compare their writing from this perspective to see whether children seem to visualise, or stage, key actions within their narratives. In other words, the kinds of observations we might be making about their use of frames or time should be explored by comparison with their fluency in making narrative with text.

For some of the Year 5 pupils, chronology was a less important factor in the cohesion of their narrative. However, where this was the case there was often an accent on other visual cues to help spectators—more considered use of spatiality, colour or pattern, for example, which we will discuss in a moment. For the majority, though, the logic of ‘time’ was a guiding structure for the often free-associated ideas and images concocted through a sort of mental role play, an internalisation of the sorts of unspoken playground rules children so often use in fantasy games. The temporality of most concern to the majority of groups was that of the story itself, not the specific mode of discourse they used to convey it. So, it mattered little whether the discourse time was 10 seconds or 10 minutes if the sense of story time was strong. Yet, during the process of sharing finished stories with the whole class, feedback from the ‘audience’ would often include judgements on the apparent cohesion, or lack of it, of story time, as evidenced in this excerpt from a transcript of video footage:

B1: This is where they start telling the story ... What they're trying to say is that Riddler stole some money and ... he's got bombs trying to blow it all up now ... the evidence ... got Batman and Robin while they were trying to get him ...

B1: Then they went right off the story ... started doing that for some reason ... and then they started off the story again ...

B1: ... they said that's meant to be Riddler without his mask and everything ...

B2: It's quite good.

Continuities, Realities and Causalities

The preoccupation with an internal narrative logic of time on the part of the pupils was mirrored by their debates over probability and likelihood of events within their stories. For a series of events to link together, a group had to satisfy itself ‘internally’ that there was a viable thread of motivation or reaction between scenes. Whether or not this thread was visible to outsiders depended upon a whole range of factors, including the particular software package the children used, their ability to work as a group and the level of control over the editing process. However, each of the groups that exhibited a sense of narrative within their work made the issue of causality central to the cohesion of their story. It appeared that a story could only be seen to hang together as a narrative if the

group shared an understanding of the explicit or implicit links between scenes.

G: *Batman was hiding. I know, let me get it.*

G1: *Not Batman when he's tied up.*

G: *Batman was tied up in the tree.*

G1: *Don't do that.*

B: *They hooked him in the tree.*

G1: *I'm telling you're messing it up.*

G: *No I ain't.*

[Silence.]

G1: *Where's Batman?*

G: *There he is?*

B: *You should get a bomb, a bomb yeah, right there, and he's walking away and then the baddies go down there and then we could write that the baddies ... down there, okay.*

The frequency with which characters appeared on the screen was perhaps an index of how real they were to the group as it worked on developing the narrative. For example, the Year 5 group of boys that worked on Batman and Robin Cartoon Maker were motivated by the fact that, within the defined context of that package, certain realities were already in place and could be taken for granted both by them and by their audience. Everybody knew who Batman and Robin were, they knew *what* they were (i.e. superheroes) and they also had some understanding of the context within which the characters operated—Gotham City, sets of recognisable villains, a series of familiar vehicles and gadgets to make use of—and these 'givens' made narration easier. Even where the movement between scenes was difficult to interpret in fine detail, there was at least an underlying cohesion made possible through the acceptance of the role of the main protagonists featured in the software. Scenes would often be constructed in a particular order—background, main characters and some reaction to or by these characters—thus creating stories in an improvisational way, but grounding this free association within the context of known fictional characters which brought with them a set of histories and realities.

This was not the case with all the packages the groups used. KidPix, for instance, while offering a set of images or 'stamps', did not have particular characters who were already invested with specific meanings. Whether the group chose to use the pre-set images or to design images from scratch using the drawing facility, they were obliged to create meaning and context for whatever they created and this made narration slower. Cohesion between frames was grounded in the replication of a main character that was identifiable as a type—as we have shown, the main examples included a football supporter and a fairy. The repeated use of these characters gave the short narratives a sense of causality, though the originality of the creations made through KidPix and other

packages not tied to an established cartoon series meant that invariably they were less complex than the Simpsons, Disney and Batman stories.

Where the preoccupation with continuity, reality and causality was least strong, the groups tended to be interested in exploring the pleasure of the moving image icons at their disposal and to enjoy the level of control they had over these icons. The Year 5 group of girls that worked on The Simpsons Cartoon Studio created a lengthy narrative which made little sense as a story, but which had evidently allowed them to explore the various features the package had to offer.

B1: *That's the one that you do in the swimming pool.*

B3: *Which one's for walking?*

B1: *You can do him driving a car*

B3: *No, not now.*

B4: *There's him?*

B3: *No, that's too fast.*

B4: *That?*

B3: *Yeah that's it.*

G: *If you want to edit a person you click on the person ... you get the ... [muffled] Start there. Make him walk, make him walk.*

B3: *Take your hands off the screen and look what you've done on the ... [Muffled.]*

B4: *He's walking.*

[Muffled.]

G: *If you want to go back, you go to here. Do you want him in the bin?*

B4: *No.*

G: *Do you want to do it again? You could send him, if you want him in the bin. You press that. You want him again?*

Here, then, the weighting given to considerations of story and discourse is reversed, with the realities of the discourse taking precedence. This should come as no surprise; as with any subject area, pupils will approach a task with a number of different learning preferences and styles. The inclination to come at narrative construction from the perspective of either story or discourse may simply be a reflection of such preferences.

Size, Scale and Drawing Tools

We have already touched upon the construction of actions, either between frames or within scenes, and how the children made movement. Here we want to discuss the use of sizing or scaling tools, which allow users to create perspective, crucial to the *mise en scène*; and the use of tool palettes for freehand drawing. Like the representation of time, size or scaling uses a meta-level symbol, usually tiled mountains. However, whereas the representations of timelines seem to have made little impact on these children's work, size, especially for the older children, was important. They were always keen to resize characters within the frame and used



Figure 2.5 Image from Disney to show use of perspective in story

perspective between characters to construct story (see, for example, figures 2.5 and 2.6). Size was less relevant for the younger children, but we would suggest this needs to be understood in the same ways we might comment on drawing or even play with toys, where scale and perspective are clearly features associated with realist conceptions of narrative, and less important for younger children. Like the comparisons with print narratives, we need to see this making process in concert with work in other domains.



Figure 2.6 Image from Batman to show use of perspective in story

As the older children noted, the programs themselves offered different possibilities; the younger children did not make explicit comparisons between software. Both groups, however, commented on the look and feel of the drawings. Although we had not particularly been interested in this dimension to the software, given our concern with editing, the children were very focused on the visual styles of the programs and the drawing capacity on offer. From this perspective, the Disney program, probably the least successful in terms of the opportunity to make narratives, came into its own. It offers a range of different drawing options, using a range of textures, colour and visual tone. Again, like the observations above about the use of software design metaphors being modelled on prior technologies, the ‘pens’, ‘brushes’ and so on of this and some other programs use the implements associated with the plastic arts. The Disney program also allows users to render characters or backgrounds in a variety of textures and this is an innovative feature associated with the digital arts.

