ENGLISH READING PROFICIENCY OF TAIWAN COLLEGE GRADUATES: A STUDY BASED ON THE MISCUE ANALYSIS

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摘　　要

　　「誤讀」 (miscue) 是讀者閱讀時在了解上所發生的與原文本義之間的偏差。根據顧德門 (Goodman 1973) 等心理語言學家的研究，閱讀是一種語言心理的活動，其成功的策略包括猜測、假設、推斷、預想等等，而誤讀正提供了觀察閱讀過程的最佳透視窗。「誤讀分析法」 (miscue analysis) 基於這個理論基礎，建立一系列完整的步驟；首先取得一個語言學習者的誤讀語料，然後做有系統的分類及分析，藉以觀測學習者在閱讀時語言心理策略的優劣，深入分析及判斷其閱讀能力。本文介紹「誤讀分析法」在外語學習上做為閱讀能力診斷的一個應用模式，並以五位留美研究生的閱讀表現進行誤讀分析；逐一討論其英文閱讀策略及共同缺失，發現其閱讀能力不及美國高中高年級程度並指出字彙的缺乏是其中要重原因。本文最後探討留美研究生在閱讀英文上的生存策略，以及「誤讀分析法」在外文閱讀能力診斷上的應用，並提出改進國內英文閱讀教學的建議。

Abstract

　　Miscues, or deviations from the text a reader makes during reading, serve as 'windows on the reading process' (Goodman 1973). The mscue analysis, recognizing that reading is a psycholinguistic activity that involves guessing, hypothesizing, predicting, and expectancy, proposes a systematic procedure where a reader's reading miscues are solicited and analyzed to reveal the reader's reading strategies and skills, or the lack of them. Based on five case studies of miscue analysis, this paper attempts to assess the reading proficiency of college graduates from Taiwan pursuing graduate degrees in the U.S., to identify some of the problematic areas in their advanced English reading, to analyze and generalize these difficulties, and finally to venture some suggestions for teaching English reading in Taiwan and implementing the miscue analysis procedure.

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0. BACKGROUND

Among the four skills of reading, speaking, writing, and listening, reading has traditionally been the skill that receives the most efforts from foreign language teachers. Since the 1960's, however, various innovative approaches and methods of language teaching have flourished, guided by the newly developed generative linguistic and psycholinguistic theories and developments within cognitive psychology. Natural discourse and communicative proficiency are now being capitalized with reading being reduced to a somewhat secondary role in almost all the new teaching approaches, where listening comprehension and speech production play a more dominant role. Having correctly recognized the different roles of the four skills in language communication, the various new psycholinguistic and sociolinguistic theories have also revealed, through empirical studies, some profound insights of the nature, the process, and the psychology of the reading activity. Instead of word recognition and direct translation, developing mental skills is now the focus of teaching reading in a foreign language.

In Taiwan, English has long been one of the most important subjects from secondary schools on to the college level. Under the influence of the most prevalent traditional Grammar-Translation Method, reading has occupied the central place in the English classroom. In most schools, nearly all activities in the English class are reading-oriented. Since the mid-1960's, the Audio-Lingual approach, inspired by Structuralist linguistics and Skinnerian behavioral psychology, also has had strong impact on Taiwan's English education — drills and repetitions thus played an important role in English classes. Neither the recent psycholinguistic and sociolinguistic theories nor the various innovative teaching methods have been applied to English teaching on a large scale, even in the United States or Europe. Such innovations are only beginning to make their way into the English classrooms in Taiwan, where Grammar-Translation and Audio-Lingual methods still prevail. To a great extend, the activities in an English reading class are limited to direct translation of vocabulary and sentences and lengthy explanation of texts and grammatical structures. The use of dictionaries is encouraged to look up unfamiliar words, while essential reading skills such as 'guessing' and inferring information from the context receive little attention.

High school and college entrance examinations serve as an accurate indicator of the way English is taught in lower schools. There are testing items deal with direct translation of vocabulary and sentences, while others are concerned with analysis of grammatical structures, use of prepositions, and synonyms and antonyms.

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In recent years, passages of reading material with subsequent comprehension questions have been added to test the so-called 'reading comprehension'. The strategy most readily available to the students in 'reading comprehension' faithfully reflects the way they were actually taught — to mentally translate the reading passage into Chinese first. This strategy, though dated and has been largely discredited as an effective method, works eventually, for at least two reasons: one, though ineffective, this method does provide comprehension given enough time; two, the reading passages are always short paragraphs, comprehension of which is thus not memory-intensive. The fundamental problem is that reading is misconceived as a primarily analytical mental exercise, rather than a psycholinguistic process involving a complex of skills of guessing, hypothesizing, expectancy, and prediction through various kinds of clues in the printed material. One thus can safely predict that, if given a longer (but not more difficult) and contextually coherent text and put on reasonable time constraints, as genuine reading test materials should be, the same students would likely show a much lower level of proficiency than their previous tests suggest. Thousands of college graduates in Taiwan go to English-speaking countries, especially the United States, Canada, and England, to pursue graduate degrees, where a tremendously heavy load of reading is required. How well prepared are these college graduates in their reading proficiency, having been exposed to this kind of misconceived teaching approach? Would a total score of 530 and above of TOEFL with at least 53 on the Reading and Vocabulary section indicate an adequate reading proficiency for graduate study?

