

하이퍼미디어 도구와 디지털 미디어 활용 영어 쓰기

이일석*

요약

영어 교육에서 멀티미디어 통합 교육은 교사 중심의 교육에서 학습자 중심의 교육의 방향을 전환시킨다. 본 연구의 목적은 오디오 소프트웨어, 파워포인트, Flash 애니메이션, 비디오 같은 멀티미디어 도구들의 사용이 영어 교육에서 영향력이 어느정도인지 분석하고자 한다. 이러한 학생들을 대상으로 한 실험상의 연구는 영어 교육에서 다른 멀티미디어를 사용하는 교사 중심의 분석, 학생 중심의 분석, 그리고 응답 기반 분석으로 구분된다. 교사 기반 분석은 예측과 후향 방법으로 구성된다. 이 글에서 멀티미디어 도구가 의도된 효과를 성취하는 여부의 분석과, 멀티미디어 도구가 어떤 종류의 효과를 성취할 수 있는지 기술하고자 한다. 이러한 연구를 통하여 멀티미디어 도구가 학교 수업시간에 얼마나 유용한지 또한 얼마나 효과적인지 입증하고자 한다.

키워드: 멀티미디어 도구, 통합교육, 오디오 소프트웨어, 플래시 애니메이션

Hypermedia Tools and Digital Media on English Writing

Il Seok Lee*

Abstract

Integrated multimedia education in English language education shifts instructor-orientated education to be more learner-orientated. The goal of this research is to analyze the effects of multimedia such as software, power point, flash animation and video in English language education. Experimental research with student subjects and multimedia in English education were used for this study and divided into the following categories: instructor-focused analysis, student-focused analysis, and response-based analysis. Teacher-focused analysis is comprised of prediction analysis and backward induction methods. This study aims to analyze whether multimedia tools achieves its intended effects, and to describe what sort of effects are achieved by the tools. This research intends to confirm the effectiveness and helpfulness of multimedia tools in school classrooms.

Keywords: Multimedia tools, integrated education, audio software, flash animation

1. Introduction

English education is the most rapidly changing field in the world. The use of new technologies is an integral part the development, and it is a powerful component

(White 1988). Computers allow for multimedia presentations in areas of edutainment, advertising and education. Edutainment refers to the integrated application of multimedia and computer games for the purpose of education. Multimedia refers to text, audio, graph, animation and VOD for English classes (Stemler 1997).

Audio streaming, Power Point Presentations, Flash, Java Animation, video etc., are multimedia tools used in English education. Although audio software is comprised of play, stop, record and other functions, it cannot

※ Corresponding Author : Lee, Il Seok

Received : December 04, 2014

Revised : December 27, 2014

Accepted : December 31, 2014

* Dankook University, Dept. of English

Tel: +82-41-550-3130, Fax:+82-41-555-6240

e-mail: lis213@dankook.ac.kr

achieve the visual effects of images or animation. PPT can feature text and images, and audio files can be added as needed. Flash animation also features text, audio, images and can also include animation. Video can be viewed using a media player. The definitions were provided to aid understanding of the conversation.

Multimedia plays a very important role in second language acquisition, and multimedia tools are widely used for second language learners. Overhead projectors, video data projectors, video, Internet, and other management software programs may be used.

Overhead projectors are used as a visual tool to display information to students. Content material or diagram and images may be shown to students, and videos or data projectors are commonly used for the same purpose.

The advantages of using technologies greatly outweigh the disadvantages. Rather than curriculum-based classes, classes encourage interaction and communication with students using a complex combination of texts, images, sounds and videos that plays an important role in English education.

This study aims to analyze whether multimedia tools achieves its intended effects, and describe what sort of effects are achieved by which tools. This research intends to confirm the effectiveness and helpfulness of multimedia tools in school classrooms

2. Use of Multimedia Technology

Multimedia in the classroom is no longer a choice but a necessity. It allows the instructor to teach in diverse methods and display much information, and it promotes learning. It can save time and energy and students are more able to focus in class. Both instructors and students are familiar with audio streaming,

PPT, animation, video and other multimedia tools, which can all be used for pronunciation, accent, vocabulary lessons, reading and writing ability, and so on.

