MULTIMEDIA IN THE CLASSROOM - REALITY OR FANTASY?

Syaharom Abdullah, N. K. Hartharan and Azian Ibrahim
Universiti Utara Malaysia

ABSTRACT

With the advancement of interactive multimedia technology, the role of multimedia courseware has become more prominent in the educational instructional system and has received wide coverage about its development and possibilities for pedagogical purposes. Research carried out on the efficacy of multimedia courseware in the teaching and learning process has found that multimedia is an effective means of depicting knowledge and facilitating learning (e.g. Ruslan, Nazrul, & Mohd Yunus, 1994; Vockell & Schwartze, 1992, Jamalleah Ismail, 1996). The results of a recent study conducted by Azian, Hariharan & Syaharom (1996) indicated that local graduates generally found multimedia courseware useful and appealing and preferred it over traditional teaching approach. Although the effectiveness and benefits of multimedia courseware are well documented, its actual use in the classroom is still an issue that needs further examination. This paper will share the experience gained in the development and use of a proto-type multimedia courseware and discuss the implications related to courseware design and development and the integration of courseware into teaching from the instructor's point of view.

Introduction

The use of multimedia in education is inevitable. Multimedia is capable of placing an astonishing array of resources at the instructors and learners' control. Active multimedia learning environments make learning more vibrant, interactive, collaborative, and satisfying (Supyian, 1996). Besides, the ever increasing student intake, dwindling funding, and shortage of qualified instructors make it impossible for any educational institution to continue doing what they are doing now in the same old manner.

Multimedia and English language teaching and learning

Rapid industrialization and globalization of trade have made English, the international language, an important asset for all to possess. The ever increasing demand for English language instruction has exerted greater pressure on English language teaching to incorporate technology-assisted approaches to overcome the shortage of trained language instructors, as well as limited budgets.

Computer-Assisted Learning (CAL) or Computer-Aided Instruction (CAl) has come a long way. The rapid development of computer technology has revolutionized conventional computer-assisted approaches as well as courseware. It has evolved from the linear stimulus-response text-based drills and tutorials to fully interactive multimedia courseware. With the advancement of interactive multimedia

technology, the role of multimedia courseware has become more prominent in the educational instructional system. Research carried out on the efficacy of multimedia courseware in the teaching and learning process has found that multimedia is an effective means of depicting knowledge and facilitating learning (e.g. Jamalleah Ismail, 1996; Ruslan, Nazrul & Mohd. Yunus, 1994; Soo & Ngeow, 1997; Vockell & Schwartze, 1992). The results of recent studies (Azian, Hariharan & Syaharom, 1996; Soo & Ngeow, 1997) indicated that local graduates generally found multimedia courseware useful and appealing and preferred it over traditional teaching approaches.

Although the effectiveness and benefits of multimedia courseware are well documented, its actual use in the classroom is still an issue that needs further examination. This paper will discuss the implications related to interactive multimedia courseware design and development, and the integration of courseware into teaching, based on the experience gained from the development and use of a prototype multimedia courseware at the tertiary level.

Developing multimedia courseware

Multimedia CALL programs are still limited in supply especially materials suitable for the tertiary level. Besides, most of them are designed for general population and are often culturally biased (Supyian, 1996). Developing in-house courseware is the only way to meet the different requirements. Several studies have found that students are most positive towards CALL materials produced by their own instructors (Blomeyer, 1985; Lozano, Dublinski, et al., 1985).

Development of the Prototype Multimedia Courseware

A prototype courseware was developed by the presenters in collaboration with UUM Pusat Komputer's multimedia team with the presenters as content specialists and the multimedia team as technical specialists. Being content specialists who are non-technical persons as well as instructors with regular teaching load, several problems were encountered when working on the prototype. The problems are as outlined below under the subheadings: technical know-how, development coordination, and material and financial resources.

