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ERROR ANALYSIS: A PSYCHOLINGUISTIC STUDY

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OF THAI ENGLISH COMPOSITIONS

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This study suggests a framework for a psycholinguistic theory of second language learning. Three theoretical components—a nativist's view of language acquisition, a GT grammatical model, and an EA-strategy of language teaching—have been posited. Empirical data from an error analysis of English compositions written by adult Thai speakers were collected. The results of the analysis of Thai speakers' errors indicate development toward target language competence.

The data obtained indicate that second language learning by adults is analogous to children's first language acquisition. Furthermore, the data provide specific pedagogical implications for Thai English language teachers, curriculum planners and textbook writers.

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OF THAI ENGLISH COMPOSITIONS

by

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CHAPTER 1

BACKGROUND

1.1   Introductory Remarks

People who study a second language make numerous mistakes and errors as they try, with the aid of teachers or specialists, to develop facility with their new code. If a better framework can be developed within which to explain their mistakes and errors, perhaps we could improve our understanding of the language learning process and, at the same time, our language teaching methods.

The process of second language learning has been investigated by applied linguists who have typically been more concerned with language teaching rather than with formulating a theory to explain the language learning process. As a person with practical experience in both learning and teaching a second language, it seems to me that something more, or something new, is badly needed in this field.

At the present time, contrastive analysis (CA) and error analysis (EA) represent two distinct approaches used by linguists interested in second language teaching. The CA approach is essentially an interference model while the EA approach examines the student's development toward target

language competence. In this study, I will examine criti-
cally the claims of EA, propose a tentative model for second
language learning, collect data, and then apply these data.

1.2   CA Approach

CA was really born of classroom experience. As early
as 1941, Whorf called attention to the importance of the
contrastive study of languages. However, the appearance
of formal 'contrastive linguistics' is relatively recent.
The groundwork for its pedagogical applications was actually
laid only a decade or so ago.

Intensive interest in CA, particularly for bilingualism
and second language teaching, began to develop in the 1950's
(cf., Lado, 1957; Weinreich, 1953). Since then, the ap-
plication of CA to second language teaching has been widely
recognized. Recently, both Nemser and Slama-Cazacu (1970)
and Wardhaugh (1970) have reviewed current work in the
field. DiPietro (1971) also provided a very well-documented
historical account of CA. Furthermore, he incorporated cur-
rent developments in linguistic theory into the traditional
procedures of CA.

CA involves, essentially, a systematic search for po-
tential sources of interference between the mother tongue
and the target language. According to Nemser and Slama-

Cazacu (ibid: 4):

> The emergent discipline, called contrastive
> linguistics, is defined as the sub-discipline
> of linguistics concerned with drawing the im-
> plications of structural similarities and
> dissimilarities between languages, with the
> principal objective of facilitating the learn-
> ing of one of these languages--the "target"
> language--by speakers of the other--the "base"
> language.... The procedure for ascertaining
> these relationships is called 'contrastive
> analysis.'

The fundamental concepts underlying CA are the notions

of 'transfer,' 'facilitation,' and 'interference' (see Lado,

1964).

There seems to be widespread agreement that CA provides

a tool for predicting problem areas in second language learn-

ing and teaching. CA helps, to some extent, to establish an

inventory or potential difficulties. For example, the use

of articles and tense-inflections are difficult for Thai

students of English because they do not exist in Thai gram-

mar. Thai speakers tend to omit articles altogether (e.g.,

'Dog bite man'), and to substitute go (e.g., 'He go to

school') for all inflectional forms: goes, going, went,

and gone. The types of mistakes due to such interference

can often be accurately predicted by CA. However, CA does

have obvious limitations because we cannot predict with

certainty a large number of errors which seem not to have

any connection with interference (e.g., 'It was happened,' 'She cannot comes,' 'You are drive too fast'). French (1949) therefore has argued that not all errors are due, as some authorities maintain, to cross-association; common errors are found across differing language backgrounds.

Recently, the value of CA has been questioned by psycholinguists who have observed that many of the errors committed by students of a second language cannot be accurately predicted by CA (cf., Catford, 1968; Hamp, 1968; Lee, 1968). They have grave doubts about its 'predictive power,' and are dissatisfied because it has been impossible to establish a 'hierarchy of difficulty' for the predicted errors. They believe that we should observe and analyze how language learners cope with their difficulties. This dissatisfaction seems to suggest using another approach, perhaps that of EA.

1.3   EA Approach

To begin with, a mistake and an error must be distinguished. Corder (1967), in particular, makes this distinction in terms of 'performance' and 'competence,' respectively. He insists that the learners' mistakes are characteristically unsystematic, and of no significance to the language learning process; but that systematic errors reveal the underlying knowledge of the learner to date

(i.e., his transitional competence). Richards (1970) has
called errors of this nature 'intralingual and developmental
errors.' This careful distinction between 'mistake' and
'error' is quite crucial, and will be observed throughout
the present investigation.

Perhaps the first milestone in the development of EA
was the appearance of French's book <u>Common Errors in English</u>
(1949). EA, according to Richards, (1971: 12) "may be de-
fined as dealing with the differences between the way people
learning a language speak, and the way adult native speakers
of the language use the language." Both French and Richards
have called attention to the uniformity of learners' errors,
irrespective of their mother tongues. French (ibid: 6),
for instance, noted, "the plain fact is that Japanese and
Bantu alike say 'Yes, I didn't,' and they have scores of
other errors in common." Richards (1970, 1971) has argued
that similar errors occur frequently across languages.
English errors of the sort *'I did not said anything,'
*'what you are doing,' *'I can to speak French,' *'did he
comed,' etc. are prevalent among mother tongue speakers of
Burmese, Chinese, Czech, Greek, Indian, Japanese, Maori,
Polish, Tagalog, and Thai (cf., Arabski, 1968; Bhaskar,
1962; Chaiyaratana, 1961; Dušková, 1969; Estacio, 1964;

French, 1949; Kerr, 1969; Richards, 1968).

In this study, the term EA will be used to refer to an explicit description of developmental errors which reflect the system of the language that the learners have achieved at successive stages, i.e., their underlying knowledge which, in turn, illustrates some general characteristics of the language learning process and eventually should form part of a theory of second language learning and teaching.

In the past few years, a great deal of research interest has focussed on the topic of EA, most notably the work done by Aguas (1964), Burt and Kiparsky (1972), Corder (1967), Dušková (1969), George (1972), Jain (1969), and Richards (1970, 1971), who have all analyzed common errors in English language learning across languages.

1.4   Psycholinguistic Perspectives on EA

From a psycholinguistic perspective, EA seems to contribute new information about the language acquisition process. The introductory remarks by Richards (1971), on the current findings of EA in second language learning, make this quite clear. He implies that the "errors" made in second language learning are similar to those made by children learning English as their mother tongue. They

reflect rule learning and are systematic. Thus, errors in second language learning may also be important, and should be considered by language teachers.

