

## MediaStage

A Futurelab prototype research report



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## **WHAT IS MEDIASTAGE?**

MediaStage is software for modelling human behaviour. In an early stage of development during 2003, Futurelab collaborated with the developers (Immersive Education) to refine and develop the tool through research with students and teachers. The tool has undergone significant further development following this early research phase and is now available as a commercial product for use in media studies education. The following report describes the prototype as at June 2003, and summarises the findings from Futurelab's research with students and teachers.

Mediastage portrays a three-dimensional virtual television studio with a three-dimensional company of actors and a range of sets and properties. In the test version there were 10 adult actors and about 20 sets. Users first select backdrops, and then arrange the properties and actors as wished. A sophisticated animation of the face occurs when actors are given a voice by a text-to-speech engine or using recordings made by users or others. In addition actors can be given a variety of default behaviours or body-languages, for example, affection or aggression. This determines other actions such as walking style. They can also be assigned poses from a large repertoire to provide gesture during a performance. The user also controls ambient light, three spotlights with variable beams and which can be located around the set and made to track specific actions, and three cameras that can also be positioned, panned and zoomed with a combination of mouse and direction keys. MediaStage is open software in that it enables the student to create a scenario and present it as they wish.

## **WHAT WE WANTED TO FIND OUT ABOUT MEDIASTAGE**

1. What can we do with MediaStage to support exciting and engaging learning?
2. How easy is the software to learn?
3. How creative could students be using this software?
4. What affordances – things that allow you to do things - and barriers are there to their creativity?
5. What were student and teachers ideas for improving the software?
6. What was the quality of the learning outcomes in using this software?

We wanted to identify strengths and potential in the existing implementation and to identify improvements and directions for further development. The inevitable technical bugs in this test software are not reported here.

## **RESEARCH**

The research had three phases:

1. a half day workshop with a group of school teachers
2. one day's intensive planning with a teacher to devise a set of curricular activities
3. a six-week, twelve-hour classroom-laboratory in school with 15 Year 8 students

### **1. The teacher workshop**

Nine secondary school teachers participated: their subjects were English (and Media Studies), Citizenship, and History. They were introduced to the software and then given an opportunity to explore its potential in subject groups. The teachers felt MediaStage would motivate students, in particular:

1. Its potential for assisting the development of: empathy (eg with historical/fictional

- characters); interpretation (in history and English); decision making; collaboration; planning; reflection; creativity; understanding bias, understanding change over time; and building confidence.
2. Its use as a self-directed tool for students, compensating for shyness through creation of scenarios instead of role-playing.
  3. Its use as a 'drafting/sketching' resource to enable students to plan out role-play.
  4. Its use as a small-group activity, with groups of students preparing and comparing scenarios.

However, the system flexibility provoked debate in the workshop. History teachers wanted resources (props/characters/photographs) of real individuals to create exact reproductions of events to aid the teaching of specific topics. Whereas English teachers wanted resources that might 'hint' at characters from plays, such as costumes for periods or genres. Both history and English teachers thought the package needed focused content to fulfil its curriculum potential, while media teachers felt it would be better as a fully open-ended tool.

## **2 & 3. School field work**

The fieldwork was conducted with 15 high school students, six male and nine female, in Year 8 (12/13 years old) in a performing arts specialist school in Bristol. Six two-hour sessions were held on consecutive Wednesdays in June/July 2003 in time set aside for voluntary extended activity. The sessions were held in a regular English classroom with five groups of three working around five multimedia workstations. Students were encouraged to consider themselves as co-researchers. Attendance was almost 100%.

Data was gathered about the classroom activity each week and comprised of: student logs, questionnaires, interviews, observation, and the analysis of students' outputs (ie MediaStage performances). As the students were using software at a very early stage in its development bugs had an impact on what they did and it was a significant part of their logs and reporting. However what is clear is that even though there were these problems the interest and motivation in creating with the software meant that the students persevered.

