Effects of Lexical Simplification During Unaided Reading of English Informational Texts

Dee Gardner and Elizabeth C. Hansen
Brigham Young University, USA

The emergence of English as a global language during the past century is well documented (Crystal, 1995, 2003). Recent estimates indicate that second and foreign language speakers of English constitute the greater portion of the nearly two billion speakers of English worldwide (Crystal, 2003). These constantly growing numbers of English language learners (ELLs), together with the complicated nature of the language itself (syntactic complexity, vocabulary density, spelling inconsistencies, etc.), have inspired many historical and contemporary efforts to simplify English for purposes of both acquisition and communication (e.g., see Dale & O'Rourke, 1981; Nation & Wang, 1999; Ogden, 1934, Voice of America, 2006).

One of the long-term effects of these and other simplification projects is that adapted texts, abridged classics, graded readers, decodable texts, basal readers, and simplifications of all kinds are now standard fare in many ELL classrooms (Bello, Fajet, Shaver, Toombs, & Schumm, 2003; Claridge, 2005; Hill, 2001; Mesmer, 2001; Nation & Wang, 1999; Waring, 2003; Wodinsky & Nation, 1988). In short, most of the major ELL publishing companies produce simplified materials of some kind, and simplified books are considered "one of the staples" of ELL classrooms (Krishnaswamy, 1991, p. 95). Despite their prevalence, however, simplified texts and systems of simplified English remain quite controversial, and additional research regarding their effectiveness in ELL settings is particularly important.

The purpose of this study is to add to this much needed research base by collecting data on ELLs' perceptions of simplified texts that were altered using *Global Basic English* (GBE) (Gardner, Davies, Lonsdale, & Gong, 2004). GBE is essentially the lexical repurposing of written or scripted oral materials based on a list of approximately 1,500 of the most commonly used word families in the English language. Simplified texts are created using the GBE method by replacing many of the complex content words (primarily verbs) in the original text with more basic content words that express essentially the same meanings. The original syntax and discourse structures are maintained as much as possible, with only minor adjustments made in these areas to accommodate certain lexical simplifications. In short, the primary goals of GBE are

lexical in nature—that is, to reduce the vocabulary load placed on ELLs during unaided reading experiences, thus allowing them to improve their comprehension of material written initially for native English readers.

Criticisms of Text Simplification in ELL Settings

One of the traditional arguments against simplifications has been that ELL readers may not be appropriately motivated by such materials because they are assumed to lack real and relevant messages (e.g., see Krashen, 1985). Similarly, others have argued that characters in simplified literature are not as fully developed as they are in originals, and that the distinct writing styles of the authors are generally lost, creating a watered-down prose that does not highlight necessary distinctions between characters (Campbell, 1987). Authentic texts, on the other hand, are often characterized as containing distinct cultural flavors (Honeyghan, 2000) that may serve as "motivators and as a means to overcome the cultural barrier to language learning" (Bacon & Finnemann, 1990, p. 459).

Others critics have surmised that the small gains in language acquisition associated with simplifications do not justify the amount of time and resources needed to produce such materials (Leow, 1993, 1997). Still others question how ELLs will ever learn if they are only presented with simplified language that they are already familiar with (Honeyfield, 1977; Yano, Long, & Ross, 1994).

Additionally, studies have consistently found that syntactic simplification (reordering of syntactic elements, shortening of sentences, etc.) are not effective in improving ELLs' actual reading comprehension (Lotherington-Woloszyn, 1992; Uljin & Strother, 1990), and that such artificial discourse may actually compromise the cohesiveness afforded by unaltered originals (Oh, 2001; Yano et al., 1994). In fact, it appears that longer sentences often connect important ideas, provide essential context clues, and create a flow of information in ways that shorter sentences cannot (Goodman & Freeman, 1993). In short, certain simplifications may "strip away the richness in detail and connections that help a reader perceive implicational links" (Yano et al., 1994, p. 214). Thus many believe that elaboration (i.e., adding information to make meaning and connections more clear) is actually more justifiable than simplification for improving ELL reading comprehension (e.g., see Oh, 2001; Parker & Chaudron, 1987; Yano et al., 1994).

While lexical simplification of texts has generally been looked upon with more favor than syntactic simplification (Alderson, 2000), it too has been criticized on several grounds. For instance, Honeyfield (1977), in an important ELL article on simplification, argues strongly that the lexical simplification process produces materials with a much higher percentage of common words than would be found in authentic materials, thus

exposing ELL readers to language that has been "homogenized" or "flattened out" from its normal information distribution (i.e., important information is no longer highlighted). He views these linguistic distortions as being particularly problematic for the development of ELL reading strategies that would eventually be needed to negotiate unsimplified English. His primary recommendation is to maintain unsimplified materials and to provide ELL readers (intermediate level and above) with direct strategy instruction for dealing with such materials.

Additionally, several studies of the actual effects of lexical simplification have found no benefit to reading comprehension for materials in which multisyllabic and lower frequency words were replaced with more simple and common words (Oh, 2001; Yano et al., 1994), or for materials that were lexically simplified through intuition (Young, 1999). On closer examination, however, we would argue that all four of the lexical studies cited above may be unfairly biased against lexical simplification. For instance, the Honeyfield (1977) study never actually tested language learners' use of, comprehension of, or opinions about, lexically simplified materials. The claim that simplifications will lead to poor ELL reading strategies is untested, and the implication that such materials are bland is a researcher opinion that may not be considerate of developing ELL readers (cf. Claridge, 2005).

Additionally, the three lexical studies that actually tested learners may have convoluted their findings by including both syntactic modifications (reducing sentence length, embeddings, etc.) and lexical modifications (replacing multisyllabic and/or lower frequency words) in the same simplified materials, with no way of determining their independent effects on the results. This is particularly relevant to the current study which focuses directly on lexical simplification, with very little syntactic manipulation—a method identified by Tweissi (1998) as being more promising than full simplification (i.e., many syntactic and lexical changes). We argue that much more research focusing directly on lexical simplification is needed, especially given the fact that syntactic simplifications (shortening of sentences, etc.) have been shown to be ineffective or even counterproductive to reading comprehension (e.g., Leow, 1997; Uljin & Strother, 1990), and that lexical items have often been cited by ELL readers as the major source of their difficulty in reading authentic English texts (Campbell, 1987).

Support for Lexical Simplification of ELL Texts

Perhaps the greatest justification for research involving lexical simplification of ELL texts comes from the literature regarding the vocabulary demands of authentic English reading materials, and the frequent mismatch between those demands and the actual vocabulary knowledge of many ELL readers. For instance, Paul Nation and his

colleagues have repeatedly emphasized that ELL readers must know roughly 95% of the running words of a given text (19 of 20 words known) in order to achieve basic reading comprehension (Nation, 2001). The vocabulary knowledge necessary for pleasure reading may be as high as 98% (49 of 50 words known) for most ELL readers (Hirsh & Nation, 1992). Additionally, these statistics appear to hold true independent of other characteristics of the text, including syntactic complexity (Hirsh & Nation, 1992), indicating that if the vocabulary requirements of a given text closely match the vocabulary knowledge of the readers of that text, then basic comprehension is likely to take place, regardless of the presence of other difficult features (cf., Carver, 1994; Nation & Coady, 1988).

However, the problem arises in trying to match readers' vocabulary knowledge with the actual vocabulary of authentic materials (i.e., not controlled for vocabulary presentation). Such materials tend to be lexically unfriendly to many first and second language readers, especially informationally-based materials dealing with new content concepts or relationships (Alderson, 2000; Coté, Goldman, & Saul, 1998; Espin & Foegen, 1996; Williams & Dallas, 1984). In short, the breadth and complexity of the vocabulary in a text is one of the best measures of its overall difficulty (Laufer & Sim, 1985; Yorio, 1971), and there exists "a predictable relationship between the density of unknown words and comprehension" (Hsueh-chao & Nation, 2000, p. 422).

Additional support for lexical simplification comes from research involving the threshold hypothesis (Alderson, 1984), where sufficient second language vocabulary knowledge has been identified as a significant predictor of reading-skills transfer from a first language to a second language (Bernhardt & Kamil, 1995; Lee & Schallert, 1997; Schoonen, Hulstijn, & Bossers, 1998). In certain cases, second language vocabulary knowledge has actually been shown to compensate for underdeveloped first language reading skills (Yamashita, 2002).

Another support is simply the fact that many reading experts cite lexical or conceptual modifications as the most promising for improving ELL reading comprehension (e.g., see Alderson, 2000, Tweissi, 1998; Ulijn & Strother, 1990). This appears to be particularly true with regard to unaided reading, where ELL readers do not have access to teachers, tutors, or other extra-textual support (glosses, dictionaries, etc.).

In fact, we argue that the distinction between unaided reading (without support) and scaffolded reading (with support) is not a trivial matter with regard to ELL text simplification research, or the recommendations that follow from it. It is one thing to advocate authentic reading experiences for ELL readers who are given linguistic and strategic support (e.g., Honeyfield, 1977; Oh, 2001), and quite another to suggest that they read authentic materials without such support (e.g., see Krashen, 1985; 1993),

particularly if those materials are written to convey content-rich information (cf., Laufer & Sim, 1985). Perhaps herein lies the greatest potential for lexical simplification of texts—namely, as an alternative to requiring large amounts of direct vocabulary instruction, while allowing the reading-in-reading and the learning-from-reading to actually take place, thus providing a cognitive bridge to more authentic reading experiences (Claridge, 2005).