In recent years, following the development of generative transformational (GT) theory, there seems to be a strong case for a transformational-psycholinguistic approach to the problem of second language learning (cf., Jakobovits, 1970b; Rutherford, 1968; Thomas, 1965). A number of ambitious efforts have been made to apply GT theory in EA (e.g., Aguas, 1964; Jacobson, 1966). The model of EA may be generalized within the GT framework along the lines of CA. According to DiPietro (1971: 29-30), there are three procedures to follow:

> 1. The first step is to observe the differences between the surface structures of two languages.
> 2. The second step is to postulate the underlying universals.
> 3. The third step is to formulate the deep-to-surface (realization) rules...

EA can be based on a GT approach because errors essentially involve rule internalization. A second language learner, striving to achieve full native competence, presumably devises grammatical rules from a large number of analogical structures. If this approach is adopted, the emphasis in teaching should be on the explanation of rules rather than sheer 'practice, mimicry, and analogy.'

CHAPTER 2

TOWARD A PSYCHOLINGUISTIC THEORY OF SECOND LANGUAGE LEARNING

The present study represents an attempt to sketch a theoretical framework for formulating a psycholinguistic theory of second language learning with empirical data obtained from an error analysis of English compositions written by adult Thai speakers.

Three major theoretical components appear necessary for postulating such a theory: (1) language acquisition hypotheses, (2) grammatical models, and (3) second language teaching strategies. If we accept this hypothesizing (see Gefen, 1966) as tentatively correct, it should lead to one or more relevant psycholinguistic theories of second language learning which may be represented schematically as follows:

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        ┌─────────────────────────────────┐
        │   PSYCHOLINGUISTIC THEORIES      │
        └─────────────────────────────────┘
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LANGUAGE ACQUI-SITION HYPOTHESES, e.g., Behavioris-tic-, Nativistic-Hypothesis, etc.	GRAMMATICAL MODELS, e.g., Structural-, Transformational-Model, etc.	SECOND LANGUAGE TEACHING STRATE-GIES. e.g., CA-, EA-Strategy, etc.
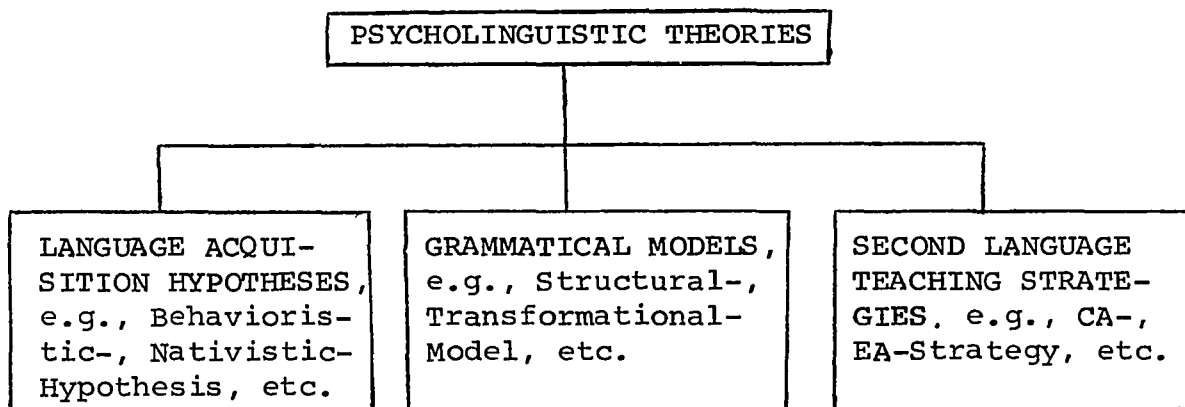
Organization of Psycholinguistic Theories

The applicability of this model rests on the assumption that a child's second language learning may, by its nature, be similar to his first language acquisition. Recent studies of the child's acquisition of syntax support this assumption. On the basis of his Norwegian son's acquisition of English syntax in a second language environment, Ravem (1968: 184) concluded that, "second language acquisition in an environment where no formal instruction is given seems to be a creative process not unlike that of first language acquisition." He found, for example, that some syntactic regularities of negative and interrogative sentences were internalized as rules for the generation of sentences, e.g., *"I not sitting on my chair," *"I don't sit on the chair," *"Drive you car to-yesterday?," *"Did you drive car to-yesterday?," *"Why we not live in Scotland?," *"What d'you did to-yesterday?," and *"When d'you went there?"

Moreover, according to Stoddart and Stoddart (1968: 68), immigrant children learning English use what they called 'pidgin' forms like *"Me cut paper no" or *"Ghulam no give me glue." These seem similar to the types of utterances produced by native children, described by Klima and Bellugi (1966: 192, 194), e.g., *"Wear mitten no," and *"He no bite you."

Given what has been discussed, there would seem to be some analogy between the child's first and second language acquisition. The similarities reside in the fact that child language is highly systematic and that grammar emerges in a natural order. In Tucker and d'Anglejan's (1971: 165) words: "Certain rules that are shared by all languages are the first to emerge.... These are linguistic universals and arise from the child's innate knowledge of the language. Other rules requiring more exposure to linguistic information emerge at later stages in the child's development." With regard to second language teaching Cook (1969: 211), has suggested that "If the analogy holds, then far from deploring these errors, we should be commending the children's progress towards native competence along the same road followed by the English child."

In terms of development, error, and grading, Cook has made some interesting observations. For example, she askes: why is a second language learner required to conform to the rules of full native competence from the very beginning stages of his study? Why is he not allowed to formulate interim hypotheses about the language he is learning? Why is he not allowed any freedom to err so that he can test his hypotheses? Why are "errors" considered so extremely

harmful in second language learning while they constitute an integral part of the process of first language acquisition?

Let us now turn to our model and discuss in some detail each component to see whether we are yet in a position to be able to formulate a psycholinguistic theory of second language learning.

2.1   Language Acquisition Hypotheses

The learning of language is essentially a problem for psycholinguistics. Broadly speaking, there are two major theories of language acquisition: the 'learning-theory model' and the 'nativistic-universals model.' The first is based on behavioristic principles of S-R learning theory (cf., Brain, 1963a, b, 1965; Jenkins & Palermo, 1964; Mowrer, 1950, 1954, 1960; Skinner, 1957). The second assumes that the child is genetically equipped with certain linguistic universals; and that he therefore has an innate capacity to acquire any natural language. This implies that the same intrinsic structural framework underlies all languages. Lenneberg (1967) clearly suggests that the universally shared features of human languages stem from our biological endowment per se. We are all born with a 'built-in mechanism,' i.e., the so-called LAD or Language Acquisition Device that aids us to learn languages (cf., Chomsky, 1962,

1965, 1966, 1967, 1968, 1969; McNeill, 1966, 1970; Miller, 1962, 1964).

