

Computer Flashcard Sets for Language Study

Ken Schmidt

Tohoku Gakuin University, Japan

Although flashcards and word lists have fallen out of favor with many language teachers, they remain in wide use among language learners. Some authors also report continued interest in their use, provided that meaningful means of language input, practice, and use are not neglected (Ellis, 1995; Schmitt, 1995b; Stevick, 1996). Stevick (1982) and Schmitt & Schmitt (1995) offer creative suggestions for cards utilizing graphics and context to aid development of rich meaning images. Meara (1995) proposes using lists and cards to quickly gain an initial knowledge of a large number of high frequency words, which can then be met repeatedly through reading and listening—thus developing a sense of “how they relate to each other and behave in sentences” (p. 10). A study by Hulstijn, Hollander, and Greidanus (1996) suggests that learners can make more efficient use of repeated encounters with a word—reinforcing the form-meaning connection in the mental lexicon—if they have initial access to at least a quick idea of its meaning (e.g., through a gloss or definition). Thus, while learning from context is a powerful tool in vocabulary acquisition (Krashen, 1989), it would seem that explicit vocabulary study (e.g., flashcard work) can complement it, giving a helpful “leg up” toward forming initial impressions of word meanings and making texts more comprehensible (Schmitt, 1995b).

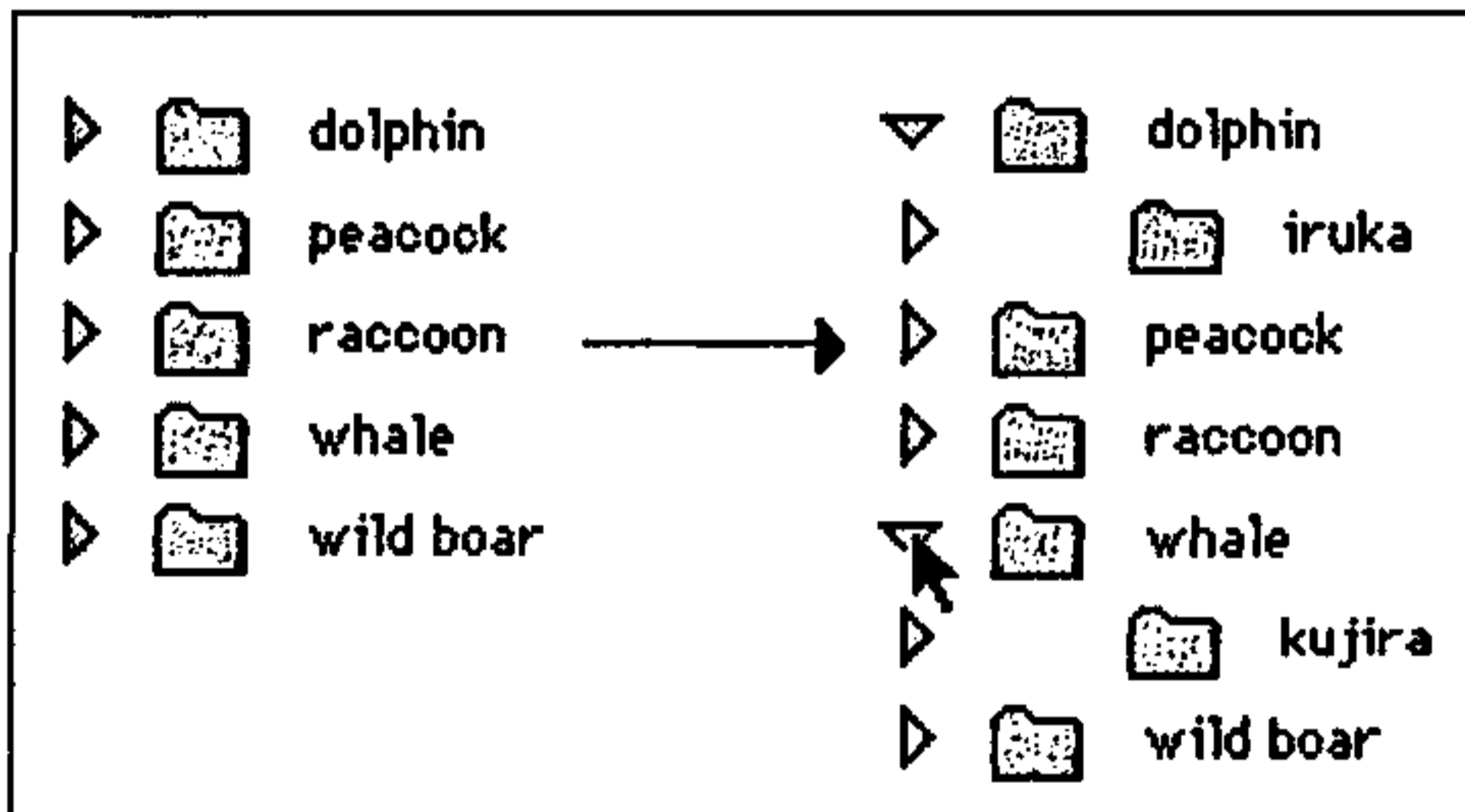
Learning styles and preferred learning strategies will largely determine the utility of flashcards for any particular learner. I have found flashcards very useful in my own language learning, and though I occasionally use my own hand-written and commercially available paper flashcards, self-generated computer flashcard sets have proved to offer a number of advantages. Here, I will first set out what I mean by “computer flashcard sets” and then discuss some of their advantages and uses.