Finally, we contend that quality of simplified materials and motivation to read such materials are relative constructs. In fact, Claridge (2005) provides linguistic evidence to counter the generalization that lexically-modified texts are linguistically weak—that is, that they exhibit a loss of communicative structure, homogenization of vocabulary, and so forth. Nation and Deweerdt (2001) also argue that the often-cited undesirable characteristics of simplified materials "may be true of poorly-written simplifications," but that many well-written simplifications are actually "a joy to read," and that it "is unfair and misleading to condemn simplifications as a whole because some are poorly done" (pp. 56-57). They further maintain that if students are not reading well, it is more likely a result of poor teaching and syllabus design than some general deficiency of simplifications. In short, the linguistic manipulation inherent in simplifications, may be "a small price to pay" (Lucas, 1991, p. 243) for the early success that ELL readers experience with such materials.

Perceived Comprehension

To date, most of the studies assessing comprehension of simplified ELL materials have used a variety of multiple-choice (MC) formats (e.g., see Leow, 1993; Tweissi, 1998; Yano et al., 1994). However, there are many validity questions with such testing. For instance, are the test items written in simplified or unsimplified language (vocabulary, syntax, etc.; cf., Shohamy, 1984)? Are they written in the ELLs' first language or in English? Do they test the reading comprehension construct or the learners' test-taking abilities (elimination of weak distractors, etc.)? Regarding the language of the testing instruments, Alderson (2000) offers the following caveat:

> Tests of vocabulary are highly predictive of performance on tests of reading comprehension. In studies of readability, most indices of vocabulary difficulty account for about 80% of the predicted variance. In short, vocabulary plays a very important role in reading tests. (p. 99)

This conclusion seems particularly relevant to the current study involving lexical simplification of reading materials, and the potential for the language of the test items themselves to confound the effects of simplified versus unsimplified reading materials. For these reasons, we have elected to modify and expand Oh's (2001) method of

measuring the "perceived comprehension" (p. 89) of ELL readers as they read modified or unmodified materials. In addition to answering more traditional MC comprehension items, Oh's subjects also indicated the degree to which they felt they understood each of the test passages based on a 6-point scale (0%, 20%, 40%, 60%, 80%, and 100%). We would argue that such an instrument is potentially more valid than traditional MC and other objective testing tools in terms of measuring the comprehension effects of simplification, especially given the language and construct issues noted above.

From the standpoint of motivation to continue reading, we would further argue that ELLs' impressions about their ability to comprehend may be as important as their actual abilities to comprehend. In other words, if they feel that simplified or unsimplified presentations help them comprehend better, they are more likely to continue reading those particular kinds of materials. Having said this, we also recognize the need for a carefully constructed design to eliminate as many potentially intervening variables as possible, and to account for individual differences in learners' abilities to rate their own comprehension (Lin, Moore, & Zabrucky, 2001).

The Study

The current study investigates a recently developed method of lexical simplification called Global Basic English (GBE). The primary purpose of GBE is to reduce the vocabulary demands placed on ELL readers, while allowing them to benefit from most of the existing syntactic structures which are often necessary for making meaning connections and communicating new information. The following research question will guide the remainder of the study:

Does lexical simplification of texts using Global Basic English improve ESL readers' perceived comprehension of those texts?

Research Design

Subjects

The subjects of the experiment were 135 ELL students enrolled in three English language programs: a pre-university intensive English program, a community adult education ELL class, and a private language school. The English proficiency levels of the subjects were initially determined by a battery of placement tests in reading, writing, listening, speaking, and grammar, or by an oral interview, depending on the criteria of the three institutions. Using this information, subjects were subsequently divided into four general proficiency groups: **Level 1** (Beginning; n=38), **Level 2** (Low Intermediate; n=44), **Level 3** (High Intermediate; n=22), and **Level 4** (Advanced; n=31). Sixty-two subjects were male and 68 were female (5 subjects did not indicate gender).

Subjects' native language backgrounds included Spanish (71), Korean (20), Japanese (14), Chinese (11), Portuguese (10), Mongolian (6), French (1), Tagalog (1), and Ukrainian (1). The average age was 31.6 years (range of 18 to 72), and the average time in the United States was 1.3 years.

Texts

The unmodified texts for this study come from the *Gardening* section of the *Provident Living* (2005) website. These particular texts were chosen for several reasons: (a) the information is available to a world-wide audience of English users; (b) the content is informational in nature; (c) the content does not appear to be culturally biased, nor to require specialized background knowledge; and (d) the content is a typical example of a GBE application. A total of 12 *Gardening* paragraphs were selected, reformatted from HTML to MS Word format, and labeled "original text" (see Appendix A).

Lexical Simplification Process

"Simplified" versions of the original texts were created using the principles of GBE, which include (a) computerized marking of all words not found in the GBE base lists of high frequency English words; (b) judicious researcher substitutions of marked words with words from the GBE high frequency lists; and (c) review of modified materials by GBE experts to ensure their acceptability as lexically simplified materials.

GBE Base List

The list of GBE high frequency words consists of a combination of head words (base forms) from three existing high-frequency word lists of English: Ogden's Basic English (Ogden, 1934)—approximately 850 base forms; Voice of America (2005)—approximately 1,500 base forms; and the combined lists accompanying the *Range* vocabulary program (Heatley, Nation, & Coxhead, 2002)—approximately 2,500 base forms. Any base forms appearing in at least two of the three high frequency lists were included in the GBE list. These three lists were chosen because they have all been used successfully in numerous simplification projects that support English Language Learners.

The resulting GBE base forms were subsequently expanded into word families (i.e., base forms plus inflections and transparent derivatives). For example, the GBE word family *assign* includes the base form assign, plus *assigned, assigning, assigns, assignment*, and *assignments.* The fundamental concept behind word families is that many ELLs can understand the inflected and transparent derivative forms of a base form without needing to learn each word form separately (Bauer & Nation, 1993). To the list of overlapping word families were added several other high coverage words such as days of the week, months of the year, numbers, and so forth, bringing the total GBE family count to1,472, consisting of roughly 6,406 individual family members (see

Appendix B for a list of GBE word families used in the study).[1] The new GBE list was subsequently imported into the *Range* vocabulary program in place of the existing base lists that accompany the program. The *Range* program was then used to identify words in the *Gardening* texts that were not in the GBE list.

Marking of Words for Potential Simplification

All words not in the GBE list were marked in the 12 original *Gardening* paragraphs with the aid of the "Mark Text" option of the *Range* vocabulary program. The following are examples of typical vocabulary marking in *Gardening* texts:

Marked: These soils must be altered<!> to provide good drainage<!>

Marked: Make sure the organic<!> matter or sand you add to the garden site<!> is free of soil pests<!>

In these examples, words not in the GBE list are followed by the <!> symbol. All such words were carefully considered for possible simplification, using words or combinations of words from the GBE list.

Lexical Modifications

Each marked word was considered and modified in one of the following four ways.

Clear Synonym.

1. Marked words with a clear synonym on the GBE list were replaced by the GBE form. No syntactic manipulation was necessary. Words in this category tended to be verbs (e.g., altered simplified to changed in the following):

Original: These soils must be altered to provide good drainage.

Marked: These soils must be altered<!> to provide good drainage<!>.

Simplified: These soils must be changed to provide good ways for the water to leave.

[1]The GBE list continues to undergo evaluation for semantic redundancies among word families (e.g., two verbs with essentially the same meanings that could be grouped together), omissions of essential basic words (e.g., air), inclusion of seemingly specialized words (e.g., brass, cork, plow), and so forth. The current study is not intended to be a validation of the list per se; rather, it is a study of the effects of lexical simplification using the best list available at the time of testing.

This type of modification was also possible with certain nouns (e.g., pests simplified to insects):

Original: Make sure the organic matter or sand you add to the garden site is free of soil pests.

Marked: Make sure the organic<!> matter or sand you add to the garden site<!> is free of soil pests<!>.

Simplified: Make sure the plant matter or sand you add to the garden is free of soil insects.

2. Slight Structural Change.

Certain marked words required only a slight structural modification to make them consistent with the GBE list (e.g., big-seeded simplified to with big seeds):

Original: This is especially true for big-seeded crops such as green beans.

Marked: This is especially true for big-seeded<!> crops such as green beans<!>.

Simplified: This is especially true for crops with big seeds such as green beans.

3. Circumlocution:

Some marked nouns were simplified through circumlocution (e.g., architect simplified to someone building a house):

Original: A gardener needs a plan, just as an architect does.

Marked: A gardener needs a plan, just as an architect<!> does.

Simplified: A gardener needs a plan, just as someone building a house does.

4. Unchanged.

Some marked words were left as is, because there is no semantically-justifiable substitute or circumlocution-option using other GBE words (e.g., beans):

Original: This is especially true for big-seeded crops such as green beans.

Marked: This is especially true for big-seeded<!> crops such as green beans<!>.

Simplified: This is especially true for crops with big seeds such as green beans.