The younger children were probably more interested in the fact that it is possible to draw in nearly all the programs (KidPix, Disney, Batman and Complete Animator). Indeed, many of them were possibly more interested in drawing and experimenting with the mark-making process than they were in constructing narratives. The younger children were fascinated by the fact it was possible to animate drawings, producing a ‘Wee Wee Chicken Pox Batman’ movie, so called because of the appearance of spots over the screen, and their work on the Disney and KidPix programs was characterised by not moving to the image-construction phase. The interfaces of these programs clearly encouraged playing on the computer in this way: making the images was as pertinent a way of constructing narrative as putting images in sequence. Indeed, editing requires the putting together of prepared images or sequences, and there is a clear order to these activities, especially in the Disney, Complete Animator and KidPix programs. Batman and The Simpsons allow users to make up stories and moving image sequences at the same time. The issue here would be to see how children made moving image narratives once they were more fluent and accustomed to working in these programs.

The Interface as Co-worker

One feature we noted during the lessons was the talk surrounding the making process. We will discuss this in more detail later in this section; here we want to note how the students co-opted the interface as partner in their work. The key observation we made watching the children at work was that the actions of making events or character or sound happen at the computer transformed the computer into a ‘live’ participant in the making process. Often narrative was not carried by the completed story, but ‘performed’, as it were, when the computer made it happen as part of the story being told by the children as they worked around the computer.

The issue here is that, for these children, making narratives was not just about producing completed texts, but also a dramatic enactment, carried out by the children's talk and computer-made actions in partnership. The following excited outburst by a Year 1 girl gives a sense of this performance:

G: *No. Because if you want it, you have to finish it. Get that man's car there. No, I'm taking it away. Get Batman's car like that, put it there. I'm going to get Robin's bike now. Robin's bike with no one on. Do you like it?*

Equally, the following transcript of a group of Year 5 boys describes a series of actions. There is no sense of them following a premeditated story, but a choric effect of children making up a story as they go along, very reminiscent of children's drama work. Here the computer becomes a partner in this process. As the actions are made on screen, so the story is fleshed out and performed for the participants.

B3: *Put Batman running down the stairs.*
 B2: *No, he's sleeping. Do Robin rolling down.*
 B: *Why don't you do [inaudible] ... and then that way.*
 B3: *Do Robin rolling down.*
 B2: *For the last ...*
 B3: *Do Batman rolling down.*
 B1: *I'm going to do this guy.*
 B: *Do the guy flying.*
 B3: *Do him walking down the stairs and Batman kicking him.*
 B: *Do him flying.*
 B2: *He can't walk down the stairs.*
 B: *Remember small.*
 B2: *He can't walk down the stairs, can he?*
 B1: *You beat him. Put in that, man.*
 B3: *Put him coming down the stairs.*
 B: *Yeah, do that. Do that.*
 B1: *What gun?*
 B: *There's a girl with a gun. There, look.*
 B3: *Do that. That's wicked.*
 B2: *Do her walking across here.*
 B1: *No, do her there.*
 B2: *And Batman there.*
 B: *Yeah, do her there.*
 B3: *No, no, it's too big. Too big.*

Although there is some sense of aesthetic reflection ('Too big.') and evaluation ('That's wicked. '), it is mainly the sense of live action ('There is a girl with gun. There, look. ') which dominates the flavour of this talk. It is not so much the specifics of the Batman interface which carries this practice, more the manner in which students can use the animating powers of the computer in this way.

5

ANIMATION
AND EDITING

As we observed children at work in the classroom, we were increasingly aware of how problematic the term ‘editing’ seemed as a shorthand expression of moving image creation and manipulation. Within the context of edutainment packages, even those with explicit editing features, there was the need to construct a story before editing in the traditional ‘filmic’ sense could begin. Indeed, some of the packages did not have a facility for retrospective editing—the ‘post-production’ phase where the traditional ‘film editing’ process really begins. This gave rise to creative experiences that were based more upon premises underpinning narrative structure and comprehension than editing. This in itself was not a problem, but it raised issues for us about the terminology we might use to describe the work we saw being created, since embedded within narrative construction are processes of alteration and revision which might also conceivably be interpreted as editing.

The classroom observations led us to ask what revisions we might want to make to the conceptions of editing usually associated with moving image media. Is it pertinent to take the media studies model of editing—the skills and practices associated with cutting and reordering frames—into classrooms better equipped to explore non-linear digital technologies? Should we see editing in classrooms as a technological skills-based operation or an intellectual, cognitive-based application, or both? Where do the lines between play and work merge in this context and what are the implications of this for schools and curriculum planners working in an increasingly performance-related environment?

It would be premature to offer any definitive answers to these questions based on a piece of small-scale research. However, we would suggest that there are learning processes at work in the creation of media through edutainment software which feature editing as *cognition*, as well as editing as an aspect form of media skill and knowledge. Moreover, it may be useful to explore this side to editing as being in some way analogous with writing in print media (Sefton-Green, 1998), especially at this time of the ‘literacy hour’, when debates around what constitutes literacy seem to splinter rather than unify our thinking. It may be that this type of work—even where its beginnings lie in unstructured ‘messaging

around' at the computer—could contribute to a more integrated conception of literacy and a curriculum that better reflects the way children and adults communicate at the present time.

In this way, the task we set rather blurs the boundaries between editing, animation and constructing moving image narratives. On one level, this does not matter—we are not disciplinary purists—but it is worthwhile considering whether animation software actively precludes students from focusing on the experience of editing. This question is important for this study if we suggest animation allows students to construct narrative in ways which are significantly different from those which require knowledge of editing. We think this software allowed students to draw on a number of typical film narrative concepts, especially continuity of action, place and time. On the other hand, the software is quite complex and it would be too ambitious to imagine that children of this age would, in this period of time, use the animation software to, for example, construct master shots, cutaways or the shot/reverse-shot sequences so familiar in film and TV narratives.

In effect, this range of software has focused attention on the idea of editing at what appears to be a more 'fundamental' level in the construction of narrative, rather than in terms of the capacity to work at the level of surface detail described above. This project investigates how narrative is constructed and we have considered here, for example, how the unit of a scene is employed. Editing in this context refers to a level of structural composition: the software, in conjunction with the children's ability to construct narrative in visual and textual domains, facilitates and even suggests attention at this level. While we would not suggest that the animation software is a good way to explore understanding of more sophisticated filmic editing conventions, making this distinction does raise the possibility that editing, as a concept, should be conceptualised on a continuum, one with a notion of basic and complex grammars being used by young people during the course of their education.