What are Computer Flashcards?

Computer applications specifically designed for vocabulary practice are available, e.g., *The Rosetta Stone* (Fairfield Language Technologies, 1994), *QuickLearner* (Harris, 1995), but any learner using a Macintosh (Apple Computer, Inc., 1996) or PC running Windows 95 (Microsoft Corporation, 1996) has a ready-made flashcard producer in their system software. By “computer flashcards” I do not mean anything resembling an actual paper card, but the ability, by means of software, to alternately hide and reveal

information, much as you do when flipping over a paper card. To illustrate, imagine you are a Japanese student studying English. To make a simple flashcard for the English word “whale,” create a new folder named “whale.” Now open the folder, and inside it, create another new folder named with the Japanese translation equivalent: “kujira.” (Using an operating system with Japanese capability, you could also employ hiragana () or kanji () forms. Now close the active window to display the closed “whale” folder. You have just completed a simple, bi-level flashcard. Make similar flashcards for related words and place them all in a common folder entitled “Animal Cards,” “Unit I Vocab,” etc. As you use the cards, check your recall by clicking on the triangular toggle switches to the left of each folder to reveal or hide the nested translation equivalents (Figure 1). The folders could just as easily be constructed or re-nested to reverse the cue order and start with an LI (Japanese) cue rather than the L2 (English).