This paper attempts to first identify some of the difficulties that these students are likely to encounter in advanced English reading, then analyze and generalize their difficulties, and finally venture some suggestions on how to teach English reading in Taiwan. More specifically, we base our study on five case studies, and the method used is miscue analysis, which we will introduce in the next section, section 1. Section 2 consists of the miscue analyses of five graduate students from Taiwan in a US university. In section 3 we will discuss our findings and their implications, based on which we will then make certain suggestions in terms of both teaching English reading and implementing the miscue analysis procedure. Our concluding remarks are given in Section 4.

1. THE MISCUE ANALYSIS

Most psycholinguists view reading as a mental process, in which the reader's

past experience and knowledge of the linguistic system interact with the printed texts. The cuing system is crucially based on semantic and syntactic contexts. Proficient reading must involve the use of semantic and syntactic knowledge to predict upcoming text, while phonic cues are used to eliminate syntactically and semantically appropriate but phonically inaccurate choices. The context is used to ultimately confirm or reject the prediction (Robeck and Wallace 1990:14). A miscue is a deviation from the reading text that a reader makes while reading. The most convenient way to detect miscues is to have the student read orally. The miscue analysis, as initially conceived in K. Goodman (1969) and popularized by him, his wife, Y. Goodman, and his colleagues in later writings, is based on the assumption that reading is a psycholinguistic activity, one that requires such skills as guessing, hypothesizing, predicting, and expectancy. Thus, a proficient reader 'looks ahead' and anticipates what is coming next in the text according to currently available syntactic, semantic, and discourse cues. Rather than viewing 'miscues' as mere errors, Goodman perceives them as an opportunity to explore the learner's reading strategies.

As cited in Bond et al (1989:67), Hood (1978) gives three examples of reading miscues and evaluates their degree of seriousness. In the first example, the meaning of the sentence is impaired for the miscue does not fit the context at all. In the second example, the reader may guess a word that makes sense, though it may not look much like the text word and does not retain the meaning intended. Here the meaning is less impaired. In the third example, the reader may glance at the entire sentence and beyond and use a word that fits so well that the meaning of the discourse is retained. When evaluated according to semantic acceptability, miscues of these three types are successively less serious and the reading strategies underlying the first type of miscues are obviously the least encouraging. A reader's miscues therefore can be expected to reveal the reader's strategies and skills, or the lack of them in the case of less competent readers. Indeed they serve as 'windows on the reading process', as Goodman (1973) puts it. Therefore, the strengths and weaknesses of a reader's underlying reading strategies can be exposed by a systematic and methodic analysis of the reader's miscues.

Based on these psycholinguistic grounds, another important claim within the miscue analysis falls out, that is, it is the quality, not the quantity, of the miscues and the effect they have on the reader's reading proficiency that are of the tester's crucial concern. To put it simply, we should focus on the *kinds* of miscues a reader makes, for the *number* of miscues s/he makes is of little consequence of the reader's reading proficiency. Nonetheless, as we will discuss it in more detail later, it is also crucial to select reading passages at the most appropriate level of readability

are ensured to occur and are most revealing. One would have to recognize the fact that sampling must be sufficient in any testing situation for a confident conclusion to be drawn. Furthermore, we should point out that there is a more recent belief that, though reading involves the reconstruction of meaning from text, the reader must learn to read substantially what is exactly on the page; in other words, the reader must 'respect' the text and that accuracy ultimately matters (e.g., Donaldson and Reid 1985). Miscues, regardless of types, as implied within this view, are ultimately considered 'flaws' of various degrees in the reading process. Our particular adaptation of the miscue analysis is in line with this vew, and the scoring scheme we have developed does take accuracy, and thus to a certain extent the number of miscues, into account.

Another testing procedure similar to the miscue analysis procedure is the cloze test, in which a reading passage has been prepared by the deletion of every nth (where n may range from 5 to 8) and the student is required to supply syntactically and semantically appropriate words that fit into the context of the passage. We have chosen the miscue analysis procedure, rather than the similar cloze procedure, because while the cloze test has been claimed to be a pragmatic testing device to underscore a learner's overall language competence and global integrated skills (including reading ability), the miscue analysis has been designed as a diagnostic test to diagnose the aspect of the learner's reading proficiency. In other words, the miscue analysis aims at reading proficiency in particular, while the cloze procedure is designed to reveal the general skills and global proficiency in a language (Brown 1980:214-15).

1.1 Testing Procedure

The testing procedure of miscue analysis employed in this study is an integrated adaptation of the several miscue analysis procedures suggested by Goodman (1973), Smith and Weaver (1978), and Johns (1981), and consists of six stages; in addition, it also encompasses the scoring scheme that we have developed for miscue analyses.

1. Pre-test: The reader is given reading passages to read silently and asked to answer comprehension questions after each passage successively starting from a lower level in order to determine the reader's frustrational reading level. The reader is informed beforehand that comprehension questions will be given following the reading and that s/he should read at a normal speed.

2. Preparation of test: A new reading passage of the same level of readability

as the one with which the reader reached his/her frustrational level is randomly selected, and a copy of this selection should be prepared to be used as code sheet for recording the reader's miscues.