Many nouns fell into this last category. There is simply no way to replace words such as *beans, okra, cantaloupe, watermelon, sprinklers, gloves,* or *hoe* with other GBE words without significantly diluting the meaning (e.g., *beans ≠ long green plants that people eat*). We stress here that the guidelines of GBE are flexible, not rigid—that is, lexical modification is only performed when it makes good sense to do so.

Expert Reviews of Simplifications

Each simplified paragraph was subsequently reviewed by four researchers familiar with GBE principles to ensure that the basic meaning of the original paragraphs was maintained in their simplified counterparts. The entire simplification process resulted in the 12 simplified paragraphs reproduced in Appendix A.

Testing instruments

Two testing instruments (A & B) were created using the 12 original and 12 simplified paragraphs (Appendix A). Each instrument included six original and six simplified paragraphs, alternated by instrument. The content order of the paragraphs was the same for both instruments, but the presentation order of original versus simplified paragraphs was varied to avoid predictability. Thus, in Instrument A, paragraphs 1, 3, 4, 7, 8 and 11 were original and paragraphs 2, 5, 6, 9, 10 and 12 were simplified. In Instrument B, paragraphs 1, 3, 4, 7, 8 and 11 were simplified, and paragraphs 2, 5, 6, 9, 10 and 12 were original.

Each paragraph in both instruments was followed by a perceived comprehension rating scale with the following descriptors that were first explained in the instructions and then reformatted for ease of circling on the instruments themselves:

1 means that you understood ALMOST NOTHING in the paragraph.

2 means that you understood SOME of the paragraph.

3 means that you understood LESS THAN HALF of the paragraph.

4 means that you understood MORE THAN HALF of the paragraph.

5 means that you understood ALMOST EVERYTHING in the paragraph.

6 means that you understood EVERYTHING in the paragraph.

Testing and scoring procedures

Tests were administered in the students' regular classrooms at their respective language schools. Students at all identified skill levels received either Test Instrument A or B (alternated with random assignment). Following an instructional session to ensure understanding of the rating scale and task requirements, the students completed their respective test instruments (no time restrictions, although most finished in approximately 30 minutes).

After the tests of perceived comprehension were completed, students were given a separate test instrument with identical passages and asked to circle any words in those passages that they did not understand. The intent behind the separation of the comprehension-rating and vocabulary-identification tasks was to provide two independent measures of the effects of lexical simplification. Completed tests (two for

each student) were subsequently scored by paragraph for (a) perceived comprehension ratings, and (b) number of unknown words circled.

Results and Discussion

Perceived comprehension ratings

Table 1 displays the means for the perceived comprehension ratings. It should be noted that the highest possible rating sum for an individual subject is 36 (i.e., a rating of 6 on all 6 paragraphs), while the lowest rating sum for an individual subject is 6 (i.e., a rating of 1 on all 6 paragraphs); therefore, the extreme mean ratings are also 36 (highest) and 6 (lowest). The differences in the combined means suggest that, on average, the simplified versions resulted in higher perceived comprehension ratings than the original versions (29.03 v. 26.97). Furthermore, the skill-level averages suggest that simplified materials were perceived to be more comprehensible than original materials regardless of the learners' skill levels.

Table 1

Means for Perceived Comprehension Ratings

Skill level	Original version	Simplified version	Difference	SE
Combined	26.97	29.03	2.06	0.50
Level 1	20.14	21.95	1.81	0.93
Level 2	26.55	29.05	2.50	0.85
Level 3	29.09	31.82	2.73	1.20
Level 4	32.10	33.32	1.22	1.01

Note: SE = standard error (of measurement).

Results of the repeated measures ANOVA indicate a significant effect for text version, $F(1, 130) = 8.46$, $p = .0043$. Skill Level was also significant, $F(3, 130) = 54.34$, $p < .0001$, but the interaction between Version and Skill Level was not significant, $F(3, 130) = 0.22$, $p = .8810$. The graphing of the means in Figure 1 clearly indicates that the more skilled learners perceived their comprehension to be higher than the less skilled learners regardless of text version, but, more importantly, all learner groups, regardless of skill level, found the simplified materials to be more comprehensible than the originals. These finding become even more meaningful when one considers that there was no indication which passages had been simplified, nor any mention that a simplification process was even involved.

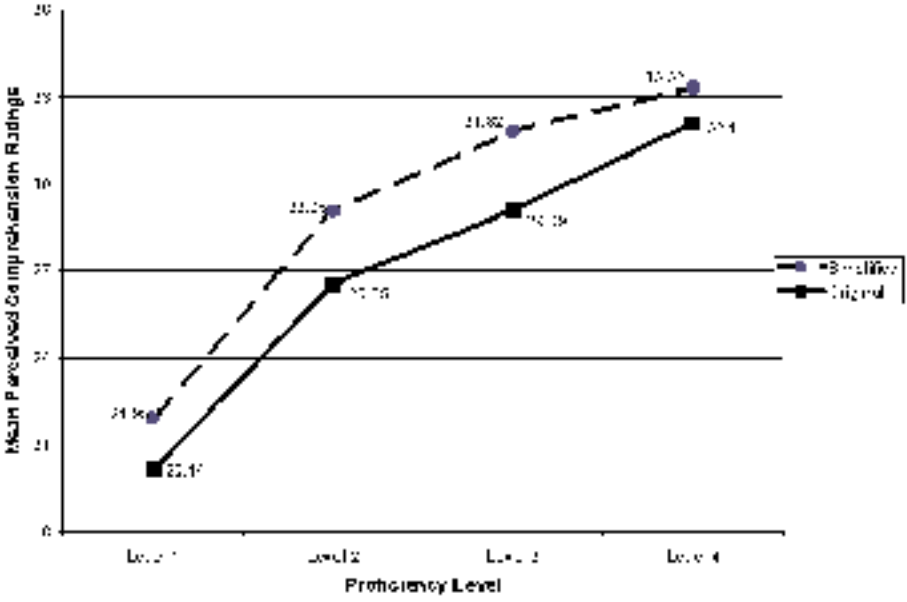

Figure 1: Mean perceived comprehension rating at four skill levels for simplified v. original text versions.

Unknown Words Circle

Table 2 displays the means for the number of unknown words circled by the learners in the second phase of the testing. Again, there is a clear advantage, but in the opposite direction, for the simplified versions (M=12.22) over the originals (M=20.14).

This indicates that, on average, learners circled 7.92 more words as being unknown on the original versions than on the simplified versions. Similar to the perceived comprehension ratings, the skill-level averages suggest that this advantage for lexically simplified materials held true regardless of skill level: Level 1—11.00 fewer unknown words, on average, in simplifications; Level 2—7.44 fewer unknown words in simplifications; Level 3—8.04 fewer unknown words in simplifications; and Level 4—5.23 fewer unknown words in simplifications.

Table 2

Means for Number of Unknown Words Circled

Skill level	Original version	Simplified version	Difference	SE
Total	20.14	12.22	7.92	1.75
Level 1	40.76	29.76	11.00	3.19
Level 2	15.30	7.86	7.44	2.96
Level 3	14.68	6.64	8.04	4.19
Level 4	9.84	4.61	5.23	3.53

Note: SE = standard error (of measurement).

Results of the repeated measures ANOVA again indicate significant effects for Text Version, $F(1, 131) = 10.28$, $p = .0017$, and Skill Level, $F(3, 131) = 30.78$, $p < 0.0001$, but not for the interaction (Version x Skill Level), $F(3, 131) = 0.26$, $p = .8563$. The graphing of the mean number of unknown words by skill level (Figure 2) points out these relationships. It is clear that the more skilled learners knew more words than the less skilled learners, but that all learners, on average, knew more words in simplified materials than in originals. Again, this advantage for lexically simplified materials accrued without any information given to the learners that some of the passages had been simplified.

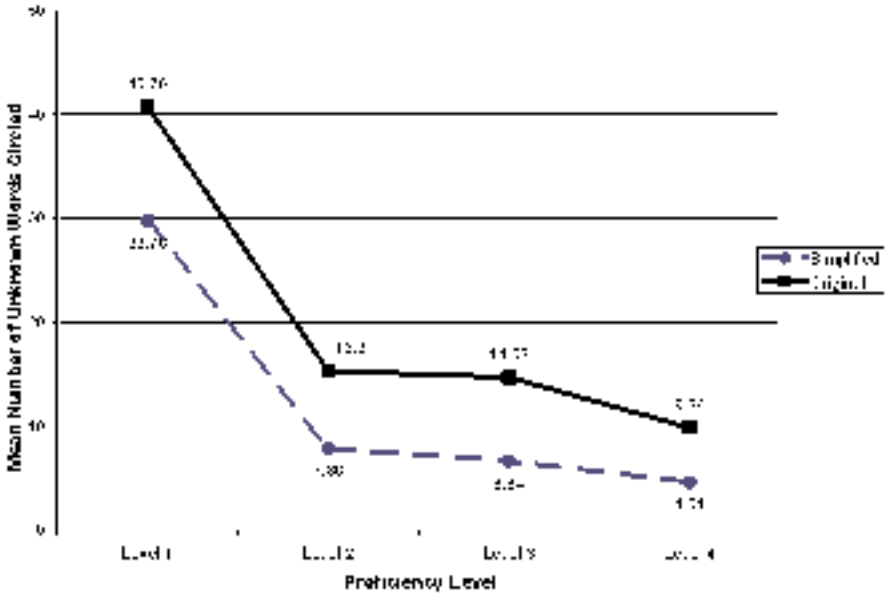

Figure 2: Mean number of unkown words circled at four skill levels in simplified v. original text versions.

