METHODS IN SECOND LANGUAGE CLASSROOM-ORIENTED RESEARCH

A Critical Review

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In this article, the current state of second language classroom-oriented research is subjected to critical review. The article begins by providing a brief overview of aims and issues in classroom-oriented research, before focusing more specifically on methodological issues in research. The review is based on an analysis of 50 empirical investigations of teaching and learning. These studies are analyzed in terms of their rationale, the environment in which they were carried out, the design and method of data collection, and the type of analysis carried out on the data. In the final part of the article, the implications of the study for future classroom research are presented and discussed.

The purpose of this article is to take a critical look at research methods in second language classroom research. Data for the study come from an analysis of 50 investigations reported in the literature over the last 25 years. These studies were not randomly selected from the entire body of literature available; rather, I attempted to identify those studies that are representative of the field in terms of their citation within the literature and the range of issues they address. The term "classroom-oriented" rather than "classroom" has been adopted because there are comparatively few studies documented in the literature that derive their data from genuine language classrooms. In addition, many studies conducted outside the classroom have implications for pedagogy and need to be taken into consideration in a review such as this. The article is presented in two parts. The first part presents the results of the survey, while the second part is devoted to a critical analysis of the studies reviewed, along with suggestions for future research.

In their introduction to an edited collection of papers on classroom-oriented research, Seliger and Long (1983) provided an oblique answer to the question, "What is classroom-oriented research?" by suggesting that it is "research that has attempted to answer relevant and important questions concerned with language acquisition in the classroom environment" (p. v). It is worth noting that the emphasis is on language acquisition rather than pedagogy. I take classroom-oriented research as that research that either derives its data from genuine language classrooms (i.e., classrooms that are specifically constituted for the purposes of language learning or teaching) or that has been carried out in order to address issues of direct relevance to the language classroom.

AIMS AND ISSUES IN CLASSROOM RESEARCH

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Within the literature, there is some debate on the issue of research methodology, with much of the debate centering on the relative merits of qualitative versus quantitative methods. Some commentators have also looked at the relationships between research issues and methods (see, e.g., van Lier, 1988). In this article, I take the view that in carrying out research, the issue or question one wants to address should form the point of departure, and the research method or methods one chooses should be consonant with what it is that one wishes to discover: in other words, research should he driven by issues rather than methods. Methods themselves are neutral, only taking on value in relation to the problems or issues under investigation, and there is nothing intrinsically superior in one method rather than another.

Second language acquisition (SLA) research refers to studies that 'are designed to investigate questions about learners' use of their second language and the processes which underlie second language acquisition and use" (Lightbown, 1985, p. 173), The ultimate aim of SLA research is to describe, and ultimately to explain and predict, the stages through which learners pass in acquiring a second language and to identify the processes through which learners acquire the target language. Classroom-oriented research is aimed at identifying those pedagogic variables that may facilitate or impede acquisition. The variables may relate to the learner, the teacher, the instructional treatment/environment, or some form of interaction among these.

Questions that classroom SLA research seeks to address include the following:

1. What types of classroom organization and grouping patterns facilitate second language development?
2. What task and activity types facilitate acquisition?
3. What are the characteristics of teacher talk (including questions, amount, error feedback, instructions, directions), and what are the implications of this talk for acquisition?
4. Does formal instruction make a difference to the rate and/or route of acquisition?
5. What affective variables correlate with second language achievement?
6. What type of input facilitates comprehension and, by implication, acquisition?
7. What interactional modifications facilitate comprehension and, by implication, acquisition?

One major strand of SLA research is that which has focused on similarities and differences between input and interaction inside and outside of the classroom. It has been observed that there are clear differences in both classroom and naturalistic settings in terms of patterns of interaction, language functions, types of teacher questions, and so on. (See, e.g., Larsen-Freeman & Long, 1991, and Pica, 1983, for a summary of similarities and differences between the two settings and the possible consequences of these for acquisition.) The implications of these differences, and the extent to which classroom interaction should resemble real-life interaction, are still being debated (van Lier, 1988).

