

Digital Laboratory is a HyperCard stack whose sole purpose is the creation and delivery of simple vocabulary and pronunciation lessons. It was designed for teaching western foreign languages, though with the proper fonts it could be used with most any language. With very little practice, you should be able to create vocabulary lessons including digital sound quite quickly. D.L. could be used without digital sound, but sound is its primary appeal. After all, this is admittedly just “drill and practice”, and without the sound, there is little advantage to using this method (except perhaps that my students strangely seem to prefer working on the computer than any other method of studying).

## REQUIREMENTS

Digital Laboratory requires the following:

- Macintosh Plus or better
- HyperCard 2.0v2 or HyperCard 2.1 (preferably the latter)
- System 6.07 or better (preferably System 7.0)
- The fonts “Russian, Japanese, & Disabled”, included here
- 1 megabyte of RAM or more (2 if you’re running System 7.0)
- A hard drive<sup>1</sup>
- A MacRecorder from Farallon Computing, Inc.<sup>2</sup>
- lightweight headphones or external speakers (optional)

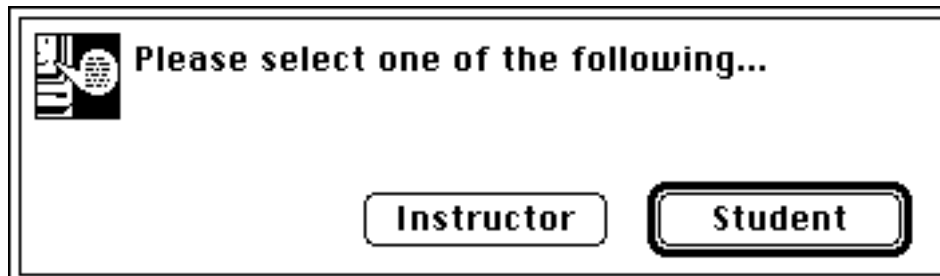
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<sup>1</sup>Actually it *could* be run with a two floppy system but the difficulties in working with any HyperCard Stack in such a configuration make things very frustrating. For developing stacks for your students, you absolutely require a hard drive, but the stacks could be delivered to students on a two floppy system.

<sup>2</sup>I am working on a version that will use the built-in hardware of the newer Macintoshes, but it requires a complete re-write and won’t be ready for a while. Also, Farallon has just sold their hypermedia stuff to MacroMind and so the MacRecorder may only be available from MacroMind by the time you read this. If you don’t want to include sound in your lessons, then of course you don’t need the MacRecorder.

## CREATING A LESSON

- Step 1: If you haven't already done so, make a copy of the Digital Laboratory stack on your hard drive. Double-click on the Digital Laboratory icon—HyperCard will launch and the Digital Laboratory stack will open. You will immediately be presented with the following dialog box asking you to select "Student" or "Instructor".



- Step 2: Click on the "Instructor" button. You will now be presented with another dialog asking you for the authoring password.



As shipped, the authoring password is "tweak", no quotation marks and lower case letters. Only those who correctly enter the password will be able to create new lessons. If the password is incorrect, Digital Laboratory will proceed as though you were a student. You may change the password at any time by selecting "Change password" from the "DL Instructor" menu, but if you do, be forewarned that even I can't get into a stack if the password has been forgotten or lost.

- Step 3: Once the password has been entered correctly, DL will present the following dialog:



I recommend that you click the “Copy it” button. DL will prompt you for a name for the *new* stack you are creating. You might want to give it a name such as “Chapter One” or something intuitive that your students will understand. The original DL stack will remain untouched. If you click “Just Looking”, you will be editing your original copy of DL, which is not advisable.

Step 4: DL will display a copyright notice which you may dismiss by clicking anywhere within the notice. At this point if you are creating a new lesson, you will want to configure this stack with the new vocabulary. Select “Configuration” from the “DL Instructor” menu. You will be taken to the instructor card where you may enter the new vocabulary.

Step 5: Click on the “New Vocabulary” button which is near the bottom of the window. The following dialog will appear:

The screenshot shows a dialog box titled "• Vocabulary Entry •". It contains three text input fields: "Vocabulary:", "Gloss:", and "Context:". Below these fields are four buttons: "Target Language:" with a dropdown menu showing "All others", "Key Caps", "Diacritics" with a dropdown arrow, "Cancel/Done", and "Enter".

The vocabulary field is where you will type the word in the foreign language that you would like your students to learn. It is best to use only single words or very short phrases. Remember that whatever you type here, your student will have to type *exactly* the same later on, so things such as “chico/a” are not advisable. The field labeled “Gloss” is where you will type the English equivalent. Finally, you should type a context sentence in the “Context” field which illustrates the use of the vocabulary word within a sentence.

