Computer generated cartoon animating with upper primary students: Texts that cross the modes

ABSTRACT

In this project, narrative was constructed by Grade 5 students using learning technologies (cameras, computers and multimedia software) through three-dimensional cartoon animations, or “claymation”, and the creativity that emerged was at times startling. Narrative need not be interpreted narrowly and monomodally. It emerged that narrative can be constructed with far more than words. When narrative text produced by students used multiple modes of representation, including images, animations and sounds, many things changed. There is some evidence from previous studies that indicates that creativity is enhanced with the crossing from one representational mode to another, and the current project also found that to be true. In addition, it became clear that the experience of constructing the animations enhanced the way that the students understood the nuances of multimodal texts and made the producers more critical consumers.

Monomodal and multimodal texts

Conceptions of text production are changing. Texts as words, monomodal and divided into discrete genres, are no longer the only forms of expression that are expected of students at any level. In the early years, teachers have probably always known this, as children are expected and encouraged to communicate multimodally, in words, song, drama and drawing. However, as Eisner (1998) and Kress (1997) have commented, as children move through school, proficiency with verbal and monomodal text production becomes the standard by which we judge the success of a student. Yet, as Beavis (2001), Gee (2003) and Kress (2003) have written, the world the children live in and the cultures from which they extract their world-views are substantially multimodal and electronic. To judge their school success from the way they handle words on paper is not honouring the experiences of the children.

One of the problems in redressing the balance away from monomodal verbal expression to provide children with the opportunity to enter the multimodal text production world, is that we find it hard to cope with multimedia in our standard classroom organization. As long as 1992 Daiute was urging us to “extend the resources of Kindergarten to writers across the grades” (p. 250), but school classroom organization does not find it easy to replicate the planned chaos of the early years, and so multimodal text production becomes hard to handle beyond Grade 1. However that situation is changing fast. As enough computers become available for classroom use, as computers become powerful enough to cope with multimodal production, and readily usable multimodal computer applications become available, the way is opening for insertion of multimodal text production into any primary classroom. This has been illustrated by a number of recent initiatives that have been reported in journals and books. Burn and Leach (2004) have reviewed twelve reports on projects involving the moving image, either film based or computer animations, several of them in primary school settings, and Vincent (2001) has described a project using MicroWorlds and animations in the setting of a primary writing classroom.

The animation project

This report is about a project to introduce narrative-telling through computer-generated animated cartoons to Grade 5 classes. The four classes were large (27/28 students) in a Melbourne independent school. Two teachers (the authors), one a specialist art teacher and the other a learning technologies consultant, worked together with the students. The students had notebook computers but the one-to-one computer availability was not a crucial factor except for the second part of the project. In the final part of the project, far fewer computers could easily have worked as well, because a lot of the project time was spent away from the computers. In fact the computers need not have been in the room. The camera downloads could have taken place in any location where the computers were placed.

The software environments available were MicroWorlds Pro and MS MovieMaker. The latter is a free add-on to Windows XP, similar to i-Movie on the Macintosh platform. MicroWorlds is available on both Windows and Macintosh. By pooling the digital cameras from around the school and borrowing one, there were always five cameras for taking still shots in the final part of the project.
The project was in three parts. Students began very simply, considering the successive pages of a flip book and what makes images appear to move when the pages are flipped with thumbs. Students took a basic movement like a face breaking into a big smile and drew it in stages on separate small pieces of paper.

In the second part of the project, the original Disney cartoons such as Pinocchio were discussed, including how they were made from hand-coloured cells that were photographed individually and then run together. The students were then introduced to the use of the computer application MicroWorlds using the metaphor of an electronic flip book to create animations based on their drawing. However, of the many possible Logo commands in Microworlds, ‘setshape’ and ‘wait’ were the only ones needed. These relate most closely to, and emulate, what happens when we ‘see’ the movement in a flip book. As each slightly altered image was stored in the shapes centre, it became the raw material for making the cartoon by ‘flipping’ the pages. Jon, for example (Figure 1) told the story of a happy figure who became infected by evil. As well as the graphics, the figures changed colour from blue to red as the cartoon proceeded, accompanied by music composed in the MicroWorlds music maker. The music also changed mood from light to dark as the evil took over. Jon talked to us about the theme of his film, about having a ‘good voice’ and a ‘bad voice’ which tells him what to do, so we discussed how his current ending might be modified to bring the good to the fore again.

