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ABSTRACT

A discussion of the Video on Demand (VOD) system for classroom teaching of English-as-a-foreign-language (TEFL) outlines the system's current and potential use, and examines whether such an approach is educational or simply provides entertainment, and whether education and entertainment are compatible. The VOD system, pioneered in Japan, uses computer terminals in the classroom and other locations to provide instantaneous, digital access to an extensive collection of audio/video recordings. It is used in less than ten percent of Japanese universities, primarily private institutions, and in varied instructional environments; several applications and environments are described. Materials currently available and copyright issues are also reviewed. It is concluded that it is too early to assess VOD's use because it is still limited, that institutions considering its use must consider important issues such as cost and copyright restrictions and materials availability, that other technology-based teaching methods may be more cost-effective, and that attention must be given to the education vs. entertainment debate. Contains 4 references. (MSE)

"Video on Demand in TEFL: Education or Edutainment?"

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1. Introduction

"Edutainment" is a term that dates back at least as far as 1984 to CBS Educational programs in New York (Berman, 1990). It raises 2 questions:
1) Can teaching materials and methodologies be both educational and entertaining at the same time?
2) Are education and entertainment incompatible?
Especially in the area of technology, these are questions that must be confronted. Younger generations in particular tend to be more familiar with video and computer games as part of their pursuit of fun, so to expect them to use video and computers in the classroom as a serious medium for instruction is sure to raise doubts.

Currently, one of the most ambitious attempts to bring video and computers into the classroom is the so-called "Video on Demand" system (or VOD for short), pioneered in Japan. This study will therefore first examine some of the basic aspects of VOD before returning to the education/entertainment debate in the concluding section.

Many universities in Japan are considering in detail how to use computers effectively in education, research and administration. This is not only because of the age in which we live, where computers are increasingly entering our lives, but also because of the Japanese Department of Education's policy of partial funding for schools submitting successful proposals to establish local area networks, or LANs.

One of the likeliest conditions for proposal acceptance is the inclusion of a multimedia segment, which in effect also means having a VOD system or something similar. This is because one of the department's

directives is to stress students' individuality to counter the trend to date of uniform instruction and group conformity for which Japanese education has long been criticized. The potential that multimedia purportedly offers for students to work at their own pace and to develop their individuality through customizable research makes VOD a component that no school can ignore when formulating a proposal.

Despite this, still very few schools have as yet established LANs with VOD. As such, many aspects of Video on Demand remain to be explored. This current study can therefore only offer a very limited picture of what VOD might involve through presenting its background and examples of its use.

2. Background

The first instance of VOD use dates from 1995 at Fukuoka's prefectural resources center, ACROS. Entitled the FUTURE system (short for FUkuoka culTURE information), it includes a video server, a multimedia server, an MPEG1 encoder (operating at a rate of 3Mbps) for moving digital pictures and sound (via Ethernet, a XEROX system), plus enough personal video tape recorders, audiovisual equipment and computer terminals (NWS-5000s) to facilitate up to 15 simultaneous users at individual booths. Using MediaCast multimedia network software, all items are recordable for further/future use at the terminal level.

The video server consists of two NWS-5900Xs and NWP-7501s each, with a 270GB disk array memory capacity, that stores two hundred hours of digitally encoded moving pictures. The NWS-5000 multimedia server holds 3,000 related still pictures (actual stills, photographs, illustrations, maps and the like). The RDBMS database employs a SYBASE (of Sybase Incorporated) system. The network operates via an FDDI

optical fibre and a UTP-FDDI twistpair cable to facilitate high speed data transmission.

In addition to the two hundred hours of online picture, there is an additional hundred hours encoded on 8mm Streamer tape, stored for interchange according to user demand. Thus items used infrequently in the realtime picture database can be replaced by items stored on the offline 8mm tape as requested, forming a total storage time of some three hundred hours of moving picture.

The contents of the database are composed of thousands of items from television programs, primarily local news. Employing specially developed search and edit software, considerable authoring knowhow was applied in compiling the finished article, and of course the database is flexible, not only because of the extra hundred hours of material in storage, but also because it can be updated by the addition of segments from programs that have appeared subsequently.

The full digital VOD system ensures no diminishment in the original audiovisual quality. Using a touchpanel, any item available can be accessed rapidly. The system was originally limited to inprefecture use but is ultimately planned to extend beyond that.

Offline equipment and materials with the same information are also available for those requesting them. Accordingly, Betacam, Umatic, S-VHS, Hi8, LD, CD are all included, along with color video printers, MD and so on. The system was pioneered by SONY, who were also integral in naming and developing CALL or Computer Assisted Language Learning. They also helped ACROS with data input, program editing, copyright clearance, captioning, and most if not all aspects of system support.