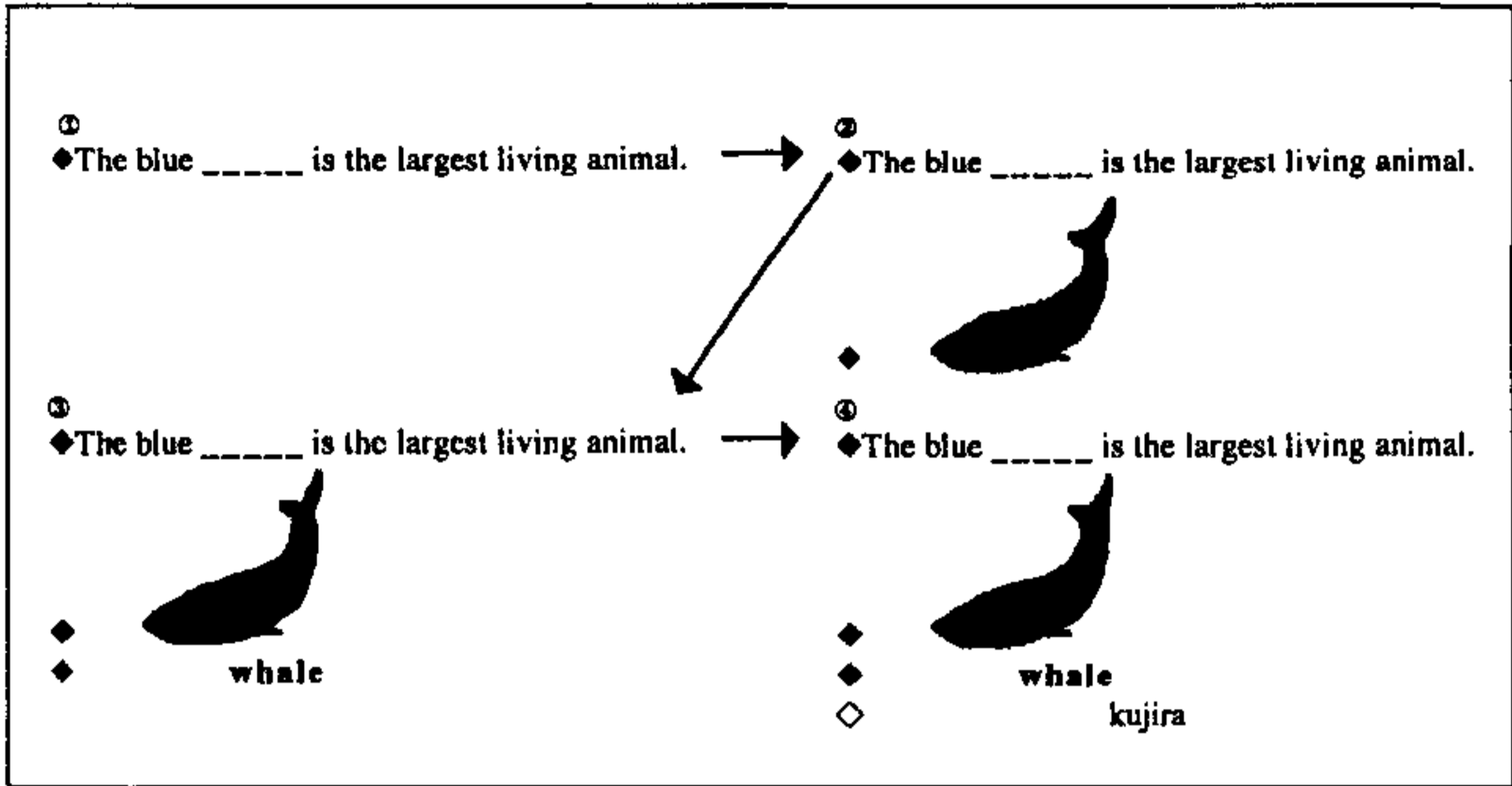
Figure 1



A major limitation for Macintosh System/Finder-level flashcards is the 31 character folder-name limit, precluding longer sentence- or paragraph-length clues, e.g., “The blue **whale** is the largest living animal.” (This is less of a problem for Windows 95, with a 255 character limit.) Text formatting (bold, underlining, variable colors) is also unavailable, as is the ability to arrange the cards in anything but alphabetical order. Fortunately, several of the most popular word processing applications (e.g., Microsoft Word (Microsoft Corporation, 1994) and ClarisWorks (Claris Corporation, 1994) have outlining modes that effectively duplicate the Finder’s toggling ability to hide and reveal multiple levels of information, as well as offer full-featured word-processing capabilities. These applications allow unlimited-length flashcards, with the possibility of graphic cues (pictures, diagrams), full text formatting, and re-ordering of cards (Figure 2). An entire set of cards can be stored in one document.

Figure 2

A four-level card is progressively revealed (Steps 1–7)



Advantages & Uses of Computer Flashcards Set

Self-produced cards

Commercially available paper flashcard sets and computer-based programs with predetermined vocabulary sets can be very helpful, especially for working on a general service vocabulary—around 2,000 words for English (Nation & Kyongho, 1995). However, self-produced cards (paper or computer based) can be designed to fit individual preference and style and allow inclusion of personally relevant information, which yields strong memory advantages related to depth of processing and the development of complex or “rich” cognitive networks (Ellis, 1995; Stevick, 1996). Moving beyond a general service vocabulary, self-produced cards allow learners to focus on vocabulary for particular areas of interest or specialization, to complement a particular text or course of study, or to simply keep track of words met while reading. Nation and Kyongho (1995) point out that once a general service vocabulary has been basically attained, a better return for learning effort should be had by concentrating on field/interest-specific vocabulary, rather than continuing with a “scatter-gun” general vocabulary approach.