3. Communication: The reader is informed that s/he should read this selection orally at normal speed, that after s/he finishes reading the passage there will be a number of comprehension questions asked, and that both the reading and the question-answer session will be tape-recorded for future reference.

4. Testing: The reader reads while the tester codes the miscues, and then the tester asks comprehension questions. The tester may encourage and solicit more information from the reader to probe the reader's understanding of the reading material. The entire procedure at this stage should be tape-recorded.

5. Verification: All miscues are recorded on paper and classified according to types. The tester should listen to the tape more than once to ensure correct coding of all miscues.

6. Analysis and evaluation: Miscue patterns are studied and interpreted. Answers to comprehension questions are also analyzed. And optional score can be computed according to a precisely specified formula (see 1.4).

The pre-test is a very important step in the miscue analysis procedure and is intended to determine the reader's frustrational level in terms of the level of readability. According to Johns (1981), starting from reading passages of a lower level of readability, whenever the reader first fails to correctly answer half of the comprehension questions related to a certain passage, the reader has reached his/her frustrational level at that particular level of readability. It is where the reader is challenged, if not compelled, to utilize all skills available to make sense out of the printed texts. It is the level of readability just above the reader's 'comfort zone'. When reading below this level of readability, the reader may find it too easy and thus need not fully utilize his/her skills and simply 'breeze through' without making any miscues. On the other hand, faced with a passage that is far too difficult, the reader may simply gets too frustrated and give up or simply read word by word. When the test texts are either too far below or above the reader's frustrational level,

there will be too few or too many miscues for them to be meaningfully interpreted. The most appropriate reading passages for miscue analysis are therefore the ones precisely of the reader's frustrational level of readability.

1.2 Reading Materials for Testing

Reading texts together with specific comprehension questions used in this study are all adopted from *Advanced Reading Inventory: Grade Seven through College,* by Terry L. Johns, a well-accepted reading inventory in the field. All passages contained in the inventory have been evaluated and graded with two readability formulas to ensure impartiality. The reading passages for each level of readability come with two forms, Form A and Form B, and both forms are used for this study. If Form A is used in silent reading when the reader reached his or her frustration level, then Form B was used in order reading for miscue analysis, and vice versa; the selection was random.

1.3 Coding Method

How miscues are interpreted is intimately related to how it is classified, or coded. In general, there is a set of specific criteria based on which each miscue is coded. Although the exact number of criteria used in coding miscues varies from procedure to procedure, the nature of these criteria largely remain universal. Some of the coding methods, such as the set of eighteen categories of miscues in Allen and Watson (1976) or the nine criteria used in Goodman and Burk (1972), are rather unnecessarily complicated and some of the criteria contained within do not apply directly to reading in a foreign language. Thus, we have chosen to follow the simpler and more pertinent coding method suggested in Smith and Weaver (1978), which contains three simple criteria: (a) whether the miscue is semantically acceptable, (b) whether the miscue is syntactically acceptable, and (c) whether the miscue is corrected. According to the values obtained from these three criteria, all miscues are classified into five different types, see the chart below.

Criteria:

a == semantically acceptable?
b := syntactically acceptable?
c == correction made?

Values:

Y = Yes

N = No

A = Attempted

Miscue Type	0	1	2	3	4
Criteria	a b c	a b c	a b c	a b c	a b c
Values	Y Y Y Y Y A	Y Y N Y N Y N Y Y N N Y	Y N A N Y A N N A	Y N N N Y N	N N N

As we can see from the chart, type 0 miscues are both syntactically and semantically acceptable with a successful or attempted correction. A type 1 miscue is unacceptable either semantically or syntactically, or both, but is successfully corrected, or it is both semantically and syntactically acceptable but remains uncorrected. Type 2 miscues are unacceptable either semantically or syntactically, or both, with a correction attempted but not unsuccessful. Type 3 miscues are unacceptable either semantically or syntactically without any attempted correction. Finally, type 4 miscues are both semantically and syntactically unacceptable while no correction is attempted either. According to the assumptions regarding reading skills within the miscue analysis, type 0 miscues are the 'good' kind of mistakes that only a competent reader is more likely to make, indicating that they are utilizing both syntactic and semantic clues in guessing ahead and also that they are sensitive enough to realize when a mistake is made. In this sense, we consider type 0 miscues as mere mistakes, not errors, as commonly distinguished in the literature. From type 1 to type 4, the miscues deteriorate successively indicating a more serious kind of mistakes and errors of missing all kinds of available linguistic cues in the text. This classification of miscues thus enables simple and revealing interpretation of the miscue patterns. Furthermore, this grading scheme, in distinguishing the absence of correction, the attempted unsuccessful correction, and the successful correction, is also consistent with the belief that the reader must ultimately read what is exactly on the page and that accuracy does matter (Donaldson and Reid 1985).

1.4 Scoring Scheme

In order to distinguish the students' reading proficiency more precisely within the miscue analysis, we have developed a scoring scheme which assigns a specific score to the students' performance according to the miscues they made. Our scheme follows the philosophy that we just stated above justifying the coding system; thus, the larger the number, the more problematic the miscue, and thus the less proficient the reader. Suppose that among all the miscues a reader makes U% is of type 0, V% of type 1, and so on as the following chart indicates and that A% of all the miscues are semantically acceptable while B% are syntactically acceptable, and that the total number of miscues is N, the reader's score, or S, is computed according to this formula: $S = V+2X+3Y+4Z+N-(A+B)/2$.