Within a week, some students had created large numbers of images, and turned them into animated cartoons. Jake, for example, an extraordinarily patient student, took his notebook computer home and created over 100 graphics for his MicroWorlds animation over a rainy weekend. The stunning result, and his modestly presented cartoon was inspirational for others.

What surprised and delighted us was that the cartoons immediately left the zone of an art exercise and entered into the zone of a narrative genre with the movement and images carrying the narrative messages. The creativity leapt out of the screens as the students began to realise that full multimodality was possible. Fetching microphones, they began to embed sound effects and voice into the cartoons. They utilised the music maker in MicroWorlds to make original music. They began to exploit some of MicroWorlds’ other animation features for added effects. They added words and speech bubbles to integrate text with the animations. They began to deliberately set themselves problems which they then attempted to solve with glee.

MicroWorlds was particularly suited to this part of the project because of the juxtaposition of the drawing tools, programming tools and the centre for creating and storing the shapes. However, any application that allows rapid flipping of drawn images would have been usable. For example, PowerPoint is sometimes used for the same effects, and drawn images imported into MovieMaker or i-Movie can work well.

In part three of the project the students created simple storyboards which illustrated a planned short narrative in movement, based this time on forms created in plasticene. We discussed the importance of a storyline and the work of the Aardman Animations team (Wallace and Gromit and Chicken Run) (http://www.aardman.com) and the Oscar-winning Harvey Crumpet by Australian, Adam Elliot. The students were then invited to make a short claymation-style animated movie.

Several digital cameras were supplied, together with direct download cables to computers. Although four of the cameras were medium-level Canons, a cheap Dolphin camera from an electronics store, more usually used as a webcam, proved to be equally successful. Students were invited to work individually or in teams to build the characters out of plasticene. At this point, as happened with the two-dimension cartoons, the whole project came alive as a literacy event. As students, both individuals and teams, began to photograph each tiny move, impromptu dramas erupted all over the room. The oral language, fantasy making and consequent narrative construction was rich, even though each completed film was only short. For example, three students had missed the start of the project because they had been competing in the school’s skiing races, but they decided to work together to catch up with the rest of the class. We listened in to their discussions as they developed a ski-based story, made up time at lunchtimes, and completed a narrative about skiing complete with white cardboard ski runs, cotton wool low clouds and occasional tree hazards in the way of their plasticene skiers. The discussions had plenty of conditional
challenges, such as “hey I wonder if we could…” and “Why don’t we…?” as they set problems to solve. They used the finished product to present their report on the ski races to their class.

In this phase of the project, students were encouraged to choose between MicroWorlds and MovieMaker. They were familiar with both from other curriculum work, and they realized that there were advantages and disadvantages of each application. In MicroWorlds there was simple and fine control over timings, facilities for drawing backgrounds and peripheral graphics, and other elements of the MicroWorlds Logo commands could be added if needed, as well as recording sound or composing music on screen to embed in the procedures. MovieMaker gave more professional starting and finishing tools and more sophisticated transitions where appropriate. Some students used both tools and made two films with quite a different “feel” to each. Quite early in the project, cardboard boxes became prized possessions as stages and scenery, and students created and entered into whole new microworlds. This then created lighting problems that were solved with two old rusty science retort stands holding torches as spotlights, sometimes with cellophane as colour filters. Creativity oozed from all the little dramas going on, surprises and unexpected outcomes were commonplace.

Figure 2 shows one still from Andrea’s story of the stealing of a dog’s food from the bowl. The whole narrative took place within a painted cardboard box. At the front of this stage Andrea set up a battery of torch spotlights on retort stands and then set up a webcam on a mini-tripod to film the action in stop motion. As the drama unfolded, oral language was used as a commentary. Andrea considered using this as a sound file to enhance the narrative, but eventually decided the narrative was more effective without it. After taking all the shots, she connected the cable to a computer and downloaded them into a file. She then experimented with both Moviemaker and MicroWorlds, moving the images directly into Moviemaker, and then copying them as a block of scenes into the MicroWorlds shapes centre. She bailed us up in the school playground to have an in-depth discussion about the relative merits of both programmes. Although Moviemaker gave her some advantages with a professional finish, she found the timing hard to control, so in the end she opted for MicroWorlds. Other students opted for Moviemaker, and included title and credit screens in their productions.

