In a variation of the traditional research report, the background and design of a study of second language acquisition are described, but no substantive results are reported. The intent of the report is to stimulate thinking about theory in language testing. Two questions are investigated: What is it that children learn in second language classes?; and How do those things influence each other as abilities develop? The study is placed in the context of intensive programs in English as a Second Language (ESL) within the francophone school system of Quebec, Canada; and of two contrasting views of trait development based on acquisition of grammatical competence or communicative competence as the trait driving further learning. Seven test pairs were developed, each using a different measurement method, with one test in each pair measuring grammatical and one measuring communicative competence. These prototype measures were validated and a variety of alternate trait indicators identified. A time series study of trait development will be undertaken using these measures. Questions concerning the interpretability of the results are currently under consideration, including number of indicators needed, interchangeability of measurement methods, and use of an abbreviated or simplified testing model. A 23-item bibliography, testing models, and test method examples are appended. (MSE)
Trait development in an intensive ESL course for adolescents:
Grammatical knowledge and communicative ability

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FOREWORD

One of the early traditions of the Language Testing Research Colloquium (LTRC) was the development of research projects in testing. Colleagues with new ideas would bring them to the colloquium for the advice and criticism of their colleagues. New ideas became research plans; plans became projects; the quality of these projects was better for having been considered and criticised.

This early tradition has been a victim of the success of the LTRC. What began as a get-together of less than two dozen colleagues has become a respected conference. With audiences in excess of a hundred people and a schedule that grants forty minutes or less to each presenter, there is little opportunity for considered, critical discussion. Under these constraints the LTRC has become primarily a forum for the presentation of research reports.

Measurement in language abilities has an important place in applied linguistic research. It is, first of all, the link between theory and phenomena of interest (see Zeller & Carmines

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1980) in our field. Without this link, theories of language use or learning may be elegant and internally consistent but they remain essentially meaningless. At the same time, it is not only that measurement is necessary to instantiate theory. Measurement may also inform theory (see e.g., Andrich 1988 for a review of the notion of fundamental measurement).

In this "paper" we are concerned to recall the older tradition of the LTRC in service of our desire to give empirically grounded meaning to, and to further the development of theory concerning language teaching. The aim sounds altogether a bit too grand. In fact it is much more mundane. We are seeking guidance as we begin to investigate two questions: What exactly is it that kids learn in second language classes? And how do those things influence one another as abilities develop?

This paper will take the form of a research report. Only the substance will be different. The background and design of the study will be described, but there will be no substantive results. Instead we will ask questions of the audience. We trust that your answers will aid our work just as the advice of colleagues has helped the work of past participants in this colloquium.
INTRODUCTION

Background: Theory and Practice

The predominant conceptualization of communicative competence (CC) today is componential (e.g., Bachman, 1990; Canale, 1983; Canale & Swain, 1980; Hymes, 1972; Munby, 1978; Savignon, 1983). The various descriptions of CC are consistent in their recognition that communicative language ability involves both "knowledge or competence and the capability for implementing that competence in language use" (Bachman, 1990, p. 108).

Within the current descriptions of CC, one of several components is grammatical or organizational competence (GC). Second language (L2) teaching practices offer contrasting views of the process of language development concerning GC and CC within the componential conceptualization.

One view professes that an increase in GC results in an augmentation of CC. This view is implicit in courses that focus on language usage. It is influenced by structural linguistics and is in line with the traditional approach to second language teaching. As a rule classroom practices emphasize the study and analysis of language form, stress the mastery of discrete elements, and tend to be teacher-dominated with the purpose of guiding students toward grammar accuracy (Brumfit, 1984).

The contrasting view proposes that an increase in CC through the application of communicative strategies provides the requisite precondition for development of GC. This view is
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implicit in courses that emphasize language use (i.e., a communicative curriculum). In general, classroom practices focus on activities in which students are actively interacting with and using language to construct meaning for themselves and others. Stress is placed on the development of skills and strategies to help guide students to participate in language experiences. Activities tend to be learner-centered and meaning-based to encourage language use leading to fluency (Brumfit, 1984).