However, the first theory appears relatively weak; the second theory remains to be proven. Carroll (1971) has recently challenged Chomsky on the notion of 'rule-governed behavior.' He maintains that, psycholinguistically, the notion of 'habit' is much more fundamental than the notion of 'rule.' In this bewildering controversy of issues, a more balanced view is perhaps needed for second language teachers. Hebb, Lambert and Tucker (1971) have proposed a more moderate position. They propose that language is as much learned as innate.

At this point, it is important to distinguish from the outset between 'universal grammar' and 'particular grammar.' According to DiPietro (1971: 22), the former "comprises all essential characteristics of human language," while the latter "covers the unique ways in which each language interprets these essentials."

Speculations about language universals are becoming more marked. Chafe (1970: 6), for example, affirms that: "the theoretical acceptance of extensive likeness among languages seemed...to be increasingly confirmed...while the differences between languages began to seem more and

more superficial." From the teaching point of view, Wardhaugh

(1967: 24) also remarked that, "more and more persons concerned

with second-language teaching are now seeking opportunities

to make use of these developments (i.e., linguistic uni-ver-

sals) and insights in their work." This may seem rather

obvious, but I think it needs stress. For one thing, it

leads us to look more closely into the issues of first lan-

guage acquisition and second language learning by children

and adults.

In sum, the dominant view behind the theory of language

acquisition assumes the presence of innate universals. But

more importantly, given the innate capabilities of individuals

and the structure of linguistic communities, the most impor-

tant questions--ones very seldom raised in the literature--

are these: How is the language learning process related to

the innateness hypothesis? What role does the verbal en-

vironment play in language acquisition? Can the common

view about the speed and ease in acquiring primary linguis-

tic data be justified? Recently, Snow (1971: 2) has at-

tempted to answer some of these questions. From her ex-

periments, she maintains that "language acquisition requires

more time than most theorists have suggested," and "differ-

ences in the quality of the linguistic environment affect

both the time course of language acquisition and the quality

of language performance."

However, the central questions in psycholinguistics,

i.e., the acquisition, production, and comprehension of lan-

guage (see Saporta, 1967) have yet to be accounted for. If

language acquisition is seen from the behaviorist's viewpoint,

learning essentially involves linguistic stimuli and the

shaping of responses by appropriate reinforcements. If, on

the other hand, the nativist's position is adopted, the focus

of attention gears toward the child's innate capacities and

linguistic universals as rule-oriented behavior with a hypo-

thetical language-generating device. This study advocates

the latter.

In summary, information about how people learn or ac-

quire language will comprise an essential component of any

psycholinguistic model. A useful theory of second language

teaching requires a detailed knowledge about the language

acquisition process.

2.2   Grammatical Models

The second component of the model concerns what it is

that people have to learn or to know to master a language.

When speaking about the learning of grammar, a well defined

view should take into account three kinds of grammars:

linguistic, psychological, and pedagogical. Briefly, a 'linguistic grammar'—especially the Chomskyan type—is a model of 'competence;' a 'psychological grammar' is a model of 'performance;' and a 'pedagogical grammar' is a 'teachable' model. Obviously, a pedagogical grammar is not merely the application of a linguistic grammar, but rather the result of a synthesis of linguistic and psychological grammars.

The model used in the present study is generative-transformational. It is based upon recent developments in modern linguistic theories initiated by Chomsky (1957, 1965) and Katz and Postal (1964) which provide us with three underlying grammatical models: (1) Finite State (FS), (2) Phrase Structure (PS), and (3) Transformational (T).

To date, the impact of Chomsky's GT theory on psycholinguistic models of language acquisition has been striking. Until recently no experimental evidence has existed to substantiate the claim of its superiority. However, the important question to be asked is whether a GT grammar offers real and adequate implications for the theory of second language learning. No doubt it has contributed significantly to a better understanding and new insights, i.e., that language is characteristically rule-governed behavior. The following experiments help to make this clear.

A small-scale experiment in teaching English to foreign

learners using a GT model offers modest support for the theory.

In my own research (Brudhiprabha, 1971), based largely on

Thomas (1962) with the application of Chomsky's kernel sen-

tences, we have found that students can be taught to derive

all other sentences from a group of kernels using transfor-

mations. In this experiment, some twenty foreign students

attending special English classes before they entered high

school were pretested and divided into experimental and con-

trol groups according to their performance on a test. A GT

programmed lesson was tried out, and a post test was admini-

stered to establish a new level of proficiency. There were

significant differences in performance between the experi-

mental and control groups.

Another experiment by Ney (1965) also indicated that

the use of GT grammar in a class of senior English majors

at the Japanese language University of the Ryukyus resulted

in a significant improvement in the students' ability to

produce well-formed sentences. Students were taught to

write sentences using the PS and T rules following the

works of Roberts (1962), Chomsky (1957), and Lees (1960)

respectively. Then, they moved on to study Fillmore (1963)

and Lees and Klima (1963). Finally, Ney maintained that

the use of GT model yielded positive results never accounted for by any previous grammars. He inferred that this transformational approach permitted Japanese students to derive novel sentences more effectively after they had learned the transformations.

In second language learning, it seems to me, the point of departure is the sum of the differences between the two internalized grammars. In other words, an adequate description of the grammar of a second language (G_{SL}) requires an adequate description of an interim grammar (G_I) vis-à-vis a developing competence grammar (G_C)--a description which must be based on EA. A model of internalized grammars is given in a diagram of interlocking circles below:
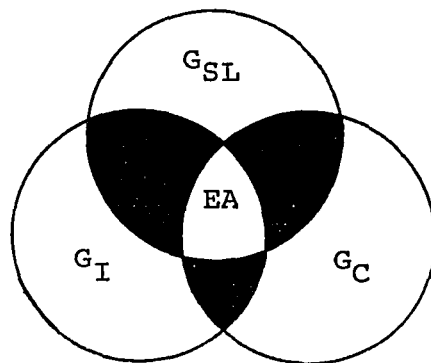
A Model of Internalized Grammar of a Second Language

2.3   Second Language Teaching Strategies

It is important in my opinion to distinguish between 'learning' and 'teaching' here. Unfortunately, there has always been a confusion between the two terms. 'Learning' in the present context refers to the process through which a second language is learned in artificial settings such as the classroom; and 'teaching' is, in effect, used to refer to the process or the methods used to teach a second language (see also Mackey in his Foreword to Jakobovits, 1970b: ix; and Selinker, in press, note 2).