Miscue type	0	1	2	3	4
Percentage	U%	V%	X%	Y%	Z%

Criteria	Semantically acceptable	Syntactically acceptable
Percentage	A%	B%

Total number of miscues is N
Score is S
Ten $S = V+2X+3Y+4Z+N-(A+B)/2$.

The use of the percentage value as multiplier rather than the actual number of the type of miscues reflects that what matters the most is what types of miscues are made, not the actual number of it; nonetheless, in including the total number of miscues, N, we do take into account the ultimate accuracy of reading exactly what is on the printed pages. This scheme therefore accommodates both points of view. The deletion of the mean percentage values of semantic and syntactic acceptability is to offset the slight bias exhibited in encompassing several miscue subtypes in the same type. For example, in our coding scheme, a semantically

acceptable, syntactically unacceptable, but successfully corrected miscue (YNY) and a both semantically and syntactically unacceptable miscue with a successful correction (NNY) have the same value 1. But the scoring scheme distinguishes them in viewing the former as slightly more encouraging than the latter and thus takes half a point off the score.

We need to caution strongly however that this score cannot be used alone for the purpose of assessment, placement, or grading. Other measures or observations have to be taken into consideration as well, for example, the students' frustrational level of reading, their performance on the comprehension questions, and the length of the reading passage. Nonetheless, we do believe that given that other variables remain constant this scheme does provide a valid means of assigning a specific value to a miscue performance.

2. ANALYSIS OF MISCUES: FIVE CASE STUDIES

Five subjects are included in the study; ranging from age 22 to 25, all of them graduated from universities in Taiwan and were attending graduate schools in the United States. They are advanced students of English as a second language (ESL) in the sense that they all scored above 530 on TOEFL. However, except Chen, wo has received one semester of ESL courses in the U.S., all the others have not had any formal ESL instruction since they graduated from college. Below is a chart illustrating three relevant aspects of the five subjects' background, namely, their score on the Reading and Vocabulary section of TOEFL, the length of their stay in the U.S., and their respective area of graduate study in the U.S.

Name	TOEFL Reading & Voc.	Years in the U.S.	Area of Study
Chiang	61	1/2	Urban Studies
Kow	60	1/2	Political Science
Luo	53	1 & 1/2	Computer Science
Chen	51	2	Computer Science
Yeh	57	3 & 1/2	Sociology

In discussing the five cases, we will first list and classify all the miscues the subject has made in testing, and then show the percentage of the types of miscues made and also the percentage of miscues that are semantically or syntactically acceptable, followed by our observations on the subject on hand. We will stress once again here that it is not the number of miscues that is revealing of the underlying reading strategies, it is the quality or the type of the miscues that is significant, although we do take into consideration the amount of miscues made in assigning a numerical score.

2.1 Subject 1: Chiang

Text	Miscue	Semantically acceptable	Syntactically acceptable	Correction made	Type
scared	scare	N	N	N	4
hair clippings	hair's clipping	Y	Y	N	1
cared	cure	N	N	N	4
infection	infections	Y	Y	N	1
taxed	tax	Y	N	N	3
become	becoming	Y	N	N	3
Mrs.	—	Y	Y	N	1
18th	80th	Y	Y	N	1
Spaniards	Spaniard	Y	Y	N	1
grow	grew	Y	N	Y	1
whenever	what	N	N	Y	1
to	—	Y	N	N	3
trails	traits	N	Y	N	3
a	—	Y	Y	N	1
a	—	Y	Y	N	1
Is it	It is	Y	Y	Y	0
admired	admire	Y	N	N	3
tasks	task	Y	N	N	3
wake	week	N	Y	N	3

Miscue type	0	1	2	3	4
Percentage	5%	47%	0	37%	11%

Criteria	Semantically acceptable	Syntactically acceptable	Successful correction
Percentage	74%	53%	16%

Among the miscues made by Chiang, more than half are of type 1 and type 0, the two 'good' kinds of miscues, and the great majority of her miscues are of type 1, 47%. A type 1 miscue is unacceptable either semantically or syntactically, or both, but is successfully corrected, or it is both semantically and syntactically acceptable both remains uncorrected. Upon a closer look at her type 1 miscues, we find that most of them are both syntactically and semantically acceptable while being ncorrected. This indicates that she is a fairly efficient reader at her frustrational level — she makes hypotheses and guesses along reading, and if the guesses are workable and the hypotheses confirmed, she simply proceeds. Furthermore, while she read, she seldom hesitated to try to pronounce unfamiliar words or paused at an inappropriate place of a sentence. Still, one third of her miscues are of type 3 and some 11% are of type 4, which indicates that there is still much room for improvement. Her score according to our scheme is $47+(3\times37)+(4\times11)+19-(74+53)/2=157.5$