6

EDUTAINMENT SOFTWARE
AND IMPROVISED PLAY

We mentioned in section 1 that 'edutainment' packages make use of current technologies in ways that purport to offer learning experiences to children in fun and stimulating contexts. Many of these contexts are so different from the kinds of learning experiences today's adults had at school that it has become common practice to question their value as teaching tools. While critical thinking about this sort of software can only be a good thing, there can be no doubt that advances in moving image technology—especially where such technology is linked to computers—have made it possible to offer new challenges to children in classrooms. Even so, it is often the case that teachers and parents are wary of its use in the curriculum (Parker, 1999), and this unease with new software has its own history, one which is pertinent to our reflections on this project.

One of the main features of the children's work with these CD-ROM packages was the way in which their interactions prompted the creation of stories, sketches and pictures which were improvisational in nature, and not dissimilar to imaginative drama. Bromley (1996) has shown how children make structural connections—on the level of plot and characterisation—in response to watching videos, and how these connections often surface in their play and writing. The way in which some of the packages framed their story-making processes had similarities with video/cartoon genres—we are thinking here of Batman and The Simpsons principally—and so specific episodes aired on television often figured in the making of narrative using this sort of package. The following exchange, which took place amongst the group using The Simpsons Cartoon Studio, illustrates this point:

G2: *What ones do you like?*

G5: *I like that one.*

G4: *I watched that one.*

G2: *Yeah, Michael Jackson.*

G1: *It wasn't Michael Jackson. It wasn't Michael Jackson on the stage.*

G2: *He made Bart sing 'Lisa it's your birthday' because everyone forgot about her birthday.*

G1: *My brother's got videos of them.*

G2: *Right, who's going first?*

The making process can be a form of remaking or reviewing segments of TV or video versions of, in this instance, The Simpsons. Alternatively, it might be a looser interpretation of a cycle of stories or themes, using a shared knowledge of character and motivation as a starting point for further improvisation, as in the case of the group using the Batman package.

G1: *Watch what happens. That bit. That could be the fence. That is the front cover, okay. Front cover, to this one again, then get Robin, Robin like that. I hate him like that.*

G: *You should do him and him together.*

G1: *We could do him there. Batman and Robin. That could be the front cover*

G: *Which way?... You have to choose one in this now.*

G1: *Do you want this or this or this or this ...?*

G: *Press number one.*

G1: *Batman like that.*

G: *[Laughter.] That could be his cousin.*

There is an understanding and knowledge of the Batman cycle shown here, but also some evidence of subversion—the jokey use of the cousin—which suggests a different sort of improvisation and reinterpretation than the sort attempted by the Simpsons' group. At the micro level—the placement of characters on-screen and the interaction of these characters with one another—improvisation comes into play in the way children's individual vision of the story is made to fit into the existing work of the group. The conflict between story events that have gone before and events which a particular child would like to see happen forces improvisational skills to move towards a 'best fit'.

B: *Get the other background.*

G1: *You done him shooting people.*

G1: *We don't know where he is, Batman.*

G: *Batman was hiding. I know let me get it.*

G1: *Not Batman when he's tied up.*

G: *Batman was tied up in the tree.*

G1: *Don't do that.*

B: *They hooked him in the tree.*

G1: *I'm telling you're messing it up.*

G: *No I ain't.*

[Silence.]

G1: *Where's Batman?*

G: *There he is?*

B: *You should get a bomb, a bomb yeah, right there, and he's walking away and then the baddies go down there and then we could write that the baddies ... down there, okay.*

G1: *No. I'm telling. You're messing my thing up.*

B: *You see, it does it itself.*

[Silence.]

G1: *Look what I did, I did one of them nasty beasts. It went next to it.*

G: *That was a bomb.*

G1: *I wanted the ocean.*

G: *But that was a bomb. You could bring it. Fire.*

G1: *I'm going to do another bit of fire.*

G: *You could do fire over here. I know you could do a picture of ... I know ...*

As interactions such as these progressed and developed, the placement of characters and the meanings ascribed to them could be seen to be partly motivated by the beliefs, desires and emotions existing amongst the group within the particular working context. Such active collaboration also has obvious parallels with children's fantasy play. The way in which improvised 'playground' narratives develop out of immediacy and quick response to each suggested motivation or action has much in common with the manner the group of boys quoted above developed their collective narratorial voice. It may be that the group work was able to develop within the context of story-making because sets of shared rules and structures embedded deeply within children's readings of narratives in a wide variety of contexts provided enough stability to encourage improvisation. This would certainly reinforce some of the ideas behind recent work into the links between popular culture and literacy practices (Bromley, 1996; Hilton, 1997; Robinson, 1997; Browne, 1999).

The sense of familiarity forged by planning a narrative with known characters that hold a shared history for all group members raises some issues. Through these packages the user enters into an existing narrative stream, an ongoing story the basic elements of which are known through popular culture and which are added to by making fresh plots and stories within the basic narrative structure. This can be both enabling and limiting. Initially, the particular 'givens' of the story construction (that Batman and Robin are 'good' and the Joker and Catwoman are 'bad', for example) can create a frame within which children are able to generate elaborate stories or even subvert convention. Of course, the obverse of this is that the frame can be restrictive, allowing only certain sorts of stories to be composed with a prescribed set of characters and interrelationships. In the case of the groups we worked with over a relatively short period of time, the possible limits of the 'generic' packages were not reached. In fact, the stock characters provided the children with opportunities to add a wealth of contextual detail to the initial plans and this elevated skeletal story ideas into more elaborate tales.

PLANNING

As briefly outlined, after an initial period of introduction to the software packages and some time spent troubleshooting, we moved on to invite the groups to plan and make a narrative using the different programs. Most plans were very basic and took the form of sketches and storyboards. These indicated that there was a progression and development of a story idea, however simple, and at this ‘paper’ stage we could see in all the plans the basic constituent elements of narrative coming together. If we take as an example the Year 5 girls group working on Disney Magic Artist, we can see that there is potential for many story outcomes, but that possible plot choices and/or character interactions are not indicated (see figure 2.7).