Terminal access is via a top menu of such categories as Sport, Culture, Leisure, International Exchange, Food (entitled “Things that are

delicious") and so on. Selecting submenus will provide leads to special features about Fukuoka with maps, still pictures, text and moving picture sequences. Numerous other applications are in operation, many of which do not concern TEFL. These include systems designed for museums, industrial and technological organizations, and even theme parks! The Reimeikan Museum in the south of Japan, for example, has made use of the high grade sound quality of VOD to present different dialects with a captioned moving picture, plus many other aspects of Japan's oral tradition.

VOD has also been used to display environmental engineering work, including information about zero emission program. TEPIA, a technology foundation in Tokyo, showcases a wealth of technological knowledge via VOD with a top menu offering insights into high tech, health, energy and so on. Matsutake, one of Japan's oldest film companies, has incorporated Video on Demand into its theme park in Kanagawa Prefecture, preserving its cinematic heritage in digitally upgraded condition and accessible from a number of angles on the top menu for future generations to enjoy.

3. The Information Environment

One of the cores of information and education in Japan is the Ministry of Education's NACSIS, or National Association for the Promotion of Science. This association has long provided one of the main internet links for national and private universities throughout the country via a dozen networking centers, such as the one at Kyushu University in Fukuoka. As an integral part of NACSIS's research into high speed data transmission, the Video on Demand system was adopted in 1996 to facilitate multimedia resources in such areas as medicine, biotechnology, scientific research data, visual historical resources and so on.

4. Educational Applications

Before considering the applications of VOD at the level of the individual university of which Teaching English as a Foreign Language is of course only one of many possible aspects, it may be helpful first to overview the maker's concept of what VOD's fundamental educational principle is. To do so, one must approach from the standpoint of CALL, which SONY itemizes into four aspects as follows: language laboratories, computers, networks and audiovisuals. VOD is included in the final category as an option. SONY asserts three functions for VOD in this context:

1) in conjunction with Windows, VOD can be expanded to the level of the individual personal computer;

2) using MPEG1's high quality picture and sound features plus captioning, interactive study practice is possible via VOD's almost instant repeat mode;

3) the production of unique multimedia materials is facilitated through the resource core available through Video on Demand.

Currently, fewer than 10% of universities either use or have concrete plans to use VOD, so it is difficult to generalize about its actual use. Instead, some examples of use can be given, followed by conjecture about future use. Those universities using VOD are primarily private schools where budgeting tends to be more flexible. Seijo University in Tokyo uses VOD in a CALL setting in conjunction with cable television. With three video servers, twenty hours of moving pictures can be stored for simultaneous use at seventy six terminal booths. The stated aim of the school in employing VOD is to upgrade their previous level of audiovisual education. Features like individually customizable lesson programs, easy, rapid video access via indexing, picture enlargement/shrinking and so on

are seen as integral in achieving this aim. The creation of a moving picture network with ready internet access is the principal feature of this system.

Ritsumei University in Tokyo has a comparatively long and largescale history of internet usage for a Japanese school, but because of the general inability of Japanese servers to fully develop graphic transmission, it opted for the Video on Demand system to help with multimedia oriented information that is more comprehensively transferred audiovisually than by the prevalent character encoding mode alone. The 100 hours of real time moving picture and sound available are divided into such categories as language, literature, economics, history and philosophy.

Hiroshima University of Technology houses its own very substantial computer center. To allow its engineering students to study language, physics, maths and so on at their own pace, the multimedia center, supported by the VOD system, was established. In addition to the VOD server, there is a file server for text and still pictures and a World Wide Web server for direct Internet and Netscape access.

5. Alternative Producers

Although Sony pioneered the VOD system, just as it did CALL, it is not the only maker or organization involved in VOD's current use or development. While there are a number of different companies now active in the field of VOD, perhaps the one that most closely rivals Sony is Panasonic (Matsushita). Therefore, to balance the picture so far presented, it is necessary to give at least one alternative example.

The VOD system Panasonic installed at Doshisha University in Tokyo dates from June 1997. Panasonic branded its system "EOD," or Education on Demand. The package includes the language laboratory system, WE-LL500A, the EOD moving picture system, multimedia

materials, MD, video, Internet and satellite television, providing an overall emphasis on language practice. The technology is naturally similar to the Sony version in many respects, employing an MPEG1 encoder system, Ethernet switch and hub and so on, with the unique components being the EOD system software and EOD card, which are run on PanaStation.