This study aims to analyze whether multimedia tools achieves its intended effects, and describe what sort of effects are achieved by which tools. This research intends to confirm the effectiveness and helpfulness of multimedia tools in school classrooms



(Figure 1) The Presentation Of Digital Media

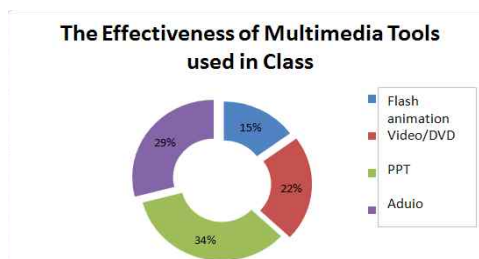
The usage of the multimedia tool and its effectiveness depends on the characteristics of each tool. This research conducts an empirical analysis on selected multimedia tools and their usage related to content, presentation, and usefulness.

Prediction analysis is conducted prior to using the multimedia tools. Backward induction is conducted after multimedia tools have been used in the classroom. Usefulness, adaptability, clarity, flexibility, capability of the technology, etc. were analyzed in detail. Student-focused research is useful to evaluate the usefulness of such tools in learning. Response-based research is divided to pre-testing and post-testing. Scores help analyze the actual results of multimedia tool usage.

2.1 Research Organization

The empirical research of this study is comprised of two areas, student-focused

research analysis and instructor-focused analysis. This study investigates whether the multimedia tools were used appropriately in relation to the goals of the class, the student's abilities, surveys the level of student satisfaction with multimedia tools and how much multimedia tools contributes to improvement of students' grades.



(Figure 2) The effectiveness of multimedia tools used in class

The four audio software tools, PPT, Flash Animation, and video were applied within the classroom and then analyzed. Two types of surveys were developed for instructor-focused research. The first survey contained 10 questions to perform a predictive analysis, the second survey also contained 10 questions to perform the backward induction analysis. The feedback questionnaire is used to collect student opinion related to multimedia tool usage. Pre-test and post-test was conducted before and after multimedia use.

Both questionnaires consist of yes/no questions, and the student feedback questionnaire was also comprised on yes/no question.

2.2 Class application and evaluation

The percentage of students and teachers that responded positively were compared and analyzed to the percentage of students and teachers that responded negatively. The difference between the pre-test and post-test results were calculated to evaluate the actual results. As the questionnaire was comprised of yes/no questions, the percentage of students

and teachers that responded positively was calculated as n=20 values.

The questionnaire used in this survey currently has effectiveness. The standard measure is given simultaneously as the test value.

The test value evaluates the students' current grammar, vocabulary, pronunciation, speaking skills and accuracy. Pre-test and post-test are conducted at regular intervals. This test is repeated thus the average value is calculated as the reliability.

The multimedia tool of audio software is designed to improve students' pronunciation. It includes the functions of drop-down menu, main page, previous page, restart option, audio play functions (play, pause, stop), record, and comparing voices of students and teachers. It is possible for students to view and to listen to the text. In addition, students may speak and record their voices.

Power Point presentation is designed to improve the students' vocabulary. On each of the 46 slides, a combination of text and image is presented. The module has a series of topics, and each concept is explained using examples that satisfy the visual learner. This is appropriate and highly effective for self-study and for different learning styles of learners.

Multimedia flash animation is designed to teach the students grammar. This is comprised on the color interface of the lower portion with the three options of home, memo and close window. The animation characters feature features, male and female students. The menu lists all the grammar topics discussed in the module. First, the definition is explained, followed by examples given in subsequent order.

