

# Avatar based learning support

**Colin Dalziel**

IT Services

**Shane Sutherland**

School of Education

## Background and rationale

The vast majority of e-learning content is textual information which requires learners to read through screen after screen of information. Mills (2002) suggests that online courses are now becoming increasingly common with creativity and variation in instructional design being key factors for successful implementation. A great deal of online materials available in virtual learning environments and the web generally is in the form of *shovelware* – textual information converted from word processed documents without adaptation or enhancement for online delivery. The general consensus amongst educational technologists is that passive textual information is not an effective use of technology and that most students find this approach less than engaging. The aim of the project was to develop a way to support learners that was engaging but not intimidating. To meet this goal the project developed animated support materials for a key activity which introduces students to using the university library catalogue facilities.

The module ‘Learning for Success’, developed in the School of Education was selected for the additional support for a number of reasons. The student population is made up from a range of academic schools that have a range of previous learning experiences. The module also has a well developed e-learning presence with online materials, discussion forums and downloadable course support resources. The module aims to develop study skills in students by engaging in a range of activities, which include using different computer-based resources and methodologies to support learning.

The aim of the project was to add to the blend of support options by making animated characters (Avatars) available via the university virtual learning environment (VLE). These characters offer focused assistance, by giving the learner hints on how to tackle a variety of research tasks. In building the animated support materials the aim was to offer support that was both non-threatening and more engaging than traditional text based materials available within the module.

## The innovation

Initial research centred around the capabilities of software applications capable of creating the characters. Initially the aim was to develop a bank of reusable characters that could be applied to a wide range of tasks. This proved to be unworkable due to the limitations of current technology at the point of delivery. The focus was changed to develop short streaming video files to deliver support on demand.

To create the animations, with supporting audio, 4 software packages were required: Sound Forge XP, to record the characters dialogue, Poser 3.0 to create the animated characters, Mimic to animated the lips of the characters automatically from the audio files and VideoFactory to edit the final videos and produce the videos in appropriate formats for web streaming.

For each section of movie the initial stage is to record the audio with Sound Forge. Using “Minic” software the animation data is generated for the lip synchronisation. The next

stage is to apply this data to a character using Poser software. The final task is to put it all together in a movie file on a web page that can be played by students in WOLF.

Most of the packages available within a reasonable budget are limited in their flexibility. Each sound file (voice over) must be manually assigned a character with the final output being a movie of the character. There are no facilities to automatically generate the animation “on the fly” by replacing the sound file. This greatly reduces the flexibility of the software.



*SoundForge software was used to capture the sound and edit the voice over files.*



*The Mimic software uses the sound output together with textual information to create facial animation for the avatars characters.*

The activity the characters were supporting was traditionally a paper-based task that requires students to use the university online library catalogue (OPAC). They are required to find a variety of texts from books and journals. The tasks set develop the students' research skills by giving partial information about the items they need to find. For example, students have to find a text by the same author as a known text. There are, however, several authors with the same name so they have to know how to check they have the correct author. All of the tasks require some level of lateral thinking as to how to locate the items, as well as knowing which of the available tools are the most appropriate to use. The role of the avatar is to guide the student in the right direction without directly giving them the answer. To do this, the characters give hints on a suggested methodology to locate the resources.

To ensure the information is as supportive as possible, the transcript of the video file is also included on the page it appears. This is designed to make it easier to review and to make the materials as accessible as possible to a wide range of students.

## The outcomes

In terms of resources the project successfully created animated support resources for all the questions in the exercise.



**Please Note.**

You will need either speakers or headphones to be able to hear the sound track for this video. Below is a text version should you need it.

**Text Transcript**

This question is not really about De Raad and Schouwenburg, it is about the paper written by Heinström.

Heinström's paper, listed in the references, is available on-line. The question requires that you access this paper, then that you look at its references to find De Raad and Schouwenburg.

To access the paper either click on the hyperlink or type the address into the browser address bar. You can access Google from the **Search** icon on the WOLF toolbar.

Once you have done this, look to see who is listed two authors further down. **Clue** - you are correct if this author is also mentioned in the references for this exercise!

*The Final Web resources in WOLF included the textual information as well as the avatar movie.*

## Evaluation

A full trial was not possible due to a number of factors although the animations were trialled with a pilot group in the Learning Studio at the Walsall Campus.

The general consensus was favourable, with group members feeling that the presentation on screen was excellent and the animations provided a good alternative to written help. Some students felt that the animations would be particularly useful as support when not in a taught session.

As the animations were not used widely, a student questionnaire was not delivered during the last academic year. The intention is therefore to produce a questionnaire and deliver it during semester 1 of the coming academic year.

It was somewhat disappointing to find that the software was not capable of creating animation without having to render every character. The original idea was to build a resource bank of characters which could have audio files applied to and therefore be tailored for almost any number of modules. This is possible with the right software although it is very demanding on the client PC which would mean that a large percentage of University PC's would not be able to run the characters.

## Benefits

From the limited feedback received most students appear to find the animations a useful additional resource. This is only from verbal feedback, so this needs to be confirmed through a more extensive questionnaire. Some students said they would probably not use the animations but would prefer to use traditional written instructions. This is not surprising, as some learning styles may not be catered for by this type of resource.

A factor that must be considered is the viability of using media rich resources that demand a high level of technical infrastructure to operate. At a practical level there are some inherent inhibiting factors due to the technical/practical issues, which include:

- Lack of sound capabilities/headphones on University PC's
- Files being too large to download at home via a modem
- Gaining access to computing resources can be difficult at peak times

## Future developments

This project was very much an initial trial of the potential of animated characters to support learning. Now that the materials are created it is intended to use them again during the next academic year. This will enable a full evaluation of the materials with the possibility of overcoming some of the problems areas experienced this year by making the animations available via CD-ROM for home use.

## References

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