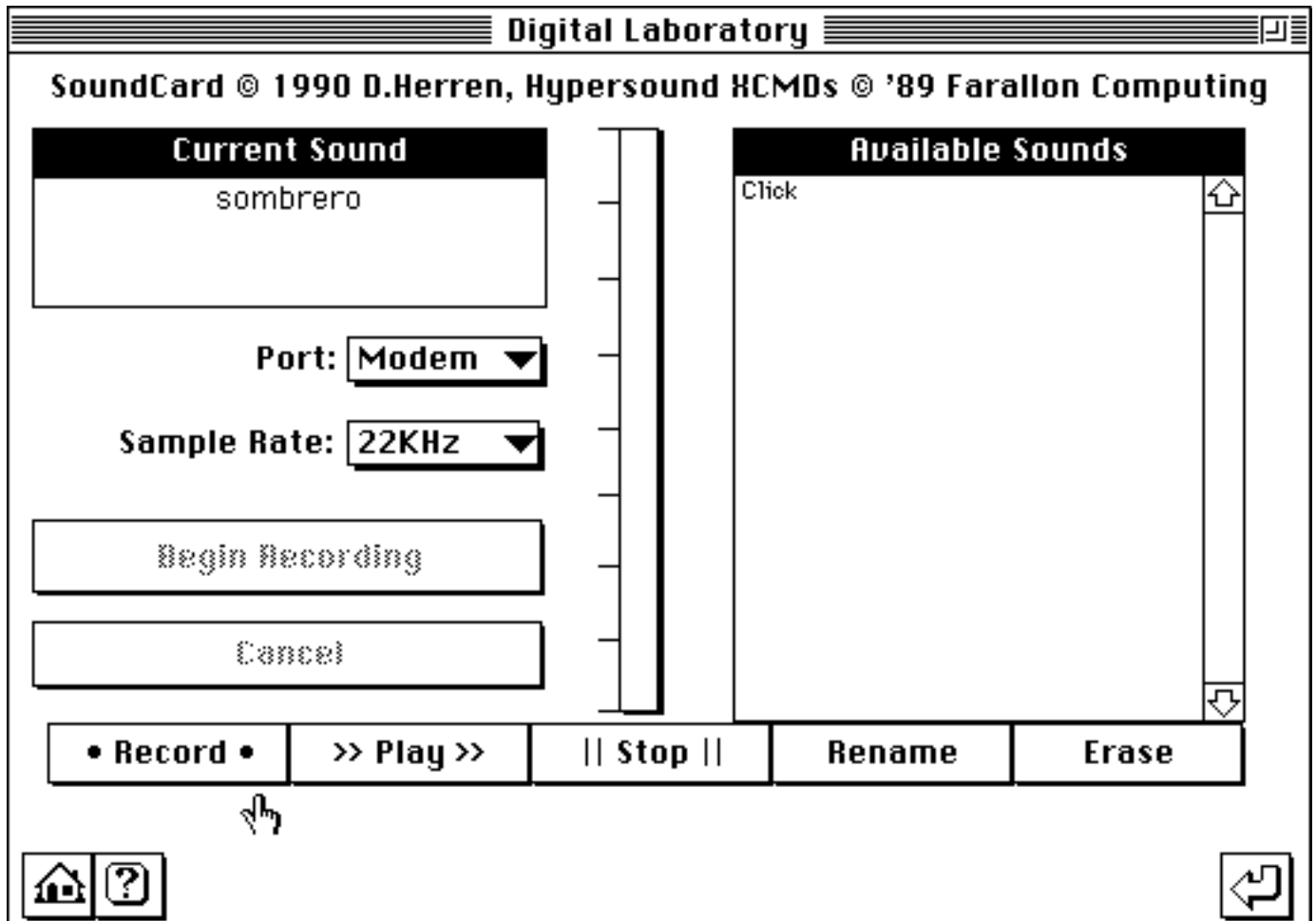
If you are unsure how to type a particular diacritical or accented letter, you may use the “Diacritics” pop-up menu. Depress and hold down the mouse button and you will be presented a list of the common diacritics. If your text insertion point is correct, the letter will be inserted for you. If you would like to see a full keyboard map, click on the “Key Caps” button.

Step 6: When you have completely and carefully entered the vocabulary word, gloss, and context sentence, you may either press the “Enter” key on the keyboard or click the “Enter” button. It is *always* easier to enter the text correctly the first time than to correct it later, so be sure to check your typing and spelling first. See “Correcting typographical errors” later in this document if you miss an error.

