

Computer-Assisted Language Learning for Beginning-Level Nonnative Learners with Special Reference to KLICS: Korean Language in Culture and Society¹

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This is a report on computer-assisted language learning software development project: KLICS, Korean Language in Culture and Society with special focus on its beginning level. It has been built to be used on Apple Macintosh platform in color-capable SuperCard authorware environment. It also can however built to work as a stand-alone software. The article describes three portions of the beginning level software: (1) Hangul: the Korean Alphabet, (2) Pictorial Study and Dialog Practice, and (3) Beginner's Readings.

1.0. Introduction: Strengths and Weaknesses of Computer Utilization in Foreign Language Learning

It is perhaps not necessary to emphasize that a human being is the best teacher in teaching almost anything. It is still more the case in teaching a

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language. Some of the most outstanding qualifications of a human being compared with for example a machine would be that a human being (1) is an infinite source of knowledge about languages, (2) is flexible enough to the situational variations, and (3) is capable of personal interactions, either rational or emotional, which will be the source of inspiration, emotional excitement and even of humor. Of course, a human teacher could be simply the other way around: he could be dull, monotonous, unintelligent, and whatever kind of personalities that would contribute to making the teaching processes unproductive.

A machine, for example the computer, could not perhaps be as exciting as a human being. It however has its virtues too. Namely, it does not get tired. It is serviceable any time since it does not have to go to sleep. It does not get angry even though it may have to repeat the same thing one hundred times. Due to the recent technological advancement, the multimedia computer is capable of speech, graphics and movies, and is also capable of interacting with human beings. It can be equipped with a large data base which would be retrievable on human request. And finally if you like to play with machines, it gives you fun, too!

Whatever the outcome of this comparison, it may not harm to call in the

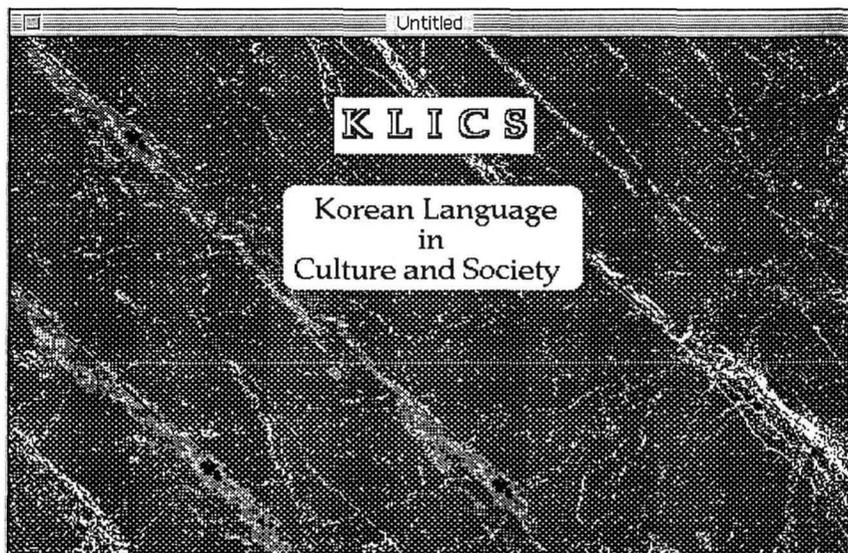


Fig. 1A

computer to play even an auxiliary or helping roll in teaching languages. The number of foreign language learners is increasing greatly and educating the teachers takes time and money. Why not try and augment this imbalance of demand and supply by CALL (Computer-Assisted Language Learning) or CAI (Computer-Assisted Instruction)?

2.0. What are necessary for CALL/CAI?

In order to get the computer work for us for teaching us languages, we need (1) hardware and (2) software. The hardware is the physical computer itself in which software should reside and do work for us. Among software there are two divisions: system software and applications. System software, commonly called DOS and Windows in case of PC and Apple Talk in case of Macintosh computers, come with the machines which you do not have to worry about. Applications, in the case of CALL, are the teaching and learning materials for languages. The theme of this paper is concerned with this applications specially designed for Computer-assisted Language Learning with Special Reference to Korean as a Foreign Language.

2.1. Computer Hardware

There are two kinds of machine commonly available. One kind is a machine with Intel 80386 Central Processing Unit or higher. This kind of machines are commonly called IBM PC or PC compatible. The other kind is a machine with Motorola 68030 CPU or higher. This kind of machines are commonly called Macintosh(es). Whichever machine you have, it must be equipped with the following: (1) at least 4 MB(MegaBytes) of RAM (Random Access Memory) preferably 8 MB, (2) auxiliary memory of 60 MB of hard disk, (3) video display preferably VGA or higher, (4) sound digitizer, and (5) amplifier and speaker. In case of Macintosh, the fifth is equipped with the computer.

The case put forth above roughly satisfies what is called Multi-media Specifications. For those who feel interested in Multi-media Specifications I list below in 2.1.1 some explanations about Multi-media which uninterested reader may skip.

2.1.1. MPC: Multimedia Personal Computer

MULTIMEDIA STANDARDS

(1) Minimum Standard

Set by Multimedia PC Marketing Council

Multimedia PC (MPC) specification 1.0

cf. IBM offers a competing multimedia standard in the form of its Ultimedia machine.

System manufactures can become council members and get full MPC trademark licensing privileges for a \$250,000 fee; upgrade-kit manufacturers can get the same privileges for \$100,000.

