

The Comprehension Hypothesis and Technology: Friend or Foe?

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Krashen's *comprehension hypothesis* has highlighted the power of reading to promote second language acquisition. In support of this hypothesis, the research clearly shows that access to and use of books are considerably more effective than access to and use of technology in supporting academic language development in a second language. However, within a broader framework focused on the development of academic expertise, certain applications of technology *can* play a useful role in enabling ESL students to access the curriculum and harvest the language of academic success. Within this framework, the creation by students of bilingual "identity texts" is also highlighted as an important technology-supported component of an effective second language teaching program. Technology can also scaffold ESL readers' access to text that would otherwise be inaccessible to them. This is illustrated in the e-Lective Language Learning Program described below.

The *e-Lective Language Learning Program*

e-Lective Language Learning (www.e-Lective.net) uses target language text as input for learning. Comprehension of the text is facilitated for learners as a result of on-line dictionary supports built into the program. The dictionary supports can be provided in learners' first and second languages (L1 and L2). In addition, listening, vocabulary building and grammar learning supports are incorporated. These supports represent *scaffolding* that enables the learner/reader to process the meaning of texts that otherwise would have been inaccessible. Any text in electronic form can be imported into the system and used as authentic input for target language learning.

The term *e-Lective* is meant to signify three central aspects of the system. First, the "e-" prefix operates in a similar way to the prefix in "e-mail" to indicate that the target language text is in electronic form. Second, the text-based nature of the system is signified by the "Lect" root which derives from the Latin *legere* - *to read* with cognates in many Romance languages such as *lecture* in French and *lectura* in Spanish, both meaning *reading*. Finally, the word "elective" signifies that learner options or choices are built into the system at many levels; for example, learners can choose which texts to read and they can self-regulate the type and degree of support they invoke while reading in the target language. The system is designed to provide the scaffolding of textual material necessary for second language learners to gain access to the curriculum, or to texts in the target language, and to *harvest the language* they encounter in those texts.

The *e-Lective Language Learning* program is designed to support this process. The program is based on the premise that written text can serve as input for the language learning process.

Furthermore, the development of academic language proficiency *requires* that students get extensive access to, and be enabled to harvest, the language of academic text. As noted above, the low frequency and academic language vocabulary that becomes increasingly central to reading comprehension as students progress through the grades is found almost exclusively in written text. The prototype of the program has been developed with English as the target language but, in principle, the program can be used to support acquisition of any language for both school-age and adult learners.

The program has the following major features:

- Self-regulated access to textual meanings and harvesting the language of text
- Any text in electronic form (downloaded from the Internet, scanned in, or available on CD-ROM) can be imported into the program. Thus, teachers have the opportunity to select stories and expository texts that match their students' interests and cultural backgrounds rather than relying on one-size-fits-all texts and strategies. This immediately removes the pedagogy from a transmission orientation since the texts that students will read are not pre-determined but rather chosen to connect with students' interests, prior knowledge, and learning needs.
- Using digitized speech, the program will "read" any text (in English) to students. This scaffolds students' access to the text by removing decoding as a barrier. Students also get one-click access to monolingual and/or bilingual electronic dictionary support to facilitate understanding of the meaning of individual words and sentences.
- The program "remembers" the words that each individual student has clicked (unknown words) and provides individualized practice to students to assist them in learning these words. The practice exercises employ several varieties of receptive and productive cloze procedure and can be set at five levels of difficulty. In practice mode, immediate feedback is provided to students on the correctness of their responses. Thus, even beginning learners can experience success in understanding grade-level texts and acquiring the vocabulary of these texts.
- Students can demonstrate that they have learned previously unknown words by passing a "test" at difficulty level 3 or above (on the five-point scale). The tests employ the same cloze procedures used in Practice Mode but provide feedback only after completion of the entire test. The system tracks students' progress in transforming previously unknown words into "learned words." In this way, students are enabled to expand their academic vocabulary at their own pace and in the context of reading texts that are either relevant or intrinsically interesting to them.