At this early stage of the project, the children’s narratives were of necessity straightforward and rarely displayed the depth and variety associated with sets of complicating actions. Indeed, some plans showed no disequilibrium at all—the boy’s Year 5 group using KidPix to make the celebratory ‘Arsenal’ sketch is a good example. This might suggest that the intricacies of narrative, those particular aspects that add a sense of drive forward to conclusion, emerge better through group interaction in this context. The planning lies in the making/performing, rather than

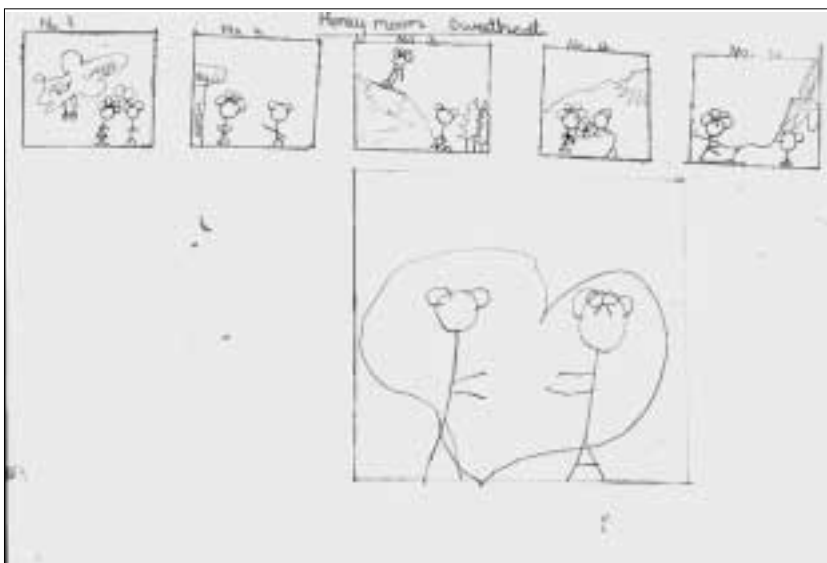


Figure 2.7 Disney storyboard

the preliminary paper stages of sketching/storyboarding. Having said this, the majority of skeletal plans were adhered to in terms of basic structure and so provided an initial stimulus for the groups. A comparison might usefully be made here with the way in which a short verbal 'sketch' or 'scenario' in a drama lesson constitutes a kind of pre-plan onto which the improvised ideas of pupils can be added to form a fleshed-out schema. The pupils' interaction and their consequent generation of collaborative ideas are both plan and product. In this project, the software provided a stimulus and the group work with the interface formed the extension of the paper 'pre-plans'. This collaborative work was far more free associative in nature. We have already seen edutainment packages invite children to learn through play. It was no surprise then to find that many of the features of imaginative play seemed apparent in the children's interpretation of their plans. To take the paper plans for the most elaborate narratives as our example, in this case Batman, we can see how they provide the basic plot, an underlying structure to give the potential story a sense of drive and direction (see figure 2.8).

There appeared to be a parallel between the narratives that were most open-ended in their construction and those software packages that emphasised story over discourse (Batman and The Simpsons); see the footnote on page 31. The narratives made by the children which were guided more strictly by the initial plan tended to be those created on the packages that emphasised discourse over story (KidPix, The Complete Animator and, to a lesser extent, Disney's Magic Artist). The story-based software perhaps encouraged the free-associative style of composition through the ease of character manipulation and editing of mistakes. This user-friendliness was an important factor in establishing a positive collaborative ethos in the group, where it was tacitly acknowledged that things could be tried out and then revised if they did not work.

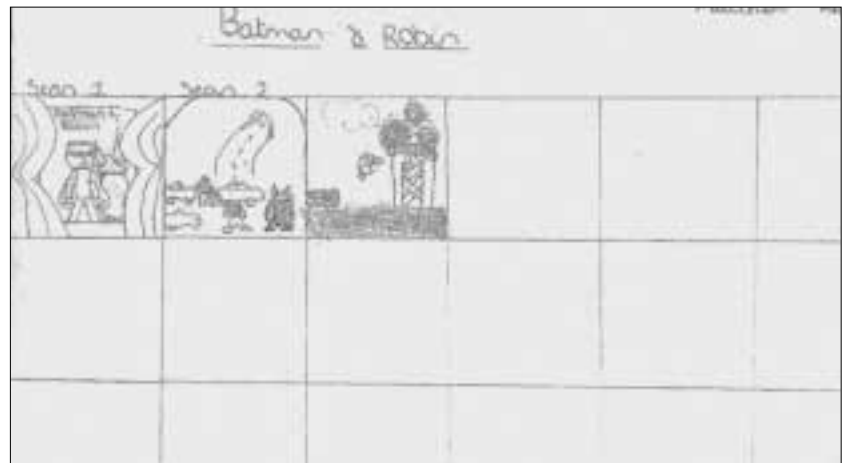


Figure 2.8 Batman storyboard

This was not so obvious amongst the work undertaken on discourse-based software. In these packages, character manipulation was more complex and time-consuming, even if closer to the principles of animation and line-editing than either Batman or The Simpsons. Although progress was slower and the finished narratives less complex, the users had been involved in a more explicit making process, where each stage of drawing and movement had been shown as a constituent part of a greater whole. Stress was laid on notions of 'frame', 'order' and 'time'. This level of construction detail was not so apparent in the story-based packages.

8

AUDIENCES
AND 'GAPS'

As already suggested, the mixture of planned narrative and free associated play fed into finished products in such a way as to create a series of interconnected ideas which were readily interpreted by the authors, but which could require some explaining to outsiders. When the finished narratives were played for the whole class in weeks 3 and 5, feedback was characterised by a sense of missing narratorial links, of there being a 'gap' between the perceptions of the narrative by its makers and its wider audience. Although this is primarily explicable in terms of the children's general narrative competence, the differences between software packages also appeared to influence the children's work in this respect.

While there were certainly a number of factors limiting the flow of each narrative (including time constraints, characteristics of software design and the dynamics of working in groups), we noted, again, a parallel between the perceived 'gaps' and the facets of story and discourse emphasised by each program. For example, the Simpsons package, with its ease of manipulation and embedded discourse construction, encouraged experimentation from the group, a desire to see what the limits of the package might be. This led to story sections in finished narratives which were more abstract and seemingly nonsensical, but which, in their composition, utilised a wide range of features available through the package.

Interestingly, these 'gaps' were not seen as problematic by children at all and were almost universally accepted and understood as by-products of the ways in which the narratives had been produced. Often it was the meanings suggested by the implicit narrative which were exposed by these gaps and not simply the gaps themselves:

B1: *There one is called, I think, blank ...*

B1: *They started off this 'cos I was trying to show them something; they decided to do that. The movie is somewhere; I'm not sure it's this one ...*

B1: *Well, I told them to start doing a story if they wanted to; I'm not sure if this is actually it, but it's one of theirs ...*

B1: *'Cos this is them just doing their pictures at first, and then ...*

B1: This is where they start telling the story... What they're trying to say is that Riddler stole some money and ... he's got bombs trying to blow it all up now ... the evidence ... got Batman and Robin while they were trying to get him ...

B1: Then they went right off the story ... started doing that for some reason ... and then they started off the story again ...

B1: ... they said that's meant to be Riddler without his mask and everything ...

B2: It's quite good.