We gave students the task to create a fictional short report that would model a typical insert in an evening TV regional news programme. In preparation for this in Week 1 we introduced the software - a demonstration and some examples; allowed free play and exploration; introduced the genre with a videotape of a current example and discussion; focused students' thinking about the facilities the system supports: camera views shots; interview styles; actor dialogue; body language and poses.

In Week 2 we supported the introduction and planning of the task with templates of shot scripts. Students undertook an exploratory attempt at the problem - seeing what was possible with the actors props and scenery in the test system and making a short rough attempt at the task.

Weeks 3,4,5 and 6 were left open-ended to allow students to explore the theme with the system. Although groups had different ideas, there was a great deal of commonality in the issues raised in the use of MediaStage to achieve finished performances at the end of Week 6. The weeks seemed to form a progression from exploration to refinement that one might expect in many creative activities.

There was reason to celebrate in Week 6. Students had become efficient and effective users of MediaStage and coped well with the limitations of an early prototype. They did feel limited by system crashing, and the characters, props and scenes available to them and difficulty with the editor. It was difficult to find the right poses, camera changes happened in counter-intuitive ways (pans rather than cuts), and lighting did not always work as expected.

## **OBSERVATIONS FROM TRIALS**

Recordings of students' activities during the trials produced the following observations:

Producing performances seems to be very straightforward. Student difficulties were in camera setting, lighting setting and most significantly in editing. Students did not welcome much formal front of class intervention - just in time help was preferred. This suggests some online tutorial and walk-throughs would be ideal.

The performances that students created provided evidence of creative thinking. There was a great deal of wit and parody in the pieces the students produced. The major limitations would seem to be a) the time it takes to produce what the students consider a satisfactory performance and b) the difficulty in editing and refining what they have produced.

The students themselves reported that the system offered them a great deal of creativity. The realism that MediaStage tries to achieve is at once a spur to creativity but a limitation on it. The performances that can be convincingly produced are limited by the assets available and the ability to interact with the assets. This provided a barrier to creativity in the first instance as that which they wanted to create was not creatable with the actors, scenes and props available. There are extensive lists which describe what they wanted (more young people, animals, sitting down etc). Having Shakespearean sets and modern costumes and props may not be appropriate. The other limitation was the editing capability.

Despite technical difficulties inevitable from working with early stage prototypes, overall, there were three consistent observations to be made as a result of the school-trial process:

First, the students all produced one or more performances that they were pleased with. The performances all displayed a sense of creativity, uniqueness, humour and a good understanding of genre. The knowledge of intertextuality in the particular televisual form they were exploring was demonstrated by: the choice of scripting, language, and giving voice to their characters in MediaStage, and by their ability to transcend mere mimicry to create a parody of the form. It was demonstrated by their camera angles and their scene changes. When confronted by technical difficulties they sought work-arounds that were in keeping with the meaning of that which they sought to convey.

Second, the work was all a genuine collaborative effort. One is not claiming equality in partnership as many of the logs indicated. However it is clear that no one felt they had been excluded from the creative process and all had made a contribution in many forms: both in the performance and the technical skill.

Third, the interviews in Week 6 provided a quotation that was echoed by other interviewees "this was not like lessons, it was fun".

Following this research phase, Immersive Education has significantly developed MediaStage, and it is now available as a commercial product.

## **CREATIVITY AND MEDIASTAGE**

A key area of interest to Futurelab in respect of this project was the extent to which the MediaStage tool supported young people's creative practices. This has been discussed in some detail elsewhere, particularly the Futurelab 'Handbook on Creativity and Collaboration'. The following, however, is a discussion of the aspects of this early version of the tool and children's practices in using it, that could be considered to contribute to the development of creative and reflective activity.

There is a detailed discussion of the ways that ICT can support creativity in the Futurelab

publication 'Creativity Technology and Learning' (Loveless 2003). A key feature highlighted in this report is the plasticity that technology confers on the products of creativity with technology - what you have done is something you can change. This was an important factor in ways that students used MediaStage.