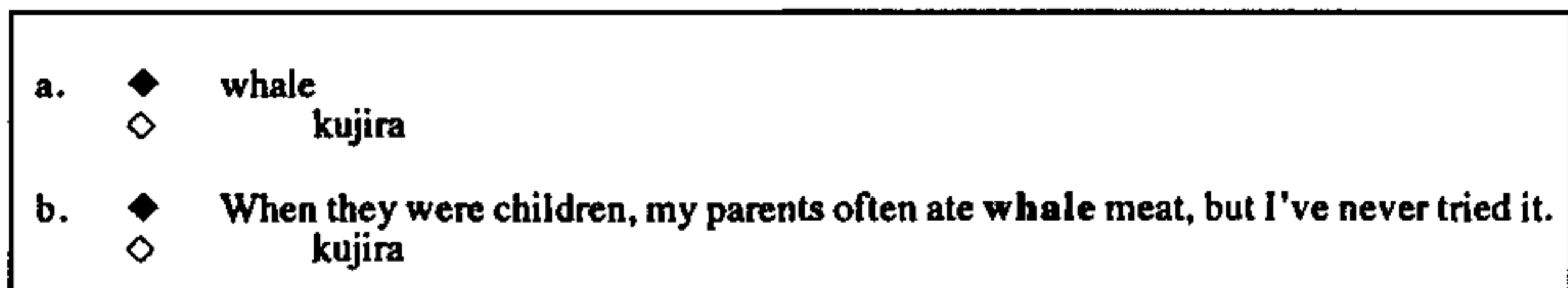
Once a learner decides to produce his/her own flashcards, the choice between handwritten and computer-generated flashcards may largely depend on available

facilities (computers readily at hand?), opportunities for use (study on the bus or train?), learning preferences (love using computers?), and learning styles (writing by hand makes a particularly strong mental impression?).

Adaptability/flexibility

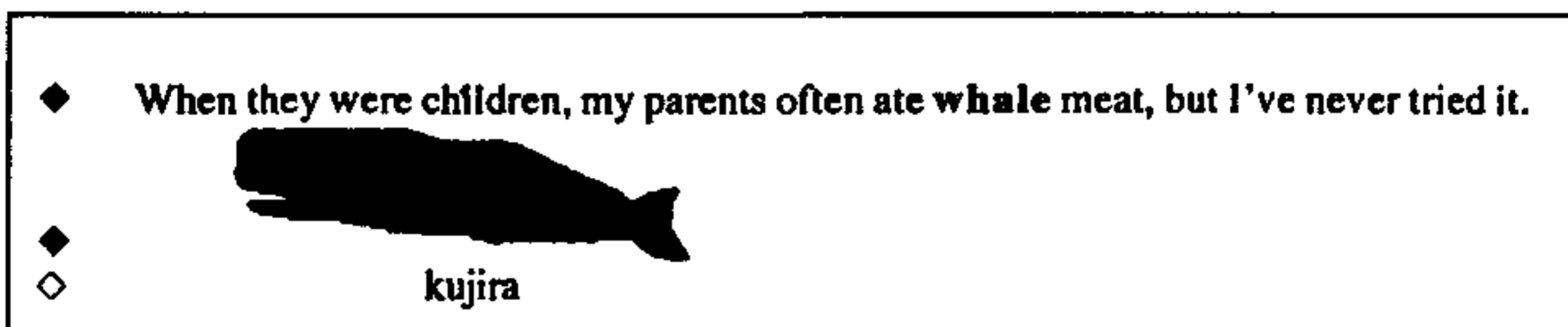
A major issue that pushes me toward computer-based cards is adaptability/flexibility. Once written, paper cards are not easily modifiable. Computer flashcards, on the other hand, allow multiple changes in type and order of cues. For example, start with a bi-level card for “whale” using the outline mode in a ClarisWorks document (Figure 3-a). If the word quickly becomes part of the learner’s working vocabulary, nothing more might be done with the card. However, if the learner feels the need for more elaboration, s/he can then easily replace the simple “whale” cue with a cue supplying personally relevant contextual support (Figure 3-b).

Figure 3



Adding a graphic on another level can aid visual memory (Figure 4). Inexpensive clip art collections, e.g., Art Explosion 40,000 Images (Nova Development, 1995), allow easy inclusion of graphics into word processor-based flashcard sets. Learners can also draw and include their own personally meaningful diagrams. (Note: to work in outline mode, such graphics must be anchored to a line of text, not floating free on the page.)