6. Materials and the Copyright Issue

Although the literature distributed by Sony in reference to the VOD system at ACROS in Fukuoka indicates that there is scope with regard to clearing copyright for the development of a variety of materials, in fact this is not the case. The amount of materials and the nature of the copyright restrictions affecting them are a source of concern. Naturally producers do not want their materials networked widely if it means that free copies of a quality virtually identical to the original can be acquired by unauthorized groups or individuals. Especially in an age of increasing digital piracy, this is a major commercial priority.

Sony's materials and software can be divided very roughly into three categories: materials and software for use with Sony's multimedia learning system, materials for which Sony has obtained the cooperation of the copyright owner for educational use, software to support the system and materials for which Sony holds the copyright. In each case a licence for use of the materials must also be paid for.

The first category includes news programs (copyright ABC) which sell for 48,000 yen per title plus a 48,000 yen network licence (regardless of the number of user booths), a World Geography video quiz (Glencoe) for 98,000 yen and a licence at the same price, and a geography/history video (National Geographic) for 96,000 yen and a licence at the same

price. In addition the computer company DynED offers two ESL titles for 120,000 yen each plus a licence for between 1,500,000 and 2,100,000 yen.

There are five kinds of training software (entitled "Study Wave" and all developed from the Microsoft Company), each having been customized for language learning use applications, MS Windows 95, MS Word, MS Excel, MS PowerPoint and MS Access. Each costs 200,000 yen plus 8,000 yen for a client.

Sony holds the copyright for a number of film titles in the third category, following the takeover of RCA Columbia some years ago by Sony Pictures Entertainment. However, the conditions for their use vary according to the title, of which there are about thirty including Stand by me and Kramer vs Kramer, titles which this current author developed for Sony's School Curriculum in the early 1990s. The cost and conditions for use must be individually negotiated between the school and Sony Corporation.

Since the original advent of Video on Demand, naturally there have been a number of important developments in the supporting technology. While this study cannot hope to include them all, one of the most significant at least should be mentioned here. The MPEG1 video server, which offers a transmission rate of between 1.5 and 3.0 Mbps, is now superseded by the MPEG2 system, with a rate of from 3.0 to 6.0 Mbps, effectively doubling the original version's capacity. MPEG2 will also be updated in due course to MPEG3, 4 and so on.

8. Conclusion

It may be too soon to assess VOD as its use is limited. Many schools cannot budget for it in an economic downturn with a shrinking school population. Its spread beyond Japan may also be slow. To make a start,

however, one must first consider whether video networking with the strict limitations confronting copyrighted material is superior to other video alternatives. Naturally self-produced material does not face this problem, but the costs, time and technical expertise needed to produce a sufficient amount of suitable materials on one's own is another limiting factor.

For schools which have it, interactive video, which is not as expensive as a full VOD system, may be a preferred alternative, although it lacks the networking dimension. Conventional video equipment is comparatively cheaper still, and the materials for use with it expansive, at least within the realm of those not made specifically for TEFL (often referred to as authentic video). TEFL specific video (or non-authentic video) still tends to be costly, limited in choice and unable to offer a sufficiently wide range of ability levels for all its diverse potential users.

VOD boasts speed and high quality, and its makers stress its suitability for individual study and repetition as the key to language learning. However, those with even a little experience of conventional video can maneuver video well enough to exploit much of its potential, and could claim that students too are capable of operating the machinery well enough by themselves to facilitate individual study at much more favorable rates. Most students have access to video at home, anyway.

Except for those materials which have been excessively (and probably illegally) copied, most available VHS video materials are of a reasonable enough quality. Moreover, the repetition method recommended by the makers is a comparatively primitive and limiting aspect of video study, and to stress it as the most suitable methodology is not a sufficient recommendation for VOD, and cannot do justice to its obvious potential.

Video in whatever shape or form is no panacea for effective language learning or teaching. Without a varied and comprehensive

methodology, it remains simply a raw entertainment material with no guarantee of educational effectiveness. VOD must therefore be given more time to develop its own unique methodological base before it can either be rejected or accepted.

It requires more than innovative technology to convert a mass education mentality. Many schools will be more worried about changing their fundamental educational philosophy than spending large amounts of money on new technology.

VOD does have vast educational potential, but before it can be realized, administrators and educators alike in Japan, notoriously unfamiliar with so many aspects of computer teaching technology, must first be converted. The first step is to familiarize these groups through orientations, demonstrations and workshops, but that stage requires more commitment than is currently being shown. At the same time, makers and those few who already do have their hands on technological experience, should be striving harder to perfect a better methodology than mere repetition exercises seem to suggest.

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