2.2 Subject 2: Kow

Text	Miscue	Semantically acceptable	Syntactically acceptable	Correction made	Type
were	—	N	Y	N	3
scared	secret	Y	Y	N	1
faith-conditioned	faith	N	N	Y	1
lepers	lips	N	Y	Y	1
Elizabeth I	Elizabeth [ai]	N	N	Y	1
taxed	tax	Y	N	N	3
Francis I	Francis one	Y	Y	N	1
the	—	Y	Y	N	1
king	king Spaniards	N	N	N	4
valiant	villain	N	Y	N	3
kneel	knee	N	N	N	4
crib	[kraib]	Y	Y	Y	0
in	is	N	N	Y	1
admired	admire	Y	N	N	3
as	—	N	N	N	4
flower	flowers	Y	Y	N	1
squirming	[skair]	N	N	Y	1

Miscue type	0	1	2	3	4
Percentage	6%	53%	0	23%	18%

Criteria	Semantically acceptable	Syntactically acceptable	Successful correction
Percentage	41%	47%	35%

Kow appears to be a similarly proficient reader in comparison with Chiang. Among his miscues, nearly 60% is of type 1 and type 0 and more than half are of type 1. However, a closer look at his type 1 miscues would reveal that more than half of them are both syntactically and semantically unacceptable while being successfully corrected. There is something else worth mentioning about Kow's miscue pattern, that is, among all five subjects, he has the highest percentage of corrected miscues, 35%, more than twice of the next closest subject Chiang's 16%. This would suggest that, unlike Chiang or the others, he is more conscientious to be exact. Among all five subjects, he alone demonstrated a slightly higher sensitivity towards syntactic clues than towards semantic ones. However, note that less than half of his miscues are either semantically (41%) or syntactically (47%) acceptable; this could mean that in striving to faithfully read out the passage, considerable amount of contextual clues are missed as insufficient hypothesizing or guessing was mentally exercised. In the end, the 41% of type 3 and 4 miscues gave him away as a reader still not fully competent. His score is $53+(3\times23)+(4\times18)+17)-(41+47)/2=167$.

2.3 Subject 3: Luo

Text	Miscue	Semantically acceptable	Syntactically acceptable	Correction made	Type
the	this	Y	Y	N	1
beards	beard	Y	Y	N	1
today's	today	Y	Y	N	1
religious reasons	religious the reasons	N	N	N	4
sacred	scare	N	N	N	4
had to	had	N	N	N	4
hair clippings	hairs cling	N	N	N	4
curling	curlings	Y	Y	N	1
in	it	N	N	Y	1
these	those	Y	Y	Y	0
shaving	shaves	Y	N	N	3
the	—	Y	N	N	3
also	alone	N	Y	N	3
shaved	shaves	Y	N	N	3
whims	whim	Y	Y	N	1
Elizabeth I	Elizabeth first	Y	Y	N	1
disliked	dislinked	N	Y	N	3
beards	beard	Y	Y	N	3
taxed anyone	taxed and anyone	N	N	N	4
sprouting	supporting	N	Y	N	3
deepended	deeped	Y	N	N	3
Fracis	facing	N	N	Y	1
scar	scare	N	N	Y	1
subjects	subject	Y	Y	N	1
18th	18	Y	N	N	3
Spaniards	Spaniard	Y	Y	N	1

Miscue type	0	1	2	3	4
Percentage	4%	42%	0	35%	19%

Criteria	Semantically acceptable	Syntactically acceptable	Successful correction
Percentage	58%	50%	15%

First, noticeably Luo made the most miscues among the five subjects, and out of the twenty-six miscues, only four corrections were made, a mere 15%. This shows that she is not a very accurate reader. Slightly less than half of her miscues are of type 0 and 1 and thus slightly more than half are of type 3 and 4. This suggests to us that she is somewhat less a proficient reader than our previous two subjects, both of whom have a higher percentage of type 0 and 1 miscues. This is confirmed by her score: $42+(3\times35)+(4\times19)+26-(58+50)/2=195$. Like most other subjects, she is also slightly more sensitive to semantic clues than to syntactic ones. We will further discuss this commonality in section 3.

2.4 Subject 4: Chen

Text	Miscue	Semantically acceptable	Syntactically acceptable	Correction made	Type
burning	burn	Y	N	N	3
clippings	clings	N	N	N	4
the	—	Y	N	N	1
infection	inflation	N	Y	N	3
vital	vitals	N	N	N	4
played	play	Y	N	N	3
Elizabeth I	Elizabeth first	Y	Y	N	1
personal	person	N	N	N	4
ugly	early	N	Y	N	3
18th	18	Y	N	N	3

Miscue type	0	1	2	3	4
Percentage	0	20%	0	50%	30%

Criteria	Semantically acceptable	Syntactically acceptable	Successful correction
Percentage	50%	30%	0

Chen, among all five subjects, made the least amount of miscues, only ten; however, that 80% of them is of type 3 and 4 compels us to conclude that he is the least proficient reader among them; his score, $20+(3\times50)+(4\times30)+10-(50+30)/2=260$, which is substantially worse than the rest, leaves no room for question. This is an excellent, clear demonstration of the point we emphasized repeatedly earlier that it is essentially, if not necessarily, the quality of the miscues that ultimately matters, although our scoring scheme does take correctness and accuracy into account. Chen also showed a more serious weakness than the others in getting the syntactic clues in the text, as only 30% of his miscues are syntactically acceptable. Another striking feature of his miscue pattern is that no correction was ever attempted. All these together suggest strongly that he lacks the underlying strategies and mental skills that are essential for reading proficiency and still needs substantial instruction and training in this regard.