Despite some of the literature suggesting that simplification in general may not be helpful at certain proficiency levels—mostly advanced or intermediate (e.g., Leow, 1993; Lotherington-Woloszyn, 1992; Oh, 2001; Parker & Chaudron, 1987; Ulijn & Strother, 1990; Young, 1999), this research provides evidence that ELLs at many sub-advanced skill levels may benefit from lexically simplified materials. While there are four skill levels represented in this study, none would be considered truly advanced. We view the skill-level issue as no trivial matter with regard to simplification, in general, and lexical simplification, more specifically. This is especially true with regard to unaided reading. In fact, we consider it a logical fallacy to suggest that ELLs with sub-advanced English skills can effectively negotiate text written for native speakers without extra-textual aids (dictionaries, glosses, teacher interventions, etc.)—unless, of course, the texts are purposefully written for lower skill levels (e.g., children's literature), or they have been repurposed (e.g., simplified), as was the case in the current study. Furthermore, the convergence of the findings regarding the ELLs' perceived comprehension and the number of words they did not know adds to an already substantial body of research linking vocabulary knowledge and reading comprehension (e.g., Alderson, 1984; Bernhardt

& Kamil, 1995; Hirsch & Nation, 1992; Lee & Schallert, 1997; Nation, 2001; Nation & Coady, 1988; Schoonen, Hulstijn, & Bossers, 1998; Yamashita, 2002).

The consistent findings between the two measures, self-comprehension ratings and number of unknown words circled, also make a strong case for the principles underlying *Global Basic English*, which include:

1. Identification (marking) of vocabulary items in written or scripted oral materials that are not on established lists of high frequency English words (e.g., GBE list).
2. Flexible modifications of identified words in one of four ways:
   a. Replacement of marked words with clear synonyms from the high frequency list (e.g., *altered → changed*).
   b. Slight structural changes to simplify marked words (e.g., *big-seeded crops → crops with big seeds*).
   c. Circumlocution of marked words, using words from the high frequency list (e.g., *architect → someone building a house or someone making a plan to build a house*).
   d. Leaving marked words unchanged (e.g., *beans → beans, not long green plants that people eat*).
3. Independent review by trained individuals to ensure that the lexically simplified materials have maintained the basic meanings of the originals without creating noticeably awkward prose.

Conclusions and Extensions

Like most simplification studies, the current iteration has its own set of possible limitations, including: (a) choice of text topic (gardening—informational) (b) choice of text length (shorter passages); (c) choice of high-frequency word list (GBE word list); (d) size of the lexical units considered (one word only); (e) semantics of the lexical units considered (no distinction made for the variant meanings of high-frequency word forms); (f) choice of simplifications made; and (g) type of measurements employed (perceived comprehension only)—a potential limitation that deserves an additional cautionary note, especially given the complex nature of learners' self-reporting of language comprehension, and the mixed reviews often associated with this construct. However, while all of these possible limitations might be addressed in future studies, we would argue that their potential impact on the core findings of the current study are likely very minimal. That is, the strength of effects using the two different measures of perceived comprehension (self ratings and unknown words circled) leaves little doubt that the lexical simplifications were altering how the learners viewed the simplified

versus the original materials, and that, on average, learners at all skill levels felt they could comprehend the simplified materials better than the originals and that the simplified materials contained fewer words they were not familiar with. Again, these findings are particularly compelling given the fact that the learners had absolutely no idea that lexical simplification of some passages had even taken place.

By extension, the findings strongly suggest that lexical simplification of written materials deserves further attention in ELL settings, especially in the context of unaided reading, where learners are expected to negotiate English materials without extra-textual supports (glosses, dictionaries, native-language translations, tutors, teachers, etc.). We further argue that historical criticisms of lexical simplification on the grounds that it produces bland prose distorts the core reason for simplifying materials in the first place—namely, to make unaided reading a more viable option in ELL settings, not to satisfy the tastes of advanced English readers (native or nonnative), or their instructors. In short, what may be "bland" to some may be encouraging and facilitating to others (Claridge, 2005; Lucas, 1991; Nation & Deweerdt, 2001; Wodinsky & Nation, 1988), and what is "authentic" may be more appropriately defined as what is "understood" by the learner (Davies, 1984, p. 192).

We also wish to stress that the nature of the texts in this study (informational nonfiction) may accentuate the need for lexical simplification, where crucial understanding of the relationships between component parts of an informational piece often hinges on knowing the meaning of one or two key words. Many historical simplifications have dealt with the repurposing of fictional materials, which may not place the same demands on detailed understanding as their nonfiction counterparts.

The positive effects of lexical simplification also suggest that vocabulary modification of texts should be considered in its own right, rather than being combined with or subordinated to syntactic- and discourse-level modifications. In fact, judicious lexical simplification allows most of the syntactic and discourse characteristics of a text to remain untouched, thus preserving most of the natural cohesiveness of unaltered originals—a text characteristic determined to be essential for reading comprehension (e.g., see Yano et al., 1994).

The findings of this study also point to the need for expert human intervention in the process of lexically simplifying materials. While computers may be able to assist in establishing high-frequency word lists and in identifying words that are not on those lists, they are still largely incapable of making the complex decisions of when and how to replace lexical items in written materials. In our view, this role will remain with experienced teachers, materials developers, and researchers for quite some time. The key is for such individuals to decide whether the suggested lexical changes should be made in the first place, and then to determine which of the several modification types

would be best for the given situation—flexibility, being the key component of effective lexical simplification.

Finally, simplified texts must be carefully selected and properly implemented (Hill, 2001; Nation & Wang, 1999). Simplified texts should not entirely replace authentic texts or be viewed as a magic cure-all for ELL reading challenges. Improving learners' abilities to access materials written by and for native English speakers should remain the ultimate goal of classroom-based ELL reading instruction, using simplified materials during unaided reading as a preparatory bridge to that goal (Claridge, 2005). We hope that the findings in this study will advance this line of investigation by refocusing attention to the potential benefits of lexical simplification and a better understanding of what makes a good simplified text for ELL settings.

References

Alderson, J. C. (1984). Reading in a foreign language: A reading problem or a language problem? In J. C. Alderson & A. H. Urquhart (Eds.), *Reading in a foreign language* (pp. 1-27). London: Longman.

Alderson, J. C. (2000). *Assessing reading*. Cambridge: Cambridge University Press.

Bacon, S., & Finnemann, M. D. (1990). A study of the attitudes, motives and strategies of university foreign language students and their dispositions to authentic oral and written input. *The Modern Language Journal, 74*, 459-473.

Bauer, L., & Nation, I. S. P. (1993). Word families. *International Journal of Lexicography, 6*, 253-279.

Bello, M., Fajet, W., Shaver, A. N., Toombs, A. K., & Schumm, J. S. (2003). Basal readers and English language learners: A content analysis study. *Reading Research and Instruction, 42*(2), 1-16.

Bernhardt, E. B., & Kamil, M. L. (1995). Interpreting relationships between L1 and L2 reading: Consolidating the linguistic threshold and the linguistic interdependence hypotheses. *Applied Linguistics, 16*(1), 15-34.

Campbell, N. (1987). Adapted literary texts. *ELT Journal, 41*, 132-135.

Carver, R. P. (1994). Percentage of unknown vocabulary words in text as a function of the relative difficulty of the text: Implications for instruction. *Journal of Reading Behavior, 26*, 413-437.

Claridge, G. (2005). Simplification in graded readers: Measuring the authenticity of graded texts. *Reading in a Foreign Language, 17*(2), 144-158.

Coté, N., Goldman, S. R., & Saul, E. U. (1998). Students making sense of informational text: Relations between processing and representation. *Discourse Processes, 25*(1), 1-53.

Crystal, D. (1995). *The Cambridge encyclopedia of the English language*. Cambridge: Cambridge University Press.

Crystal, D. (2003). *English as a global language* (2nd ed.). Cambridge: Cambridge University Press.

Dale, E., & O'Rourke, J. (1981). *Living word vocabulary: A national vocabulary inventory*. Chicago: World Book-Childcraft International.

Davies, A. (1984). Simple, simplified and simplification: What is authentic? In J. C. Alderson & A. H. Urquhart (Eds.), *Reading in a foreign language* (pp. 181-198). London: Longman.

Espin, C. A., & Foegen, A. (1996). Validity of general outcome measures for predicting secondary students' performance on content-area tasks. *Exceptional Children, 62*(6), 497-514.

Gardner, D., Davies, M., Lonsdale, D, & Gong, G. (2004). *Global Basic English*. Unpublished methodology for the lexical repurposing of written or scripted oral texts. Provo, UT: Brigham Young University.

Goodman, K. S., & Freeman, D. (1993). What's simple in simplified language? In M. L. Tickoo (Ed.), *Simplification: Theory and application* (pp. 69-81). Singapore: SEAMEO Regional Language Centre.