9

READING, WRITING & MAKING IN OTHER DOMAINS

SOME COMPARISONS

Using each software package to create moving image products required the participating children to utilise a wide range of skills and to draw upon their developing knowledge of communication across a variety of modes. These developing abilities to represent the world and to shape such representations so that they might be legible to others have their roots, according to Kress (1997), in motivated play and its concomitant meaning-making. A child's creation of a fantasy object or the implication of an object through an arrangement of seemingly unrelated artefacts may constitute some of the first steps into literacy. Kress notes how transitory these communicative acts often are, and how that impermanence often leads them to be missed by potential audiences:

Not only were they temporary, swept away by the next order to 'tidy your room', 'tidy up the mess you've made in the living room', they were also constantly being transformed: a tent turning into a spaceship, turning into a house for aliens, turning into an ordinary family setting, and so on, and so on. (Kress 1997, p. 19)

The quick transformation of one object into another has a resonance with the improvisational composition of our students' narratives. Kress's reading of children's use of objects, icons, drawings and other visually interesting material implies that literacy in all its forms shares a common foundation in these early acts of meaning-making. It suggests that the ways in which children communicate—the way they write and read using words, images, sounds, movements and so on—are on one level distinct from one another and on another fundamentally linked. Such a reading has implications for the definitions of literacy in schools and the ways in which a blend of communicative practices might be more effectively taught through variety, rather than specialisation—that is, an exclusive attention to print literacy.

Reading

Reading can be interpreted as either a macro or micro level activity—reading as 'making sense' generally, or reading as decoding of print. The former is an activity every child is engaged in during socialisation and beyond, while the latter dominates the thoughts of parents and educators as children reach school age. The process of learning to read in the traditional sense can be seen as a changing mixture of the two types. There is always a *gestalt* reading—a general understanding or

'getting it'—although it may be that this macro reading is increasingly undervalued. This is complemented by the burgeoning micro level reading associated with the alphabet and print texts made from it.

There is evidence to suggest that the teaching of traditional literacy in schools has often overlooked the kinds of reading children are engaged in during pre-school years and indeed continue to be engaged in throughout their school lives (Browne, 1999). As children interact with popular culture narratives, using them as a means of defining what stories can be, they are engaged in acts of meaning-making not dissimilar to those outlined by Kress. The re-enactment of cartoons using toys, fantasy role-play, drawings of cartoon characters and the repeated viewing of programmes on video are all readings which may form a kind of staging post between the making of objects, using 'what is to hand' (Kress, 1997), and the reading of print. They share elements of Gestalt and fine-detail reading as has been noted by Robinson (1997), and the collaborative nature of much of this meaning-making serves to illustrate how firmly embedded in cultural practice these out-of-school readings can be.

This was certainly borne out by the readings of the children who worked on the Simpsons and Batman software. Their understanding of role and motivation for the various characters contained within the image banks meant that the collaboration was more inclusive, allowing everyone to offer views about possible meanings. Here a Year 1 group begins to explore the software and, in so doing, moves towards a sense of motivation for characters:

B2: *Joker, Joker's better.*

B1: *No, do Joker running.*

B3: *He's got that hammer in his hand.*

B: *He can't run, he can't run.*

B1: *No, no, no, Daniel. He can't run, he can't run.*

B3: *Yeah, do that one, it has to be that one.*

B2: *We should do Batman smaller.*

B: *Don't, don't, don't.*

B1: *Roll him up, no, that's it, that's it.*

B2: *Stop!*

B3: *Then him vanishing and getting into a car, how are we going to do that?*

B2: *Put smoke over it.*

B1: *Whose go is it now?*

B3: *Mine, mine.*

B2: *No, it's Andrew's.*

B: *Put smoke over it, Andrew.*

B1: *Where was the smoke?*

B3: *It was in that one, that one.*

B2: *Yeah, it's in this one. I know it is.*

B: *We need it dark, we need it dark.*

B3: *Do more.*

B1: *There. Vanished into thin air.*

B2: *We should write a bubble saying: 'Where's he gone?'*

B1: *Where's he going? Where did he go to?*

B3: *And Robin coming up to him and Bam!*

Shared cultural dimensions to readings of particular cartoons or films may add considerably to readings in other media, especially print. Pompe (1997) has noted how:

... we are living in the age of the streamlined and 'delivered' curriculum and struggle with shoe-string resources to engage the vast capabilities of children in a curriculum from which we have sidelined passion, playfulness and pleasure, while Murdoch and the big culture machines are being allowed to engage children's desires and command their trust and affection ... (p. 124)

The pleasure children derive from their shared popular culture narratives, stories they tell one another time and time again, reinforcing or negating interpretations and meanings, is certainly lacking in much of the current thinking behind the National Literacy Strategy (Department for Education and Employment, 1997). If the same sense of community and youth culture could be transferred from the reading of moving image texts to print texts, there might be improvements of the type sought by the government. Robinson (1997) notes how the establishment of 'literature circles' in schools provokes discussions similar to those of an informal nature based upon popular moving image narratives. Children begin to retell and predict events within books in much the same way they do with TV programmes. If moving image texts were included within the context of literacy and literary teaching, schools would legitimise children's prior experiences and perhaps foster a deeper critical reflection on both print and visual products. It is not suggested that the reading of moving image narratives can simplistically teach children how to read; however, if we accept that the paths negotiated by children on their journeys into traditional literacy are complex and multi-modal, we should not ignore the fact that the reading of one medium may help to reinforce the reading of another.

Writing

The paths into writing are no less complex than those into reading. Kress has used the term 'motivated sign' to describe the 'interest' which prompts children to persevere with the difficulties of writing. It is the aspect of the letter form or sentence structure of most interest to the child that we can see as representing the particular rule of form they are exploring at any given time. Kress offers two examples of this: the writing of 'Emily' by his daughter, where the letter 'E' had been marked out as especially significant with its high number of horizontal bars; and the comparison between early children's writing in England and Taiwan. Both examples serve to illustrate that even three-year-olds are already shaped by their cultural environment and this is reflected in their writing. What is interesting here is

that the child's expectation of what writing is or can be stems from the interplay of cultural factors. The implications for teaching writing are far reaching, for, as Kress (1997) points out:

We live in a world in which communication proceeds (as it has in many ways always done) in many modes, with language as writing becoming less dominant in many areas of public communication. Thinking and practices around literacy need to adjust to this fact, and become appropriate for the demands and needs of the children who will move into that new communicational landscape. (p. 61)

As writing takes a less dominant role in communication, it is invariably image and, more often than not, moving image which moves in to colonise the space it leaves behind. From that it is but a short step to the emergence of visual elements within children's writing, either in the form of pictures or in a heightened visual language. This was noted as a feature of recent research into children's writing around the adaptation of a story from a print text to an image text (Parker, 1999).

It seems that the visual culture of television, film and the myriad developments associated with the multimedia age are influencing writing profoundly. The interplay of such out-of-school readings that invariably influence subsequent school-based writing was clearly evident in the work we observed as children were grouped around the computers. Of course, in this instance, the writing was not print-based, although pieces of text and/or dialogue boxes were occasionally added. The children were writing with visual icons, with characters, movement, spatiality, scale and the combined editing of all these. Their creations were certainly influenced by the moving image media they were reading outside school hours.