Level I Standard (already slightly revised)

80286 micro processor 10 MHz revised to 80386SX processor

2 MB RAM

20MB Hard Disk

1.44MB high-density floppy disk drive

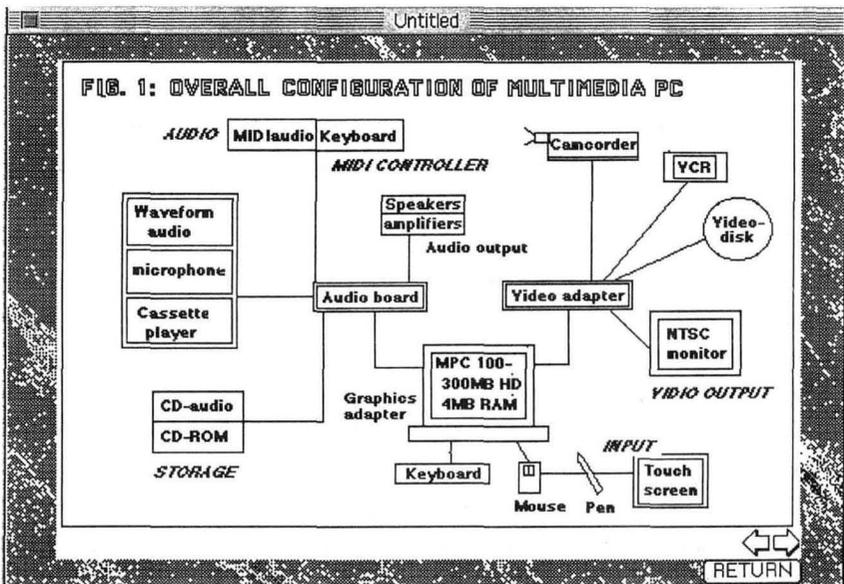


Fig. 1B

16-color VGA:

(cf. 256-color VGA offers applications much more flexibility to display real-world images by using natural colors.)

CD-ROM: must support a continuous transfer rate of 150 Kbps.

Audio:

An internal MIDI synthesizer that supports three simultaneous melodic voices with an overall six-note polyphony, and a percussion voice with two-note polyphony.

Level 2 Standard (not yet released but likely to be.)

80386SX 20MHz

4MB RAM

100MB Hard Disk

1.44MB high-density floppy disk drive

Super VGA (perhaps)

CD-ROM:

Drive fast enough to run multimedia titles.

Must achieve a continuous transfer rate of 150 kilobits per second.

Mouse:

2-button mouse.

Joystick input

Audio:

Support for MIDI and wave-form audio.

MS Windows with Multimedia Extensions 1.0

Microphone

Speakers and headsets

(2) Extended Standard

Everybody is configuring his own for extension.

IBM Ultimedia

Apple: QuickTime specifications as a multimedia programming interface.

Commodore: Amiga as a multimedia machine.

Three-dimensional simulations.

One possible configuration:

80386SX or 30386DX 25MHz processor

4-6 MB RAM

120MB hard disk

CD-ROM fast enough to run multimedia titles or CD-ROM XA

Super VGA board:

or a new Graphics Accelerators based on S3's 86C911 chip for more sophisticated work, you may want a board designed for connecting your PC to an NTSC or PAL (Phase Alternate Line) video source.

Audio:

Support for MIDI and wave-form audio.

MS Windows with Multimedia Extensions 1.0

See Fig. 1B for overall configuration of a multimedia computer.

2.2. Computer Software

(1) Operating System

For PC compatibles, DOS 3.3 and upward and Windows 2.1 are preferable. As of the end of 1992, Hangul version of MS Windows 2.0 has been out. For Macintoshes HangulTalk 6.0.7 and higher is preferable. For the latter HangulTalk 7.1 and above is the most convenient.

(2) Authorware software which is capable of utilizing Multimedia

There are several authorwares which are commonly available for commercial sale. For Macintoshes they are HyperCard, SuperCard, Authorware Professional for Mac, etc. For PC compatibles, they are ToolBook and Authorware Professional for PC, etc.

(3) CALL or CAI Language Software

There are some commercially available softwares for English, French, Japanese, etc. However, for Korean, softwares are not available yet. This paper is a report on an on-going project by Han-Kon Kim to develop a software for Korean as a Foreign Language titled KLICS: Korean Language in Culture and Society. It is also known that DLI (Defense Language Institute, U.S.A.) is also working on a project.

3.0. Some Important Considerations in Writing CALL/CAI Software

There are two lines of considerations to be discussed with regard to constructing CALL/CAI software or materials, namely considerations in relation to educational considerations in general and considerations specific to computer utilization.

(1) General educational considerations

This line of considerations are in relation to commonly known factors such as (1) goals of teaching/learning, (2) adoption of methodologies, considerations about the teaching/learning environment, whether the software will be the main text materials or an auxiliary ones, and choice of the target language, etc. I dispense with discussions of these since I want to spare the space for software development itself.

(3) Considerations in relation to utilization of the computer

The choice of the platform is an important matter which may be affected by the financial matters, availability of the kinds of computer and software, system as well as application software, etc. For the last question, the reader may refer to the dealership in one's community. For the financial considerations, one may take all the Multimedia components into considerations and come up with the final financial needs. One danger in this matter is that one tend to think of the computer itself which is only small part of the whole financial needs. In this respect it may be helpful to refer back to 2.1. 1 MPC and configure the whole setup before making the final decision.

Especially important here is (1) whether one needs movie making capability, (2) whether one needs laser disk player, (3) whether CD-ROM capability is necessary, and (4) whether one needs MIDI capability.

In relation to this hardware, the elementary/beginning level of the current KLICS software is designed in such a way that it will require minimum configurations of the computer platform. This software utilizes SuperCard and can be run on a Macintosh with 68030 CPU, 4MB RAM, 60 MB hard disk, equipped with 14 inch color monitor. This does not of course restricts the user to use a more powerful machine.

4.0. KLICS: OVERALL STRUCTURE

Since this presentation concerns itself with only the beginning level of

language teaching, it suffices to mention that it will consist of (1) Beginning Level, (2) Intermediate Level, (3) Advanced Level, and (4) Culture and Society. The levels (2), (3) and (4) are not our concern here, and the level (1) will be explained in 5 below.

5.0. KLICS: The Beginning Level

The Beginning Level of KLICS consists of the following parts:

Part I. Hangeul: the Korean Alphabet

Part II. Pictorial Study and Dialog

Part III. Readings

5.1. Hangeul: The Korean Alphabet

The Korean Alphabet consists of the sections 1.1, 1.2, 1.3 as illustrated by Fig. 2 and those sections again consist of further subsections respectively as illustrated by Figs. 3, 4, and 5.