Heatley, A., Nation, I. S. P., & Coxhead, A. (2002). *Range Frequency Programs*. [Computer software]. Wellington, New Zealand: Victoria University of Wellington. Retrieved July 16, 2007, from http://www.vuw.ac.nz/lals/staff/paul-nation/nation.aspx

Hill, D. (2001). Survey review: graded readers. *English Language Teaching Journal. 55*(3), 300-324.

Hirsh, D., & Nation, P. (1992). What vocabulary size is needed to read unsimplified texts for pleasure? *Reading in a Foreign Language, 6*, 689-96.

Honeyfield, J. (1977). Simplification. *TESOL Quarterly, 11*, 431-440.

Honeyghan, G. (2000). Authentic text: Linking home, school, and community with environmental texts. *Florida Reading Quarterly, 37*, 14-16.

Hsueh-chao, M. H., & Nation, P. (2000). Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language, 13*, 403-430.

Krashen, S. (1985). *The input hypothesis: Issues and implications.* New York: Longman.

Krashen, S. (1993). *The power of reading: Insights from the research*. Englewood, CO: Libraries Unlimited.

Krishnaswamy, R. (1991). An interactive approach to the simplification of narrative texts for ESL readers. *CIEFL Bulletin, 3*(2), 95-112.

Laufer, B., & Sim, D. (1985). Measuring and explaining the reading threshold needed for English for academic purposes. *Foreign Language Annals, 18*, 405-411.

Lee, J.-W., & Schallert, D. L. (1997). The relative contribution of L2 language proficiency and L1 reading ability to L2 reading performance: A test of the threshold hypothesis in an EFL context. *TESOL Quarterly, 31*(4), 713-739.

Leow, R. P. (1993). To simplify or not to simplify: A look at intake. *Studies in Second Language Acquisition, 15*, 333-355.

Leow, R. P. (1997). The effects of input enhancement and text length on adult L2 readers' comprehension and intake in second language acquisition. *Applied Language Learning, 8,* 151-182.

Lin, L.-M., Moore, D., & Zabrucky, K. M. (2001). An assessment of students' calibration of comprehension and calibration of performance using multiple measures. *Reading Psychology, 22*, 111-28.

Lotherington-Woloszyn, H. (1992). Simplification: The questionable role of interventionist language in ESL reading comprehension. In R. J. Courchene, J. L. Glidden, J. St. John, & C. Therien (Eds.), *Comprehension-based second language teaching* (pp. 451-476). Ottawa, Canada: University of Ottawa Press.

Lucas, M. A. (1991). Systematic grammatical simplification. *International Review of Applied Linguistics in Language Teaching, 29,* 241-249.

Mesmer, H.A.E. (2001). Decodable text: A review of what we know. *Reading Research and Instruction, 40*(2), 121-142.

Nation, I. S. P. (2001). *Learning vocabulary in another language.* Cambridge: Cambridge University Press.

Nation, I. S. P., & Coady, J. (1988). Vocabulary and reading. In R. Carter & M. McCarthy (Eds.), *Vocabulary and language teaching* (pp. 97-110). New York: Longman.

Nation, I. S. P., & Deweerdt, J. P. (2001). A defense of simplification. *Prospect, 16*, 55-67.

Nation, I. S. P., & Wang, K. M. (1999). Graded readers and vocabulary. *Reading in a Foreign Language, 12*, 355-380.

Ogden, C. K. (1934). *The system of Basic English*. New York: Harcourt, Brace.

Oh, S.-Y. (2001). Two types of input modification and EFL reading comprehension: simplification versus elaboration. *TESOL Quarterly, 35*, 69-96.

Parker, K., & Chaudron, C. (1987). The effects of linguistic simplification and elaborative modifications on L2 comprehension. *University of Hawaii Working Papers in ESL, 6,* 107-133.

Provident Living: Gardening. (2005). Retrieved May 23, 2005, from http://www.providentliving.org/content/list/0,11664,2019-1,00.html. The Church of Jesus Christ of Latter-day Saints.

Shohamy, E. (1984). Does the testing method make a difference? The case of reading comprehension. *Language Testing, 1*, 147-170.

Shoonen, R., Hulstijn, J., & Bossers, B. (1998). Metacognitive and language-specific knowledge in native and foreign language reading comprehension: An empirical study among Dutch students in grades 6, 8 and 10. *Language Learning, 48*(1), 71-106.

Tweissi, A. I. (1998). The effects of the amount and type of simplification on a foreign language reading comprehension. *Reading in a Foreign Language, 11*, 191-204.

Ulijn, J. M., & Strother, J. B. (1990). The effect of syntactic simplification on reading EST texts as L1 and L2. *Journal of Research in Reading, 13*, 39-54.

Voice of America. (2005). *VOA Special English word book*. Retrieved May 23, 2005, from http://www.manythings.org/voa/words.htm

Voice of America (2006). *What is special English.* Retrieved March 6, 2006, from http://www.voanews.com/specialenglish/about_special_english.cfm

Waring, R. (2003). *The Oxford University press guide to the why and how of using graded readers.* Tokyo: Oxford University Press.

Williams, R., & Dallas, D. (1984). Aspects of vocabulary in the readability of content area L2 educational textbooks: a case study. In J. C. Alderson and A. H. Urquhart (Eds.), *Reading in a foreign language* (pp. 199-210). London: Longman.

Wodinsky, M., & Nation, P. (1988). Learning from graded readers. *Reading in a Foreign Language, 5*, 155-161.

Yamashita, J. (2002). Mutual compensation between L1 reading ability and L2 language proficiency in L2 reading comprehension. *Journal of Research in Reading, 25*, 81-95.

Yano, Y., Long, M. H., & Ross, S. (1994). The effects of simplified and elaborated texts on foreign language reading comprehension. *Language Learning, 44*, 189-219.

Yorio, C. (1971). Some sources of reading problems for foreign language learners. *Language Learning, 21*, 107-115.

Young, D. J. (1999). Linguistic simplification of SL reading material: Effective instructional practice? *Modern Language Journal, 83,* 350-366.

About the Authors

Dee Gardner is an Associate Professor of Applied Linguistics and TESOL at Brigham Young University in Provo, Utah. His primary research and teaching interests are in the areas of vocabulary acquisition, literacy development, and applied corpus linguistics.

Elizabeth C. Hansen (MA TESOL) has taught ESL and Italian courses at Brigham Young University. Her primary research interests are in corpus linguistics, simplified English, and Italian linguistics.

Appendix A

Original and Lexically-Simplified Texts

Original Text	Simplified Text
Acquiring Seeds	**Getting Seeds**
It is best to obtain good quality seeds from local merchants rather than saving seeds from your garden. Seeds can be stored for up to a year in a cool, dry, dark place. The first year you may want to purchase enough seeds for two years. The next year, use the year-old seeds, and store the new seeds that you purchase.	It is best to get good quality seeds from local stores rather than saving seeds from your garden. Seeds can be stored for up to a year in a dry, dark place that is not too warm. The first year you may want to buy enough seeds for two years. The next year, use the seeds from the year before and store the new seeds that you buy.
Selecting a Garden Site	**Choosing a Place for Your Garden**
Although many urban gardeners have little choice, selecting a garden site is extremely important. An area exposed to full or near-full sunlight with deep, well-drained, fertile soil is ideal. The location should be near a water outlet and free of competition from existing shrubs or trees. By planting in full sunlight and in good soil, as well as by properly selecting crops, you can turn almost any site into a highly productive garden.	Although many gardeners that live in cities do not have a choice, choosing a place for your garden is very important. An area that has a lot of sunlight with deep, rich soil is the best. The location should allow for water to leave easily and not have too many other plants or trees nearby. By planting in full sunlight and in good soil, as well as by choosing crops well, you can turn almost any place into a very successful garden

Selecting Crops

As a home gardnener, one of your first major tasks is deciding which vegetables to grow. Raise vegetables which return good portion of nutritious food for the time and space required. Vine crops such as watermelon, cantaloupe, winter squash, and cucumbers require large amounts of space unless you plant them near a fence or trellis. Plant according to your family's needs, and resist over-planting any particular vegetable, although surpluses may be preserved. If your garden is not in an area receiving full or near-full sunlight, try leafy crops such as leaf lettuce, mustard, and parsley.

Choosing Crops

As a home gardener, the first thing to do is to decide which vegetables to grow. Choose vegetables that give good amounts of healthy food for the time and space required. Vine crops such as watermelon, cantaloupe, winter squash, and cucumbers require a lot of space unless you plant them near a fence. Plant according to what your family needs. Don't plant too much of one vegetable, although you can save extra vegetables. If your garden is not in an area that receives a lot of sunlight, use leafy crops such as leaf lettuce, mustard, and parsley.

Original Text

Planning Your Garden

A gardener needs a plan, just as an architect does. Careful planning lessens gardening work and increases returns on labor. Long-term crops require a long growing period. Plant them where they will not interfere with care and harvesting of short-term crops. Plant tall-growing crops where they will not shade or interfere with growth of smaller crops. Plant vegetables such as okra, staked tomatoes, pole beans, and sweet corn on the garden's north side to avoid shading lower-growing crops such as radishes, leaf lettuce, onions, and bush beans. Group crops according to the rate of maturity. By grouping vegetables according to maturity rate, one crop can be planted to take the place of another as soon as it is removed. When you remove an old crop, replace it with an unrelated crop. For example, replace early beans with beets, bush squash, or bell peppers. Crop rotation helps prevent diseases and insect buildup.