Although it is not the purpose of this review to canvass, in any great detail, the various issues, questions, or problems that are addressed in the literature, the close relationship between issues and methods means that substantive issues will intrude from time to time,

and in reporting on the research, I have indicated the general focus of each of the studies that are reviewed.

RESEARCH TRADITIONS

Chaudron (1988) identified four traditions in second language classroom research (CR): psychometric, interaction analysis, discourse analysis, and ethnographic. Psychometric studies typically involve the use of the so-called experimental method with pre- and posttests for both control and experimental groups. (Scherer & Wertheimer, 1964, are cited as a typical example of this tradition.) Interaction and discourse analysis involve the use of analytical observation schemes. The former focuses on the social meanings inherent in classroom interaction, while the latter focuses on linguistic aspects of interaction. The fourth tradition identified by Chaudron is classroom ethnography. According to Chaudron, this tradition does not strive for objectivity or neutrality, but offers interpretive analysis of events—a view disputed by numerous commentators, including LeCompte and Goetz (1982) and van Lier (1988). Van Lier (1988) argued that the success or failure of ethnography hinges on neutrality in the form of intersubjectivity.

> Adherence to the principle of truth-as-agreement transforms CR into a rigorous discipline, while at the same time claiming that objectivity in the physical-scientific sense, is irrelevant, Instead, the term intersubjectivily is often used to denote observer—observed relationships. This should be the focal concern of CR, rather than the pursuit of hypotheses, generalizability, and causal proof. (p. 46)

Whether interaction and discourse analysis represent distinct traditions is a matter for debate. I would argue that they are methods of data collection rather than separate traditions. If this is accepted, then Chaudron's four traditions become just two—the psychometric and the ethnographic—and this mirrors the commonly observed distinction within the mainstream educational literature between quantitative and qualitative methods. There are numerous statements about the respective characteristics and merits of these two traditions (see, e.g., Cohen & Manion, 1985).

In recent years, however, it has been observed that this distinction is oversimplistic. In their introduction to second language acquisition, Larsen-Freeman and Long (in press) argued that the paradigm attributes as outlined by Reichardt and Cook (1979), among others, are not logically linked to one particular methodology. In reviewing research in second language acquisition, they suggest that a more useful distinction is that between longitudinal studies, in which the researcher collects data (usually in the form of spontaneous speech from a single learner) over a period of time, and cross-sectional studies, in which linguistic data from a number of subjects are collected, usually at a single point in time.

Despite numerous statements on the complementary nature of qualitative and quantitative approaches to research (see, e.g., Chaudron, 1986a, 1988), a degree of mutual antagonism and distrust between champions of the two approaches persists. (See, e.g., the views expressed in Henning, 1986, and van Lier, 1988.) One of the most insightful analyses of

methodological issues in language research to have appeared in recent years is by Grotjahn (1987), who demonstrated the relative crudity of the distinction between these two research traditions. He pointed to the ambiguity of terms such as qualitative, and suggested that research needs to be analyzed in terms of the form of the data (qualitative vs. quantitative), the method of collection (nonexperimental vs. [quasi-] experimental), and the method of analysis (interpretative vs. statistical). Mixing and matching these variables yields a total of eight possible research paradigms.

I initially took the three analytical categories suggested by Grotjahn as my point of departure in analyzing and evaluating second language classroom research. In the next section, I shall outline the various dimensions to be used in the analysis of the published research.

THE STUDY

As indicated, the aim of the study was to provide an evaluative state-of-the-art account of classroom-oriented research. There were five dimensions to the analysis that was carried out. (The last three of these are taken from Grotjahn, 1987.) I shall gloss these briefly, before presenting the results of the survey.

1. environment in which the data were collected,
2. rationale of the research,
3. design and method of collection,
4. type of data collected, and
5. type of analysis conducted.