The initial part of the Korean alphabet is familiarizing with the basic

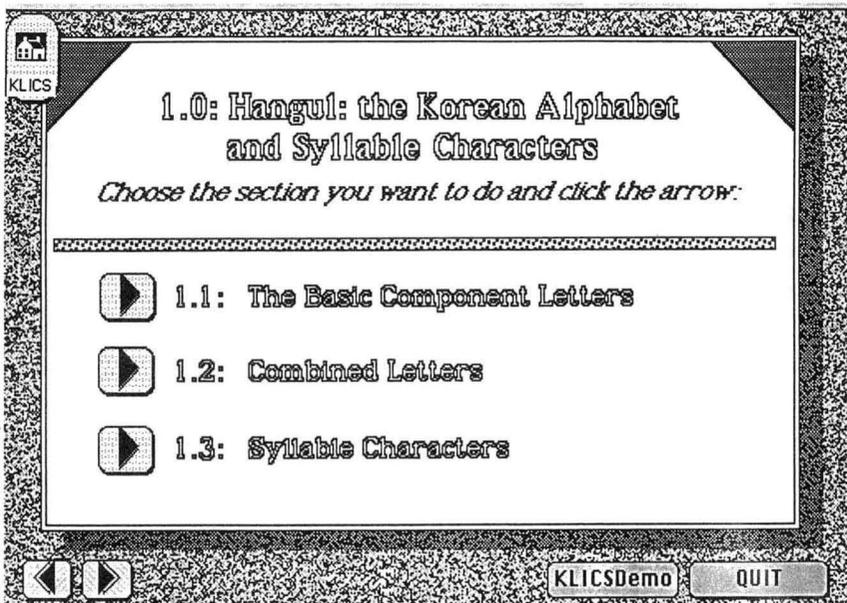


Fig. 2

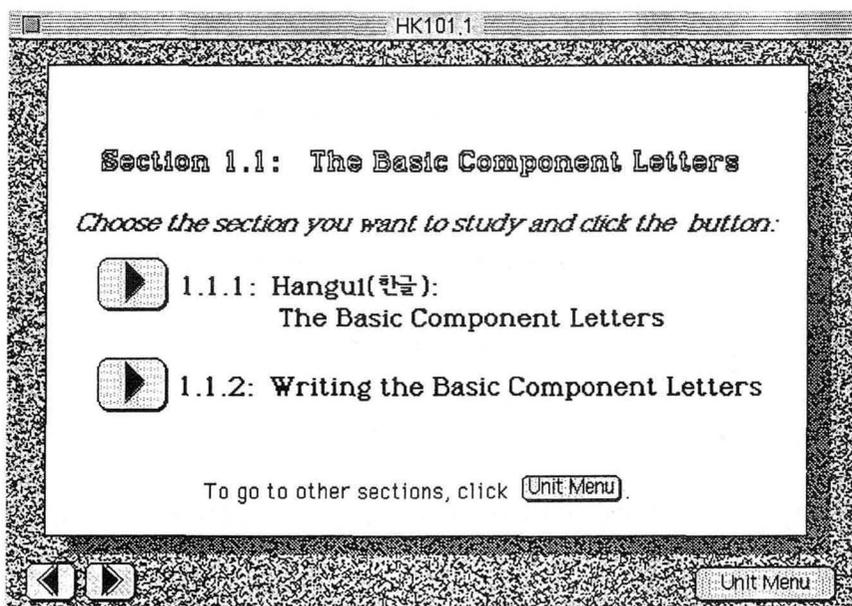


Fig. 3

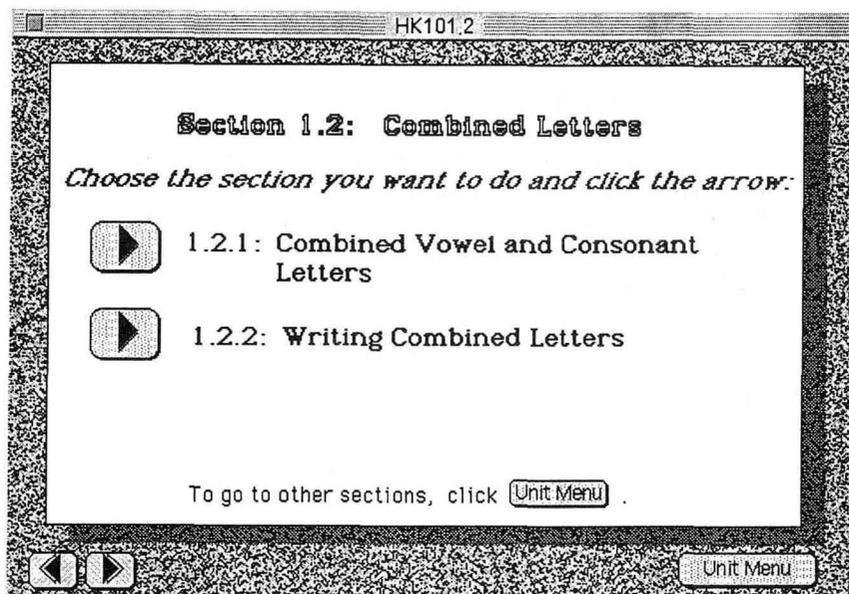


Fig. 4

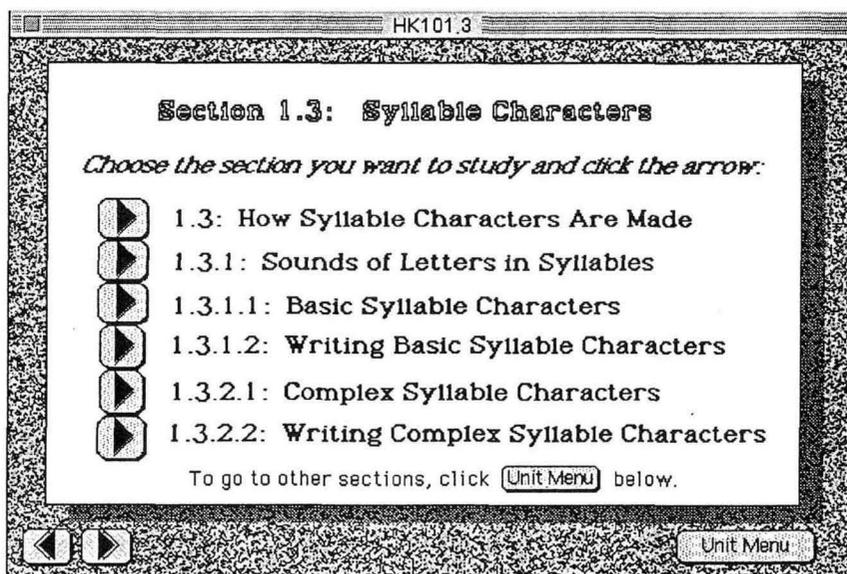


Fig. 5

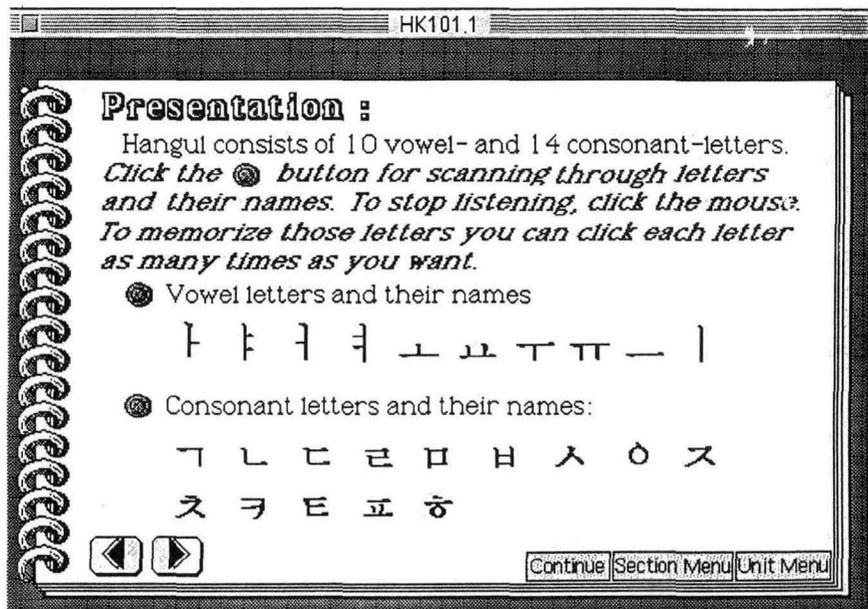


Fig. 6

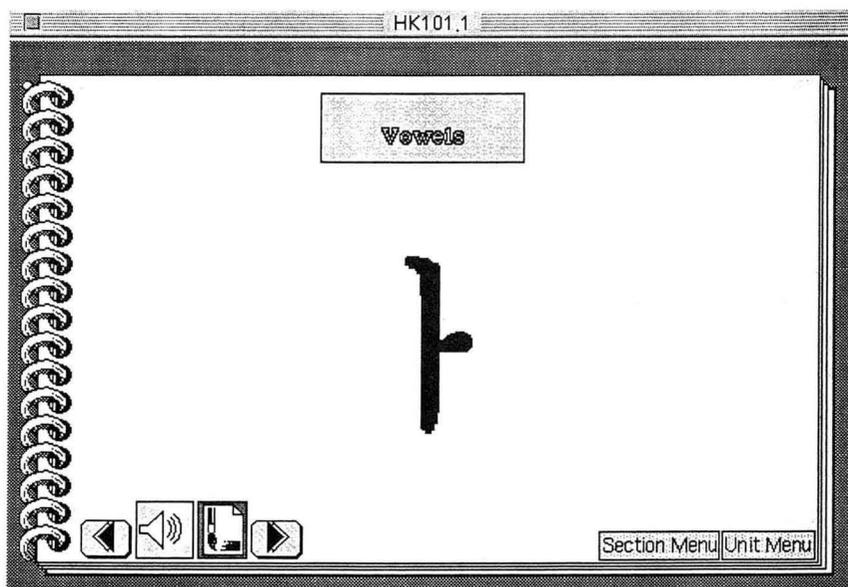


Fig. 7

To use a little more exact words, there are basically two types of Korean syllable character:

- (1) **Initial Consonant + Medial Vowel** (Fig. 1)
- (2) **Initial Consonant + Medial Vowel + Final Consonant** (Fig. 2)

Type 1 is illustrated in Fig. 1 where "ㄱ" and "ㅏ" are combined to make the syllable character '가'. Type 2 likewise is illustrated by Fig. 2 where "ㅎ", "ㅏ", and "ㄱ" are combined to form the syllable character '학'.

<Fig. 1>

ㄱ	ㅏ	==>	가

<Fig. 2>

ㅎ	ㅏ	==>	학
ㄱ			

Fig. 8

component letters including recognition as well as writing production. The recognition part is illustrated by Fig. 6 and the writing production part by Fig. 7.

The second part of the Hangeul alphabet is familiarizing with the combined letters and writing them. Illustration of this part is skipped due to limitation of space.

The third part is familiarizing with syllable characters. We first introduced how syllable characters are made from component letters. One illustration is Fig. 8 in which components of each syllable character are explained. Also explained in this section is the sound value of each component letter as illustrated by Fig. 9.

A couple of strengths of this kind of computer-assisted language learning are the following: (1) letters and characters are each linked to the actual pronunciation of each of them. That is, if the user click a letter or a character, the computer will pronounce it accurately. (2) The writing order of each letter or character could be demonstrated by clicking the appropriate button, which is life-like demonstration of writing procedure.