	Pre-test	post-test	Improvement in learning after multimedia lessons
Urban areas	56%	88%	32%
Metropolitan area	47%	72%	25%
Rural areas	22%	40%	18%

<Table 1 > Learner's Test Results on Multimedia Use for Improvement

Students from metropolitan areas scored an average of 56% for the pre-test and 88% for the post-test. The scores improved 32% after using multimedia tools. Students from the capital scored 47% before the test and 72% post-test, with a 25% improvement. Students from rural areas scored 22% for the pre-test and scored 40% for the post-test, showing an improvement of approximately 18%.

Video is designed to improve the communication skills of students. Videos can be played using Winamp, VLC media player, Window media player. Subtitles displayed at the bottom of the video help to understand the audio.

3. Hypermedia Tools in Reading Hyper and Print Text

Not only does it refer to plain text but also audio, video, image and similar forms of multimedia hypertexts with hyperlinks to media. In other words, hypermedia refers not only to text containing a hyperlink, but other types of media that contain hyperlinks, such as audio, video or moving images. Hypermedia is a conjunction where hypertext meets multimedia. Each individual component of hypermedia documents is interactively connected.

3.1. Navigational decisions and encoding

Hypertexts are text or graphics derived under the control of the learner in a computer-learning environment. The concept on a hypertext is comprised of text information and visual (image) information, and diverse types of information of hypermedia. That is, hypertexts include text, audio, words, animation, video, etc. Therefore, in principal, when excluding the differences between the information types, there is no difference between hypertext and hypermedia. In fact, expanding the concept of hypertext to include hypermedia is garnering the interest of many theorists (Seyer, 1991; Conklin, 1988).

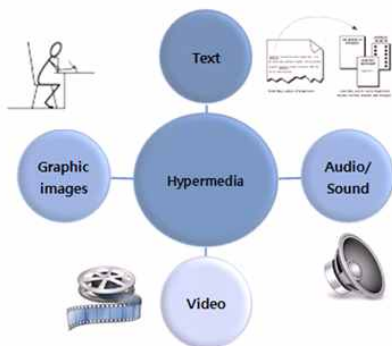
As a relatively recent field of study, adaptive hypermedia is a combination of hypermedia and user modeling. The adaptive hypermedia system involves a model of each user's purpose, preference, individual knowledge, etc. Using this model, it interacts with the user and adapts to meet the needs of the user.

Microsoft Viewer is used for English titles. However, Viewer is an English language based writing tool and in order for words to be distinguished, they need to be separated with spaces. This makes it difficult to use Viewer in Korean as there are many compound nouns and prepositions are written together with nouns. To address such issues, a writing tool specifically for using within a Korean language environment called Geulteora (Geul-To-Ra) was developed.

3.2. The Technology of Hypermedia

The computer used in the study were all Pentium based 'Dell' computers. The website used for the hypertext portion of the study was 'readingonline.org' where the stimulus material for the hypertext portion of the study was accessed in original hypertext format. Multiple-choice questions provided visual cues,

promoting answer recognition.



(Figure 3) Hypermedia Technology

The variables of age and gender related to reading task performance on printed and hyper text were matched in order to see whether the two groups are similar. Most participants in the study for both the Printed Text Group and the Hypertext Group were in the 18-25 age bracket.

Ninety percent of the participants in the Printed Text Group were in the 18-25 age bracket while ten percent of the participants were in the 26-33 age bracket. Within the Hypertext Group, 76.7% of the participants in this group were in the 18-25 age bracket while 20% were in the 26-33 age bracket.

