All readers employ three kinds of language cues as they read: graphic-phonetic cues, syntactic cues, and semantic cues. They are all used to some degree, but the contribution of each varies according to the number of factors including the individual's reading strategies, his language-experience background as related to the language-experience demands of the material being read, and his interest and motivation. A major goal of instruction is to help the learner increase his effectiveness by improving his comprehension while minimizing the effort spent to achieve this understanding.

The purposes of this article are to discuss how these language cues are used in the reading process, to describe a means of evaluating a learner's effectiveness in processing these cues, and to suggest ways to help foster more effective reading strategies.

The Use of Language Cues in the Reading Process

Grapho-phonetic cues are the sounds and patterns of sounds of the oral language and the squiggles and patterns of squiggles of the written language (Braun, 1977). These cues are contained in the printed word and may be used by the reader in two ways. First, he may attempt to recall words with visual characteristics similar to the printed word such as configuration and distinctive word parts. For example, a reader uses grapho-phonetic cues to respond automatically to printed words in his sight vocabulary, to analyze affixed, compound, and polysyllabic words, and to recognize familiar word parts at sight. Second, he may recall sounds associated with the letter and letter patterns in the printed word. This process is employed by a reader who applies his knowledge of phonics as he reads. In using grapho-phonetic information, then, the reader is responding to graphic cues represented by the print.

Syntactic and semantic cues are inherent in the context of language. The employment of these cues may be illustrated by reading the following passage and listing the words that you feel will fill the blank space appropriately.

During the Civil War, surgeons were forced to make horrible decisions. In those days, a soldier with a seriously wounded limb had to have it cut off or risk death from the spreading infection. The only thing the doctors had available to _______ the patient's suffering was whiskey.

In examining your suggestions for the blank space, you should note that all your predictions are verbs. Syntactic cues, such as the word order in the sentence — including the function word “to” preceding the space, help to narrow the possible words to verbs only. The ability to use syntactic cues effectively is largely dependent on the reader's language background, especially his familiarity with the language structure.

Further examination of your predicted words should indicate the influence of the semantic or meaning cues which limit the possible choices to verbs meaning reduce, diminish, or lessen. Effective use of the semantic cues is determined by the reader's ability to relate his language-experiences and understanding of the ideas presented in the reading material to the text.

The learner, then, uses both the syntactic and semantic contexts in concert, along with graphic cues, throughout the reading process. The meaning-seeking learner develops strategies which depend heavily on contextual information processed previously, as well as his language-experience background, as he predicts the author's upcoming ideas. He validates or rejects his predictions in light of subsequent contextual information. If the predictions are judged valid, he continues to read. On the other hand, if predictions are found inconsistent, the reader attempts to self-correct by further sampling the available cues.

In contrast, the graphic-oriented learner processes material primarily on the basis of the grapho-phonetic cues and gives little attention to the context. His strategies may include a heavy dependence on dealing with unknown words by relating them to those in his sight vocabulary which look the same and/or by using phonics. Validation and rejection may be based on whether or not words look or sound correct after he has processed graphic cues.

Evaluating the Effectiveness of Employing Language Cues

Miscues in oral reading provide valuable data for inferring how effectively language cues are being used. Writers have employed varied procedures for analyzing oral reading miscues. The Reading Miscue Inventory (Y. Goodman and Burke, 1972), based on the Kenneth Goodman Taxonomy of Reading Miscues, considers nine variables in its analysis. Tortelli (1976) limits his diagnosis to substitution miscues based on two factors — language and meaning.
A streamlined means of analyzing uncorrected substitution miscues made in oral reading can be used by classroom teachers to provide diagnostic information on any student. This streamlining of miscue analysis involves first, limiting the analysis to two variables—graphic similarity and contextual acceptability, and second, comparing the reader's performance on the two variables.

The miscue analysis process begins by having the student read orally an unfamiliar passage at his instructional level. Research indicates that oral reading strategies change as the text increases in difficulty and readers appear to adhere more closely to graphic cues when reading at the frustration level (Williamson and Young, 1974; Y. Goodman, 1976a; Menosky, 1976). The teacher provides no help to the reader and records the miscues on a worksheet upon which the passage has been typed.

The analysis involves comparing the reader's miscues with the printed text in terms of graphic similarity and contextual acceptability. Miscue analysis studies have attempted to differentiate graphic and sound strategies resulting from the reader's reaction to graphic cues by comparing substitution miscues with expected responses in terms of both graphic similarity and sound similarity. However, in these studies, virtually all readers have had graphic similarity scores which were higher than sound similarity scores (Y. Goodman, 1976).