There was an interesting and non-linear pathway in students' creativity in MediaStage. There was a strong sense of emergence of ideas which comes from an interaction in the social teaching and peer discussion space and the interaction with the tool in a developmental way. In this emergent sense, creativity came from tensions between many sources:

1. The task as set by the teacher.
2. The students' understanding of the genre, and looking for opportunities to express their sense of humour.
3. What the software would allow them to do.
4. What props, sets and actors were available.
5. Their changing and emergent understanding of how to do things with the software.
6. Their changing and emergent vision of the story they were trying to tell.
7. Reaction to what they already had done: advertantly and inadvertently.
8. The creative dialogue of the team.

In the beginning students openly look for ideas - they react to the set task, their expectations of the software and their own current ideas - for instance the fifth Harry Potter book- Order of the Phoenix had just been published. They then looked at the props, scenery and cast to see if this could be achieved. This in turn led to modification and in some cases a total reversal: a student says "Oh look! There is a shark's fin. Are there any sea sets?"

At some point to a group's satisfaction they arrive at an idea with which they were happy. They make their first faltering attempts to create their performance. This is limited by their ability to use the software, which changes as their experience grows in using the technology. Some scrap their early efforts and find that they are able to achieve far more, more quickly, starting from scratch.

At first they create a rough-hewn performance and establishes their understanding of the narrative. From this start they then begin a narrowing and refining process. At first it is the dialogue they get right: the choice of actors and the telling of the story. They then work through an iterative set of actions- trying the effect of different props etc, and voicing the actors in different ways. Maybe last of all they start to look closely at control of gesture and the ways actors move. Alongside this the learner must think about lighting and camera setting.

This reflects a lot of modelling behaviours - moving from gross ideas to refinement- test modeling- reflecting and revising. Students move from the internal mental and social space of ideas to the concrete externalisation (in this case) on the screen. The order in which this happens is mirrored by Stanislavski's analysis of making a performance: starting from an understanding of concept and context and moving through a cycle of character development eventually ending with giving the character voice and ultimately giving the character physical movement.

Although there is an overall pattern, at the level of second-by-second decision making, there is almost a seamless movement between forming an idea, implementing the idea on screen, reflecting on what is seen and then wanting to edit the idea. A strict and linear separation between the processes of editing and originating may well detract from the creative power of the system.

This early phase research led us to encourage the development of MediaStage as an educational tool of considerable importance which students to undertake creative activity beyond that which would normally be possible. It makes a unique contribution to their learning in computer modeling of human behaviour.

## Wider implications

Tools like MediaStage clearly offer students new ways of representing ideas above and beyond anything currently available. However the curriculum time and space needed for students to express themselves creatively in this format needs to be addressed. Writing, with pen and paper, would have been a quicker and easier way to 'just cover the issue'. Similarly a quick improvised drama could have been used. However layers of reflexive action in fully exploring the ideas embodied in making a performance have added much richer educational experience that transcends the notion of approaching the learning with an orientation towards finished product. Learning tools like MediaStage need to be judged by **activity** rather than by **product**. **Enhancing creativity:** we need to understand better how we can make modelling tools that allow greater reflexivity. We need to think how origination and editing systems can tightly couple the act-reflect-act cycle. Further experimentation with editors could be fruitful to our understanding of creativity with ICT.

**Enhancing modelling:** we are at the tip of the iceberg in exploiting the potential of the underlying technology and concepts embodied in MediaStage. Modelling the behaviour of humans, objects and the interaction between them has a massive potential for learning in many curriculum areas. MediaStage is an important step in that direction and has the potential to go further.

The main lesson to be learned from this trial has been the importance of the design of editors in creative software. One of the key features that digital technology confers on any media development is plasticity. The editor is the key to that plasticity and a lot of attention needs to be put on the affordances of creative software editors and breaking down the perception of creating and editing as distinct and linear processes.

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