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Recommended Citation

Harris, J. (1990). Taking stock in vocabulary. *Logo Exchange*, 9(1), 12-14.

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Logo LinX

Taking Stock in Vocabulary by Judi Harris

Robin Williams once quipped that if you look in the dictionary under *redundant*, it says "see redundant." How redundant do your students' vocabularies seem now that school has begun again? Are you looking for a way to motivate them to use new words in their writing? If so, perhaps you might encourage them to take stock (quite literally) in certain of their favorite words.

If we drastically over-simplify our understanding of the workings of the stock market, we might state that newer stocks are often less expensive than well-established ones, and that share prices increase as stocks become more popular. If we encouraged our students to "invest" parenthetically in words that might appear in class members' writing, perhaps they would "buy low," taking shares in new vocabulary words that are introduced, then use the new words so that the prices of their word stocks would rise. Next week's spelling words might become quite popular this week; this month's science vocabulary might be more eagerly studied; words from the current history lesson might be used in language arts work without specific requirements to do so.

A vocabulary stock market simulation might take its fluctuating prices from the frequencies of different words used by a group of students in their expository, communicative, drill-and-practice, and creative writing completed over a certain period of time. Students could invest in words using much the same prediction and risk-taking strategies as are employed by successful stock market investors, managing their "word portfolios" according to their language explorations. A simple set of LogoWriter tools would take the tedium out of the share maintenance process, allowing students to concentrate on using new words and phrases and explore probability and mathematical problem-solving strategies.

Tabulating Word Frequencies

One of the most useful attributes of computer tools is their seeming patience with tiresome calculation. Perhaps the most tedious and error-prone component of the activity described above is summing the number of times that words appear in a class' written products over, say, a week's time. Since the educational objectives of a simulation such as this would probably involve higher-level mathematical problem-solving processes rather than simple tabulations, it is appropriate and time-efficient for the computer to compute word frequencies. The following four LogoWriter procedures will perform this function.

```
TO COUNT.WORDS.IN :LIST
IF EMPTY? :LIST [STOP]
IFELSE MEMBER? FIRST :LIST
:WORDS.USED [TALLY.WORD.USED
:LIST] [RECORD.NEW.WORD :LIST
TALLY.NEW.WORD :LIST]
COUNT.WORDS.IN BUTFIRST :LIST
END
```

```
TO TALLY.WORD.USED :LIST
MAKE WORD " (FIRST :LIST) (THING
(WORD " FIRST :LIST)) + 1
END
```

```
TO RECORD.NEW.WORD :LIST
MAKE "WORDS.USED LPUT FIRST :LIST
:WORDS.USED
END
```

```
TO TALLY.NEW.WORD :LIST
MAKE WORD " (FIRST :LIST) 1
END
```

Processing Manuscripts for the Stock Market

The :LIST that the superprocedure COUNT.WORDS.IN uses is a piece of word processed writing that a "stockholder" composes with a ProDOS word processor such as AppleWorks or FrEdWriter. The process with which you can transfer word processed files saved to disk into LogoWriter code is surprisingly simple. Let's say that one of your students has written the following piece and saved it to disk with FrEdWriter; in actuality, it is one of my favorite Shel Silverstein poems.

Hug of War

I will not play at tug of war.
I'd rather play at hug of war.
Where everybody hugs
Instead of tugs,
Where everyone giggles
And rolls on the rug,
Where everyone kisses,
And everyone grins,
And everyone cuddles,
And everyone wins.

(from *Where the Sidewalk Ends*, page 19)

To read this ProDOS file into LogoWriter,

1. Flip to the procedures side of your VOCAB.STOCKS page.
2. Hold down the Open-Apple key and press the letter D to make the cursor jump *down to the Command Center*.
3. Type LOADTEXT "filename, substituting the poem's file name after the quotation mark.
4. Once you see the text of the poem above the command center, hold down the open-apple and press the letter U to move the cursor *up above the Command Center*.
5. Change the title of the poem to: TO HUG.OF.WAR
6. Insert an OUTPUT command and opening bracket just before the first line of the poem: OUTPUT [I will not play...
7. Insert a closing bracket after the last word of the poem:
8. Insert the END command on a separate line after the closing bracket.

Now that the piece is in the form of a procedure that outputs a single list containing the writing itself, COUNT.WORDS.IN can be invoked by typing COUNT.WORDS.IN HUG.OF.WAR. The computer will then tally the frequency of each word's appearance in the poem, storing the totals for each word in global variables named with the words themselves. For example, the word EVERYONE in the example above would become the variable :EVERYONE with a corresponding value of 5.