Miscues consistently reflecting higher graphic than sound similarity scores may be partially accounted for by the irregularly-spelled words which do not follow the common generalizations of sound to symbol correspondence. For example, the substitution of "through" (θ/roo) for "though" (θ/oo) would have high graphic similarity but no sound similarity. Since graphic similarity scores have been higher than sound similarity scores for nearly all readers, only graphic similarity is considered in this analysis. Graphic similarity, then, indicates the degree to which the miscue is represented by the same graphemes as the expected response. If a reader's miscues have a pattern of consistently high graphic similarity with the expected response, it may be inferred that he uses graphic information.

Contextual acceptability reflects the possible degree to which the language structures and ideas in the sentence or passage may have influenced the reader's responses. Miscues with high contextual acceptability indicate that the reader is probably making use of language and meaning cues in his reading.

Analyzing Miscues for Graphic Similarity

The degree of implied use of graphic cues is determined by comparing the miscue and the expected response in terms of shared graphemes. The longer of the two words, miscue or expected response, is the basis for counting shared graphemes. For example, if the reader says "forest" for the expected response "frosted," the latter is used as the basis of the comparison because it contains seven graphemes and is the longer of the two responses. The miscue "forest" is rated as having high graphic similarity because it shares six of the seven graphemes with the expected response. Any response which includes more than half of the graphemes in the longer word is rated high.

Miscues which share at least one or up to a half of the graphemes with the expected response are classified as having partial graphic similarity. For example, the miscue "fudge" for "frosted" is classified partial, because only two of the graphemes of the longer word are shared. The miscue "big" for "frosted" would be rated as having no graphic similarity, because there are no shared graphemes between the miscue and expected response.

The uncorrected substitution miscues of Don M., a fourth-grader, have been analyzed in this way. The graphic similarity column in the table below shows that 93 percent of the miscues have high graphic similarity and 7 percent have no graphic similarity, indicating reading strategies strongly influenced by graphic information.

The analysis of graphic similarity involves the study of miscues in isolation. The reader, however, makes predictions of words as he encounters them in a language context. Therefore, miscues should be analyzed in terms of their appropriateness in a particular context.

Analyzing Miscues for Contextual Acceptability

Contextual acceptability is based on the application of the reader's experiences and his knowledge of the language as they relate to the ideas of the material being read. His predictions, then, should reflect this knowledge and be acceptable in terms of contextual information.

In analyzing substitution miscues, an attempt is made to infer the degree of contextual acceptability as they reflect the use of context clues from the passage or sentences of the reading material. In comparing the various degrees of context use, miscues with passage acceptability assume employment of larger units of meaning, whereas those with sentence acceptability imply use of relatively smaller units of meaning.

If the miscue is contextually acceptable with the passage meaning up to the point of miscue, and also contextually acceptable within its sentence, it is rated as passage context acceptable. For example, in the sentence, "Sometimes salt lies near the top of the earth and even above the ground," the miscue is considered to have passage context acceptability.

If a miscue is contextually acceptable within its sentence when considering all uncorrected miscues in the sentence, but not consistent with the passage meaning, the miscue is rated as having sentence context acceptability. This kind of miscue may be illustrated in the sentence, "The savages wouldn't know which way to go."

Finally, miscues which do not fit meaningful sentences are rated as having no context acceptability. For example,
in the sentence, "A few of its uses include flavoring food," the miscue is deemed to have no context acceptability.

The second analysis of the miscues of the fourth-grader is reported in the contextual acceptability column of the table. Although only a portion of the text is included here, the miscues indicate that the reader used some passage context cues, only one sentence cue, and often appeared to completely disregard the use of any context cues.

### Miscue Analysis — Don M.

<table>
<thead>
<tr>
<th>Miscue and Expected Response*</th>
<th>Graphic Similarity**</th>
<th>Contextual Acceptability***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. He did it on purpose.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2. There was no other through</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>mind.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The savages wouldn't know</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>which way to go.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. They thought to capture him.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5. He had not noticed a large</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>grapevine dangling from a tree.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Instead he had grasped it and swung out over the heads of the</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>7. Indians on the shore but not over the</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>stream to the marsh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Stream to the marshy bank on the other side.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9. After hours of scrambling through the brush, Daniel found his party</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>10. and led them back to the village.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>11. You could learn an army.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>12. . . . and in the mountains beyond.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>13. Maybe I can plane a way to get there.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>14. . . . near the surface of the earth and even about the ground above.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>15. A few of its uses include seasoning food.</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Column Total 14 0 1 3 1 11
Percentage 93 0 7 20 7 73