2.5 Subject 5: Yeh

Text	Miscue	Semantically acceptable	Syntactically acceptable	Correction made	Type
one	an	Y	Y	N	1
rivalry	rivalrary?	N	N	Y	1
results	the results	Y	Y	N	1
a	—	Y	Y	N	1
began	begin	Y	Y	N	1
wars	war	Y	Y	N	1
1757	1967	Y	Y	N	3
defeated	has defeated	Y	Y	N	1
19th	17th	Y	Y	N	1
complete	incomplete	Y	Y	Y	0
enterprise	enterprises	Y	N	N	3
repressive	repress	Y	N	N	3
aroused	arouse	Y	Y	N	1
the	—	N	Y	N	1
the	—	Y	Y	N	1
a	—	Y	Y	N	1

Miscue type	0	1	2	3	4
Percentage	6%	75%	0	19%	0

Criteria	Semantically acceptable	Syntactically acceptable	Successful correction
Percentage	88%	81%	13%

Quite the opposite from Chen, that more than 80% of Yeh's miscues are of type 0 and 1 is enough indication that she is a proficient reader using the right kinds of strategies. This is further confirmed by the fact more than 80% of her miscues are both semantically and syntactically acceptable. The same fact may explain why only 13% of her miscues are corrected. Very importantly, none of her miscues is of type 4. All these, together with her score $75+(3\times19)+16-(88+81)/2=63.5$, suggest convincingly that she is a proficient reader at her frustrational level. The miscue analysis of her reading implies that she guesses ahead, forming hypotheses and taking in contextual clues, as she reads. With 16 miscues, she is also a fairly accurate reader, especially when a closer look at her miscues reveals that nearly one third of them are related to articles, namely 'a' and 'the'. Thus, this is a specific area that she needs to work on, for articles do carry important information. Since she has proven to be proficient in terms of reading strategies, the one area she needs to work on the most is to elevate her frustrational level of reading. As we will see in the next section, vocabulary seems to be the most crucial factor.

2.6 Performance on Comprehension Questions

Two rather serious problems were easily identified from these five students' performance on answering the comprehension questions after reading each passage. First of all, it is very surprising that all of the five students, all enrolled in graduate programs in an American university, reached their frustrational level before the college level of reading materials. As mentioned earlier in Section 1.1, during the pre-test stage the student is requested to answer comprehension questions, usually ten to twelve, after reading each passage, successively starting from a lower level. The purpose of the the pre-test is to determine the reader's frustrational level in reading. Using *Advanced Reading Inventory,* our five students started from reading, silently, the passages of either Form A or Form B, rated at the level of tenth grade. All five students were found to have reached their frustrational level of reading at the high school senior level.

A second problem area identified through comprehension questions is these students' poor performance on vocabulary. At their frustrational level, namely high school senior level, only some twenty percent of comprehension questions related to specific individual words in the reading passage were correctly answered; in other words, nearly eighty percent were missed. These two facts here clearly indicate that their vocabulary was rather limited, which could be the central factor in their inadequate reading preoficiency. In spite of their graduate status and relatively high

TOEFL score on reading, their general reading proficiency is unsatisfactory even compared to average American high school senior students. This certainly has serious implications. In the next section we will further discuss these two findings and also consider the generalizations we could reach from the five Taiwan graduate students' miscue analyses and the implications they have. We shall also discuss the overall correlation between TOEFL reading scores, length of study in a U.S. university, area of study, and the student's reading proficiency as judged according to their individual miscue analysis.

3. DISCUSSION OF IMPLICATIONS AND SUGGESTIONS

The first, and probably the most obvious, question that comes to mind is how these students, with a frustrational level of reading at twelfth grade, manage to survive their graduate programs, where the demand on reading is tremendous. Remember that statistics show that most of them do succeed in finishing their programs and obtain the higher degrees in pursuit. Actually, the same observation was rendered by Perkins and Pharis (1980) — their study on the advanced ESL students attending Southern Illinois University lead them to believe that these students, and probably students at all university ESL centers, are far below average college freshmen in reading proficiency. How do they function as graduate students then? One possible explanation, I have observed and experienced first-hand as I once was in the same position presumably, is that they simply compensate their inadequate reading ability by spending more time on the reading materials and often repeat the reading material if necessary. After all, more than other language skills, reading can be a highly 'monitored' activity, in the sense of Krashen (1980), in that the readers can fully exercise their knowledge at the conscious level, backtrack and consuit reference books when necessary, and take their time in doing so. They also find help within their study groups. This observation has been confirmed by my personal communications with the subjects and other such students. Again, Perkins and Pharis (1980:146) offered a similarly relevant conjecture at a deeper level:

> ...although the ESL student's surface English machinery may not be as well developed as that of a native speaker, the deep cognitive machinery is probably as well developed as that of English-speaking competitors. This deep conceptual ability may help to compensate for the lack of surface skill in English.