**Pedagogic framing**

When reflecting about the experience we realised that one of the most important aspects of the project was that we operated with a very weak pedagogic framing (Bernstein 1990): our structural controls on the activities were minimal and our scaffolding was much more implicit than explicit. That does not mean it was a free-for-all. We still offered guidance, and exhortation to the students to enjoy themselves, but once underway, little control from us was needed. We also tried to build an environment that implied anything was possible: the students were encouraged to break boundaries. We withdrew to the periphery. In this environment of freedom and fun, we created the atmosphere of an early years classroom as proposed by Dauite (1992).

**Creativity and crossing the modal boundaries**

The products were texts, not monomodal verbal, but multimodal and involving repeated crossing of modal boundaries, from images, to oral text, occasional written text, sounds, music, drama and lighting. The creativity seems to have emerged from this crossing of the semiotic modes.

This echoes a study by Stein (2003) in a poor South African school in which the texts came from the multimodality of building three dimensional dolls, and the drama, oral expression and writing that resulted. Stein describes how each child’s project followed a semiotic chain, regularly ‘slipping’ across modes. “Such a process reflects ‘slippability’ in the ways in which certain ideas about the character get dropped, migrate, new ideas are picked up on and developed in the endless cycles of variation on the theme. Some of these variations involve conscious choices on the part of the signmaker, … but choices can be made unconsciously in the act of making” (p. 136). Stein comments: “multimodal pedagogies unleash creativity in unexpected, unpredictable ways. They produce creativity” (p. 134).

**Difficulties**

There were difficulties. Not being initially familiar with Moviemaker, we were unaware that it has pitfalls and some students lost their work when sending to another computer. It is worth the teacher becoming thoroughly familiar with the application before the work starts, especially the need to save and send all elements when transferring the film to another computer. Another difficulty was that because we were using specialist Art time, we had a fixed timetable with which to contend. The students were so engrossed that they became annoyed at being victims of the timetable by having to stop after an hour and pick up the pieces again the following week, when, inevitably, they might be absent, or have a private music lesson scheduled in Art time.

![Figure 2. Plasticene figure, part of Andrea's claymation film about the stealing of the dog's food](image-url)
CONCLUSION

The products were short and unpolished, but full of creativity and promise. The students were very proud and excited to show the projects to the rest of the school in an assembly, and basked in the praise of other students and teachers. However, a very important outcome has been the critical awareness that the students have begun to develop for multimodal presentations in the world around them. If we are to be true to the students’ experience of the world through multimodal lenses, then we have to try to give them the production techniques. Only producers truly understand the nuances of texts, and critical consumers of multimodal texts must be producers. In this world of multimodality, texts merge across the boundaries we have set up for literacy in school. It is much the same in multimedia as it is in art. We could see in the students the same insights which arise from an understanding of the artistic process through the act of doing it. Just as one is never able to look at a painting, drawing or print in exactly the same way again after making them, so it has proved with multimedia. Work with animated cartoons is one way that we can use computers to address the new literacies and give students the ability to produce what they consume so that they become more enlightened consumers.

REFERENCES


BIOGRAPHY

Jan Rizzo is currently an Art teacher (Prep - Year 6) at Grimwade House, Melbourne Grammar School’s co-educational junior school. She has lectured in Painting and Drawing in Visual Arts courses at R.M.I.T., Monash University (Caulfield campus), the Institute of Education at Melbourne University and the Australian Catholic University. She has also taught secondary Art at Carey Grammar School and been artist-in-residence at the Victorian Tapestry Workshop and various schools in Melbourne, both public and private. She is currently Chairperson of the J.S.H.A.A. Art Interest Group, a member of N.A.V.A. and the N.G.V. and has a passionate interest in promoting Visual Arts in the community.

The collaboration with John Vincent on an Animation unit for a Year 5 group of students was an extremely exciting, interesting and rewarding process, largely because John’s knowledge of the medium allowed a rich conjunction of Art and Technology experiences for the students. Above all, the students had ownership of all the processes and the joyous results speak for themselves.