Technical Know-how

The team is lead by an instructor who has undergone basic training in multimedia courseware development. Converting the content, initially, seemed quite abstract for the novice team members. It took them some time to get acquainted and familiar with the transformation process. Tasks such as creating the master plan which comprises the flow chart of all the frames as well as the individual full-blown frame and story board writing are confusing and demanding. (An example of a typical arrangement used when sequencing frames for a particular segment of the courseware on the use of slides and videotapes is outlined in Appendix 1). Furthermore, aspects such as sequencing, animation, avoidance of unnecessary repetition, provision of visuals, choice of music, selection of colors for the highlighted important information and the background have to be standardized and considered. In addition, all the frames must be arranged in logical sequence so that the flow of information is not disrupted.

Deciding on frames which need to be sequenced consecutively whereby students will have to follow those frames accordingly as indicated by the developers and only go on to the next choice after the

sequence is complete and frames which afford free branching are matters that need careful consideration.

Frame layout is another important aspect that has to be monitored. The amount of text or information on each frame has to be controlled as too much information wifi clutter the screen and turn the audience off. The team also had to decide how long each frame should appear on the screen to suit students' reading and comprehension speed. The time allocated by the developers is crucial if the frames 'dissolve' automatically or are automatically sequenced. Too long or too short a time may have a "disastrous" effect on the audience.

Development Coordination

Since the content specialists work on different portions of the courseware, some kind of agreement on the layout, language style and approach needs to be made before hand. Division of tasks has to be done ahead of time to meet the development schedule. As the encoding process is handled by another team, it is crucial that any information transferred between the two parties is well documented, clear, and comprehensible to both. Inaccurate information may result in further backlog as corrections will need to be made to meet the teaching requirement. This is not easy as the content and technical specialists keep different work schedules. All three content specialists have different timetables and this makes meeting during the working week extremely difficult to arrange. The technical experts working on the programming of the courseware are attached to another department and have other commitments. This often hampers the progress of the development of the prototype.

Material and Financial Resources

Other problems faced are limited material resources and budget. Most crucial is the lack of reference materials and sources of graphics and appropriate video clips that need to be incorporated into the courseware. In most instances, the limited number of magazines available at the writers' workplace is the sole source for photographs and pictures. This practice entails two problems. One, the pictures which have been chosen may not accurately convey the message and mood desired. Two, most photographs and pictures taken from magazines and video clips chosen are copyrighted.

Integration of the Proto-type Courseware into Lesson

Having examined the problems associated with the development of the courseware, let us look into the implementation aspect of the courseware. Two approaches were used. These are the assigned and self-access methods. The Assigned Group (AG) consisted of 32 students and the Self-Access Group (SAG) consisted of 60 students. One computer was utilized. Each group was given one week to view the courseware to simulate the actual possible usage of computer time.

The implementation of the program has brought to focus some problems as well as interesting insights into the implementation exercise. The issues are concerned with attendance, access to the courseware and students' preferred mode of using the courseware.

Attendance

Table 1
Number of students who attended the session

Groups	Number of viewers	n
Assigned Groups (AG)	27 (84.3%)	32
Self-Access Group (SAG)	24 (40.0%)	60

As expected, the attendance was markedly better for the AG (84.3%) as compared to the SAG (40%). For the AG, the researchers found that a 100% attendance from the subjects could not be achieved although ideally, this should not have been a problem. Three major reasons were cited by subjects from the AG, who did not turn up for the viewing. Firstly, they had totally forgotten about the appointment. Secondly, other important academic matters e.g. tests, preparation for speech presentations, group discussions, and etc. were given priority. Thirdly, the SALC (Self-Access Learning Center) was closed on one of the scheduled days without prior notice.

The SAG seems to pose a more serious problem as is reflected by the relatively low turnout (40%). The major cause revealed by interviews with some SAG students who did not view the courseware is that the computer was occupied when they wanted to use it. Thus, assuming that a computer was made available to students for eight hours per day, accessibility time would only total up to 44 hours per week. This would pose many problems if more than 1,000 students took the course which required them to view the courseware during a specific period. A large number of computers have to be made available for use because the content of the courseware must be covered within a certain time frame, students attend classes on a rigid schedule and the opening hours of the computer lab may not be convenient for them.