In simple terms, one view holds that language development is GC driven and the other that language development is CC driven. Even though the CC driven view is influenced by the emerging sociocultural focus on the nature of language and the cognitively-based focus on the nature of language learning, the theories behind it are less well articulated than are those underlying the GC driven view (Dubin & Olshtain, 1986). The lack of articulation is in turn reflected in the presence of a variety of language teaching practices which apparently result from different interpretations of the CC driven point of view. There appears some uncertainty as to how or even whether instruction in grammar should be provided.

One answer to these questions is provided by Dickins and Woods (1988). They point out "that the rise of the notional/functional/communicative curriculum has sometimes been accompanied by a devaluation of grammar as one of the organizing principles in commercially available language-learning materials"
They take the view that "grammar does not function as an end in itself but, rather, as a means toward successful communication," and therefore should not be ignored in instruction (p. 636).

A somewhat different interpretation is evidenced by Krashen's claim, "that by 'going for meaning' the learner will automatically acquire structure, and that language development is a matter of moving from meaning to form rather than the other way round" (Nunan, 1985, p. 29). Another example can be found in Ellis (1990) who discusses what he labels the "cognitive anti-method." He states that even though this method had little impact on classroom practices, its underlying assumptions have been "incorporated into subsequent theories of classroom language learning derived from L2 acquisition research" (p. 35). One assumption in particular that has influenced various L2 teaching practices today is that linguistic analysis is not necessary (i.e., it is not necessary to attend to linguistic form in order to acquire an L2).

Such ideas tend to support naturalistic L2 acquisition. With continual experience and exposure to the L2, a learner will gradually internalize the linguistic code and be able to communicate competently. According to Johnston (1984, as cited in Nunan, 1985) the learning that occurs will always be contingent on the learner's stage of development.
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In summary, teaching practices show variation across the two views concerning the development of language abilities. In addition, there are differences within the CC driven view. Cummins and Swain (1986) suggest that much more research is needed in order to fill in the specifics of the theories that underlie L2 teaching practices within the CC driven view.

Investigation of Two Contrasting Views

From L2 teaching practice, if not from theory, two distinct notions about general language development can be identified. In the first, CC depends upon and lags behind GC. In the contrasting view, GC depends upon and lags behind CC. An investigation into the relative adequacy of these two accounts was seen as a logical and promising next step: Which of the two views, the GC driven view or the CC driven view, provides the best explanation (seems best to account) for what happens in L2 development? Examining the trait development of grammatical knowledge and communicative ability could provide information to educators, curriculum developers, and researchers alike.

One recent and promising statistical technique for the study of theoretical models is covariance structure analysis. It can be implemented as causal modeling or confirmatory factor analysis. The use of confirmatory methods has only just begun in the language sciences (e.g., Bachman & Palmer, 1983; Harley, Allen, Cummins, & Swain, 1990; Nelson, Lomax & Perlman, 1984; Purcell, 1983; Sang, Schmitz, Vollmer, Baumer & Roeder, 1986;
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Turner, 1989). The focus of this research has been trait organization in university-level students and adults. With the exception of Harley et al. (1990), there are no reported studies on the structure of language abilities in children and adolescents which use confirmatory methods. In addition, even though there exist studies on longitudinal experiments concerning language development in children and adolescents (e.g., French immersion students in Canada and English as a Second Language, ESL, "submersion" students in the United States), none of this research implements time series confirmatory methods.