A second language teacher needs to know on what particular strategy or strategies to base his teaching. It is hardly necessary to add that there is no single methodology that is acceptable by all teachers. Different theoretical positions have different goals and lead to different classroom practices. For example, the Lado-Fries position advocates a CA approach which concentrates on drilling contrastive patterns based on the audiolingual habit theory.

At this point, one may ask, what teaching methods should be used? There are several alternatives, and I think that it would be pretentious on the basis of existing data to claim the superiority of any method.

Stern (1969) has cautioned that the important questions

to be asked in language teaching are these: what does the learner find hard? What does he find easy? What confuses him? What puzzles him? What helps him? What causes his success or failure? If a second language teacher can answer these and similar questions, that is all he needs to know.

However, the present study incorporates EA into its framework. In the light of GT theory, the notions of 'surface structure' (SS) and 'deep structure' (DS) give much insight into the structural description of sentences. The role of DS and SS in language teaching as discussed by Jacobson (1966: 153) offers relevant implications for EA. According to him the grammatical analysis based on "the surface structure alone and the lack of a deeper analysis often become a learning problem, because the learner finds it impossible to make meaningful generalizations." He maintains that--due to the large number of overlapping constructions of English--non-native speakers superficially produce the following ill-formed strings:

      (1) *He gave a book for me

      (2) *He made a suit to me

      (3) *He asked a question to me.

To demonstrate the validity of this assertion, I devised a test for some Thai students studying in Montreal;

and these errors were made by four informants: *'She bought
the paper to him (25.00%),' *'The doctor prescribed medicine
to the child (75.00%),' and *'Tom asked a question to me
(100%).' This, in effect, offers proof that common errors
made by second language learners resulted from deducing
rules from identical structures.

Sentences (1), (2), and (3) above are evidently strings
containing:

$$NP_1 + V_{tr} + NP_2 + (\begin{Bmatrix} to \\ for \\ of \end{Bmatrix}) \ NP_3$$

Unfortunately, however--at the PS level--they might
erroneously be thought of as following the identical struc-
tural description:

$$NP_1 + V_{tr} + NP_2 + NP_3$$

(4) He gave me a book

(5) He made me a suit

(6) He asked me a question.

But--at the T level--(4), (5), and (6) are, in fact,
derived from different transformational histories of which
the prepositional phrases 'to me,' 'for me,' and 'of me'
are generated in their DS's. These syntactic concepts were
proposed by several linguists (cf., Chomsky, 1955; Fillmore,
1963; Katz & Postal, 1964; Lees, 1960); and the underlying

to-, for-, and of-phrase constructions are relevant to this study. Of the three underlying strings, (4) is derived from the application of the indirect object transformation to:

(7) He gave a book to me

and (5) and (6) have resulted from the insertion of a dummy device into the strings:

(8) He made a suit $+ \Delta \Longrightarrow$ He made a suit for me

(9) He asked a question $+ \Delta \Longrightarrow$ He asked a question of me.

At this point, as we have already seen, the dummy device generated optionally at the PS level can be omitted. But, at the T level, it is transformed obligatorily into a prepositional phrase whereby the semantic trait alone determines the choice of specific lexical items _for_ or _of_.

However, only (7) is a kernel sentence where 'to me' is an integral part. By dropping the prepositional phrase from the string, its grammaticality is deteriorated, thus:

(10) He gave a book

Given what has been discussed so far, surface identity is obviously an illusion. More often than not, a second language learner fails to make valid generalizations from SS's.

In sum, the notions of DS and SS are very important for the second language learner. Obviously, one can only claim to know a language when one has the generative power

to produce and understand an infinite number of sentences
never encountered before. This also implies the recognition
of ungrammaticality. None of these abilities could have re-
sulted from imitation, practice, and reinforcement alone.
But from DS we can discover the underlying structure of the
language and can relate a semantic representation of a sen-
tence to its spoken or written words. Thus, a second lan-
guage learner who can only recite a number of sentences is
no better than a well-trained parrot!

Adults' second language learning represents an unex-
plored area. There is no experimentation, to my knowledge,
of how adults learn a second language, in the bilingual
milieu, or in the language classroom situation.

However, my own acquisition of English may give some
hints. Although I have succeeded in mastering all the
English question transformations, I still have difficulty
at times producing included questions. This often results
in ill-formed strings as follows:

> *Do you know why are errors considered so harmful?
>
> *Would you please tell me what time is it?
>
> *Please tell me what should I say?

This, of course, is due to overlearning the underlying
structures of English YES/NO and WH interrogative transfor-

mations.

Moreover, by observing carefully one of my Thai friends who is studying in this country, I have found that she keeps saying:

*Why you said that?

*Why you didn't tell me?

*How you do it?

*What I should say?

This indicates that the learning of a second language by adults, is to a certain extent, analogous to children's first language acquisition. Cooper (1970: 31) indeed observed that: "Somehow, both have to abstract the linguistic rules underlying the language..." And Tucker and d'Anglejan (1971: 167) noted that:

> ...the processes of native-language acquisition and second- or foreign-language learning are essentially analogous; but that language teaching methodologies fail to exploit and, in fact, frequently ignore these similarities completely.

However, it should be remembered when speaking about learning a second language in the unreal world of the classroom (e.g., Thai speakers learning English in Thailand), that consideration must be given to the mother tongue where feasible. As Nickel and Wagner (1968: 237) have observed:

> ...the process of acquiring the second
> language differs in some important respects
> from that of learning the first language:
> rules of the mother tongue are matched with
> those of the second language, they are ex-
> panded, additional rules are learned, and
> the rules of the mother tongue are discarded
> to be invalid in the target language.

Moreover, one thing I find disturbing about this is the generalization most people seem to make, i.e., that an adult cannot be on a par with a child in acquiring a second language (see, for example, DeVito, 1970). I submit that, ceteris paribus, he would. But there is naturally no experimental evidence so far--none that is familiar to me at least, or to Macnamara (1970: 10), who wrote that "there are almost no grounds for the general fatalism about adults' ability to learn languages." For we cannot logically say that a man of forty is less skilled in language learning than an infant. And he quotes Smith and Braine's experimental evidence (in press) that adults are better than children in the acquisition of a miniature artificial language. More detailed experimentation, therefore, is badly needed.

In conclusion, we believe that there are inherent similarities between first language acquisition and second language learning by children and adults. We are impressed with the applicability of the GT model for second language teaching, and the relatively unexplored potential for the

application of EA as an instructional strategy. We hope to be able to formulate a tentative psycholinguistic theory of second language learning from our model.