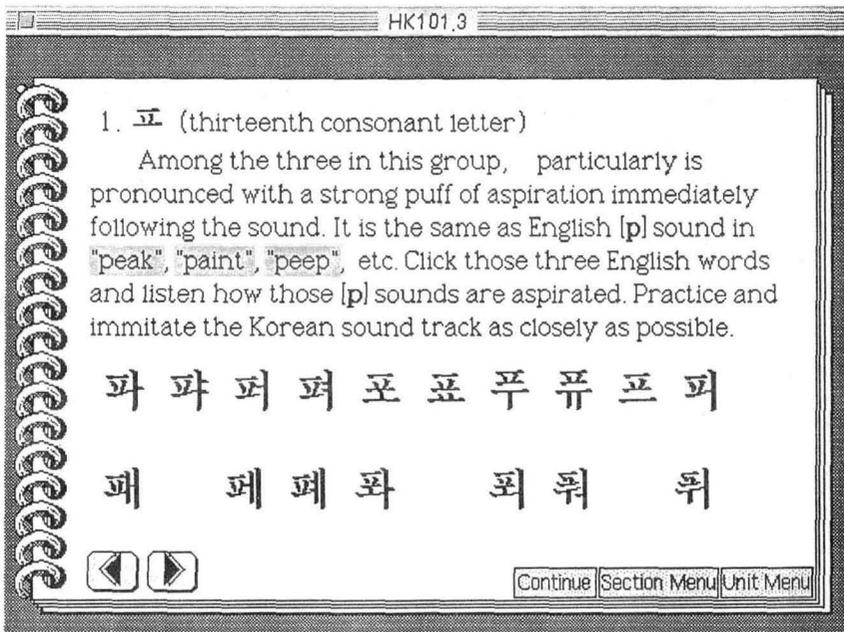


Fig. 9

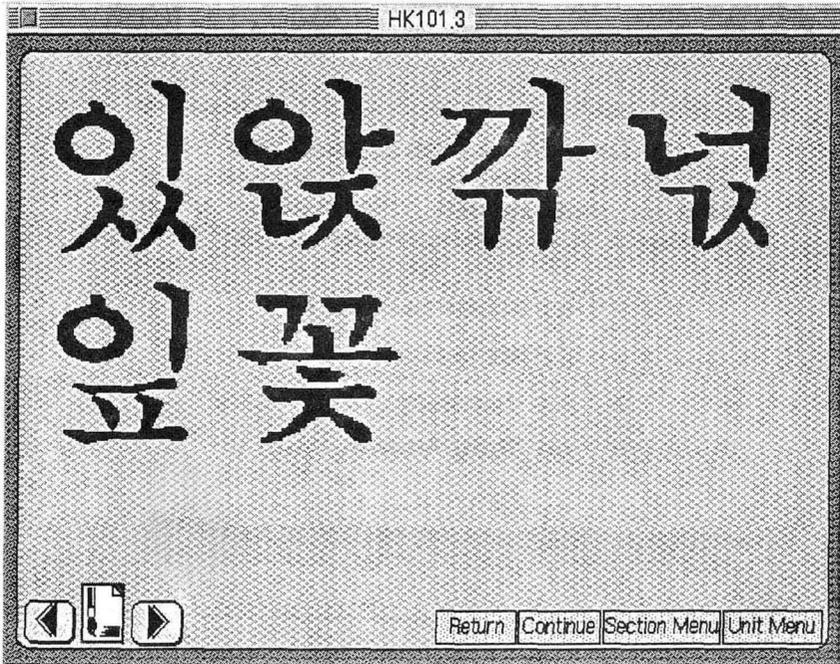


Fig. 10

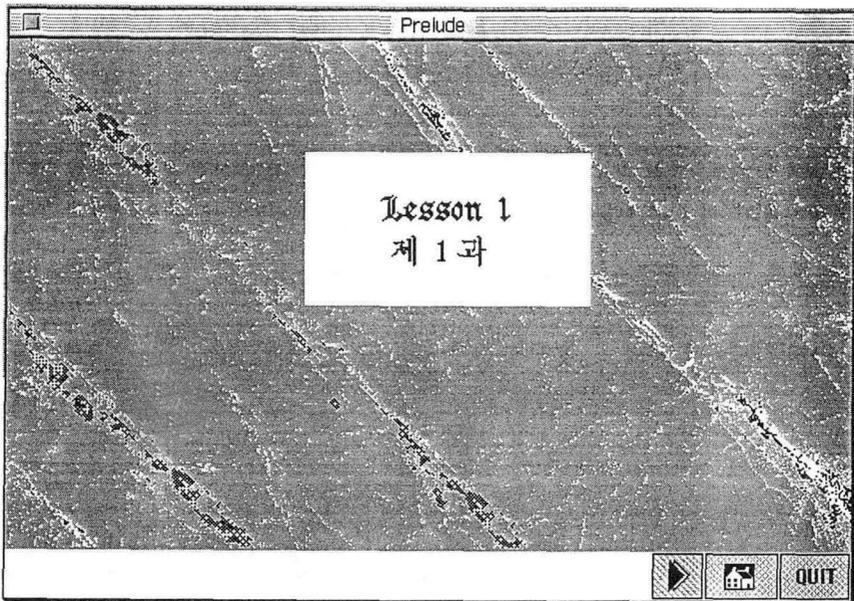


Fig. 11

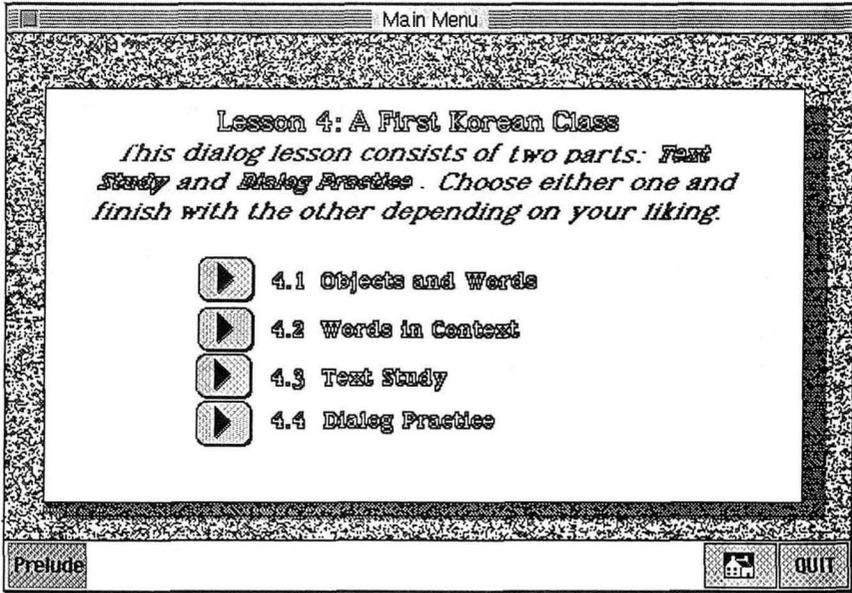


Fig. 12

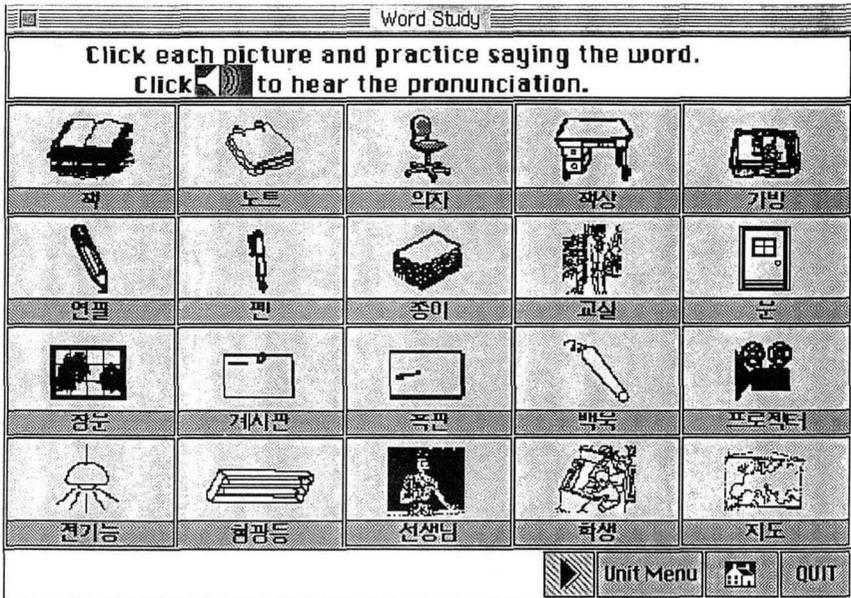


Fig. 13

The learner could imitate this procedure to familiarize himself/herself with writing.

5.2. Pictorial Study and Dialog

Fig. 11 is the first screen card with which Pictorial Study and Dialog starts. Fig. 12 shows the menu for this part.

(1) Word Study I: Word Pictures in Isolation and Closeup Pictures

Objects and Words give word pictures as illustrated by Fig. 13. This is a picture list of 20 words and their pictures. If the user clicks each picture of Fig. 13, then he gets a closeup picture of each item as illustrated by Fig. 14. The user can then utilize sound button to repeat the pronunciation of the word as many times as he wishes and practice after the sound. If he/she wants to go back to the list of pictures, he/she can click SectMenu. If he/she wants to continue closeup pictures he/she can click the arrow buttons. If he/she wants to go back to the lesson menu, he/she can click the UnitMenu.

(2) Word Study II: Words in Context

If we select Words in Context in Fig. 12, we get a picture illustrated by Fig. 15. This picture is a situational one in which the twenty words already learned in Objects and Words are put in social context. Here the learner re-learns the words as part of a situation, which would be more meaningful as part of the situation.

There are several choices (by buttons) in the situational picture. The Whole button triggers the whole set of items to be pointed to by an arrow mark together with the pronunciations. The user can repeat as many time as he wants. He can also stop the listing by clicking the mouse. The Object button lets the user click any objects in the picture so that he could hear the sound as well as see the script written for it. The Repeat button trigger some more buttons to appear: namely, Prev(ious), Writing, Sound, and Next icons. If the user click the Sound icon, he hears the pronunciation for an object pointed to by the arrow. If he clicks the Writing icon, he gets the script written. If he clicks the Next button, he gets the next object/word pointed to by the blinking arrow. He can pronounce or write it, and confirm by clicking the Sound button or the Writing button. If he wants to go to the