Research Study Context: Intensive ESL Programs in Quebec, Canada

In 1981, L2 instruction in the province of Quebec moved from a grammar-based curriculum to a communication-based curriculum (see Ministère de l'Education, Gouvernement du Québec, 1984). This motivated the development of alternative approaches to the teaching of ESL. As a result, what has become known as intensive ESL programs came into existence within the French-speaking school system. In general these programs are implemented in grade five or six. (ESL is a required subject from grade four.) Instead of the regular ESL program of 120 minutes per week, students are immersed in five hours of ESL instruction per day for a period of five months of one school year. All other required academic subjects are given in French during the other months of the year.
The setting of intensive ESL programs was considered an appropriate context for the investigation of trait development as discussed above within two current contrasting views of general L2 development. The actual language teaching practices that take place in such programs provide the conditions that would allow for either of the hypothesized processes to operate. Instruction appears to be both language based and content based: because language based, the GC driven hypothesis could work; because content based, the CC driven hypothesis could work. According to Brinton, Snow and Wesche (1989), such instruction is identified within what has become known as the "content-based movement." They define content-based instruction "as the integration of content learning with language teaching aims" (p. vii). They claim that L2 structures, functions, and discourse features can be provided through the use of authentic texts. They go on to say, however, that even within this "movement" there are two different views concerning the role of content in authentic texts and language teaching. One view is that all the features that are provided, "once identified, can then be taught at least partially in isolation, with lessons focused on particular language forms, functions, and patterns" (p. 2). This reflects the GC driven hypothesis. The second view is that "the emphasis on the informational content itself provides an effective means for incidental acquisition of the language features it presents" (p. 2). This represents the CC driven hypothesis. Brinton et
al. endorse neither view. They claim that more research is needed to investigate the actual process of language and content learning. For the moment at least, they support the use of content-based L2 instruction classrooms in that the teaching of form is frequently combined with experiential methods. This is the kind of classroom that is available for our research.

METHOD

The investigation of trait development includes four related stages:

(1) Development of feasible prototype measures of two traits,

(2) Validation of prototype measures and selection of indicators,

(3) Development of alternate forms of indicators,

(4) Time series study of trait development.

The schedule for the different stages is shown in Figure 3. It is anticipated that the full study will require three years for completion. Part of this reflects sequential requirements, and part reflects the constraints imposed by academic scheduling in the schools where the research is to be carried out.

Development of feasible prototype measures of two traits

During the Spring of 1990 six graduate students in applied linguistics at Concordia University prepared eight pairs of ESL tests. Each pair employed the same measurement method. One test
of each pair was designed to test formal grammatical knowledge and the other to test communicative ability. The test developers reviewed curricular materials and methods. They produced tests that were designed to incorporate only linguistic, notional, functional and thematic material from the students' program. They made certain also that test methods were known from regular classroom experience. There were six oral test pairs: four individually administered speaking test pairs, one group administered speaking test pair and one group administered listening test pair. There were two group administered test pairs requiring reading of English. No tests required students to write in English. The group speaking test was not considered to be feasible for this study because it required elaborate video studio capabilities for administration. The other seven test pairs were tried out for feasibility with 28 students similar to those who will participate in the time series study. These subjects were French speaking, Grade 5 students in their fourth month of intensive ESL instruction.

The seven test pairs are briefly described below:

**Method 1.** Sentence production. Visual cues, 15 sentences produced in English. Responses scored for accuracy and appropriateness to the cues.

**Method 2.** Elicited imitation of fifteen sentences. Responses scored for grammatical accuracy and for reproduction of content.
Method 3. Retell the story of a two and a half minute television presentation. Scored both for formal accuracy of speech and for fidelity and completeness of retelling.


Method 5. Multiple-choice translation of sentences from French. One answer choice is semantically and grammatically incorrect; one is semantically and grammatically correct; the other two choices are only correct either semantically or grammatically.


Method 7. Multiple-choice written test with picture support. 15 items require selection of correct grammatical form from among four choices all of which are semantically congruous with the picture. 15 items require selection of the semantically congruent option from among four grammatically correct choices.

Test methods were considered feasible if several criteria were satisfied: No more than one student could fail to understand the task for either the grammatical or communicative test. The method should yield variance in both trait scores.
There should be no problems encountered in administration. Testing time should be brief - less than ten minutes for group tests of 15 items with instructions and less than five minutes for individually administered tests.

Only test Method 6 proved unfeasible in the way in which it was administered. Students were not able to restrain their laughter upon hearing such untrue sentences as, "It's nice and warm in Montreal in January." Under those circumstances compromise was inevitable. It is likely that the method would prove satisfactory if used in individual administrations.

Because of the small number of students who participated in the feasibility study no further analysis of test results was undertaken. Rating scales may have to be refined for some measures which will be validated.