Access to courseware

Table 2
Number of times students preferred to access the courseware

Number of times	Number of students	N*
Once	7 (13.7%)	51
More than once	44 (86.3%)	

* the total number of viewers from both the AG (27 viewers) and SAG (24 viewers)

As indicated by Table 2, the survey revealed that the vast majority (86.3%) of the students preferred to access the courseware more than once. Incorporating this need into the program may further aggravate the accessibility problem as more computer time should be made available.

Mode of usage

Table 3
Students' preferred mode of using the courseware

Mode	Number of students	N*
Alone	18 (35.5%)	
With a friend	27 (52.9%)	51
In a group	6 (11.8%)	

* the total number of viewers from both the AG (27 viewers) and SAG (24 viewers)

Table 3 reflects students' preferred mode of using the courseware. Most of the students (52.9%) have clearly indicated they preferred to use the courseware with a friend as compared to those who preferred to use the courseware alone (35.5%) or in a group (11.8%). To accommodate this learning preference, one may need to make allowance for pair work. While pair-work would make the use more interesting for the students, it may create problems. For example, the students might be tempted to talk about things unrelated to the subject.

Conclusion

Several factors need to be considered by any educator interested in developing and using multimedia courseware. Transforming printed content to electronic presentation requires a little creativity, insight, and tedious planning. A courseware developer must have the technical knowhow which will allow her to fully exploit the potential of multimedia authoring tools. Instructional knowledge on issues relating to the amount and suitability of information, layout design, graphics, background music, user interface etc. is essential. One other important factor that needs serious attention is the degree of learner's autonomy prescribed by the program.

The collaboration approach in which a team consisting of content specialists and technical experts is more practical for practising teachers as the workload can be divided among the team members. However, when working in a team, several considerations should be taken, for example coordination and synchronization of the transformational and development processes. Also, the resources (reference material, hardware, software, funds) which will help in the smooth progress of the development stage of the courseware need to be made available.

At the implementation stage, a well-thought out approach (allocating suitable and sufficient viewing time, ensuring that the viewing time suits the classroom lesson/schedule) must be formulated in order to successfully incorporate the courseware into regular lessons. Other equally important aspects to be considered are the student-computer ratio, accessing mode: self-access or assigned, and built-in mechanism, for instance, awarding participating marks, using the courseware as part of an assignment, conducting a short evaluation after the viewing, that will ensure that students turn up for the viewing.

In conclusion, the use of in-house developed multimedia courseware in the classroom is still beyond the reach of most educators and institutions of learning.

References

Azian Ibrahim, N.K Hariharan & Syaharom Abdullah. 1996, Nov. Evaluating the effectiveness of multimedia courseware in imparting factual knowledge. Paper presented at the English Language Teaching and Learning Seminar, Langkawi, Malaysia.

Blomeyer, Robert L. 1985. The use of computer-based instruction in foreign language teaching: An ethnographically oriented study. Unpublished doctoral dissertation. The University of Illinois, Urbana Champaign, Illinois, USA.

Jamalleah Ismail, 1996. Multimedia-assisted language learning for sciences: An innovative, interactive and integrated approach. Paper presented at the English Language Teaching and Learning Seminar, Langkawi, Malaysia.

Lozano, A.G., Dublinski, B.J. et. al. 1985. Colorado CAl *Spanish research project (final report)*. Boulder, Colorado: University of Colorado, International Research and Studies Program.