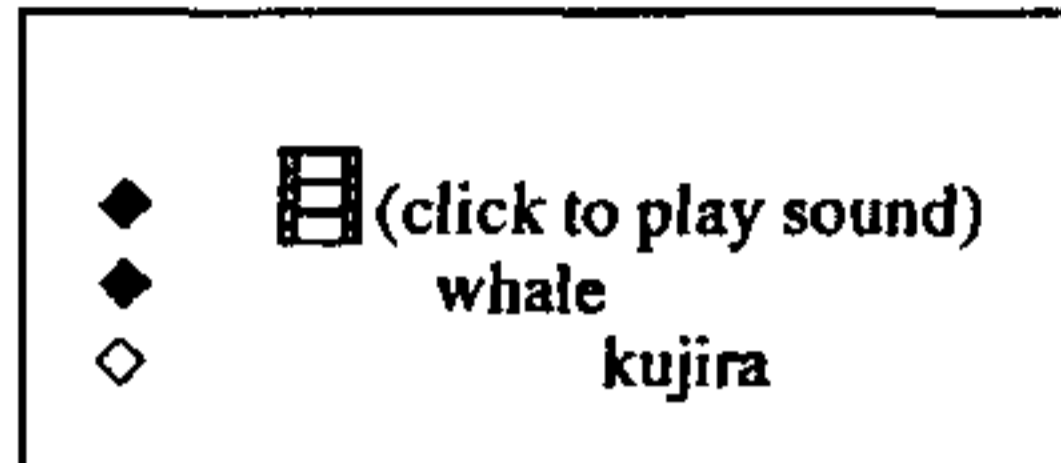
Figure 4



Although it is computer-memory intensive, most word processors allow a cue to be replaced by an audio and/or video recording (e.g., as a QuickTime movie (Apple

Computer, Inc., 1995) for help with listening comprehension or as an aid to memory for more aural learners [Figure 5]).

Figure 5

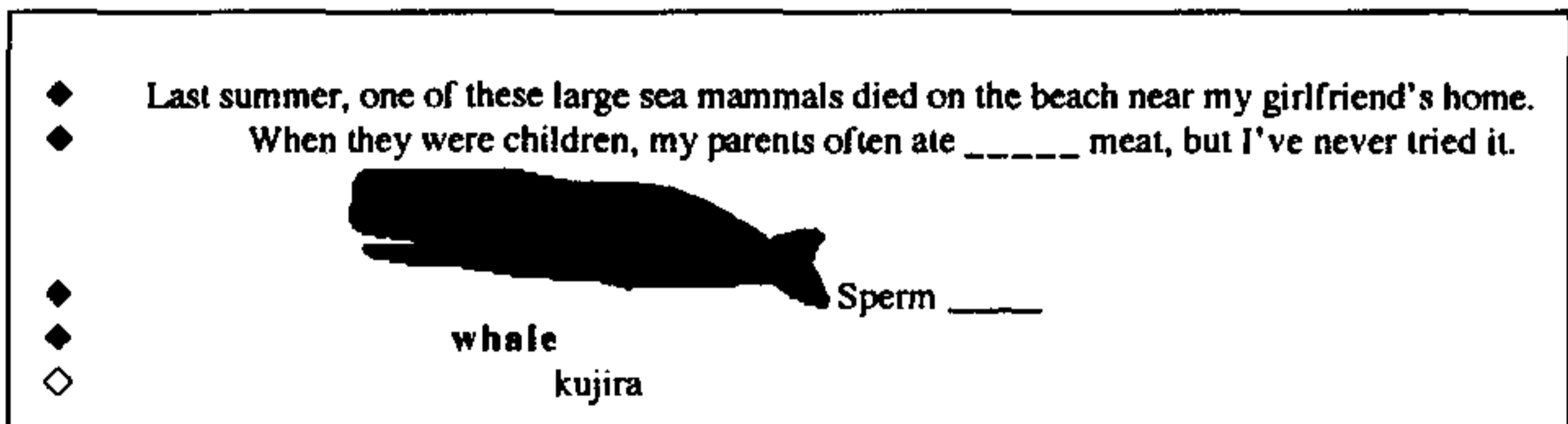


Once produced, cards can be quickly copied and pasted into other, related card sets. For example, the whale card could be included in “Sea Life,” “Food,” and “Unit 2 Vocabulary” categories.

Computer flashcards also allow learners to attend to different aspects of word knowledge at different stages of learning. Initially, an L1 translation may be the main component in a learner’s conception of a particular L2 word or phrase. But with extensive L2 exposure, the L1 translation should become less and less central as L2-based associations are added (Izumi, 1995). In higher-level cards, translation equivalents may be omitted or left at lower levels, while cues focusing on an item’s collocations, associations, register, and/or grammatical behavior-important aspects of word knowledge are added.

Cues may take the form of clues or hints in the L2 (Figure 6), possibly including other grammar or vocabulary the learner wants to practice.

Figure 6



Cards need not focus on single words. A variety of vocabulary items or language features (e.g., collocations, synonyms, phrasal verbs) can be targeted on the same card (Figure 7).