If you’re working in a non-western language, such as Russian, do not be alarmed that the text that you may see appear *behind* the above dialog is not in Russian. It will be later.

Step 7: Continue entering the new vocabulary, double-checking your spelling and typing, and pressing the “Enter” key until you have entered all that you would like to use in the current lesson. At that point, click the “Cancel/Done” button and the dialog will go away.

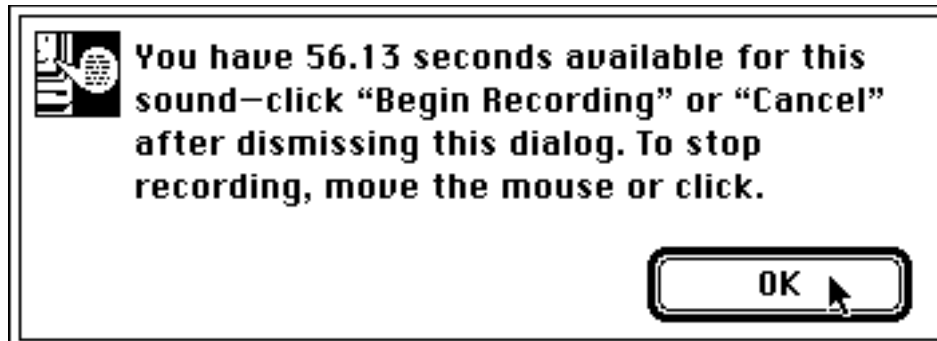
Step 8: You are now ready to record the sound that your students will hear when doing the lesson. Although there is a button “Record Sound” you do not have to click it. You may simply click on the line that contains the vocabulary word you would like to record. Remember that if you are working in a non-western language, you will see what appears to be garbage (certainly *not* Russian, for example). Don’t worry, it will still work correctly and the student will see what they are supposed to see. When you click on the line that contains the vocabulary you will be taken to the following card:




The vocabulary word that you are about to record should appear in the field labeled “Current Sound” where “sombrero” is here.

- Step 9: You need to tell Digital Laboratory where you have plugged in the MacRecorder. Use the “Port” pop-up menu for that. I recommend that you use the Modem port so the printer port is available for a printer or for an Appletalk network. If you choose the Printer port, DL will remind you that Appletalk must be disabled for the MacRecorder to work in that port.
- Step 10: You must now decide what “sample rate” you are going to use for the recording. The higher the number, the better the sound, but the larger the sound as well. I have found that if you use the compression features of the MacRecorder that you can still get a good quality recording if you use the 3 to 1 compression ratio. Like *any* recording, the quieter the room, the better the recording—don’t expect studio quality if you’re not in a studio. Use the “Sample Rate” pop-up menu to set the rate.
- Step 11: Once you’re ready to record, click on the “• Record •” button. DL will calculate the amount of time you have on your

Macintosh for the recording. If you're working on a machine with only 1 megabyte of memory, you won't have much time—perhaps just a few seconds. Remember that if the machines you are going to deliver the lesson on have less memory than your development machine, that you shouldn't record huge sounds since the student machines may not be able to play them. DL will display a dialog instructing you what to do next.



This is the tricky part. As soon as you click "Begin Recording" the recording will begin and you'll see the "thermometer" in the middle of the screen begin to rise. That's an indication of how far in to your available time you are. Remember that the available time is determined by the amount of memory assigned to HyperCard and not by disk space. To stop recording, all you have to do is move the mouse<sup>3</sup>. You may discover that it's not so easy to click the "Begin Recording" button without moving the mouse immediately and stopping the recording, but with a little practice, you can do it. (Don't drink a pot of coffee before trying this). When you finish the recording you may listen to it by clicking the "Play" button.

I have found that if the recording is bad or you just want to record it again, it's easier to click the "Erase" button, followed by the return arrow (). This will take you back to the instructor card where you can click on the word you want to record. This is particularly true if you're working in Russian since it's hard to remember how to type such things as "do svidani" again correctly.