Simplified Text

Planning Your Garden

A gardener needs a plan, just as someone building a house does. Careful planning saves you work in your garden and increases production. Some crops require a long growing period. Plant these crops where they will not get in the way of the care and harvesting of crops that do not take as long to grow. Plant tall crops where they will not shade or get in the way of smaller crops. Plant vegetables such as okra, tomatoes, pole beans, and sweet corn on the garden's north side to avoid shading crops that are not as tall such as radishes, leaf lettuce, onions, and bush beans. Organize crops according to how fast they grow. By organizing vegetables according to their growth rate, one crop can be planted to take the place of another as soon as it is done. When you remove an old crop, replace it with a different crop. For example, replace early beans with beets, squash, or bell peppers. Changing crops helps to avoid diseases and insects.

Deciding When to Plant

Usually home gardens can be planted 10 days to 2 weeks earlier than commercial fields because of the protection offered by existing buildings, trees, and shrubs. Proper planting time is important if maximum quality and production are expected. Planting time varies widely by area, so consult with your county extension agent or with experienced growers in your area to determine when to plant your garden.

Deciding When to Plant

Usually home gardens can be planted 10 days to 2 weeks earlier than bigger farms because existing buildings, trees, and plants provide protection. Proper planting time is important if you want high quality and production. Planting time is not the same everywhere, so talk with someone in your area who knows about gardens to find out when to plant your garden.

Original Text

Preparing the Soil

Many garden sites do not have the deep, well-drained, fertile soil that is ideal for vegetable growing. These soils must be altered to provide good drainage and aeration. Adding organic matter or sand can help prepare heavy clay soils for planting. Make sure the organic matter or sand you add to the garden site is free of soil pests. Never work wet garden soil. Soils containing a high degree of organic matter can be worked at a higher moisture content than heavy clay soils. To determine if the soil is suitable for working, squeeze together a small handful of soil. If it sticks together in a ball and does not readily crumble under slight pressure by the thumb and finger, it is too wet for working. Seeds germinate more readily in well prepared soil than in coarse, lumpy soil. Thorough preparation greatly reduces the work of planting and caring for the crop. It is possible, however, to overdo preparation of some soils. An ideal soil for planting is granular, not powdery fine.

Simplified Text

Preparing the Soil

Many places do not have the deep, rich soil that is best for vegetable growing. You must change these soils so that the rain water can leave more easily. Adding plant material or sand can help prepare heavy soils for planting. Make sure that the plant material or sand you add to the garden has no insects. Never try to prepare wet garden soil. Soils that have a lot of plant material in them can be prepared when they are wetter than heavy soils. To find out if the soil has the right amount of water in it, press together a small handful of soil. If it sticks together and does not easily break apart under a bit of pressure by the thumb and finger, it is too wet to use. Seeds grow better in soil that is well prepared than in hard soil. Careful preparation greatly reduces the work of planting and caring for the crop. It is possible, however, to prepare some soils too much. The best soil for planting is soil that is not too fine.

Planting

Plant your garden as early as possible in the spring and fall so the vegetables will grow and mature during ideal conditions. Transplanting vegetable crops allows earlier harvesting and extends the productive period of many crops.

Watering

Apply enough water to penetrate the soil to a depth of at least 6 inches. For best production, most gardens require a moisture supply equivalent to 1 inch of rain a week during the growing season. Light, sandy soils generally require more frequent watering than heavier dark soils. If you use sprinklers, water in the morning to allow plant foliage to dry before night. This practice helps prevent foliage diseases, since humidity and cool temperatures encourage disease development on most vegetable crops.

Planting

Plant your garden as early as possible in the spring and fall so the vegetables will grow during the best conditions. Moving vegetables to a new place allows earlier harvesting and increases the growing period of many crops.

Watering

Use enough water so that it will go at least 15 centimeters deep into the soil. For best results, most gardens require 3 centimeters of water a week during the growing season. Light, sandy soils generally require watering more often than heavier dark soils. If you use sprinklers, water in the morning so that plant leaves can dry before night. This helps to avoid leaf diseases, since water in the air and cool temperatures can cause diseases in most vegetable crops.

Original Text

Seeding

A general rule of thumb for planting is to cover the seed 2 to 3 times its widest measurement. This is especially true for big-seeded crops such as green beans, sweet corn, cucumbers, cantaloupes, and watermelons. For smaller-seeded crops such as carrots, lettuce, or onions, an average planting depth of ¼ to ½ inch is usually adequate. Plant the seeds fairly close together, then when the plants emerge, thin them out to recommended spacing. Do not allow the soil to over-dry or crust during germination, but do not over-water.

Controlling Weeds

A long-handled hoe is the best tool for control of undesirable plants in vegetable gardens. Chemical weed control is usually ineffective because it doesn't kill all of the weeds, and it will likely kill vegetable crops in small gardens. Cultivate and hoe shallowly to avoid injury to vegetable roots lying near the soil surface. Control weeds in the weedling stage to prevent them from seeding and spreading. The use of mulch is also an effective means of weed control.

Simplified Text

Seeding

A general principle for planting is to cover the seed with soil 2 to 3 times its widest measurement. This is especially true for crops with big seeds such as green beans, sweet corn, cucumbers, cantaloupes, and watermelons. For crops with smaller seeds such as carrots, lettuce, or onions, a normal planting depth of about 1 centimeter is good. Plant the seeds close together, then when the plants begin to grow, pull enough of them out to result in the recommended spacing. Do not allow the soil to become too dry when the seeds are first growing, but do not use too much water either.

Controlling Weeds

A hoe is the best tool to help control weeds in vegetable gardens. Chemical weed control is usually not as good because it doesn't kill all of the weeds, and it may also kill vegetables in small gardens. Be careful when working on the soil surface to avoid harming the vegetable roots that are near the soil surface. control weeds when they are small to keep them from spreading. Mulch can also help to control weeds.

Original Text

Preventing Pests and Disease

Diseases and insects are a great concern to gardeners. Long growing seasons with relatively mild winters encourage large insect populations. Avoid spraying when possible, but use chemicals if necessary. Exercise care when deciding which chemicals to apply. Spray only those crops which are listed on the chemical's container. When used according to the manufacturer's directions, chemicals pose no threat to the home gardener. Wear gloves, and do not expose skin to garden chemicals if possible. Disease control sprays can prevent diseases, but they can't eradicate them. Cool, damp conditions are conducive to foliage diseases. Carefully watch your garden for symptoms of diseases. Use only approved fungicides. (Your county extension agent can provide more specific information on common diseases and approved fungicides in your area.)

Harvesting

To get the most enjoyment out of your home vegetable garden, harvest vegetables when they are mature. A vegetable's full flavor develops only at peak maturity. For maximum flavor and nutritional content, harvest the crop the day it is to be eaten or preserved.

Simplified Text

Avoiding Insects and Disease

Diseases and insects are a problem for gardeners. Long growing seasons with warm winters increase the number of insects. Only use chemicals if necessary. Be careful when deciding which chemicals to use. Only use chemicals on those crops which are listed on the chemical's container. When used according to the directions, chemicals are not dangerous. Wear gloves, and do not get chemicals on your skin. Chemicals can help control diseases, but they can't completely remove them. Cold, wet conditions can cause leaf diseases. Carefully watch your garden for signs of diseases. Use only approved chemicals. (Someone in your local government can give you good information on common diseases and approved chemicals in your area.)

Harvesting

For the best results with your home vegetable garden, harvest vegetables when they are fully grown. Vegetables taste best when they are fully grown. For the best taste and the healthiest vegetables, harvest the vegetables on the same day that they will be eaten or stored.

Appendix B

1,472 Word Families (Base Forms) in Global Basic English List

A	ALIVE	ARREST	BASKET	BLOCK	BUILD
ABLE	ALL	ARRIVE	BATH	BLOOD	BURN
ABOUT	ALMOST	ART	BATTLE	BLOW	BURST
ABOVE	ALONE	AS	BE	BLUE	BURY
ACCEPT	ALONG	ASH	BEAR	BOARD	BUS
ACCIDENT	ALREADY	ASK	BEAT	BOAT	BUSINESS
ACCOUNT	ALSO	ASSIST	BEAUTY	BODY	BUSY
ACCUSE	ALTHOUGH	AT	BECAUSE	BOIL	BUT
ACID	ALWAYS	ATTACH	BECOME	BONE	BUTTER
ACROSS	AMERICA	ATTACK	BED	BOOK	BUTTON
ACT	AMERICAN	ATTEMPT	BEFORE	BORDER	BUY
ACTOR	AMONG	ATTEND	BEGIN	BORROW	BY
ADD	AMOUNT	ATTENTION	BEHAVIOR	BOTH	CAKE
ADJUST	AMUSE	ATTRACT	BEHIND	BOTTLE	CALL
ADMINISTRATE	ANCIENT	AUGUST	BELIEVE	BOTTOM	CALM
ADMIT	AND	AUTHORITY	BELL	BOX	CAMP
ADULT	ANGER	AUTOMATE	BELONG	BOY	CAN
ADVERTISE	ANGLE	AUTUMN	BELOW	BRAIN	CAPITAL
ADVICE	ANIMAL	AVERAGE	BEND	BRANCH	CAR
AFFECT	ANOTHER	AVOID	BERRY	BRASS	CARD
AFRAID	ANSWER	AWAKE	BEST	BRAVE	CARE
AFTER	ANY	AWAY	BETWEEN	BREAD	CARRIAGE
AGAIN	APOLOGIZE	BABY	BIG	BREAK	CARRY
AGAINST	APPEAR	BACK	BILL	BREAKFAST	CART
AGE	APPLE	BAD	BILLION	BREATH	CAT
AGENT	APPOINT	BAG	BIRD	BRIDGE	CATCH
AGO	APPROVE	BALANCE	BIT	BRIEF	CAUSE
AGREE	APRIL	BALL	BITE	BRIGHT	CENTER
AGRICULTURE	ARCH	BAND	BITTER	BRING	CENTURY
AID	AREA	BANK	BLACK	BROTHER	CEREMONY
AIM	ARGUE	BAR	BLADE	BROWN	CERTAIN
AIRPLANE	ARMY	BASE	BLAME	BRUSH	CHAIN
ALIKE	AROUND	BASIN	BLIND	BUCKET	CHAIR