Figure 7

Card 1	
◆	Dolphins can fly _____ the water at speeds _____ to 40 mph.
◆	Dolphins can <i>fly</i> (syn) <u>through</u> the water at speeds <u>up</u> to 40 mph.
◇	surge, race, sprint, speed
Card 2	
◆	Gray whales were <i>nearly</i> (syn) wiped _____ in the Pacific Ocean.
◇	Gray whales were <u>almost</u> wiped <u>out</u> in the Pacific Ocean.

I occasionally copy out particularly interesting/helpful passages from periodicals or books, using outlining capability to provide hidden glosses or cloze answers. Texts gleaned from the Internet (on-line newspapers, special-interest pages) are especially convenient, since they can be copied and pasted directly into card sets. For example our Japanese students might copy the following from a Dave Barry (1994, p. 23) column (Figure 8):

Figure 8

(Text before and after revealing all glosses and cloze answers)	
◆	So anyway, the highway engineers ¹ hit upon ^{2*} the plan—remember, I am not
◆	making this up ¹ —of b ____ ² up the whale with dynamite. The thinking here was that
◆	the whale would be b ____ into small pieces, which would be eaten by sea gulls, and that
◆	would be _____ ¹ . A textbook ² whale removal ³ ...
↓	
◆	So anyway, the highway engineers ¹ hit upon ² the plan—remember, I am not
◇	gishi (技師) ¹ thought of ²
◆	making this up ¹ —of b ____ ² up the whale with dynamite. The thinking here was that
◇	making a story/telling a lie ¹ blowing ²
◆	the whale would be b ____ into small pieces, which would be eaten by sea gulls, and that
◇	blown
◆	would be _____ ¹ . A textbook ² whale removal ³ ...
◆	that ¹ perfect/ideal ² taking it away/removing it ³
◇	removal ³ =torinozoku koto (取り除くこと)
*In this figure, bold type signals an item treated further at a lower level.	

Computer flashcard sets can thus grow with the learner, facilitating deeper processing and development of more complete cognitive and semantic associations key to building receptive and productive facility with words and phrases (Schmitt, 1995a; Stevick, 1996).

Sharing flashcard sets

Along with flexibility of form and use, users can share their computer flashcard sets as easily as copying a file to a floppy disk, distributing it over a local network, or sending it as an attachment to e-mail. Word processor-based sets can even be distributed as Text or RTF files, and then quickly reconverted into flashcards using any word processor with outlining capability, even across platforms (e.g., PC to Mac). In a computer lab setting, instructor-produced cards (dealing with course content, textbook vocabulary, etc.) can be quickly distributed to students for use and modification. Because card sets are produced with only the most commonly used software, students (particularly those working in a computer lab situation) can create and modify sets as they like with little need for training or the purchase of new software. By sharing flashcard sets, learners can make efficient use of time by benefitting from practice with many sets without having to generate everything themselves.

Introducing and using flashcard sets

Instructors with computer lab facilities can initially provide model flashcard sets for key vocabulary and language items and show students how to create and modify their own sets if they find them useful. New sets can then be distributed periodically and students can be encouraged to share sets they have made or modified. For example, if students make flashcard sets for books they read as part of an extensive reading program, these sets can be stored on a network server and copied for use and modification by others as they read the same books.

Instructors can also share Stevick's (1996) suggestions for card use with students. In a given study session, the learner will want multiple reviews on items s/he remains unsure of. However, since we want to make learning judgements based on long term rather than short term (or working) memory, it is best to wait at least 30 seconds between repetitions with a single card. With a pack of paper cards, this is done by placing the still uncertain item back into the pack only 10 cards or so from the top, where it will quickly—but not too quickly—reappear. Likewise, a learner using a computer flashcard set re-hides any answers s/he isn't confident of, but leaves open those posing no trouble. Going through the set again, s/he focus only on re-hidden cards, repeating the procedure above.

Summary

Learner response to the computer flashcard format will depend on learning styles and preferred strategies, but for those who value flashcards as study aids and enjoy computer use, it offers an easily mastered, low cost opportunity to independently manage their own learning—following their own design preferences and concentrating on language items of most interest and use to them. Flashcard sets are easy to distribute to students in a computer lab situation, and by sharing sets, learners can cooperate in creating learning opportunities for each other.

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About the Author

Ken Schmidt teaches English conversation and communication at Tohoku Gakuin University, Sendai, Japan. His present interests include classroom interaction and the utility of extensive reading in SLA. He welcomes comments/correspondence at <schmidt@tscc.tokhoku-gakuin.ac.jp>.