CHAPTER 3

ERROR ANALYSIS AND SECOND LANGUAGE LEARNING

Mistakes and errors are inevitable in second language learning. Whether we like them or not, their presence is to be expected; and they are our age-old pedagogical concerns. Thus, phit pen khruu (errors are our teachers) goes the Thai folkwisdom. That is to say, one can learn by making mistakes. Therefore, it might prove fruitful to analyze typical mistakes and errors peculiar to Thai speakers of English; because without them it is virtually impossible to decide what data are relevant for formulating a psycholinguistic theory of second language learning.

3.1 Typical Mistakes and Errors Peculiar to Thai Speakers of English

Most experienced teachers often take for granted that they know where the learners' errors lie. However, having had long experience with teaching English as a foreign language to Thai students myself, I feel that this is not true --for superficial mistakes, yes; but for underlying errors, no. For example, a common "mistake" of Thai learners of English is the omission of articles in such sentences as:

(1) *Thai students do not like to open dictionary.

(2) *Adjective is used in front of noun.

(3) *English language is difficult for Thai

student.

It so happens that the Thai language possesses no corresponding system of English articles; therefore, Thai speakers simply omit them. This strikes me as a superficial problem of transference from the mother tongue to the target language which is generally predictable.

On the contrary, a Thai student who has already learned the structure underlying such sentences as:

(4) I have to go.

(5) They want to read.

(6) We need to know.

may then generate ill-formed sentences like:

(7) *He may to think.

(8) *I will to marry.

(9) *She can to cook.

which unfortunately represent an incorrect application of the rule. This underlying error does not have its origin in the native tongue (see Wolfe, 1967), and is hardly ever predictable.

Previous researchers (e.g., Corder, 1967; Dušková, 1969; Jain, 1969; Jakobovits, 1969, 1970a; Richards,

loping competence,' e.g., overgeneralization.

Since superficial mistakes are of no theoretical significance, they are simply cited in passing to support the first hypothesis which is a preliminary to the second or main hypothesis of this study.

In addition to testing these hypotheses, the present study will provide data relevant to: (1) the language learning process of Thai speakers learning English as a foreign language, in particular, (2) the second language learning process, in general, and (3) a 'hierarchy of difficulty' of English for Thai speakers.

3.3 The Data

In order to assess their underlying knowledge of English, Thai students were asked to write short compositions. I deliberately chose to work with a written sample because I believe that writing provides an indication of the learners' competence which may be more valid than their oral performance. Moreover, due to the very poor oral facility of Thai students, it would be difficult, if not impossible, to collect an oral corpus. This preliminary study has, therefore, been conducted with the hope that a much more detailed longitudinal study of both written and oral English will be developed so that more information and

insights about the nature and causes of errors can be obtained.

One hundred and fifty compositions (totalling about 37,500 words) written by Thai students of college age were used as source-papers for this analysis. Naturally, the writers varied in their ability; but certain patterns of mistakes and errors occurred frequently in the compositions under discussion. This is to be expected, since their general linguistic background was homogeneous. Thus, the compositions offer us a fair cross-section of the level of their English writing habits. In other words, these examples of misuse represent actual mistakes and errors which have persisted throughout the students' career in secondary school and college. The chief difference lies only in the degree of advancement and competence (or rather the lack of it) which they have achieved in English at successive stages of proficiency.

The data included in the present study were drawn from the written materials of the following groups of students:

(1) Twenty students who were enrolled in a pre-university school following their seventh and eighth years of English.

(2) Eighty students who were enrolled in a two-year teacher-training program following their seventh and eighth

years of English.

(3) Thirty students who were enrolled in a four-year teacher-training program following their ninth and tenth years of English (twenty of them are English majors).

(4) Twenty students who attended a special one-year teacher-training program after finishing from (1).

For composition questions, those who were in their seventh and eighth years of English were asked to write paragraphs on the following five topics: (1) My Life, (2) My Family, (3) My Future, (4) A Description of a Sunset, and (5) Summer Holidays.

Those who were in their ninth and tenth years of English were asked to write on any one of the following:

(1) Should a Study of English be Required?

(2) Student's Life in Thailand.

(3) Falling in Love.

(4) Men and Women.

(5) Vietnam War.

Thus, the topics of the compositions cover a variety of subjects. In addition, previous investigations by Chaiyaratana (1961), Dickason (1957), and Lekawatana et al. (1969) were consulted.

3.4   Method of Tabulating the Data

All errors made by the students were tabulated and classified. However, the errors that were collected certainly do not cover all grammatical points. Some types of errors in the compositions have very low frequency. For example, only one instance of the following types

(1) *He doesn't has money

(2) *Why they are fighting

(3) *People let his son to learn

(4) *I did not forgot him

(5) *Thai student is interesting in English

occurred among the 150 compositions under consideration. Intuitively, I believe that these particular structures are relatively difficult for Thai speakers and past experience has shown that they do indeed occur very frequently. However, for purposes of the present study, I have excluded any errors which occurred fewer than five times. That is to say, only recurrent systematic errors made by a number of learners will be examined and recorded herewith. In the Tables to follow, the numbers of errors for each grammatical point in question, the number of times each particular structure was attempted, and the corresponding percentages of errors will be given.

It should be noted that a considerable number of errors cannot be readily traced to their origins; thus, they could not be explicitly classified. In this case, we shall group them together and discuss them as miscellaneous errors. However, from the teaching and learning point of view, these errors are relatively meaningless because no significant inferences can be drawn from them.

3.5 Tentative Typology of Errors

For convenience of presentation, errors were tabulated and classified within the framework used by Richards (1970): (1) overgeneralization, (2) violation of rule restrictions, (3) incomplete application of rules, and (4) hypothesizing of false concepts. Let us now discuss each category separately.

3.5.1 Overgeneralization

Overgeneralization usually involves the use of underlying patterns previously learned as models of new patterns (e.g., having learned the underlying patterns such as '...Verb + to + Infinitive...' and '...Verb + ∅ + Infinitive...'; the learners produce ill-formed strings like *'I will to teach,' and *'I like study English.'). Or on the analogy of 'I will be glad' the form 'be' may be understood

to be part and parcel of 'will' or 'shall,' giving *'I will be study' and *'I shall be teach.' And by means of over-extending, it gives rise to 'hypergeneralization' whereby a sentence such as *'I will be to study' is produced. Examples in Table 1 make this quite clear.

3.5.2 Violation of Rule Restrictions

This type of error is closely related to overgenerali-zation. It is associated with a failure to observe the restrictions of existing rules; thus, to apply them in-correctly. For example, *'I likes music' violates the re-striction of concord; *'They leaved home' violates the li-mitation of '-ed' forms of the verb as may be seen in Table 2.