Fig. 14

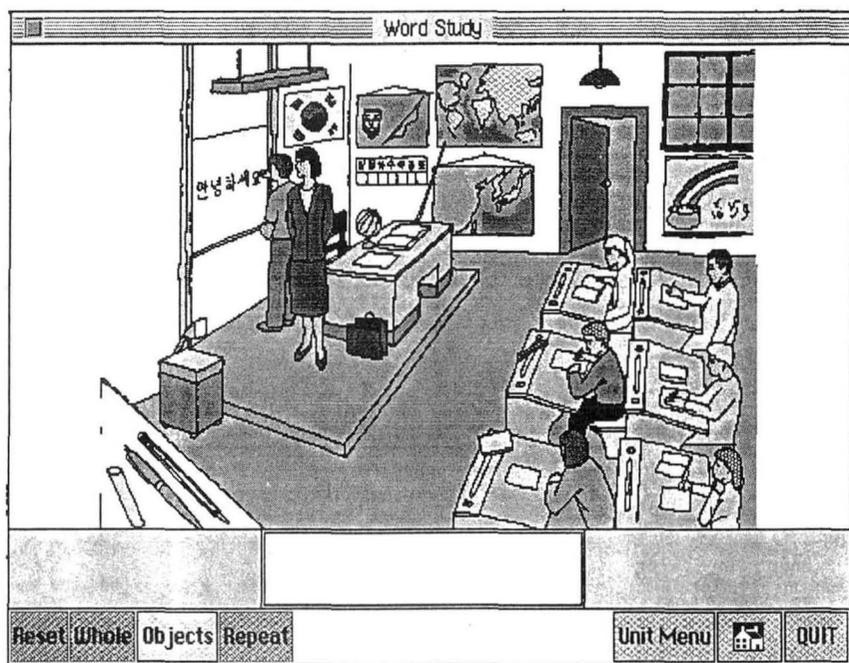


Fig. 15

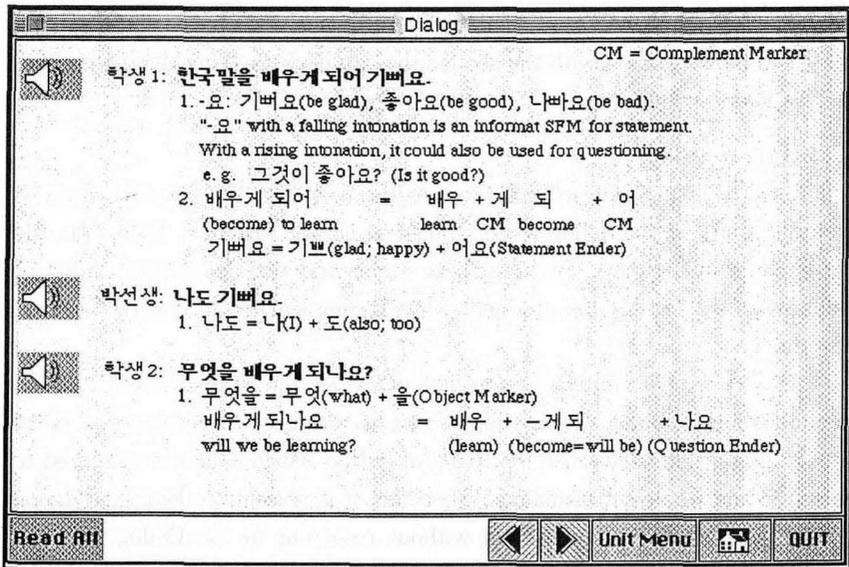


Fig. 16

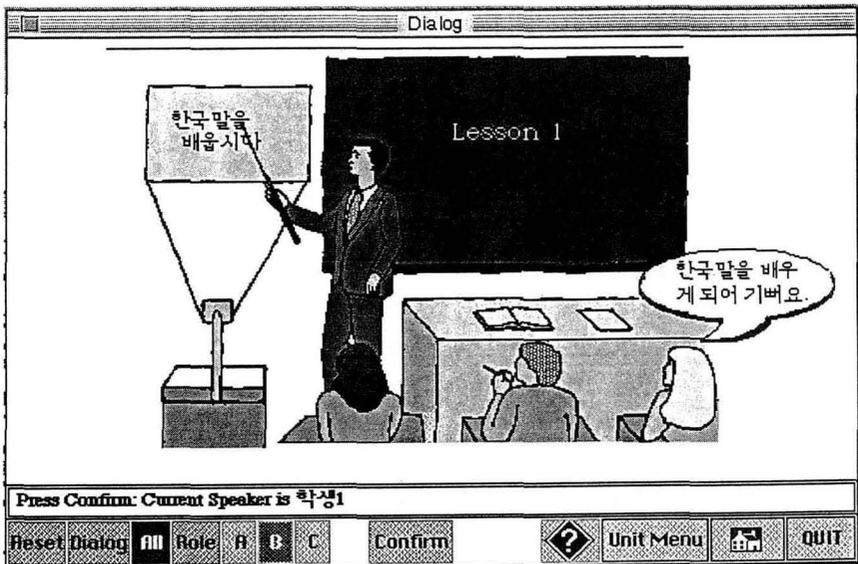


Fig. 17

previous object/word, he can click the Prev(ious) button. If he wants to get

into another mode, he Could click the Reset button and choose his selection.

When he is finished with the section, he can click the UnitMenu to return to the lesson menu.

(3) Text Study

Choosing Text Study in Fig. 12 gives the user Fig. 16. The text study is textual study of the dialog to be studied in Dialog Practice. Therefore, the user could either start with this Text Study and then go to the Dialog or start with the Dialog and augment what he has learned in it with the Text Study.

The text study contains all the dialog text of the Dialog Practice. Each sentence has a sound button which could be triggered to get the reading of each. In addition it has also the ReadAll button which could be triggered to listen to the whole set of dialogs. Therefore it is possible to learn the dialog in the Text Study section, even without resorting to the Dialog Practice section at all except that the latter has some more features, which will be explained immediately.

Since it is not possible to accommodate the whole dialog in one page the arrow buttons bring the user back and forth in the textual study. The textual study includes whatever seems to be necessary like the vocabulary, grammar, and idioms, etc.

(4) Dialog Practice

Choosing Dialog Practice in Fig. 12 gives the user Fig. 17. Fig. 17 is different from Fig. 15 in that Fig. 17 is dialog oriented while Fig. 15 is more object/word oriented.

Fig. 17 has quite a complicated structure which the user has to master so that he could manipulate it freely as needed. The basic idea is dialog role playing with help of cartoon and balloons. The button menu structure is constructed in two levels. The top level of the menu is: Reset, Dialog, All, Role, Help, Unit Menu, Home (KLICS), Quit.

The Dialog button plays the whole dialog with the balloons and scripts in them. In a word, it is a short movie of dialog which could be repeated as many times as needed by the user.

The All button trigger the second level of menu buttons:

Roles: A, B, C, D, and Confirm. When this button is first clicked, the second level of menu appears as has already been explained and one of the

Role buttons gets highlighted for the user to say the role part. He says it or he may not be able to say it, then anyway he triggers the Confirm button to confirm his saying. Then the second button gets highlighted for the user to say the role then he can trigger the Confirm button again and so on. While roles are taking, the field right up above the row of menu button show the user who is playing the role and when the dialog is all finished it also reports you about it.

The Role button lets you choose one of the several roles. If you choose one of A, B, C then you will be given the role together with the Begin and the BeginHelp buttons. If you choose Begin, the Dialog will begin except that role you chose will be given to you. If you choose Begin(Help) button you will be given the?(Help) button for you to be able to trigger it the first time for script and the second time for pronunciation.

5.3. Readings

After 20 units of Pictorial and Dialog lessons begins 20 lessons of beginning Readings. Fig. 18 shows the cover sheet of the Readings.