CHALK
CHANCE
CHANGE
CHARGE
CHEAP
CHEAT
CHEER
CHEESE
CHEMICAL
CHEST
CHIEF
CHILD
CHOOSE
CHURCH
CIRCLE
CITY
CLAIM
CLEAN
CLEAR
CLIMB
CLOCK
CLOSE
CLOTH
CLOUD
COAL
COAST
COAT
COFFEE
COLD
COLLAR
COLLECT
COLLEGE
COLONY
COLOUR
COMB
COMBINE
COME
COMFORT
COMMAND
COMMENT
COMMITTEE
COMMON
COMMUNICATE
COMMUNITY
COMPANY
COMPARE
COMPETE
COMPETITION
COMPLETE
COMPLEX
COMPOUND
COMPUTE
CONCERN
CONDITION
CONFER
CONFIRM
CONFLICT
CONGRATULATE
CONNECT
CONSCIOUS
CONSIDER
CONSTITUTE
CONTAIN
CONTINUE
CONTROL
CONVENE
COOK
COOL
COOPERATE
COPPER
COPY
CORK
CORN
CORRECT
COST
COTTON
COUGH
COULD
COUNT
COUNTRY
COURT
COVER
COW
CRACK
CRASH
CREATE
CREATURE
CREDIT
CRIME
CRIMINAL
CROP
CROSS
CROWD
CRUEL
CRUSH
CRY
CULTURE
CUP
CURE
CURRENT
CURTAIN
CURVE
CUSHION
CUSTOM
CUT
DAMAGE
DANCE
DANGER
DARK
DATE
DAUGHTER
DAY
DEAD
DEAF
DEAL
DEAR
DEBATE
DEBT
DECEMBER
DECIDE
DECLARE
DECREASE
DEEP
DEFEAT
DEFEND
DEFINE
DEGREE
DELAY
DELICATE
DEMAND
DEMONSTRATE
DENY
DEPEND
DEPRESS
DESCRIBE
DESERT
DESIGN
DESIRE
DESTROY
DETAIL
DEVELOP
DEVICE
DIE
DIFFERENCE
DIFFICULT
DIG
DINNER
DIRECT
DIRT
DISCOVER
DISCUSS
DISGUST
DISMISS
DISTANCE
DISTRIBUTE
DIVE
DIVIDE
DO
DOCTOR
DOCUMENT
DOG
DOLLAR
DOOR
DOUBT
DOWN
DRAWER
DREAM
DRESS
DRINK
DRIVE
DROP
DROWN
DRY
DURING
DUST
DUTY
EACH
EAR
EARLY
EARN
EARTH
EASE
EAST
EASY
EAT
ECONOMY
EDGE
EDUCATE
EFFECT
EFFORT
EGG
EIGHT
EIGHTEEN
EIGHTH
EIGHTY
EITHER
ELASTIC
ELECT
ELECTRIC
ELEMENT
ELEVEN
EMPLOY
EMPTY
END
ENEMY
ENERGY
ENFORCE
ENGINE
ENJOY
ENOUGH
ENTER
ENVIRONMENT
EQUAL
EQUIP
ERROR
ESCAPE
ESPECIAL
ESTABLISH
ESTIMATE
ETC

EVENT	FAR	FLAT	FULL	GUN	HOOK
EVER	FARM	FLOAT	FUN	HAIR	HOPE
EVERY	FAST	FLOOD	FUNERAL	HALF	HORSE
EVIDENT	FAT	FLOOR	FUTURE	HAMMER	HOSPITAL
EVIL	FATHER	FLOW	GAIN	HAND	HOT
EXACT	FEAR	FLOWER	GAME	HANG	HOTEL
EXAMINING	FEATHER	FLY	GARDEN	HAPPEN	HOUR
EXAMPLE	FEBRUARY	FOLD	GAS	HAPPY	HOUSE
EXCELLENT	FEDERAL	FOLLOW	GATHER	HARBOR	HOW
EXCEPT	FEEL	FOOD	GENERAL	HARD	HOWEVER
EXCHANGE	FEMALE	FOOL	GENTLE	HARM	HUMAN
EXCUSE	FENCE	FOOT	GET	HARVEST	HUMOR
EXERCISE	FERTILE	FOR	GIFT	HAT	HUNDRED
EXIST	FEW	FORCE	GIRL	HATE	HUNGER
EXPAND	FIELD	FOREIGN	GIVE	HAVE	HUNT
EXPECT	FIERCE	FOREST	GLASS	HE	HURRY
EXPERIENCE	FIFTEEN	FORGET	GO	HEAD	HURT
EXPERIMENT	FIFTH	FORGIVE	GOAL	HEAL	HUSBAND
EXPERT	FIFTY	FORK	GOAT	HEALTH	I
EXPLAIN	FIGHT	FORM	GOD	HEAR	ICE
EXPLODE	FILL	FORMER	GOLD	HEART	IDEA
EXPLORE	FILM	FORTY	GOOD	HEAT	IDENTIFY
EXPORT	FINAL	FORWARD	GOVERN	HEAVY	IF
EXPRESS	FINANCE	FOUR	GRAIN	HELP	ILL
EXTEND	FIND	FOURTEEN	GRAND	HERE	IMAGE
EXTRA	FINE	FOURTH	GRASS	HIDE	IMAGINE
EXTREME	FINGER	FRAME	GRAY	HIGH	IMMEDIATE
EYE	FINISH	FREE	GREAT	HILL	IMPORTANT
FACE	FIRE	FREEZE	GREEN	HISTORY	IMPROVE
FACT	FIRM	FREQUENT	GRIND	HIT	IN
FACTORY	FIRST	FRESH	GROUND	HOLD	INCIDENCE
FAIL	FISH	FRIDAY	GROUP	HOLE	INCLUDE
FAIR	FIT	FRIEND	GROW	HOLIDAY	INCREASE
FALL	FIVE	FRIGHT	GUARANTEE	HOLLOW	INDEPENDENT
FALSE	FIX	FROM	GUARD	HOLY	INDIVIDUAL
FAMILY	FLAG	FRONT	GUIDE	HOME	INDUSTRY
FAMOUS	FLAME	FRUIT	GUILTY	HONEST	INFLUENCE

INFORM
INFORMAL
INJURE
INSECT
INSPECT
INSTEAD
INSTRUMENT
INSULT
INSURE
INTELLIGENCE
INTENSE
INTEREST
INTERNATIONAL
INTERVENE
INTO
INVENT
INVEST
INVESTIGATE
INVITE
INVOLVE
IRON
ISLAND
ISSUE
IT
JANUARY
JEWEL
JOB
JOIN
JOINT
JOKE
JOURNEY
JUDGE
JULY
JUMP
JUNE
JUST

KEEP
KEY
KICK
KILL
KIND
KISS
KNEE
KNIFE
KNOT
KNOW
LACK
LAKE
LAND
LANGUAGE
LARGE
LAST
LATE
LAUGH
LAW
LEAD
LEAF
LEARN
LEATHER
LEAVE
LEFT
LEG
LEGAL
LEGISLATE
LEND
LESS
LET
LETTER
LEVEL
LIBERAL
LIBRARY
LIE
LIFE

LIFT
LIGHT
LIKE
LIMIT
LINE
LINK
LIP
LIQUID
LIST
LISTEN
LITERATURE
LITTLE
LIVE
LOAD
LOAN
LOCAL
LOCK
LONE
LONG
LOOK
LOOSE
LOSE
LOSS
LOUD
LOVE
LOW
LOYAL
LUCK
LUNG
MACHINE
MAIL
MAIN
MAJOR
MAKE
MALE
MAN
MANAGE

MANY
MAP
MAR
MARCH
MARK
MARKET
MARRY
MASS
MAT
MATCH
MATERIAL
MATTER
MAY
MEAL
MEAN
MEASURE
MEAT
MEDIA
MEDICAL
MEDICINE
MEET
MELT
MEMBER
MEMORY
MENTAL
MERCY
MESSAGE
METAL
METHOD
MIDDLE
MIGHT
MILITARY
MILK
MILLION
MIND
MINERAL
MINISTER