3.5.3 Incomplete Application of Rules

Errors of this type indicate that, to a certain extent, rules are applied; but their applications are still incom-plete. In other words, a partial grammar is underway--lead-ing toward a full grammar of the target language. For exam-ple, not having completely mastered the formation of the present continuous, the learner therefore produces this ill-formed string, *'I am sleep.' Or having learned that the word 'now' indicates a continuous action leads to such

Table 1

Overgeneralization

A.	'to' instead of 'Ø' after modals, e.g.	Total Occurrences 150	
	- I will to take a bath (15) - I should to work (2) - He may to think (1) - I must to learn (6) - I can to go (11)	No. of Errors 35	Per Cent 23.33%
B.	'Ø' instead of 'to' after verbs, e.g.	Total Occurrences 123	
	- I like play pingpong (23) - I want live in America (12) - I hope go abroad (3)	38	30.89%
C.	'to' instead of 'Ø' after 'like' and 'go' + '-ing' forms, e.g.	Total Occurrences 12	
	- The woman like to sewing (4) - They go to bowling (8)	12	100%
D.	'be' instead of 'Ø' after modals, e.g.	Total Occurrences 47	
	- I will be swim (12) - I shall be come back (7)	19	40.42%
E.	'be'to' instead of 'Ø' after modals, e.g.	Total Occurrences 25	
	- I will be to study (7)	7	28.00%

N.B.: Figures in parentheses refer to number of recurrences.

Table 2

Violation of Rule Restrictions

A.	wrong 'subject-verb' agreement, e.g.	Total Occurrences 146	
	- I lives with my father (5) - I likes it very much (10) - I thinks I will be the teacher (1) - I teaches the pupils (2) - I wants to visit my parents (8)	No. of Errors	Per Cent
		26	17.81%
B.	wrong '-ed' forms, e.g.	Total Occurrences 18	
	- I was leaved Surin (2) - This maked me very sad (1) - I will be teached (1) - They knowed English (1) - I writed a letter (1)	6	33.33%

N.B.: Figures in parentheses refer to number of recurrences.

a sentence as *'Now I speaking English.' According to

Selinker (in press) this seems to be a case of 'transfer-

of-training' from the many course books and teachers which

always present drills with <u>NOW</u> + the '-ing' form to indi-

cate action in progress (cf., Lado-Fries textbooks and

SEAREP series). Examples are given in Table 3.

3.5.4 Hypothesizing of False Concepts

The hypothesizing of false concepts reflects the gen-

eral characteristics of rule internalization. At various

successive stages of rule learning, the learner makes a

series of hypotheses which he tests and abandons or pre-

serves. At a particular point in the course, he may falsely

hypothesize the forms 'was' or 'had' as markers of the past

simple tense, thus producing *'I was walked' or *'I had

worked.' The '-ed' forms of the verbs are also wrongly

used after 'be,' e.g., *'I will be taught.' Examples are

presented in Table 4.

3.5.5 Miscellaneous Errors

In the process of classification--putting aside the

interference from the mother tongue--a great number of asys-

tematic errors have been found. The major difficulty, I

believe, resulted from the students' insufficient knowledge

Table 3

Incomplete Application of Rules

A.	Failure to use '-ing' forms after 'be,' e.g.	Total Occurrences 82	
	- I am go to Chiengmai (25) - She is drink milk (1) - They are live in Korat (5)	No. of Errors	Per Cent
		31	37.80%
B.	'Now' + '-ing' forms interpreted as present continuous tense, e.g.	Total Occurrences 41	
	- Now I learning (2) - Now I studying (2) - Now I living in Korat (1)	5	12.19%

N.B.: Figures in parentheses refer to number of recurrences.

Table 4

Hypothesizing of False Concepts

A.	'Was' and 'were' interpreted as past simple tense markers, e.g.	Total Occurrences 82	
		No. of Errors	Per Cent
	- I was finished Prathom 7 (32) - You were knew (3)	35	42.56%
B.	'Had' interpreted as past simple tense markers, e.g.	Total Occurrences 85	
	- It had happened (1) - I had wanted (28)	29	34.11%
C.	Use '-ed' forms of verbs after 'be,' e.g.	Total Occurrences 34	
	- I will be taught (13) - I shall be rested (4)	17	50.00%

N.B.: Figures in parentheses refer to number of recurrences.

of the target language. Therefore, the learners, not knowing

the correct structures, produced ill-formed strings using

whatever strategies they had at their disposal. Errors de-

riving from such efforts are inconsistent, and thus difficult

to classify. Some examples from our data are given below:

*I have being learnt English since Prathom 5.

*I interested in children.

*Thai's education was development.

*I will swimming.

*I desirous of education.

*I watch to see television.

*The children were very enjoy to swim.

*I am looking much pleased.

*I am not the time for reading.

*They are many soldiers have died.

*Vietnam is very cold and hot war.

Since it is difficult to see any system in these

errors, no recommendation can be given to the teacher.

3.6   Common Mistakes

Although this study is mainly concerned with underly-

ing errors, we cannot overlook superficial mistakes since

these are so numerous in the written English of Thai speakers.

They are mistakes in contact performance due to interference

from the mother tongue. Of the 150 compositions (each of which contains approximately 250 words), about one third of each paper was scattered with these types of mistakes. However, no attempt was made to perform any statistical count. A few examples from our data will perhaps suffice.

> Old fashioned custom national mostly would
> not gave the women equal rights the men.
> But might have country allow gave the women
> equal rights the men. If we would turn come
> saw the life in the family. Would see get
> easy. The men live in the head of a family.
> Would no one gave the women live in the
> head of a family. ....Society the women
> old fashioned would not outside the house.
> Politics the women old fashioned would not
> role in politics.

This represents an attempt to superimpose L1 competence upon L2; and the result is a complete word-for-word translation! They are definitely not English sentences; but mere strings of English words within Thai constructions. Unlimited instances can be cited from various compositions. Here are a few more:

> (1) *I come learn here.
>
> (2) *Everybody will must diligent.
>
> (3) *They can study continue if they want.
>
> (4) *Such as I which study in the teacher college.
>
> (5) *I interested the lady which pretty.

All of these mistakes are obviously equivalent to

the following Thai sentences:

(1) /chăn maa rian thîinîi/

ฉันมาเรียนที่นี่

(2) /thúk-khon càtɔŋ khajăn/

ทุกคนจะต้องขยัน

(3) /khăw săamâat rian tɔ̀ɔ thâa khăw tɔ̂ŋkaan/

เขาสามารถเรียนต่อถ้าเขาต้องการ

(4) /chên chăn sŷŋ rian thîi (*naj) wít-tha-jaa-laj khruu/

เช่นฉันซึ่งเรียนที่ (*ใน) วิทยาลัยครู

(5) /chăn sŏncaj phûujĭn (sŷŋ) sŭaj/

ฉันสนใจผู้หญิง (ซึ่ง) สวย

Those who know Thai and English, of course, can easily detect these mistakes. The students, too, will be immediately aware when their attention is drawn to them. This is why I am saying that they are superficial and of no theoretical significance. That is to say, the learner would presumably not continue to make these types of mistakes after a certain stage of competence is reached.