Indeed, if we believe the common stereotype that Asian students work harder and are more advanced in their academic proficiency than their American counterparts, Perkins and Pharis' point becomes even stronger for these Taiwan graduate students in the U.S. Another reasonable consideration, as Naguib Greis (p.c.), director of the ESL and TESOL programs at the Portland State University, pointed out to me, is that these ESL students, given their specialization in a specific discipline, are certainly more familiar with the language, i.e., English, and vocabulary in their specific field and are thus very likely to possess a higher control over the reading materials within that subject area. This being very likely to be true, it means these students function at a higher level of reading proficiency within their area of study than outside of their specialization. The nature of this discrepancy and how best can the higher proficiency in a specialized filed be extended to overall, general reading are certainly worth studying. The findings can be extremely constructive for both university ESL programs in the U.S. and English programs in Taiwan to utilize in setting up specific syllabi for advanced English reading.

In any event, it is safe to conclude that their survival or success as a graduate student in the U.S. does not indicate in any direct way that they have the general, comprehensive reading proficiency at that level. Quite the contrary, as we, along with Perkins and Pharis and others, have shown, their reading skills are almost always inadequate. Their survival of the graduate studies thus heavily depends upon compensatory skills and measures. The fact remains that they do not have the adequate general reading proficiency. Even though they go on to be successful in their respective professional fields, my suspicion is that most of them never become fully competent general readers, and this has been confirmed by many informal anecdotal observations. This in turn will be a fascinating area worth looking into.

We now look at the specific problematic areas in reading that are revealed through these five Taiwan graduate students' miscue analyses. Although as we have seen above the five Taiwan students varied quite drastically in their reading proficiency, they do have in common several features, judging from their miscue analyses: low frustrational level (12th grade), limited vocabulary, and, as the following charts show, noticeable insensitivity to contextual clues and accuracy.

Context is basically of two kinds — sentence structure and factual probability, although the distinction is not always transparent, for example in the case of tense and aspects. Both kinds of contextual clues are important in narrowing down the range of possible interpretations. The miscue performance of our subjects indicates a weaker sensitivity to syntactic clues with average 52% of syntactically acceptable miscues, while a higher sensitivity to semantic clues is obtained with 62% average.

Miscue / Name	0	1	2	3	4
Chiang	5%	47%	0	37%	11%
Kow	6%	53%	0	23%	18%
Luo	4%	42%	0	35%	19%
Chen	6%	75%	0	19%	0
Yeh	0	20%	0	50%	30%
Mean %	4%	47%	0	33%	16%

Criteria / Name	Semantically acceptable	Syntactically acceptable	Successful correction
Chiang	74%	53%	16%
Kow	41%	47%	35%
Luo	58%	50%	15%
Chen	50%	30%	0
Yeh	88%	81%	13%
Mean %	62%	52%	16%

This is certainly understandable, for syntactic structures are much more language dependent and vary greatly from language to language, while factual clues are largely language independent and rooted much more deeply in the cognitive faculty of the reader's mental apparatus than in the purely linguistic faculty. Thus, in learning any particular foreign language by already literate learners, training in grammatical awareness should take precedence. Precisely as Twaddell (1980:450) stated, students who have already learned to utilize factual contextual clues in their first language transfer the habit and the ability of sensible guessing and the store of world knowledge from the first language to the target language. Therefore, it is reasonable to suggest that at the intermediate and advanced levels the emphasis of reading instruction should be placed on the more language dependent, less cognitively rooted syntactic structures. With the leaders' improved awareness of grammatical structures and adequately developed vocabulary, their frustrational level in reading would definitely follow.

The importance of helping the students build an adequate vocabulary for advanced reading is evident here. Since the process of reading itself in general promotes vocabulary growth more than anything else (Croft 1980:419), the ESL students should be exposed to more substantial reading and be taught word use as a vital skill in its own right as early as possible so that the vocabulary build-up

is not delayed. Therefore, we strongly recommend that students be encouraged or required to have access to reading materials other than their English textbooks from the beginning level. Richards (1980:437) thus has the following suggestion for the teachers: '[I]n preparing teaching materials we should begin with a rich concept of vocabulary'. Furthermore, according to Croft (1980:420), in terms of vocabulary development, it is usually at the intermediate level when the massive build-up begins. Judging from the performance of our five subjects, we suspect that it is during their intermediate stage of English learning, namely the later years of high school and early years of college, they failed to build up their vocabulary for the more advanced reading materials. It is hence at this stage the students must also learn to complement their limited vocabulary resources with vocabulary developing skills, together with the expansion of reading materials. We agree entirely with Twaddell's (1980) assertion that the most basic skill is inferencing, that is, guessing from context, using both syntactic, semantic, and pragmatic clues. Students should not be discouraged even when vague guesses are put forth and should be guided to practice guessing correctively and effectively.