B. Self-regulated vocabulary exploration

An environment (*LexSys*) is also provided in which students can carry out *language exploration* to deepen their knowledge of aspects of the meaning, form, and use of different words they choose. For example, students working individually or together might explore the different meanings of the English word *cool* in advertisements. They can also research L1 equivalents of this kind of use. Or they might explore similarities and differences in the way Graeco-Latin origin words such as *revolution* are used in Social Studies and Science; for example, they could explore the meanings and functions of the prefix, root, and suffix of these words. An example of the *LexSys* environment is provided in Figure 1.

C. Critical response to texts

Based on a critical literacy framework developed by Ada (e.g. Ada & Campoy, 2003), a set of templates or prompts is provided to support or frame students' creative writing in response to texts they have read. Students are encouraged to develop an orientation of critical literacy in interpreting the text. Support is provided to enable students to probe issues such as whose perspective the text is written from and whose perspectives might have been omitted from the text. The ***critical response*** template is shown in Figure 2.

In summary, the *e-Lective Language Learning* program illustrates the kind of support that ICT can provide for academic language learning. Unlike most didactic approaches to computer-assisted language learning, *e-Lective* does not come with any predefined content that it promises to teach. Instead, it invites teachers (or individual students) to choose content for reading that is relevant to their interests or goals. The program provides support for students' understanding of these texts and for their acquisition and use of the vocabulary embedded in the texts. Supports for grammatical learning, exploring word meanings in depth, and creative writing are included but students and teachers are given the option of using or not using these resources.

We envisage that future versions of *e-Lective* will be used to support bilingual and multilingual sister class exchanges in which students will use their stronger language to communicate with the sister class and their partners will use the program to help them interpret the meaning of what the sister class has written. Thus, there would be a much more equitable exchange than is currently often the case where English dominates the exchange.

Revolution

Meaning:

Definition:	a single complete turn; the overthrow of a government
L₁ equivalents:	<i>revolución</i> (in Spanish)
Related words in L₁:	<i>volver</i> (to turn), <i>vuelta</i> (a turn or change of direction)
Synonyms:	turn, revolt
Antonyms:	
Homonyms:	
Meanings of prefix:	<i>re</i> = again, back
Meanings of root:	from Latin <i>volvere</i> = to turn or roll

Form:

Word Family:	revolutionize (verb), revolve (verb), revolution (noun), revolutionary (adjective)
Grammatical category:	noun
Grammatical patterns:	revolution, revolutions
Words with same prefix:	revise, represent, replace, reuse, etc.
Words with same root:	revolt, revolve, revolutionize, evolve, devolve, involve (<i>verbs</i>) revulsion, evolution, revolver, volume (<i>nouns</i>) revolting, revolutionary, convoluted (<i>adjectives</i>)
Words with same suffix:	acceleration, fluctuation, inspiration, etc.

Use:

General use: The earth makes one revolution around the sun every year.
The Industrial Revolution brought great changes to human society.

Idioms:

Metaphoric usage:

Proverbs:

Jokes:

Puns:

Advertisements: Join the fashion revolution! Buy....

Figure 2. An example of the LexSys environment for language exploration

Critical Response

- *The text is written from the perspective of..... (people, group, country, etc.)*
- *People in the text whose perspectives are not discussed include.....*
- *Why was this text written? What audience did the author(s) have in mind? What response does the author hope readers will have to the text?*
- *How does the language used by the author help him/her influence the readers' response?*
- *How are males and females described in the text? Are there any differences or inequalities in the roles that males and females play in the text?*
- *How are members of different cultural groups described in the text? Are there inequalities in the roles that members of different cultural groups play in the text?*
- *Would people with different life experiences see the issues in the same way? For example, would the issues be perceived in a similar way by people of different income levels (poor people as compared to rich people), different genders (females as compared to males), or different cultures?*
- *What evidence is provided in the text for the views that are expressed? Is this evidence valid or convincing? If yes, why? If no, why not?*
- *Could people in the text have acted differently than how they did? What alternative actions could they have taken? How would these alternatives have affected events in the story or history?*

Figure 3. Critical Literacy template from e-Lective Language Learning

References

Ada, A. F. & Campoy, I. (2003). *Authors in the classroom: A transformative educational process*. Boston: Allyn & Bacon.