Ruslan Abdul Rahim, Nazrul Azha Shaari, & Mohd Yunus Mohd Yussof. 1994, July. Multimedia: Is the Medium the Message? Paper presented at the ITM-AUC Conference, Kuala Lumpur, Malaysia.
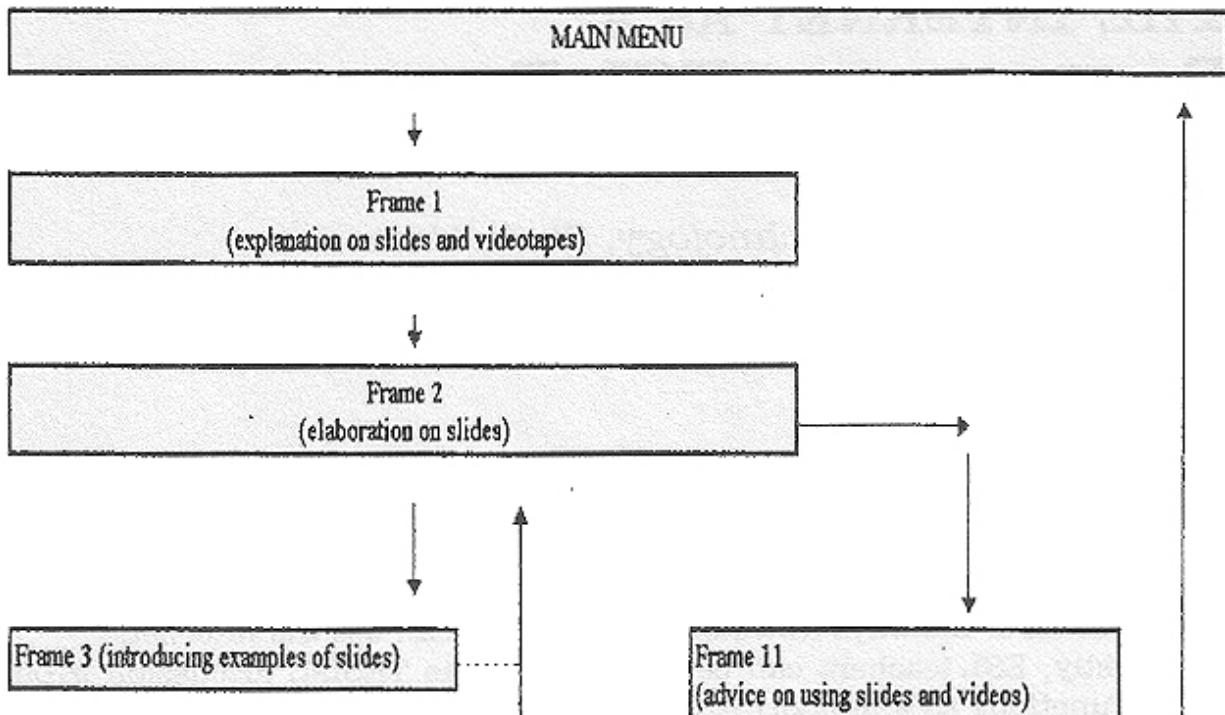
Soo K.S., & Ngeow Y.H. 1997, April. ESL instruction with interactive video: The MCALL Project. Paper presented at SITE 97 Informational Technology and Teacher Education Conference, Orlando, USA.
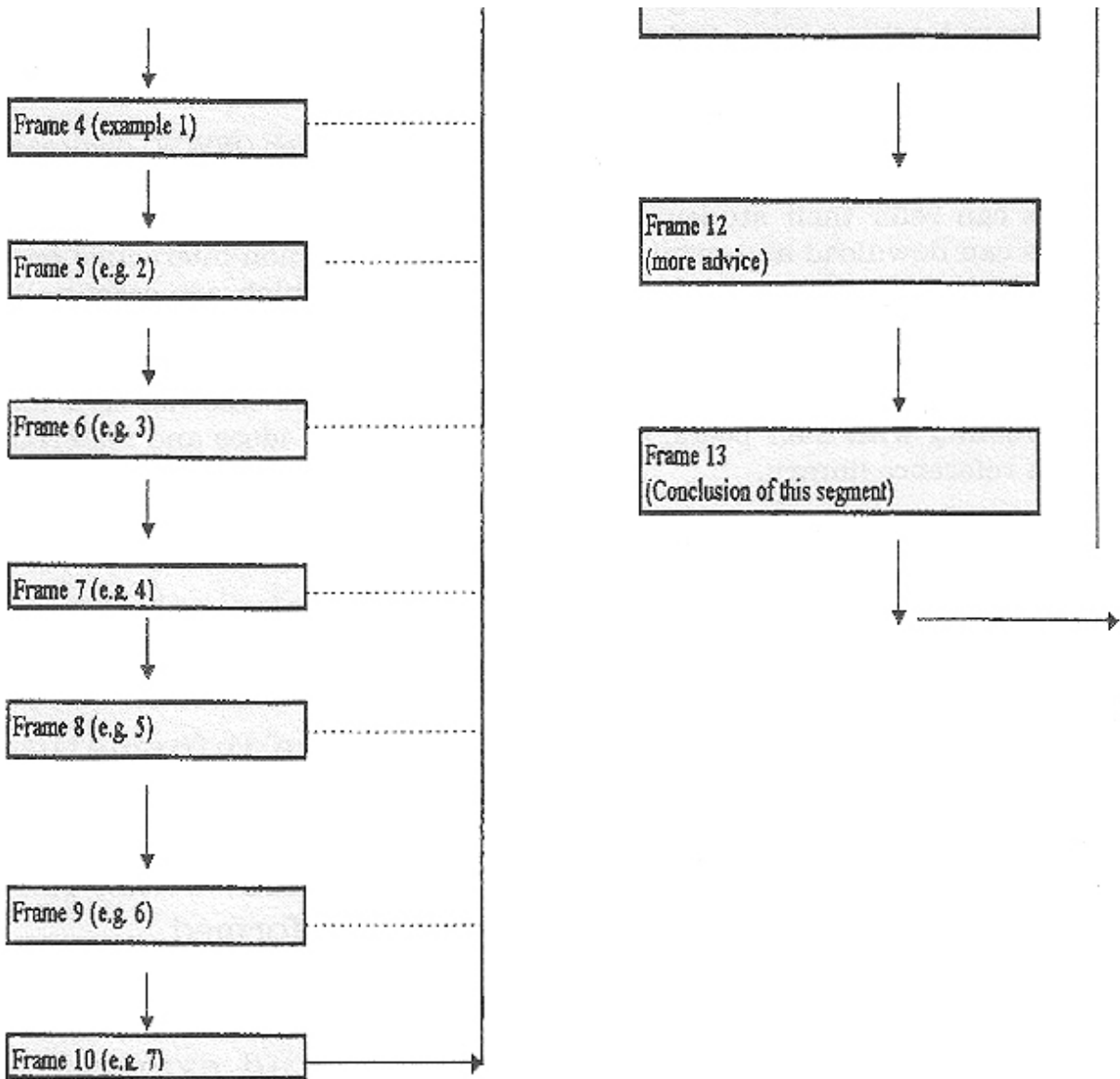
Supiyan Hussin. 1996. A four-stage model for integration of multimedia language programs for language classrooms. Paper presented at MICELT '96, Penang, Malaysia.

Vockell, E,L., & Schwartze, E.M. 1992. *The Computer in the Classroom*. New York: McGraw-Hill Inc.

APPENDIX 1
Flowchart showing the basic structure (sequencing of frames of the "Slides and Videotapes" segment)

MAIN MENU

Frame 1
(explanation on slides and videotapes)

Frame 2
(elaboration on slides)

Frame 3 (introducing examples of slides)

Frame 11
(advice on using slides and videos)

Frame 4 (example 1)

Frame 5 (e.g. 2)

Frame 6 (e.g. 3)

Frame 7 (e.g. 4)

Frame 8 (e.g. 5)

Frame 9 (e.g. 6)

Frame 10 (e.g. 7)

Frame 12
(more advice)

Frame 13
(Conclusion of this segment)