3.7   Observations and Discussion

The classification and analysis of errors in Section 3.5 yields potentially interesting information. The data indicate that these Thai students are in the process of

developing their competence and testing hypotheses in the same manner as children who are acquiring English as a mother tongue. For example, by failing to observe the restrictions of existing rules, they made errors like *'I likes it very much' and *'This maked me very sad.' In other words, they appear to have arrived at some kind of system because the errors they made are highly systematic.

I do not wish to suggest, however, that all subjects were at the stage of 'hypothesis testing.' A large number of them do not, in fact, appear to test any hypotheses at all. The errors they made represent areas of 'fossilization and indeterminacy' (cf., Jain, 1969; Selinker, in press). Those asystematic errors in Section 3.5.5 support my inference, e.g., *'Thai's education was development,' *'I will swimming,' and *'They are many soldiers have died.' It appears that they simply made up sentences in a 'hit or miss' fashion which were neither parallel to the mother tongue nor the target language. Teachers who are familiar with teaching written English to non-native speakers know this only too well.

Taken together, however, our data do strongly suggest that the errors committed by Thai learners are systematic. Our data appear to complement those collected from native

speakers of other languages by other researchers. Richards

(1970), in particular, provides us with the following errors

from several sources:

Richards' Data	My Data
*He is speaks French.	*He is sings.
*We are walk to school every day.	*They are live in Korat.
*She cannot to go.	*I can to go.
*I am interesting in that.	*Thai student is interesting in English.
*The teacher was told us.	*I was finished Prathom 7.
*They had arrived just now.	*I had wanted.

At this point, one may ask whether there is any rela-

tion between the predictions made by CA and EA. Based on

previous contrastive studies of Thai and English (cf.,

Brudhiprabha, 1964, 1968; Chaiyaratana, 1961; Krutrachue,

1960; Lekawatana et al., 1969), some similarities actually

emerge. Certain composition errors made by the Thai students

coincide with those predicted by CA. Lekawatana et al.,

for instance, predicted that the most common errors made by

Thai speakers would be the use of to after English modals.

The following examples were actual errors collected by

Chaiyaratana and Lekawatana et al. to verify CA prediction.

Their Data	My Data
*I can to cook the food in my house.	*I can to go.
*I let him to do the work for himself.	*People let his son to learn.
*I hope go abroad next year.	*I hope go abroad.
*I like to swimming.	*The woman like to sewing.

Thus far, we can infer that both CA and EA will indicate some areas of differences. However, many of the actual errors (e.g., *'They go to bowling,' *'I shall be come back,' *'You were knew') were <u>not</u> predictable, nor do they seem to have any connection whatsoever with the mother tongue as CA would mistakably have led us to believe. This indicates a serious weakness in teaching English by means of drills based solely on CA, and suggests that EA is more powerful than CA.

Furthermore, some grammatical structures occurred wrongly <u>every</u> time they were used like the '-ing' form after 'go' and 'like,' while others were far less frequent. Therefore, our tabulated percentages suggest a 'hierarchy of difficulty' that Thai students of English actually encounter, e.g., *'I like play ping pong' (30.89%), *'He may to think' (23.33%), and *'I wants to visit my parents'

(17.81%). CA <u>cannot</u> make this precise prediction which, of course, can provide the basis for the preparation of more effective course materials. We shall elaborate on this in Section 4.1.

Finally, it seems reasonable to conclude from these data that language learning involves rule internalization. This claim is put forward in view of the fact that the major errors made by Thai students represent overgeneralization, violation of rule restrictions, incomplete application of rules, and hypothesizing of false concepts.

It should not be forgotten, however, that while there are <u>errors</u> which are made independently of the native language system, there still remains a large number of <u>mistakes</u> due to interference.

CHAPTER 4

OVERVIEW

4.1 Some Pedagogical Recommendations

Although it is not the main purpose of this study to
suggest pedagogical procedures, some recommendations may be
appropriate. The most important point to be made here is
the place of EA in the construction of textbook materials.
Although some textbooks are available which utilize the re-
sults of CA, virtually none have been prepared based on EA.
And even those course materials prepared with CA in mind
are still far from satisfactory.

Take for example, the subjects of this study who are
studying at the Teachers College using SEAREP textbooks--
English for Thai Speakers (i.e., those materials prepared
by the Southeast Asian Regional English Project under a con-
tract with the University of Michigan). The SEAREP materials
were developed along the same line as the Lado-Fries series.
Without an adequate underlying analysis of grammatical dif-
ferences at the DS level, these materials seem unfortunately
doomed to failure. It is not enough to teach a second lan-
guage learner to respond automatically using pattern drills
based on the analysis of SS alone. According to Spolsky

(1970: 152), "presentation of material should encourage for-

mation of rules rather than memorization of items." More

often than not, second language learners fail to make valid

generalization from SS. And Thai students are no exception.

Unfortunately, there are few, if any, textbooks for English

as a second or foreign language that have been developed

along the line of a deeper analysis. As Topping (1970: 49)

has observed:

> ...a language text that presents the stu-
> dent with the opportunity to exercise his
> innate ability to organize language--namely
> the cognitive processes that work in or-
> ganizing his own language system--will be
> a much greater stimulus to the learner than
> a text which simply requires him to repeat
> and memorize. ...A language text that does
> not provide for this aspect of language
> learning is better suited for parrots than
> for people.

Since I do not have the SEAREP materials at hand,

examples from the Lado-Fries textbook series (1957/1969:

65-69) may suffice. For example, when the authors attempted

to teach direct and indirect object sentence patterns, the

following drills were used:

| He always | says | | "Hello" | TO ME. |
| He's going to | ask | me | a question. | |

| He's going to | GIVE | | a book | TO ME. |
| He's going to | GIVE | ME | a book. | |

| The doctor | PRESCRIBED | | medicine | FOR ME. |
| The bank | CASHED | | a check | FOR ME. |

These surface identities are obviously an illusion (see pp. 19-21).

Other supplementary texts which are commercially available (e.g., English 900) are linguistically less relevant to the Thai context (see Plaister, 1971). More importantly, they do not seem to be based on any analysis of problems of second language learning at all. Moreover, if we bring our EA criteria to bear, these texts are seemingly unappropriate for Thai students. That is to say, the structural items are not arranged by order of difficulty peculiar to any particular group of learners. The target sentences appear to have been chosen at random or because the writer thought they were useful and therefore should be taught.