We now look at the several interesting correlations beteeen the subjects' miscue analysis performance and other attributes. Here we again list the several relevant attributes of the five subjects', together with their scores in miscue analysis. Each of the five subjects' standing in the group in terms of reading proficiency according to their miscue analysis scores correlates completely with their standing according to their TOEFL scores on the Reading and Vocabulary section, with the only exception of Yeh, whose TOEFL score places her in the third place and yet her score on the miscue analysis significantly outperformed the others. Note, however, that she had been studying in a U.S. university for three and half years, quite a long period of time. This seems to suggest that although expectedly the students' reading abilities do improve on their own over time as they attend graduate schools, the improvement comes rather slowly — after all, we should be reminded, even our best reader, Yeh, reached her frustrational level at the level of twelfth grade reading. This fact also sheds some light on TOEFL. Being the required standard test for almost any U.S. university admission, TOEFL itself seems to have become a 'specialized' field. Many students study for the test, in isolation of any other 'real' English materials in comunicative uses.

In addition, we see a correlation between reading proficiency and the students' areas of study. As expected, the ones that are specialized in humanities and social studies, where there is a higher demand on reading, have a higher reading proficiency than those in sciences. This again suggests that the sheer amount of reading is

Name	Reading & Voc. TOEFL	Years in the U.S.	Major	Miscues Score
Yeh	57	3 & 1/2	Sociology	63.5
Chiang	61	1/2	Urban Studies	157.5
Kow	60	1/2	Political Science	167
Luo	53	1 & 1/2	Computer Science	183
Chen	51	2	Computer Science	260

beneficial to the improvement of reading proficiency.

Finally, regarding the miscue analysis procedure itself, we render some observations, voice some cautions in applying this procedure, and recommend further study into these potentially problematic areas, although, and because, we are convinced by the evidence that the procedure is a useful diagnostic device for testing reading strategies. First of all, there is this problem of judging what exactly counts as a miscue. The miscue analysis has been used effectively for three decades, but primarily to English-speaking school children. When it is applied to non-native speakers, it is likely for the reader's poor pronunciation or mispronunciations to be taken as miscues. Such mishaps can undoubtedly lead to inaccurate diagnosis of the reader's reading strategies as well as unfair assessment of the reader's reading proficiency. Incidentally, during our study we have observed that the students' performance on comprehension questions was consistently better after reading silently, compared with their performance after reading orally at the same level of readability. This shows that pronunciation is a distraction and should be discouraged for advanced reading. After all, reading in itself is a silent affair where pronunciation is largely a non-issue. Clearly then, the tester should be extra careful when applying the procedure in an ESL context and should double-check with the student whenever in doubt. Furthermore, the factor of subjectivity intensifies when we realize that judging the syntactic and semantic acceptability of miscues is often not a precise science; thus, a well-defined guidelines should be set up especially to avoid variance among different testers who may exercise different criteria.

Last but certainly not the least is again the issue of the significance of the number of miscues made by a reader. As we mentioned early in our discussion, in any testing situation sampling must be sufficient for a confident conclusion to be drawn. This is potentially one area where the miscue analysis might prove to be futile, for it is imaginable that one may read carefully and accurately what is

on the page and thus produce no miscues, yet without the reading proficiency the absence of miscues would suggest. Another scenario is where readers may simply have a 'reading knowledge' of the foreign language, with little or no knowledge on how to pronounce the foreign language. Even excluding these extreme cases, we still need to impose certain requirement on the number of miscues for confident analysis; indeed another area for further investigation.

4. CONCLUSION

There are two plausible, worthwhile conclusions that we can derive from this study. First, or application of the miscue analysis in evaluating the reading skills of five Taiwan graduate studets in the U.S. indicates that it is indeed a valid testing device as well as a diagnostic procedure in terms of reading proficiency in a second or foreign language. Its potential applications are many; for example, it can be used as a placement test to distinguish students' various levels of reading proficiency, or it can be used as diagnostic test in determining the instructional strategies for a reading class. However, as a testing device, more research is needed to perfect the scoring scheme, and future studies should look into the combined use of miscue analysis and other procedures, e.g., the self-report diagnosis procedure (Naguib Greis, p.c.). In addition, the reliability of the miscue analysis procedure as a testing device should be further confirmed by its correlation with other reliable or standard tests such as TOEFL, no doubt one of the most reliable and commonly-accepted evaluation measures. Provided that the cautions mentioned above are kept in mind, this simple procedure may be easily, widely, and fruitfully utilized by virtually all reading instructors as a diagnostic tool and may certainly play an important role in testing reading proficiency in a second or foreign language as well.

Our second conclusion pertains to the English reading proficiency of Taiwan college graduates directly and Taiwan's English education indirectly. As the miscue analyses of the five Taiwan students pursuing graduate degrees indicate, a college degree from a Taiwan university and a TOEFL score of 530 or more do not mean the student has the adequate reading proficiency for their level of academic pursuit in an English-speaking country. As it is not unreasonable to consider our five subject as fairly representative of a cross-section of the average Taiwan college graduates, the implication is that the nearly ten years of fairly substantial English study, seven of which are compulsory, does not even provide the student with a reading proficiency of an average American high school senior student. Although the students,

whose English reading proficiency may be better within their area of specialization, often do go through the graduate programs in an English-speaking country using various survival strategies, it is my observation that few of them ever become general competent readers of the English language, in spite of their graduate degrees from the English-speaking country. Even though English has been treated as one of the most important subject areas of study in Taiwan's educational system and that reading has been the focal point in our English classrooms, the end results are less than satisfactory. This fact should prompt serious rethinking on the way reading in English is taught in Taiwan.

NOTES

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