B1: *We could do a Ninja story?*

B2: *Ninja.*

B1: *A Ninja one, like in that other one with that silver suit.*

B3: *The Dark Knight one?*

B2: *Yeah, and there's a Ninja in that one isn't there?*

B1: *So we could do a story like that one. That one was a wicked story.*

While this form of writing moving image media is of value in itself, there is no reason why a series of print-based written activities could not be incorporated within it. There is every likelihood that written tasks within the context of making media will speak directly to children more readily than tasks from the National Framework for Teaching. Bridging the gap between the multi-modal reading children take part in during their pre-school years, and throughout their out-of-school hours, and the reading we wish to introduce to them through the Literacy Hour is an immense challenge. It may be possible to move towards meeting this challenge through making media within the context of ICT in ways similar to those explored through this project.

10

PROGRESSION, PEDAGOGY
& THE CURRICULUM

It should be quite clear by now that the actual unit of work reported in this study refocused our original research questions quite fundamentally. While we started with a series of questions looking at the role of editing, our discussion has really explored the nature of making moving image narratives. Editing is clearly important to this process, but may best be described as a 'subset' of the salient issues under discussion. It may be that a more direct media studies approach—having the students shoot and then edit their own films or videos—would have drawn more attention to the significance of editing, and that the animation programs we used carried with them other issues and concerns. Nevertheless, we both believe that such a project would have returned us to what have emerged as the key questions here: how do children of these ages construct moving image narratives and what relationship does the process of constructing moving image narratives have to their competency in making narratives in other media? In other words, this small-scale study points to the importance of work in information and communication technology (ICT) and edutainment or home computing for the development of young people's literacy, as long as this term is understood in its widest sense. We would argue that this is the importance of this work and that it describes a type of educational activity which should form part of the essential twenty-first century curriculum.

This is not to say that the activity itself could not be improved and this chapter will address some of these pedagogic and curriculum implications. First, however, we want to turn our attention to the question of progression, before making some recommendations for further research and development in the areas of curriculum, software and literacy education.

Progression

One of the least investigated areas of media education is the question of progression, that is, how children might be expected to *develop* their learning and understanding about the media through a structured and relevant curriculum. There are so many questions raised by this issue that it is impossible to do justice to them all in this context; however, the fact that virtually the same assignment was carried out with children of different ages (5–6 years and 9–10 years) forced us to confront how we might address this challenge. Of course, the older children had not had any more experience of media education than

the younger ones or, indeed, necessarily any more ICT experiences, so any progressions we might be able to identify may relate to other kinds of literacy skills or knowledge. How age might play a role in differentiating between children is, of course, problematic. Although it is obvious that we all grow and develop at different rates, the notion that we pass through age-related stages of development is discredited to a great extent. There are a number of studies about children's understanding of the media (e.g. Buckingham, 1993; Davies, 1997) and these do identify broad patterns of development. There are no studies about children's production of media texts and how they might be expected to develop in this area. The attention, in the past decade, towards defining National Curriculum attainment targets at key stages has also resulted in a desire to be able to define progression through objective measures, but this is a business fraught with difficulty (Black, 1997). The Film Education Working Group report *Making Movies Matter* (1999) has an appendix trying to differentiate progression in media education, but does not offer an explanation as to why young people would develop their learning in the ways suggested.

If we look at the evidence gathered from this project, there are some clear differences between the age groups, but equally some similarities. There is also some confusion here where we can neither identify progression nor discount its existence. First, there is no doubt that the older children were able to complete the task we set more comprehensively than the younger ones. This is obviously not surprising, but it makes it difficult to make an assessment of the different age groups' understanding of compositional choices in moving image story-telling. The social context of production was, as we showed in the last section, extremely important in determining the success of each groups' products. Indeed, as we have suggested, the group context may have overdetermined what the students actually made and we discuss this problem below.

Although, in general, the Year 5 narratives seemed less anarchic than those of the Year 1 students, this does not mean that they were entirely coherent in themselves. Except for the Arsenal project, the Year 5 narratives were fairly difficult for outsiders to comprehend. The Batman and Simpsons stories meandered and there were a number of problems with scale, coherence and integrity of camera position. In other words, the more socially 'mature' Year 1 children seemed as capable as the Year 5s of using these programs to make narratives. Certainly it is difficult for the uninformed observer to distinguish between some of the Batman narratives made by both age groups. Indeed, it was the Year 1s who used the most challenging program, Complete Animator, most successfully, albeit only for three frames (where a spaceman took off from the moon—see figure 2.4, page 31). The general absence of sound is important here—despite the fact sound can be added, none of the students really used this option—and it is usually agreed that sound often

determines narrative coherence (Bordwell and Thompson, 1993) beyond visual logic.

We certainly got the impression from the surrounding talk and the bits of paperwork produced between our sessions that the Year 5s were able to articulate their intentions more clearly than the younger children. As we have suggested in the preceding section, the story of Mickey's marriage in the Disney group and even snatches of conversation about Batman give a clear impression about constructing fully fledged narratives. Again, however, this seems to be a feature of narrative ability in general, rather than an understanding restricted to editing. The Year 5s had a much clearer sense of how narratives need to possess internal coherence in order to communicate with readers, and this seemed to us to be a consequence of the ability to imagine the reader beyond yourself. The younger children were less able *not* to imagine themselves within their narratives. Indeed, the frequency with which the Year 1s 'played' with the characters, repeating figures and actions, reinforces this interpretation.

On the other hand, the fact that the younger children were as satisfied with more anarchic productions and took pleasure in the visual displays afforded by the programs cannot be taken as evidence that they had any less of an *understanding* of the conventions of narrative coherence. It merely means that this was what they enjoyed about making products with these programs. What they made may only reflect on their capability to *make* narratives, not necessarily on their capability to comprehend narrative—and, as we have suggested, the making may owe as much to control over social and technical processes as to any discrete ability in moving image narrative. From this point of view, we would suggest that there are many areas of similarity between these groups and that the differences cannot be directly attributed to any specific media competencies. What is more, the social or technical dimensions which differentiate, say, the more competent Year 1 children from their peers and give them a kind of parity with the Year 5s can be attributed to familiarity and experience: such differences can be directly addressed through teaching and intervention, rather than being attributed to simply being older.

There is a second kind of progression we noted throughout this project which relates to the use of animation within the media curriculum. There is a sense in which all of these programs, for all their reliance on the latest digital technology, are backward looking, in that they hark back to a golden age of animation. As we noted in the preceding section, much of their interface design relies on metaphors and practices developed in the analogue era. This is significant in the context of this project because, traditionally, the media curriculum has tended to replay the development of media technologies in the way it structures learning for young people. Thus, many courses begin by analysing still images or photographs and then move onto moving image narratives and finally digital media.