Faced with these deficiencies, what can we do? The call for new meaningful materials may seem justifiable. But, for the time being, I would opt for the adaptation of our available CA-based materials. The empirical data from EA should supplement our available materials, and provide effective guidelines for the order of presentation and degree of emphasis in the content of course materials. For example, if we accept the concept of progressing from the simple to the more difficult constructions, the following would be the order of our presentation:

	Example	Structure Represented
1.	*Now I living in Korat. (12.19%)	'Now' + '-ing' forms inter- preted as present continu- ous tense.
2.	*I lives with my father. (17.81%)	Wrong 'subject-verb' agree- ment.
3.	*I will to take a bath. (23.33%)	'To' instead of '∅' after modals.
4.	*I will be to study. (28.00%)	'Be to' instead of '∅' after modals.
5.	*I want live in America. (30.89%)	'∅' instead of 'to' after verbs.
6.	*They knowed English. (33.33%)	Wrong '-ed' forms.
7.	*I had wanted. (34.11%)	'Had' interpreted as past simple tense markers.
8.	*I am go to Chiengmai. (37.80%)	Failure to use '-ing' forms after 'be'.
9.	*I will be swim. (40.00%)	'Be' instead of '∅' after modals.
10.	*I was finished Prathom 7. (42.56%)	'Was' and 'were' interpreted as past simple tense markers.
11.	*I shall be rested. (50.00%)	Use '-ed' forms of verbs after 'be.'
12.	*They go to bowling. (100%)	'To' instead of '∅' after 'like' and 'go' + '-ing' forms.

I do not claim that the example sentences which I have given represent an exhuastive typology; but I do sug- gest that they represent a hierarchy of difficulty which can

be derived from EA. And, if we adopt the notion of first

presenting simple structures; then progressing to more com-

plex ones, GT analysis might serve as a guideline. Accord-

ing to the GT theory, strings which can be generated from

PS rules alone are considered simpler than those which re-

quire the application of T rules. However, simplicity

should not be regarded as the sole criterion. Other fac-

tors such as the utility of the structure, its frequency

of occurrence and its suitability for the learner will also

affect the order of presentation.

Therefore, it is hoped that teachers, course planners,

textbook writers, and materials adapters will begin to pay

increasingly more attention to EA.

4.2   Current Developments and Directions for Future Research

With reference to the brief sketch of three possible

theoretical components for a psycholinguistic model of se-

cond language learning discussed in Chapter 2, our data may

help to bridge the gap between theory and practice. The

significant point that emerges from the present data is

that errors provide important evidence for the existence

of rule learning. This theoretical implication leads to

practical insights, such as the application of EA findings

to classroom practices and the preparation of textbook

materials.

Obviously, our data suggest that Thai students form rules of their own which they generalize at various stages during the language learning process. They produce sentences which they could not have previously encountered (e.g., 'I should to work,' 'I shall be come back'). Furthermore, these errors occur systematically. This reveals the developmental nature of the second language learning process, i.e., the discovery of rules from the new linguistic code. It is quite significant to be able to make this statement while the notions of <u>practice</u>, <u>mimicry</u>, and <u>analogy</u> still prevail in second language methodology. However, we would like to proceed one step further, and develop a theory of second language learning. I believe that a more detailed study will enable us to begin to formulate such a theory.

Finally, we would like to suggest a few potential research areas. Politzer (1971: 210) has recently stated that "one could approach language teaching from the point of view of adopting methods to specific individual abilities and characteristics." This is the consensus behind the current trend toward individualization of instruction in foreign languages. This, indeed, seems to me an important area where future research lies.

Recently, the entire second volume of the Britannica Review of Foreign Language Education (1970) was devoted to a central theme of 'individualized instruction;' and the third volume (1971) also contained, among other things, an extensive review of the potential, problems, and limitations connected with individualization.

Since EA is essentially individual-oriented, it could therefore be used as the basis for successful individualization of instruction as well as language testing. The implications of EA and language tests have been discussed by Davies (1970), who hypothesizes that if EA could provide meaningful statements of the learners' transitional competence the results would obviously be useful for constructing sophisticated tests. Our analysis of errors of Thai speakers clearly indicates that the subjects are in the process of developing their competence. Thus, the findings could be used as guidelines for Individualized Programs and Testing of English for Thai Speakers. In my view, these are two major directions for future research on the teaching of English in Thailand.

CHAPTER 5

SUMMARY

Three theoretical components--a nativist's view of language acquisition, a GT model of grammar, and an EA-strategy of second language teaching--have been posited as necessary for formulating a psycholinguistic theory of second language learning. We have discussed the limitations of CA, and suggest that EA may provide relevant data for our theory. The results of the analysis of errors supported our hypotheses. Thus, a grammatical theory of second language learning (G_{SL}) comprises an interim grammar (G_I) plus a developing competence grammar (G_C) which are essentially based on EA.

On the basis of the present data, it seems appropriate to conclude that there are some strategies adopted by a second language learner which are analogous to those used by a child acquiring his first language (e.g., the internalization of rules). Thus, our findings contribute significantly to the theory of language learning in general; and also specifically provide pedagogical implications for Thai English language teachers, curriculum planners, and textbook writers.

The following tentative conclusions and implications
may be drawn from the present study:

(1) A psycholinguistic perspective of grammar learning
must account for three kinds of grammars; lin-
guistic, psychological, and pedagogical.

(2) Systematic errors are clear evidence of rule in-
ternalization or developing competence in the
child's first language acquisition and adult's
second language learning.

(3) A second language learner must be able to induce
underlying rules rather than merely form habits
by imitation, practice, and reinforcement.

(4) A more moderate compromise between empiricist and
rationalist positions whereby language is consi-
dered as much learned as innate has been recently
proposed.

(5) Adequate learning can only be obtained if learners
internalize proper rules from the DS's involved
so that valid generalizations can be made.

(6) The teaching and learning of language must essen-
tially lead to its creative use in meaningful
new contexts. That is to say, second language
competence is revealed not by how well learners

reproduce sentences, but rather by their performance in generating novel ones.

(7) EA is much more direct and economical than CA. The results of EA can profitably supplement CA (particularly in the preparation of course materials) where its predictive power fails.

(8) Finally, there appear to be two major directions for future research, i.e., individualized instruction and homogeneous testing programs.

It must be emphasized that the present research is only exploratory, and that these implications must be tested for consistency by gathering more empirical data in diverse language learning contexts.

Moreover, it should be made clear that our knowledge about second language learning is still mostly speculative. No ready-made solutions yet exist for the problems facing teachers. Linguists and psycholinguists must engage in more extensive research to find more valid models for first language acquisition and second language learning, and language teachers must carry out more experiments in the classroom on the basis of the results of the linguists' and psycholinguists' research (see Roulet, 1970).

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