Age	Printed text group		Hypertext group	
	%	No.	%	No.
18-25	90.0	27	76.7	23
26-33	10.0	3	20.0	6
34-41	0.0	0	0.0	0
42 and above	0.0	0	3.3	1
Total	100.0	30	100.0	30

<Table 2> Percentage Of Respondents Within Age Intervals Of Printed And Hypertext Groups

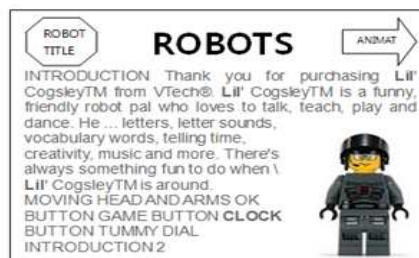
Findings provided little if any support for improved reading on a computer screen over printed pages. Multimedia creates a reading experience that is inherently more engaging than printed materials, with its multiple symbol systems available to the new medium of electronic texts.

4. English learning resources using computer technology

Many studies provided guidelines for using computer technology in schools with a particular focus on the application of multimedia software and tools. While the resources builds on earlier material, it also provides suggestions to assist with developing school policy on using computer technology, ideas for assessment and evaluation, and ways of incorporating the multimedia contents in writing programs across the curriculum.

4.1 Hypertext application

Browsers provide an interface to access the World Wide Web. Browsers interpret hypertext, display sites, and allow navigation from one Internet site to another. Hypertext is text that includes a pointer to other texts, and it refers to a document with various hyperlinked words together with plain text. Hypertext is a non-sequential way to display information. Using the capabilities of hyperlinks, hypertext creates spider web-like complex connections of information



(Figure 4) Hypertext using Technology Web can be explained as a client/server

hypertext system to obtain Internet information. On the Web, everything is presented in hypertext(HTML format) and uses URL to connect to other documents. Web includes not only FTP, Gopher, Telnet but also http protocol to transfer file programs.

4.2 Application in the writing process

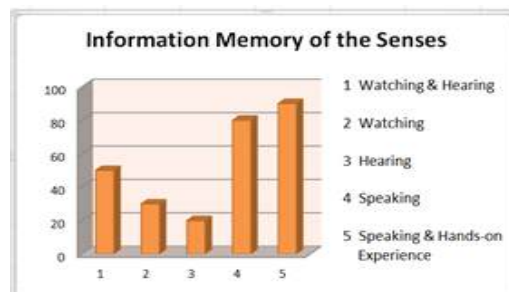
There are many different types of web programs such as e-mail, electronic bulletin boards, computer discussion, real-time conversation, and the learner is able to use these tools to actively communicate with other learners or instructors, professionals. Moreover, it provides the learner with opportunities for co-operative learning, individualized feedback, and even the opportunity to internally integrate newly acquired or learned information (Dehler & Porras, 1998). Park In Woo (1998) states hypermedia-based Web is the most appropriate medium to have realized the constructivist learner theory.

The information society can be seen as controlled by the Internet, the so-called sea of current information, and various forms of multimedia; it would be difficult to find new directions and signification meaning outside of these. Hypermedia English education enables learners to independently and proactively engage in the problem solving and inquiry process. The types and mediums of hypermedia for English language education required for active interaction of professors, students and teacher's have been classified by Heinich(1996) as follows.

Non-projection media: photos, diagram, image, graph, diorama, models, etc. Projection media: slides, filmstrips, OHP, computer projection etc. Auditory media (audio media): video, film, etc. Image media (moving images, videos): video, film etc. Computer mediation instruction. Computer based multimedia and hypermedia

Of the above classifications, hypermedia is the most advanced medium and can be used

effectively in each of the 6 teacher-learner methods. Hypermedia referred to in this article is integrating hypertext with multimedia.



<Table 3> Information Memory of the Senses

According to the analysis of information memory capacity of each individual sense of learners by Sampath et al. (1990), ears retain 20%, seeing with eyes 30%, seeing with eyes and listening with ears 50%, spoken information 80%, and information spoken and experienced firsthand is retained 90%. With this considered, learning content can be best configured in detailed situations using hypermedia; the most ideal and effective educational medium.

Hypermedia refers not only to the information medium of hypertext but text, audio, video, images and various information media accessed in a non-sequential way. With such characteristics, hypermedia is convenient to locate information, and related information, for each topic and subject.