Each time a new piece of writing is processed with the COUNT.WORDS.IN procedure, the values for word variables are updated with TALLY.WORD.USED, and new word variables are created as necessary with RECORD.NEW.WORD. As long as the VOCAB.STOCKS page is re-saved each time that it is used, these global variable values (along with :WORDS.USED, the variable which stores the master list of words in which shares may be purchased) are recorded to disk in updated form.

Checking the Market

Once students purchase shares in specific words (the prices to be determined by the tabulated frequencies of word occurrence in writing already processed with COUNT.WORDS.IN), they can use another LogoWriter tool to check on current "prices" of their word investments.

```
TO STARTING :IGNORE :LETTER :IGNORE
:LIST
IF EMPTY? :LIST [PRINT CHAR 13 STOP]
IF :LETTER = FIRST FIRST :LIST [PRINT
(SENTENCE FIRST :LIST "- (THING
FIRST :LIST)]
STARTING :IGNORE :LETTER :IGNORE
BUTFIRST :LIST
END
```

```
TO IN
OUTPUT "
END
```

```
TO WITH
OUTPUT "
END
```

For example, typing

```
STARTING WITH "W IN :WORDS.USED
```

would yield:

```
will - 1 war. - 2 Where - 3 wins. - 1
```

Word Portfolios

Additional LogoWriter tools can also help you and your students to keep track of which words are in each stockholder's "word portfolio." The following procedures, invoked with superprocedures UPDATE.PORTFOLIO.FOR and LIST.HOLDINGS.FOR, allow new word share acquisitions to be added to the computer's stock records, and print out current "market prices" for an individual stockholder's portfolio. Both are invoked in similar format:

```
UPDATE.PORTFOLIO.FOR "DONALD.TRUMP
LIST.HOLDINGS.FOR "AMELDA.MARCOS
```

```
TO UPDATE.PORTFOLIO.FOR :STOCKHOLDER
IF NOT NAME? :STOCKHOLDER [MAKE
:STOCKHOLDER [ ]]
```

```
CC
TYPE SENTENCE [In what words do you
own shares,] WORD :STOCKHOLDER "?
TYPE CHAR 13
UPDATE READLISTCC :STOCKHOLDER
END
```

```
TO UPDATE :WORD.LIST :STOCKHOLDER
IF EMPTY? :WORD.LIST [STOP]
```

```

IFELSE MEMBER? FIRST :WORD.LIST
:WORDS.USED
[HOLDINGS.FOR :STOCKHOLDER
:WORD.LIST]
[CC TYPE SENTENCE [Sorry,
there are no stocks for the
word] WORD FIRST :WORD.LIST
". TYPE CHAR 13]
UPDATE BUTFIRST :WORD.LIST
:STOCKHOLDER
END

TO HOLDINGS.FOR :STOCKHOLDER
:WORD.LIST
IF NOT MEMBER? (FIRST:WORD.LIST)
THING :STOCKHOLDER
[MAKE :STOCKHOLDER SENTENCE (FIRST
:WORD.LIST) (THING :STOCK-
HOLDER)]
END

```

```

TO LIST.HOLDING.FOR :STOCKHOLDER
IFELSE NAME? :STOCKHOLDER
[LIST.WORDS.FOR :STOCKHOLDER]
[CC TYPE (SENTENCE [Sorry,]
:STOCKHOLDER [is not in my records
as owning any word stocks.]) TYPE
CHAR 13]
END

TO LIST.WORDS.FOR :STOCKHOLDER
CT
PRINT (SENTENCE WORD :STOCKHOLDER "'s
[Word Stocks:])
INSPECT THING :STOCKHOLDER
END

TO INSPECT :LIST
IF EMPTY? :LIST [STOP]
PRINT (SENTENCE WORD FIRST :LIST ",
[which costs] WORD "$ THING FIRST
:LIST [today.])
INSPECT BUTFIRST :LIST
END

```

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The classroom organization, regulation, word trading frequency, investment tip information distribution, and initial investment funds allocations are, of course, up to you and your student stockholders. You may even want to challenge some of your more adept LogoWriter programmers to create procedures that will graph individual word stock activity over time, or keep track of shares bought and sold for individual word share holders. Perhaps, though, it would be wise to keep Thomas Hobbes' words in mind as your students watch their word investments fluctuate:

Words are wise men's counters, they do but reckon by them; but they are the money of fools. (*Leviathan*, 1651, 1.4)

Reference

Siverstein, S. (1974). *Where the sidewalk ends*. New York: Harper & Row.

Judi Harris works in the Department of Teacher Education at the University of Nebraska, Omaha as an assistant professor of educational technology. Her teaching, research, and service interests include Logo (of course), computer-mediated educational telecommunications, hypermedia, multimedia, and children's computer-assisted artwork.