MINOR
MINUTE
MISS
MISTAKE
MIX
MODEL
MODERN
MONDAY
MONEY
MONKEY
MONTH
MOON
MORAL
MORE
MORNING
MOST
MOTHER
MOTION
MOUNTAIN
MOUTH
MOVE
MUCH
MURDER
MUSIC
MUST
MYSTERY
NAIL
NAME
NARROW
NATION
NATIVE
NATURE
NEAR
NECESSARY
NECK
NEED
NEEDLE

NEITHER
NERVE
NET
NEUTRAL
NEVER
NEW
NEWS
NEXT
NICE
NIGHT
NINE
NINETEEN
NINETY
NINTH
NO
NOISE
NOON
NORMAL
NORTH
NOSE
NOT
NOTE
NOTICE
NOVEMBER
NOW
NUCLEAR
NUMBER
NUT
OBEY
OBJECT
OBSERVE
OCCUPY
OCEAN
OCTOBER
OF
OFF
OFFEND

OFFER
OFFICE
OFFICIAL
OFTEN
OIL
OLD
ON
ONCE
ONE
ONLY
OPEN
OPERATE
OPINION
OPPOSE
OPPOSITE
OR
ORANGE
ORDER
ORGAN
ORGANIZE
ORNAMENT
OTHER
OUT
OVER
OWE
OWN
PAGE
PAIN
PAINT
PAN
PAPER
PARALLEL
PARDON
PARENT
PART
PARTY
PASS
PASSENGER
PAST
PASTE
PATH
PATIENT
PAY
PEACE
PEN
PENCIL
PEOPLE
PERCENT
PERFECT
PERFORM
PERIOD
PERMANENT
PERMIT
PERSON
PHYSICAL
PICTURE
PIECE
PIG
PIN
PIPE
PLACE
PLAN
PLANE
PLANT
PLATE
PLAY
PLEASE
PLENTY
PLOW
POCKET
POEM
POINT
POLICE
POLICY
POLISH
POLITICAL
POOR
POPULAR
POPULATION
POSITION
POSSESS
POSSIBLE
POSTPONE
POT
POUR
POWDER
POWER
PRAISE
PRAY
PRESENT
PRESIDENT
PRESS
PRESSURE
PRICE
PRINT
PRISON
PRIVATE
PRIZE
PROBABLE
PROBLEM
PROCESS
PRODUCE
PROFESSION
PROFIT
PROGRAM
PROGRESS
PROJECT
PROPERTY
PROPOSE
PROTECT
PROVE
PROVIDE
PUBLIC
PUBLICATION
PUBLISH
PULL
PUMP
PUNISH
PURCHASE
PURE
PURPOSE
PUSH
PUT
QUALITY
QUESTION
QUICK
QUIET
QUITE
RACE
RADIO
RAIL
RAIN
RAISE
RANGE
RAT
RATE
RAY
REACH
REACT
READ
READY
REAL
REASON
RECEIPT
RECEIVE
RECENT
RECOGNIZE
RECORD
RECOVER
RED
REDUCE
REFUSE
REGRET
REGULAR
REJECT
RELATION
RELEASE
RELIGION
REMAIN
REMEMBER
REMOVE
REPAIR
REPEAT
REPORT
REPRESENT
REQUEST
REQUIRE
RESCUE
RESEARCH
RESIST
RESOLVE
RESOURCE
RESPECT
RESPONSIBLE
REST
RESTRAIN
RESTRICT
RESULT
RETIRE
RETURN
REWARD
RICE
RICH
RIDE
RIGHT
RING
RISE
RISK
RIVER
ROAD
ROB
ROCK
ROD
ROLL
ROOF
ROOM
ROOT
ROPE
ROUGH
ROUND
RUB
RUBBER
RUIN
RULE
RUN
SACRIFICE
SAD
SAFE
SAIL
SALT
SAME
SAND
SATISFY
SATURDAY
SAVE
SAY
SCALE
SCHOOL
SCIENCE
SCISSORS
SCREW

SEA
SEARCH
SEASON
SEAT
SECOND
SECRET
SECRETARY
SECURE
SEE
SEED
SEEM
SEIZE
SELECT
SELF
SELL
SEND
SENSE
SENTENCE
SEPARATE
SEPTEMBER
SERIES
SERIOUS
SERVE
SERVICE
SET
SETTLE
SEVEN
SEVENTEEN
SEVENTH
SEVENTY
SEVERAL
SEVERE
SEX
SHADE
SHAKE
SHAME
SHAPE
SHARE
SHARP
SHE
SHEEP
SHELF
SHELL
SHELTER
SHINE
SHIP
SHIRT
SHOCK
SHOE
SHOOT
SHORT
SHOULD
SHOUT
SHOW
SHUT
SICK
SIDE
SIGN
SIGNAL
SILENCE
SILK
SILVER
SIMILAR
SIMPLE
SINCE
SING
SINGLE
SINK
SISTER
SIT
SITUATION
SIX
SIXTEEN
SIXTH
SIXTY
SIZE
SKILL
SKIN
SKIRT
SKY
SLAVE
SLEEP
SLIDE
SLIP
SLOPE
SLOW
SMALL
SMASH
SMELL
SMILE
SMOKE
SMOOTH
SNAKE
SNOW
SO
SOAP
SOCIAL
SOCIETY
SOCK
SOFT
SOIL
SOLDIER
SOLID
SOLVE
SOME
SON
SOON
SORT
SOUND
SOUP
SOUTH
SPACE
SPADE
SPEAK
SPECIAL
SPEED
SPEND
SPILL
SPIRIT
SPLIT
SPOON
SPORT
SPREAD
SPRING
SQUARE
STAGE
STAMP
STAND
STAR
START
STATE
STATION
STAY
STEAL
STEAM
STEEL
STEM
STEP
STICK
STILL
STOMACH
STONE
STOP
STORE
STORM
STORY
STOVE
STRAIGHT
STRANGE
STREET
STRIKE
STRONG
STRUCTURE
STRUGGLE
STUDENT
STUDY
STUPID
SUBJECT
SUBSTANCE
SUBSTITUTE
SUCCEED
SUCH
SUDDEN
SUFFER
SUGAR
SUGGEST
SUMMER
SUN
SUNDAY
SUPPLY
SUPPORT
SUPPOSE
SURE
SURFACE
SURPRISE
SURROUND
SURVIVE
SUSPECT
SUSPEND
SWALLOW
SWEET
SWIM
SWORD
SYMPATHY
SYSTEM
TABLE
TAIL
TAKE
TALK
TALL
TARGET
TASTE
TAX
TEA
TEACH
TEAM
TEAR
TECHNICAL
TECHNOLOGY
TELEPHONE
TELL
TEMPERATURE
TEMPORARY
TEN
TEND
TENSE
TENTH
TERM
TERRIBLE
TEST
THAN
THANK
THE
THEN
THEORY
THERE
THEY
THICK
THIN
THING
THINK
THIRD

THIRTEEN	TRADITION	VEHICLE	WELCOME	WORD
THIRTY	TRAIN	VERSE	WELL	WORK
THIS	TRANSPORT	VERSION	WEST	WORLD
THOUGH	TRAP	VERY	WET	WORM
THOUSAND	TRAVEL	VESSEL	WHAT	WORRY
THREAD	TRAY	VICTORY	WHEAT	WORSE
THREAT	TREASURE	VIEW	WHEEL	WORTH
THREE	TREAT	VILLAGE	WHEN	WOULD
THROAT	TREE	VIOLATE	WHERE	WOUND
THROUGH	TRIBE	VIOLENT	WHICH	WRECK
THROW	TRICK	VISIT	WHILE	WRITE
THUMB	TRILLION	VOICE	WHIP	WRONG
THUNDER	TRIP	VOTE	WHISTLE	YEAR
THURSDAY	TROUBLE	WAGE	WHITE	YELLOW
TICKET	TRUE	WAIT	WHO	YES
TIE	TRUST	WALK	WHOLE	YESTERDAY
TIGHT	TRY	WALL	WHY	YET
TILL	TUBE	WANT	WIDE	YOU
TIME	TUESDAY	WAR	WIFE	YOUNG
TIN	TURN	WARM	WILD	ZERO
TIRE	TWELVE	WARN	WILL	
TO	TWENTY	WASH	WIN	
TODAY	TWIST	WASTE	WIND	
TOE	TWO	WATCH	WINDOW	
TOGETHER	UNDER	WATER	WINE	
TOMORROW	UNITE	WAVE	WING	
TONGUE	UNIVERSE	WAX	WINTER	
TONIGHT	UNIVERSITY	WAY	WIRE	
TOO	UNLESS	WE	WISE	
TOOL	UNTIL	WEAK	WISH	
TOOTH	UP	WEALTH	WITH	
TOP	UPON	WEAPON	WITHIN	
TOTAL	URGE	WEAR	WITHOUT	
TOUCH	USE	WEATHER	WOMAN	
TOWARD	USUAL	WEDNESDAY	WONDER	
TOWN	VALLEY	WEEK	WOOD	
TRADE	VALUE	WEIGH	WOOL	