Not only does this model of development *not* reflect young people's cultural use of media technologies, but it also tends to imply a teleological notion of development. In other words, such a curriculum suggests you can learn about later kinds of media texts through understanding how earlier ones were constructed. This has a kind of evolutionary 'common sense' (see McLuhan, 1964; Levinson, 1997), but we would argue that such a linear model of technological development cannot be transferred to an idea of how children might learn to make sense of, or communicate in, the media. We have suggested, for example, that the idea of the film frame may not be that helpful and that animation, itself frequently misconstrued as a kind of a halfway house between photography and film (Wells 1998), does not, in and of itself, help young people understand how moving image narratives may be constructed, even though it invites children to make stories at a basic level.

The challenge here is to develop a model of learning which clearly identifies progression, but which does not confuse other kinds of developments, especially technological ones (Williams, 1974). Progression may also not be that constant or linear. It may be that there is not as much difference between children at these ages as we might imagine or that there are fundamental issues around the capacity to make narrative in general which determine the ability to make narratives in one medium or another. Here, like Robinson's (1997) study of *reading* narratives across television and print, direct comparison of made narratives across domains—the visual, written stories, oral, dramatic and moving image—will yield real insight into how children may develop and thereby what we might expect of them at different stages in the educational system.

The Year 5 work was carried out in groups of four or five. However, as we explained in Section 1, we ended the work with the Year 1s allowing them to work in pairs. Given, as we have discussed, that the social context seemed to exert an influence on the nature of the narratives they made, in that the desire to be democratic, to let everybody have an equal chance, often took precedence over any sense a composite product might make, we need to reflect on how useful group work might be in developing an understanding of the compositional process and, equally, how the software supports or hinders this kind of teaching style.

Group work is very common in Media Studies work with older students. There are two key reasons for this. First, media production within media industries is undertaken by large teams, often structured in a hierarchical mode with a range of specialised functions—light, sound, camera etc. Secondly, media production, like drama, is valued because it is an opportunity for teamwork. It encourages collaboration, cooperation, negotiation, problem-solving and so on. The first perspective is clearly redundant in this situation on two counts: at this age, vocational training is irrelevant and in any case

Group Work and Individual Understanding

digital post-production processes actually mean that job specialisation may be a thing of the past. Indeed, we have stressed on a number of occasions how these programs make a full range of production experiences available to the students. The second argument, that media production facilitates a kind of social education, was supported by our experiences on this project. The older children, particularly, benefited from the opportunity, unfortunately all too rare these days, to work in groups and negotiate with one another.

If, however, the group context shifts the emphasis of the experiences onto social skills, is it an appropriate exercise to develop compositional skills? Indeed, should we be devising forms of media education which develop children's ability to make moving image narratives on an individual basis? We teach them to write or draw as individuals, so should we not also make moving image production individualistic? If children learn individually to make narratives, would this assist or hinder group production, which is, of course, often used in education for economic reasons—on account of scarce production resources? The availability of this software dispenses with that problem. All schools could, in theory, invite all children to make moving image narratives by themselves.

In a sense, this question represents a watershed for media education because we have reached a situation where the software makes discussion about scarce production resources redundant. In principle this means that we could make individual competence in editing a reasonable goal for all children. Our argument here is that such an ambition is broadly worthwhile because it fulfils a central function in literacy education: to make moving image narratives alongside narrative in other media. However, if we individualise editing, as it has been argued society has individualised writing (Luke, 1989), it does set up an interesting challenge. Although it may seem unlikely at the moment that most people will make moving image narratives in their working or leisure lives, a closer look at the ways in which the creative and knowledge-based industries are developing might challenge such an assumption. The same technologies that make individual learning possible are also enabling the moving image production sector to grow and diversify in ways unimaginable only five years ago.

We have touched on the role of constructing moving image narratives within a broad-based literacy education, and we would also suggest that access to the creativity afforded by moving image media is increasingly important for growing numbers in our society. We would also argue that making media is a crucial way of developing critical understanding about the media and that this is centrally important for all modern societies. Nevertheless, just because moving image composition is now more accessible does not mean we do not need a rationale for introducing it into the curriculum. There is an urgent need for further research to establish whether there is such a rationale.

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CURRICULUM
ISSUES

This activity was devised in order to allow us to gain an insight into the children's understanding and ability to make moving image narratives. As far as we could ascertain, the children themselves saw this project as an activity with 'computers'. They were not used to open-ended 'creative' projects or this method of working in small groups. The fact they enjoyed the project could well be due to these differences, although the software itself was also motivating. It was clearly exciting to use and, for all the criticisms we might be making, it was, in general, very suitable for both age groups, in that it supported purposeful activity in an accessible way. While our overall aim was to look in detail at the children's work, we have some observations about the curriculum implications of this project.

While we left the choice of product open, the children might have benefited from having more constraints set on their finished work. We could have specified the length, target audience and so on of what they were making. More formal opportunities to show work to peers and respond to feedback would also have been a good idea in helping the students see their work from a more objective viewpoint. More structure in terms of setting targets for work during each lesson and help in teaching the children to learn how to make the most from the group situation—teaching them to use the group resource—would also have been a good idea. The younger children certainly needed to address the social learning provided by the group context more directly and also needed help in negotiating with each other.

This kind of work might also be used profitably within a larger scheme of work. The project was set up as a one-off experience. Obviously, not only would students returning to this technology on a regular basis build up their skill and confidence with the medium, but also comparing it to, say, the educational software such as the BFI's Backtracks discussed in Section 1 or even programs such as Premiere would help develop children's compositional and editing skills. We certainly think that this kind of activity is a good preparatory unit for children making their own video. Returning to this software would then be an interesting experience, as students would be able to deploy more direct film knowledge back into their computer-based moving image compositions.

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The key issue, however, is to develop this kind of activity in a package which makes teachers and students recognise its place within literacy education. As a discrete unit of work in a subject called media education, we would want to focus more explicitly on the study of media languages. Within the subject of ICT, the emphasis would fall more on the transferable skills required to manipulate the programs. It would also give a cultural and expressive function to ICT activities, which is an important correction to the current emphasis on information retrieval and manipulation. However, if, as we have suggested, the main educational value of the activity lies in its place within a spectrum of narrative-making activities, then this is where we argue that ICT education is beginning to transform the traditional curriculum. Again, we recognise that, in the current climate, with an emphasis on traditional and discrete skills, this does represent a considerable challenge. However, finding a way to integrate moving image narrative within the other narrative forms taught and experienced at school must be a priority if the educational system is to address the salient cultural experiences and pleasures of today's children.