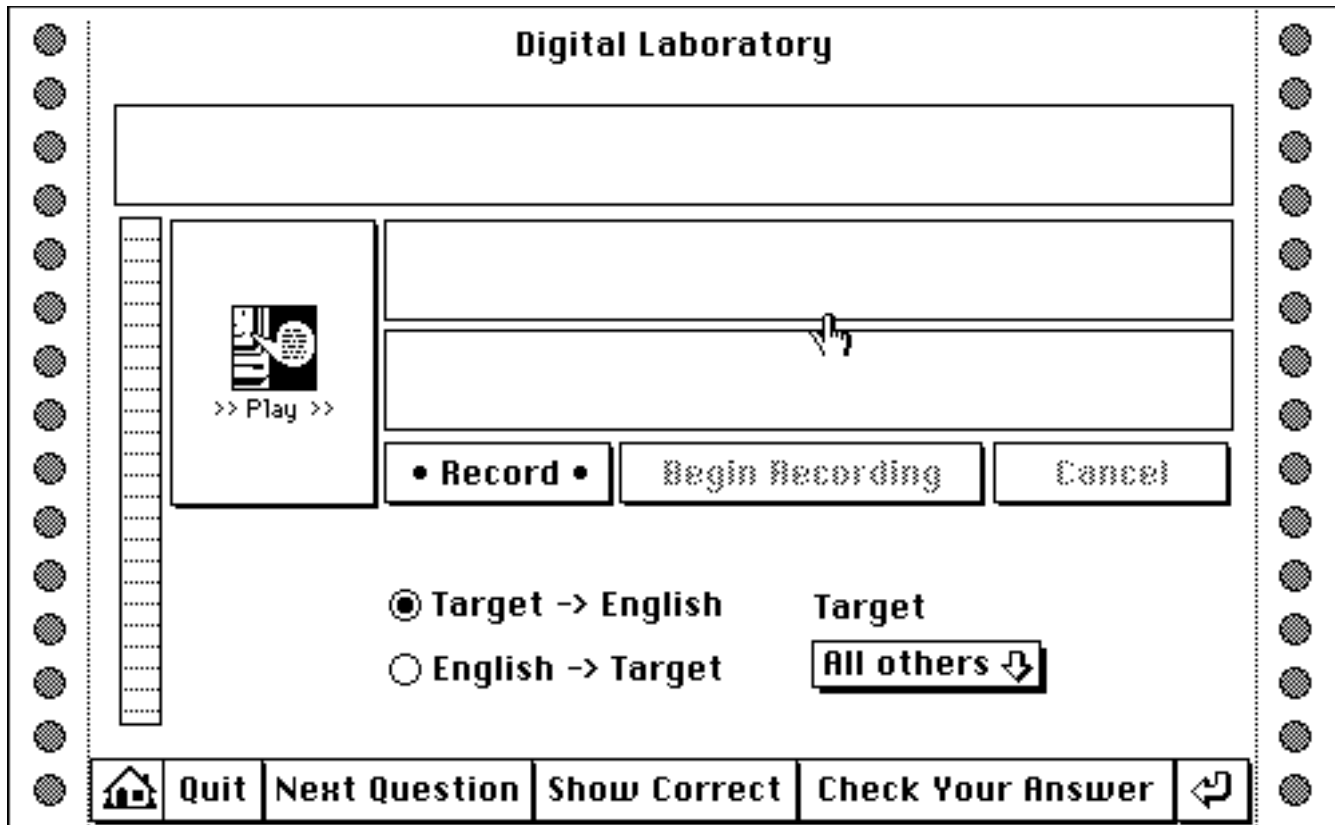
Step 12: When you're satisfied with your recording, click the return arrow to return to the list of vocabulary. Repeat steps 8 through 12 for all the words (though you won't actually have to set the port and sample rate each time).

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<sup>3</sup>It seems that on the LC you have to click the mouse. I have absolutely no idea why and since I don't have an LC to conduct tests, I can't "fix" this. It may be true of other machines as well.

Step 13: Throw salt over your shoulder.

Step 14: When all the vocabulary is recorded, you will want to test out your lesson. Click on the "Student Card" button. DL will ask you if you want to re-load the vocabulary. If you want to see how the vocabulary that you just entered will look to the student, click "Yes" and you'll be taken to the following card:



### USING THE LESSON

The name of the lesson you have created will appear where the above screen says "Digital Laboratory". Be sure that the language you want your students to use is selected using the "Target" pop-up menu. Generally this will remain "All others" for western languages. To see the target language and identify the English equivalent, you will want to click the "Target -> English" button. To see the English word and identify the target, you will want to click the "English -> Target" button. DL blanks out the target word in the context sentence.

To begin the lesson, you or your students will click the "Next Question" button. A context sentence which you entered earlier will appear in the top rectangle, the vocabulary word in isolation in the second rectangle, and the insertion point will begin to flash in the third. You will also hear the appropriate sound.

The student may attempt to type the equivalent of the target vocabulary word. When they think they have it correct, they can either press the “Return” key on the keyboard, or click the “Check Your Answer” button. DL will compare their answer with the one you entered earlier. If the match is perfect, DL simply goes on to the next word, removing the one just identified correctly from its list of words remaining. If it is not perfect, DL will attempt to identify the incorrect portion of the word. The student can then try again. If they choose not to try again, clicking the “Next Question” button instead, the vocabulary word remains in Digital Laboratory’s list.

