



Value of multimedia approach for learning by distance education

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Introduction

The provision of a range of online learning resources will minimise treating on-campus and distance-education students differently. Learning resources provided in a CD-ROM could enhance the learning experiences of both on-campus and distance-education students. Supplementary resource materials provided to on-campus students can offer opportunities to enhance and broaden the learning experiences of distance-education students. Hence, both essential and supplementary learning resources should be made available to all students. Web-based learning and teaching approaches can increase and promote more active student engagement and interaction. It can provide easier or more equitable access by students to learning materials. Well-designed, interactive, up-to-date, fast to download, easy to read, easy to navigate, and good visual design are important parameters which can determine the effectiveness of CD-ROM for student learning.

Interactive multimedia CD-ROM

- As a teaching initiative, an educational interactive multimedia CD-ROM containing supplementary resources was produced for the subject, *Rice-based Farming Systems* (IRR302), offered to third year undergraduate students at Charles Sturt University, in Autumn Session of 2002. The aim was to present the supplementary resources in a variety of media to stimulate interest in students for learning of the subject. The CD-ROM loads automatically when loaded into a computer and operates in a web-browser (*Internet Explorer* or *Netscape*) window. Navigation between different sections of the CD-ROM is through simple and familiar Internet features. The CD-ROM contains the following features.
- A collection of 35 electronic readings from various sources to provide additional information for deep learning and presented in full colour pdf file format for Adobe *Acrobat Reader*. A recent copy of the Adobe *Acrobat Reader* is also included in the CD-ROM if any student wanted to install that software in their computer. Since these pdf files were created using original word documents, their loading and scrolling are quicker than normal scanned documents.
- A set of 20 slide shows created using self-explanatory *PowerPoint* slides. These slides contain text, graphics, pictures and animations that facilitate a greater understanding of each topic in the subject modules.
- Three computer simulation models together with instructions to install them in a computer. The purpose was to give students necessary hands-on experience in using these simulations on their own and the opportunity to come back to these programmes whenever necessary as they proceed through various sections of the subject.
- Nine digital short movie clips created using a popular video to aid visual learning of difficult concepts. These movie clips can be played by *QuickTime* Player for which a link is provided for free downloading of the player from the web.
- Print versions of all 3 Modules of the subject.
- Introduction and direct links to 15 Internet sites related to this subject to browse the Web for further information.

Student evaluation of the CD-ROM

At the end of Autumn 2002 Session, all students enrolled for the subject, *Rice-based Farming Systems* (IRR302), were invited to take part anonymously in evaluating the usefulness of this interactive multimedia CD-ROM for their learning of the subject. The students were asked to indicate the level to which they agree, on a 5-point scale, with each of the 14 statements in the questionnaire describing different aspects of the resources in the CD-ROM. From all the responses, a weighted average value was calculated for each category and is presented in Table 1.

Aspect	Score (%)*
‘The readings’	
helped me to understand the topics	84
were easy to read and understand from the computer monitor screen	76
‘The <i>PowerPoint</i> slides’	
helped me to understand the topics	88
were self-explanatory	80
had a pleasing font and colour-scheme	88
‘The computer simulations’	
were useful for this subject	84
successfully installed and operated on my machine	80
were difficult to navigate without more detailed instructions ⁺	64
‘The video clips’	
did not play on my computer ⁺	74
were valuable to my learning in this subject	80
‘The CD-ROM provision of the modules of the (print) mail package’	74
was valuable to my study of this subject	
‘The collection of websites’	
was valuable to my learning in this subject	82
had useful descriptions of the websites	78
‘Overall, the supplementary resource CD-ROM’	
was valuable to my learning	88
Average score	80

*scale 1-5, 1 = strongly disagree, 2 = disagree, 3 = don't know, 4 = agree, 5 = strongly agree, ⁺ negative statements (scores converted, a high score indicates disagreement).

Table 1. Results of student evaluation of CD-ROM

Conclusion

The average score of the above 14 categories was 80% (with 50% being an average that indicates neither agreement nor disagreement). Hence, the students regarded that this CD-ROM was valuable to enhance their learning of the subject, *Rice-based Farming Systems* (IRR302). It also indicated that the CD-ROM has helped the students in many ways to understand the subject well. This has demonstrated the possibility of utilising extensive multimedia techniques to promote student learning by distance education. This CD-ROM contains resources in multiple media formats and operates on a web browser window. The material is presented in a format that is suitable to support full online delivery of the subject. This will facilitate the adoption of the material for fully online subject delivery in the near future.

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