5. Conclusion

This study analyzes the use of multimedia tools such as audio software, PPT, flash animation, and video in English education through student questionnaires and empirical studies. Predictive analysis on teachers was conducted before and after the use of multimedia tools.

Multimedia tools have been proven to be very effective in teaching English. Students

living in metropolitan, capital and rural areas all improved their scores with an average of 32%, 25% and 18% respectively. In addition, excellent students, average students and below average students improved their scores 35%, 28%, and 18% respectively. On the other hand, the computer skills of excellent students, average students and below average students improved 26%, 23% and 22% respectively.

Audio streaming, PPTDMS examples and practice questions are included. Flash animation and video does not include practice questions. On the other hand, audio streaming and flash animation power point presentations are designed according to behaviorism theory, and video has been designed on the basis of behavioral and cognitive theory.

References

- [1] Awad, Selim S.; Corless, Mark W.; Merson, Richard, "Computer assisted treated for motor speech impair," Proceedings of the 1999 16th IEEE Instrumentation and Measurement Technology Conference, vol. 1, pp. 595-600, 1999
- [2] Barnett, M. A. "Reading through context: How real and perceived strategies use affects L2 comprehension." *Modern Language Journal*. 72: 150-162. 1988
- [3] Dehler, C. & Porras, H. L. "Using computer mediated communication(CMC) to promote experiential learning in studies." *Educational Technology*. 38.3: 52-55. 1988
- [4] Dreyer, C. & Nel, C. "Teaching reading strategies and reading comprehension within a technology-enhanced learning environment." *System*. 31.3: 349-365. 2003
- [5] Jung, Y. S. "Effects of EFL reading strategy instruction on integrating technology for Korean university students." *Multimedia-Assisted Language Learning*, 5. 1(2002): 32-58. 2002
- [6] Laurillard, D. M. *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*. Routledge, London. 1993.
- [7] Ming-Liang Hsiao, Shih-Tsang Tang, Shuenn-Tsong Young. *A Computer based software for hearing impaired children's speech training and learning*. Institute of Biomedical Engineering, National Yang-Ming University, Taiwan. 2001.
- [8] Plass, J. "Design and evaluation of the user interface of foreign language multimedia software: A cognitive approach." *Language Learning & Technology*, 2. 1(1998): 35-45.
- [9] Shaw, Robert; Lapl ante, Phillip A.; Salinas, Jose; Riccone, Rosemarie, "Multimedia speech learning system for the hearing impaired," *Multimedia Tools and Applications*, vol. 3, no. 1, pp. 55-70, July 1996.
- [10] Sung Ik Park. *The Concept of Multimedia, the educational Function and the learning Environment*. 1996.
- [11] Stemler, L. "Educational Characteristics of Multimedia: A Literature Review." *Journal of Educational Multimedia and Hypermedia*, 6(4). 1997.
- [12] Vicsi, K.; Roach, P.; Oster, A.; Kacic, Z.; Barczikay, P.; Tantos, A.; Csatari, E.; Bakcsi, Z.; Sfakianaki, A.; Multimedia, multilingual teaching and training system for children with speech impair," *International Journal of Speech Technology*, vol. 3, no.3-4, pp.289-300, Dec. 2000
- [13] White, R.V. *The ELT Curriculum : Design, Innovation And Management*. Oxford: Blackwell. 1988. Feb - 2009. 67-73. 2009
- [14] Young Gon Koh, Taek Kyung Lee. *Hypermedia System and Information Search*, *Journal of Information Science*. 1995



Lee, Il-Seok

1992 Bachelor of Dankook
University(English)
1997 Master of Dankook
English Education
2005 Phd. Dankook
University

2013- 현재 단국대학교 교육조교수

관심분야: 멀티미디어 언어학습, 모바일 어플 언어 교육,
인터넷 영어 교육, TESOL