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THE SOFTWARE

One obvious curriculum challenge posed by most of the software we used is that it determines the content of the narratives made by the students. This has positive and negative implications. On the one hand, the activity obviously connected with the children's cultural experiences: the Batman, Simpsons and Disney programs were all enjoyed and used imaginatively in rich and rewarding ways. It could be argued that the repertoire of stock images and characters restricted storylines in that it forced the children to develop generic plots. On the other hand, we could equally suggest that the security offered by popular genres actually allowed students to develop stories, that such constraints supported and structured their narratives. This is a facet of a broader argument about the role of genre in developing writing (Kress, 1994). There is similar debate about the role of clip art in developing students' art when working with computers (Sefton-Green, 1999, ch. 12).

This issue of genre is only part of the picture when it comes to evaluating how useful popular commercially available software might be in educational contexts. Our observation over the period we worked in the school was that the more familiar students were with a *variety* of software, the greater their understanding of the concept of editing became—although, obviously, this is not solely due to the software. From this point of view, there is no ideal software which needs to be invented to 'solve' the problem of how to teach editing. We would criticise the use of analogue metaphors in the interfaces we used, but, by drawing on the concepts of 'discourse' and 'story', the use of meta-level 'discourse' software is both useful and problematic. Similarly, the more intuitive software often obscured problems students needed to resolve, in the programs' attempts to provide natural playful environments. Educationally, more difficulty might provoke more learning. This is not a fixed feature, however, and varied with students' experience.

Overall, the problem does not lie with the detail, but in the larger picture. Even if accessible and fun moving image software was readily available to all schools in the country, it would not make much of a difference unless teachers were motivated to use the packages in educationally dynamic ways which develop children's learning. We can only understand how children learn to construct moving image narratives by giving them the opportunity to do so;

unpicking the precise role editing plays in that process still needs further research. It is our contention that such an opportunity needs to be afforded to all children, because moving image culture will be a crucial part of the range of literacies required for active citizens in the next century. Cheap, accessible software can make that opportunity a realistic option for education if there is the political will to recognise that need. We hope this research begins to provide evidence for such an argument.

SOFTWARE USED IN THE STUDY

KidPix Studio, Broderbund US, 1994

The Complete Animator, IOTA Software, Cambridge UK, 1994

The Adventures of Batman and Robin Cartoon Maker, Knowledge Adventure Inc. and Instinct Corporation US, 1995

The Simpsons Cartoon Studio, Fox Interactive US, 1996

Disney's Magic Artist, Disney Interactive US, 1997

REFERENCES

- Arijon, D. (1971). *Grammar of the Film Language*. Los Angeles: Silman-James Press.
- Bordwell, D. & Thompson, K. (1993). *Film Art: An Introduction*, 4th edn. New York: McGraw Hill.
- Bazalgette, C. & Buckingham, D. (eds) (1995). *In Front of the Children: Screen Entertainment and Young Audiences*. London: British Film Institute.
- Bazalgette, C. (1999). A Stitch in Time: Skills for the New Literacy (unpublished paper). London: British Film Institute.
- Black, P. (1997). 'Whatever happened to TGAT?', in Cullingford, C. (ed.). *Assessment versus Evaluation*. London: Cassell.
- Bromley, H. (1996) 'Video narratives in the early years', in Hilton, M. (ed.). *Potent Fictions: Children's Literacy and the Challenge of Popular Culture*. London: Routledge.
- Browne, N. (1999). *Young Children's Literacy Development and the Role of Televisual Texts*. London: Falmer Press.
- Buckingham, D. (1993). *Children Talking Television: The Making of Television of Literacy*. London: The Falmer Press.
- Buckingham, D. (1993b). *Changing Literacies: Media Education and Modern Culture*. London: London Institute of Education/The Tufnell Press.
- Buckingham, D. & Sefton-Green, J. (1994). *Cultural Studies Goes to School: Reading and Teaching Popular Media*. London: Taylor & Francis.
- Buckingham, D, Grahame, J. & Sefton-Green, J. (1995). *Making Media: Practical Production in Media Education*. London: The English and Media Centre.
- Davies, M. M. (1997). *Fake, Fact and Fantasy*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Department for Education and Employment (1997). *The National Literacy Strategy: A Framework for Teaching*. London: Department for Education & Employment.
- Dickson P. (1994). *A Survey of Media Education*. London: British Film Institute & National Foundation for Educational Research.
- Edwards, D. & Mercer, N. (1987). *Common Knowledge: The Development of Understanding in the Classroom*. London: Methuen.
- Film Education Working Group (1999). *Making Movies Matter*. London: British Film Institute.

- Goldman-Segall, R. (1998). *Points of Viewing Children's Thinking: A Digital Ethnographer's Journey*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Hilton, M. (ed.) (1996). *Potent Fictions: Children's Literacy and the Challenge of Popular Culture*. London: Routledge.
- Hodge, R. & Tripp, B. (1986). *Children and Television*. Cambridge: Polity Press.
- Kress, G. (1994). *Learning to Write*, rev. edn. London: Routledge.
- Kress, G. (1997). *Before Writing: Rethinking the Paths to Literacy*. London: Routledge.
- Laurel, B. (1993). *Computers as Theatre*. New York: Addison Wesley.
- Levinson (1997). *The Soft Edge: A Natural History and Future of the Information Revolution*. London: Routledge.
- Luke, C. (1989). *Pedagogy, Printing and Protestantism*. Albany, New York: State University of New York Press.
- McLuhan, M. (1964). *Understanding Media*. New York: Mentor Press.
- Nixon, H. (1998). 'Fun and games are serious', in Sefton-Green, J. (ed.). *Digital Diversions: Youth Culture in the Age of Multimedia*. London: UCL Press.
- Parker, D. (1999). 'You've read the book, now make the film: Moving image media, print literacy and narrative', *English in Education*, vol. 33, no. 1, pp. 24–35.
- Pompe, C. (1997). '"But they're pink!"—"Who cares!": Popular culture in the primary years', in Hilton, M. (ed.). *Potent Fictions: Children's Literacy and the Challenge of Popular Culture*. London: Routledge.
- Rimmon-Kenan, S. (1983). *Narrative Fiction: Contemporary Poetics*. London: Routledge.
- Robinson, M. (1997). *Children Reading Print and Television*. London: Falmer Press.
- Sefton-Green, J. (1995). 'Neither reading nor writing', *Changing English*, vol. 2, no. 2, pp. 77–96.
- Sefton-Green, J. (1998). 'Being young in the digital age', in Sefton-Green, J. (ed.). *Digital Diversions: Youth Culture in the Age of Multimedia*. London: UCL Press.
- Sefton-Green, J. (1999). *Young People, Creativity and New Technologies: The Challenge of Digital Art*. London: Routledge.
- Stafford, R. (1996). *Non-Linear Editing and Visual Literacy*. London: British Film Institute.
- Thompson, C. (1994). *Non-Linear Editing*. London: British Film Institute.
- Wells, P. (1998). *Understanding Animation*. London: Routledge.
- Williams, R. (1974). *Television, Technology and Cultural Form*. London: Fontana.