**H, P, N indicate "high," "partial," and "no" graphic similarity, respectively.

***P, S, N indicate “passage,” “sentence,” and “no” context acceptability, respectively.

Comparing the use of Graphic and Context Cues

A comparison of the analyses of miscues in terms of graphic similarity and context acceptability as presented in the table should be made to help the teacher infer the learner's reading strategies and instructional needs. This reader's miscues reflect a pattern of exceptionally strong use of graphic information as indicated by the large percentage of miscues with high graphic similarity. On the other hand, the relatively large percentage of miscues with no contextual acceptability, which include four child-coined non-words, suggest employment of strategies with limited use of context. These results indicate a need for instruction to develop reading strategies which include the effective use of context to improve the quality of his miscues and to generate the concept that what he reads must make sense.

The reader's apparent overemphasis of graphic cues and neglect of context resulted in predictions which look and sound like the expected responses but do not fit the context and may inhibit comprehension. In addition, he failed to correct non-meaningful miscues. In contrast, learners who make good use of context may make miscues which fit the meaning of the material but have little or no graphic similarity. These contextually-acceptable miscues may indicate that the reader is interacting with the author's ideas and sampling graphic cues efficiently. Studies in miscue analysis by K. Goodman (1976), Menosky (1976), and Y. Goodman (1976a, 1976b) indicate that readers who are proficient, or those gaining in proficiency, tend to read in the following manner:

1. He employs meaning-seeking strategies when he encounters unknown words by moving toward greater use of the grammatical and semantic cueing systems and away from graphic and phonemic use.

2. He recognizes miscues which need correction because they are not validated by subsequent context cues.

3. He produces large numbers of miscues with no graphic or phonemic similarity which are not corrected if the rest of the context confirms the acceptability of the miscue.

The meaning-oriented reader, then, is far more effective because his process is centered on meaning. The learner has comprehension as his goal and emphasizes meaning to process information and validate his ideas while minimizing his attention to graphic cues. In fact, the words you predicted in the exercise earlier were probably all acceptable within the context without the benefit of any graphic cues. The relative importance of the graphophonic cues in the reading process has been placed in perspective by Y. Goodman (1976b):

All readers use the graphophonic cueing system to predict and select appropriate cues toward gaining meaning and to confirm
Suggested Instructional Practices

Learners who need to develop reading strategies which give greater emphasis to context should be taught in a learning environment which provides for two basic conditions advocated by Smith (1975, pp. 309-310). The first requirement is material which is potentially meaningful because anything that is nonsensical is unpredictable. The second condition is self-confidence and a willingness to predict on the part of the learner.

The first requirement suggests that language-experience lessons resulting in dictated stories are ideal since the reading material will represent the reader's personal experiences and language. It also implies that in using published materials the teacher should select carefully, and pay continuous attention to the development of the learner's language and experiences to match closely the author's assumptions of the reader's background. Braun (1977) has recognized the importance of experience in the learner's ability to employ language cues effectively.

Certainly, a dearth of experience relevant to a reading selection reduces seriously the amount of prediction possible, thus increasing the load of grapho-phonetic information (and the amount of analysis) required. It becomes abundantly clear, then, that a solid experience base for reading is not only justifiable but absolutely essential to the development of proficiency (p. 11).

The reader, then, depends heavily on his language experience background to understand the author's message. The teacher's attention to preteaching new concepts and vocabulary may help students relate the ideas to their experiences and also guide them to anticipate terms to be encountered in a specific assignment.

Other language-experience activities can provide for general expansion of background to assist the learner in dealing with a variety of reading materials. Whole language activities such as reading aloud to learners on a regular basis, assisted reading (Hoskisson, 1975), and Uninterrupted Sustained Silent Reading help to develop reading interests as well as language.

Smith's second condition is that the learner develop confidence and a willingness to predict. The teacher's instructional practices may foster or inhibit this development. For example, should the teacher insist on word perfect oral reading or accept sensible reading without worrying about absolute accuracy? Let us assume the following miscue is made: doggie

Betsy bought the soft white puppy from Dick.

The teacher who is convinced that the goal of reading is comprehension may select the latter alternative because the miscue does little or nothing to alter the meaning. Adoption of this practice would help to convey to all students the idea that the teacher values understanding.

In contrast, insistence on absolute accuracy in oral reading would inhibit the development of a child's confidence in making predictions. Such a practice might well convince learners that, in reading, perfect word calling is more important than comprehension and encourage greater attention to graphic cues and neglect of context. In fact, accurate oral reading may reflect only word calling on the part of the learner, whereas meaningful miscues suggest that he is actively interacting with the ideas in the material and using contextual information.