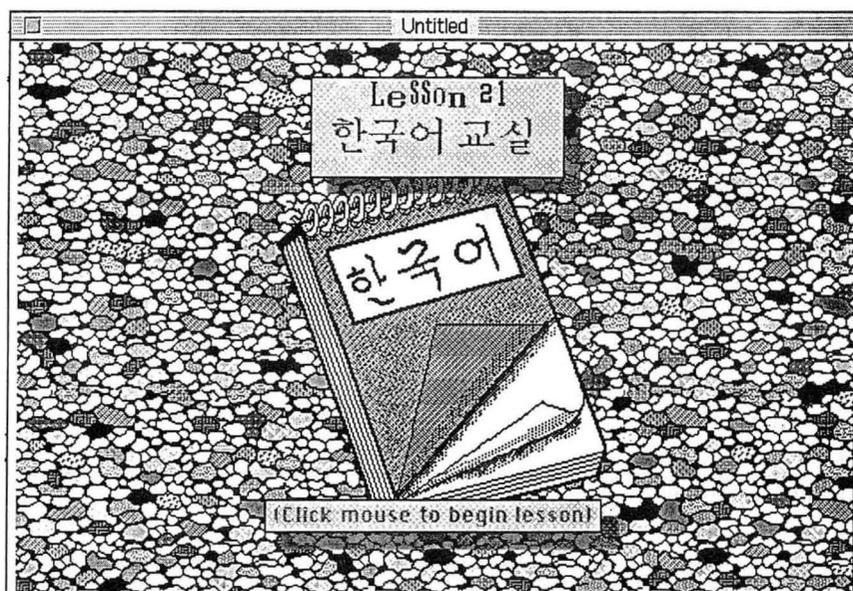


Fig. 18

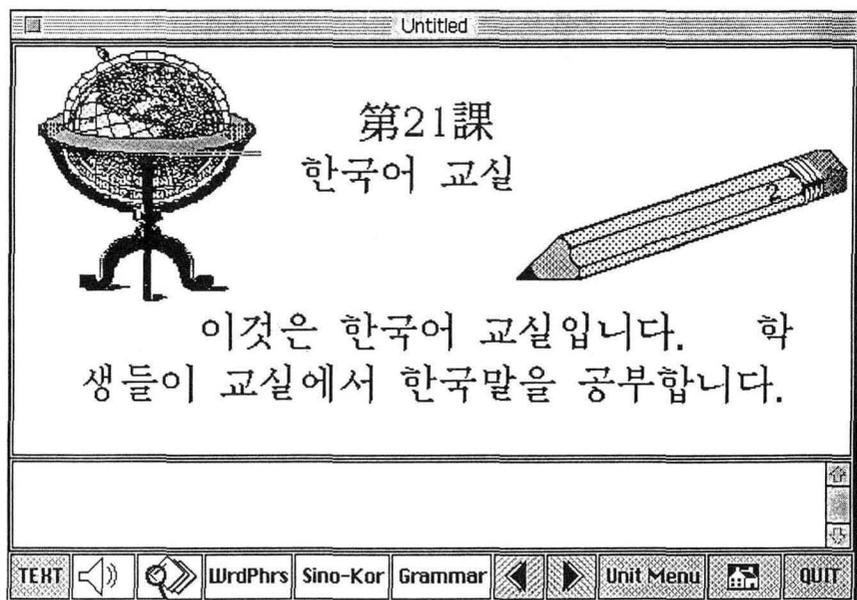


Fig. 19



Fig. 20

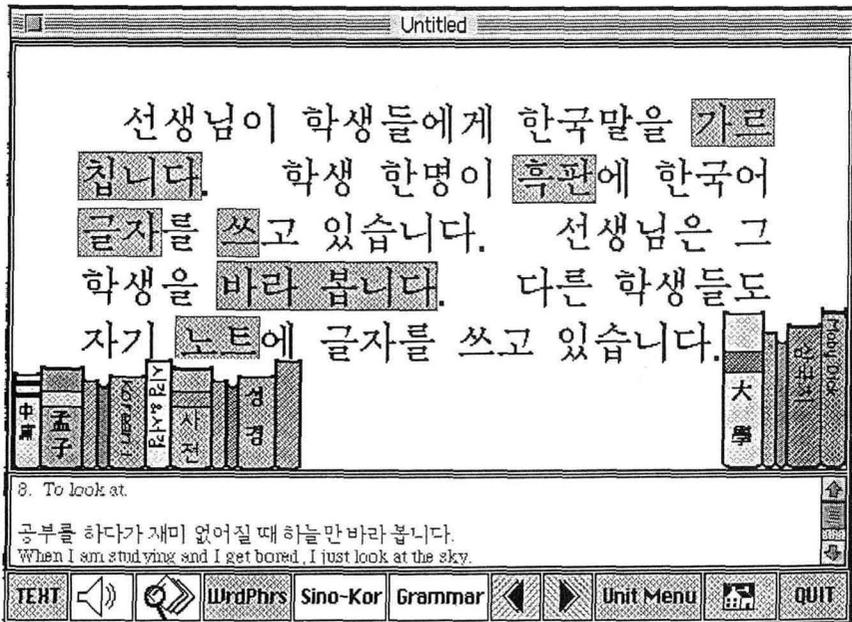


Fig. 21

Fig. 19 shows the first page of Lesson 21. It shows the menu structure of the reading lesson: TEXT, Speaker , Translate , WrdPhrs (Words and Phrases), Sino-Kor(ean), Grammar, ←, →, UnitMenu, KLICS , QUIT.

The TEXT button sets back to text mode as illustrated by Fig. 19. The Speaker button sets the speaker button to each of the sentences in the text so that the user could listen to the reading pronunciation. The Translation button puts a button to each of the sentences in the text so that the user could read the translation of each. The translation of the first sentence is illustrated by Fig. 20. You can see the translation given in the field right above the menu line. This field is the space where other information is also given. The WrdPhrs (Words and Phrases) button also gives information in the field, which is illustrated by Fig. 21. The Sino-Kor(ean) button gives out explanations on Sino-Korean (Hanja) characters. The Grammar button gives out explanations on grammatical points. The arrow keys brings the user back and forth in the text. The UnitMenu brings one back to the beginning of the lesson, i. e. Fig. 18. The KLICS menu brings back to the

beginning of the whole KLICS.

5.4. Evaluation

It is hopeful that each unit of lessons would comprise an evaluation. It is not implemented yet as of 1992. One thing which the author foresees as hitches for evaluation would be writing evaluation which would be very difficult to implement by computational means. The only type of evaluation would be objective evaluation that comprise mostly of matching type test. Another production type of evaluation would be pronunciation, which could be done on recording track which could be evaluated later by human teachers. Anyway there would be quite a number of problems in evaluation.

6. Conclusion

This has been a report on the beginning level implementation of KLICS: Korean Language in Culture and Society. It will certainly need a lot of man power to finish up the whole project. I may also need financial aid or support for future development of the project. However, it is hoped that, with the rapid development of technology and widespread use of computers, the future of CALL will be bright.

A couple of foreseeable difficulties would be the following:

(1) Since the media is the machine, it has no margin of toleration. It does not allow errors at all. Since the machine and the learner are the only interacting agents allowed, the teaching material should be almost "programmed" in the sense that it should be divided into smallest possible units to build up really step-by-step procedures. Even though the concept of individualization has not been extensively brought in yet in constructing this software, such should be done in the future.

(2) It would take far more man power than publication of conventional printed books. However, once the software is developed it would be much more easier to duplicate to mass produce it.

(3) Also needed is cooperation of the business sector and the researcher. It is only the author's wish that in the future such cooperation would materialize to make the field flourish for better language teaching and learning atmosphere.

I would like to conclude this presentation with miscellaneous computational and theoretical considerations left undiscussed and open.

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