The student may at any time click the “Show Correct” button to see the answer. The word is not removed from the list if they do this.

Digital Laboratory does not present the vocabulary in the order in which it was entered. It selects the next word randomly from the list of words remaining to be identified. This is designed so the student won’t sub-consciously “learn” an order, and so that the motivated student won’t have to repeat exactly same lesson again when they decide to review (as they do when using audio tapes).

## STUDENT RECORDING

The student may also record their own voice to compare it to the model the instructor recorded earlier. To do so, they need only click on the “Record” button. Recording is performed in exactly the same way as it was for the instructor—DL calculates the amount of time, prompts the student to click “Begin Recording” or “Cancel”, and stops recording when the mouse is moved or clicked.

When the student finishes a recording, DL will replay both the model *and* the student recording for comparison. At any time, the student may click the “>> Play>>” button to hear the model and their own voice again.

Digital Laboratory does *not* retain the student recording beyond the current vocabulary word. Size constraints prohibit this for most applications, but if you want to retain them, contact me and I’ll tell you how to modify DL so that it does retain all student recordings.

## CORRECTING TYPOGRAPHICAL ERRORS

If you make an error when entering the vocabulary, they can be corrected but you need to be very careful or you may ruin your lesson. Follow these steps to correct your errors:

- Step 1: Select “Configuration” from the “DL Instructor” menu. You will be taken to the Instructor card.



- Step 2: Scroll the field containing the vocabulary list until you see the error you would like to correct.
- Step 3: Click on the padlock icon (🔒) in the lower right corner of the window. You should hear a click and the icon will change to an unlocked padlock. *Very* carefully correct the error directly in the list. Be certain that you do not type any extra commas or returns. If you do, DL will probably not work correctly any longer. I will probably create a better way to do this at some point, but don't hold your breath—it's easier to do it correctly the first time.

## BUG REPORTING

### (WHAT? YOU MEAN IT'S NOT PERFECT?)

Digital Laboratory is provided "as is" and there are no warranties either express or implied (after all, it *is* free).

It will not do anything beyond create simple vocabulary lessons. It will not save you time. It will not tie your shoes. It will not create a new paradigm in language teaching. It may even offend some instructors—if so, I'm sorry. It works for some students. It doesn't for others. Some learn their vocabulary more quickly—others don't. I am hopeful that it *will* provide you with one more tool for engaging students in language learning. It "seems" to work for many of the students with whom it has been used. There has never been a government study to determine its effectiveness and I certainly wouldn't support a tax increase to fund one.

All the above aside, I do want to see it improve. I don't get a lot of time to create these kinds of things and by the time I get home from the office, I'm often fresh out of new ideas. If you've got any you'd like to share, contact me at one of the addresses below. If you discover any "bugs", I definitely would like to know about them. Please try to write down *exactly* what you were doing when you discover the problem. I'd be open to receiving a copy of the offending stack DL creates if you want to send one.

Typically if I find an error I correct it immediately. Since this is a freebie, I don't send out updates to registered users, however. If you want the latest version, you can always send me a blank, formatted diskette with a return mailer and postage. I also keep the latest versions on-line on the Green Mountain Mac BBS (that information is below) so you could log on there and download it at any time. The GMMac BBS is pretty cool and you'd likely find some things there that are useful to you, so I encourage you to do that if you've got a modem (in all honesty, I have been known to let blank formatted diskettes with return mailers pile up for months—I *always* get around to sending them eventually

however).

## CONTACTING THE AUTHOR

If you use Digital Laboratory and like it, please let me know at one of the following addresses. If you don't use DL, I'd like to know why (try to be nice). If you hate DL, send \$100.00 in cash to my post office box. Here are my addresses:

Internet: herren@midd.cc.middlebury.edu  
or,  
david.herren@f201.n325.z1.fidonet.org

BITnet: herren@midd

Fidonet: David Herren, 1:325/201

Applelink: Herren

SnailMail: Box 324  
Middlebury, VT 05753

Ma Bell: (802) 388-3711 ext. 5558 (days)  
(802) 388-9867 (nights/weekends)

GMMac: (802) 388-9899  
No parity, 8 data bits, 1 stop bit, full duplex (these are recommended)  
Acceptable rates (bits per second, a.k.a. baud though incorrectly so)

- 300-2400 CCITT standards
- 9600 v32
- 14,400 HST

Follow all the prompts at log-on and look for the "Sysop's Top 25" file section for the latest versions. Be sure to send me a message letting me know you've stopped by. I look forward to hearing from you.