**Validation of prototype measures and selection of indicators**

Stage 2, the first step yet to be completed in our research is the validation of feasible measures. Because the relation between traits is a major focus of the study, divergent validity is crucial. Accordingly multitrait-multimethod procedures will be employed in the study. LISREL will be used for data analysis.

Two questions relating to the validation stage are still unanswered. The first concerns tradeoffs between number of instruments and length of each instrument when conducting an MTMM study with only a limited amount of testing time available. We will need multiple indicators of each of the two traits under
investigation, at least three. Do we then use a larger number of instruments in the validation study to increase the chances that we will have looked at possible “winners”? Or do we use the most reliable instruments we can (i.e., with greater length) to increase the chances that any “winners” among the tests examined will indeed be recognized?

The second question is related to the first in that it is also related to sensitivity. How does one determine a reasonable sample size for an MTMM study with two latent variables and any given number of indicators?

Development of alternate forms of indicators

Four forms of each indicator will be required in the study. Their production is the third stage of our work. Test methods will be those indicated by the results of the validation study. Procedures for development will be the same as those followed in making the original tests. Length may be increased from that of the forms used in the validation stage if their reliabilities were unnecessarily low.

Time series study of trait development

At the beginning of next year we anticipate the start of the final stage of the project, a longitudinal study of the development of GC and CC in grade 5 students of English as a second language. Subjects will be tested at four times during an intensive ESL course that provides 25 hours of instruction per
week. Testing will take place at three week intervals during the 10th, 13th, 16th and 19th weeks of the course.

Panel data from the tests will be analyzed to determine fit to two different cross-lagged time series models. One of the models represents the GC driven view of language development; the other model represents the CC driven model. LISREL will be used for analysis of the two models. The model with the better fit will suggest the better explanation for trait development.

The two models that will be confirmed are illustrated in simplified form in Figures 1 and 2. The two traits are represented by the circles; the numbers within circles indicate testing times. Grammatical competence is indicated by an F (for "formal") within a circle; communicative competence is indicated by a C. The figures are simplified to show only two indicators for each latent variable; they eliminate error and method effects, shocks, etc. The purpose of the figures is to emphasize the contrast in lags that characterizes the two views of general L2 development. (The models, not just the figures, are also simplified: they do not incorporate other components of communicative competence.)

It should be noted that the study will not provide a "proof" for one of the competing hypotheses. The two models are not congeneric. Results can be taken only as indicative.

We already have three questions we want to find answers for
before we start work on this stage of the study. Two are related to measures. The third is related more to data analysis.

The first question refers to the number of indicators needed. The answer will be given in part by the need to overidentify the models that are being estimated. There may be other considerations, however, such as, for example, desirable degrees of overidentification. The second question, also related to measures, concerns test methods. What might be lost if one does not use the same sets of methods in measuring both of the traits? That is, might that in some way (How?) create a bias towards a better fit for one of the models?

The third question is concerned with using an abbreviated or simplified model. Are we risking an artifactual bias towards one of the models by failing to include other components of communicative competence or of higher order factors — either constant factors or stochastic processes?

These questions are indicative of our concern that results may be interpretable in the way that we would wish to interpret them. There may be other, more important questions that we have failed to ask. If so, we would hope to learn what they are, and also, if possible, what their answers are.
REFERENCES


Figure 1. Simplified model with communication lagged
Figure 2. Simplified model with form legged
FIGURE 3. Schedule for investigation.
APPENDIX

Examples of Selected Test Methods

(Text heard by subjects in bold)

Method 1.

Don't you like chocolate cake?
Don't you like chocolate cake?
Mon père n'aime pas la crème glacée.
Mon père n'aime pas la crème glacée.

Method 5.

Nathalie danse avec son professeur.

(A) Nathalie's dancing with her teacher.
(B) Nathalie's reading with her teacher.
(C) Nathalie's dancing with his teacher.
(D) Nathalie's reading with his teacher.

Method 6.

. John are a student.

It's usually very cold in July.
Method 7

He ______ soccer.

a) play
b) plays
c) plays to

She's a ______.

a) nurse
b) tourist
c) cook