A second instructional practice which may affect a learner's confidence in making predictions relates to whether the teacher should emphasize words in isolation or teach in whole language contexts. This question may be best resolved by "reading" the following:  
gymekartur  
healowvulkenz  
roringraynboaz  
μψΥπμ  
υγΔδωφΠ
You were probably successful in recognizing the first three items as "Jimmy Carter," "Hilo Vulcans," and "Roaring Rainbows." However, the last two items were likely to have created problems. If so, read the following:

Surfer's ear, known technically as hyper­stosis, is a bony growth inside the ear canal which can plug the ear and __________ hearing. It now joins bowler's thumb and tennis elbow in the list of physical __________ faced by active athletes.

In context, you probably predicted that the word called for in the first sentence was a verb with a meaning similar to impair, and for the second sentence a noun with a meaning synonymous to problems. Your success with the sentences, of course, was largely dependent on the ability to use context cues effectively to predict and validate; in the word list you were limited to using only graphic cues. Programs and practices which emphasize words in isolation, then, may encourage overattention to graphic cues, and interfere with the learner's development of confidence in making and validating predictions.

A third practice which may influence a learner's confidence in making predictions relates to the teacher's style in reacting when a learner encounters unknown words or makes miscues which are not contextually acceptable or makes important meaning changes. Should the teacher supply words instantly or wait and allow time for the learner to employ language cues to predict, validate and correct?

The teacher who wishes to cultivate meaning-seeking, independent readers will probably select the latter because this alternative encourages the learner to make predictions and allows him to use subsequent contextual information to validate his predictions and make corrections as needed. In addition, allowing the learner to continuously use the language cues will develop independence in reading.

The practice of supplying words instantly, on the other hand, may deprive the learner of using subsequent language cues for predicting. In addition, it completely disallows the validation and correction strategies from his reading process, as well as fosters dependence on the teacher.

If the teacher decides to wait and allows the learner to employ language cues, then he should follow up with meaning-oriented practices which will develop confidence and a willingness to make predictions. In the case of the learner who often makes miscues which do not make sense in context and does not correct them, the teacher might help him recall his miscue and ask, "Does that make sense?" This question should guide him to reconfirm or reject his prediction by using context. If the learner resamples the cues and responds appropriately with the expected response or a sensible miscue, then no further action on the part of the teacher is required. However, if the learner has not developed a systematic strategy for processing unknown words, then the teacher should ask him to sample the language cues by guiding him to use context (e.g., "Do you recognize any familiar word parts?" or "What's the first sound?").

The cueing sequence guides the learner to context first and graphic cues second. This sequence keeps the learner's reading process centered on meaning and nurtures confidence and a willingness to predict. This same cueing procedure may be used with learners who encounter unknown words and need to be guided to develop the habit of using context first.

Learners who frequently make miscues which do not make sense and go uncorrected and those who often encounter unknown words may benefit from activities to develop their language-experience backgrounds described earlier and spoken and/or written cloze exercises. In addition, activities like the following in which learners think about the ideas they expect to appear in a story may be helpful.

2. Which of the following words do you expect to appear in a book on fishing? e.g., net, aquarium, sand, lamp, leader, goggles, desk, hook, sinker, gaff, etc.

Learners should be ready to discuss why they included or rejected specific items.

Miscues may also indicate that some readers are not paying sufficient attention to graphic cues. This kind of reader has been described by Smith, Goodman, and Meredith (1975):

... if a child seems to understand that what he reads is supposed to make sense but appears to have only vague associations between letters and sounds, the teacher assists him in paying closer attention to specific letter cues and in acquiring phonic generalizations within the context of his search for meaning (p. 299).

Some learners may reveal this need by making miscues which are contextually acceptable but alter the meaning. The teacher may provide direct instruction in developing sight words and phonics and assist the learner in combining his use of context with graphic cues. Cloze exercises like the following which provide minimal graphic cues may help the learner to narrow his predictions to nouns (syntactic cues) of foods which someone might like to eat (semantic cues), and which begin with h (graphic cue).

Ruth likes to eat h__________.
Helping learners improve their reading strategies, then, should be meaning-oriented. Instruction may provide either greater attention to use of context or emphasis on graphic cues within a contextual setting, depending on the learner’s pattern of miscues. The teacher must select materials which are meaningful to the readers and, therefore, predictable and provide instruction which promotes confidence and a willingness to make predictions.

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