Environment and Rationale

In considering methodological issues in SLA research, it is important to identify not only where the research took place, but also the purpose or purposes for the research. In other words, it is necessary to consider both the environment and rationale. By environment, I refer to whether the data were collected inside or outside the classroom. I am interpreting classroom to mean those places that have been specifically constituted for the purposes of language learning and teaching, not for the purposes of collecting data for research. I have subcategorized nonclassroom environments as either simulated, laboratory, or naturalistic. Simulated environments are those that are intended to simulate what goes on in genuine classrooms. For example, investigations of small group interaction that are conducted outside the classroom, but that are intended to replicate what goes on (or what is assumed to go on inside the classroom), are classified in this way. Naturalistic environments are just that: the world outside the classroom or the laboratory. Laboratory environments are those that are specifically created for the purpose of collecting data, but do not intend to simulate what happens in genuine classrooms. While an overlap between the environment in which the data are collected and the design and method of collection is to be expected, there is a salient distinction between these two dimensions. For example, while one would expect an association between laboratory environments and formal experiments, it is also possible to find studies employing formal experiments being carried out in classroom environments.

Rationale indicates the extent to which the investigation is intended to provide data or findings that might be acted upon by teachers. If a primary motive for the study is for consumption by those concerned with pedagogy, then it is considered to have a primary pedagogic rationale (these are given the designation Pl in Tables A-1-A-3 in the Appendix, which summarize the study). Such studies are differentiated from those whose primary rationale is to investigate processes of acquisition with only a secondary focus on pedagogy (these are designated as P2). It should be pointed out here that this is an inferential category, and assigning studies to one category rather than another is often a judgmental matter in which one must infer the intention of the researcher from the background information or literature review provided as a preamble to the study itself.

Design and Method

There is, in the literature, considerable discussion on appropriate tools for investigating naturalistic and tutored acquisition. In the survey, I have distinguished between experimental and nonexperimental investigations. Under "Method", I have documented the principal means whereby the data were collected.

Type of Data

In looking at the type of data, it had been intended to distinguish between quantitative or qualitative data. Within the literature, there is some ambiguity as to what these terms actually mean. In lay terms, qualitative indicates data that cannot be counted, such as diary entries or ethnographic descriptions, while quantitative refers to data such as word counts, test scores, and so on. In relation to verbal data, Grotjahn (1987) suggested that the notion of numericality is inappropriate, pointing out that qualitative data of this sort can usually be quantified. He suggested that classificatory concepts, including numerical data measured on a nominal scale, should be considered as qualitative, whereas numerical data measured on an interval scale should he considered as quantitative.

Type of Analysis

Three types of data analysis are documented in the review. These are statistical, interpretive, and linguistic. Studies were only classified as statistical if the researcher utilized some form of inferential statistics and indicated levels of significance. Descriptive statistics presenting data summaries rather than analyses were not included under the statistical category. Interpretive analysis refers to the discursive rather than statistical analysis of data, while linguistic analysis includes a range of analyses including calculation of complexity, morphosyntactic analysis, functional analysis, and interactional analysis.

RESULTS

I shall now summarize the major outcomes of the survey before going on to make some more general observations about the state of classroom-oriented research. Descriptive and

analytical data on the 50 studies used in this survey are set out in the Appendix to the article.

The range of issues investigated by the research is impressive, ranging from affective factors in language learning to learning strategies. Not surprisingly, the overwhelming bulk of the research focuses on teacher and learner language, as can be seen in the following list:

Teacher behavior and student achievement
Competitiveness and anxiety
Input generation and achievement
Teacher questions and wait time
Teacher questions and learner output (2)
Conversational repair
Inferencing in reading
Morphosyntactic development (3)
Tasks and learner output
Tasks, input, and interaction
Use of the target language outside the classroom
Input and intake
Input and comprehension
Foreigner talk
Variability and learner progress
Learning strategies (2)
Teacher talk (7)
Error correction and feedback (2)
Cultural content
Type of teacher questions
Age, setting, and proficiency
Variability and reading behavior
Morpheme orders (4)
Risk taking
Tasks and negotiation (2)
Comprehensible output
Age and input
Input and acquisition
Gender differences and language use
Groupwork and negotiation of meaning
Text modifications and comprehension
Affective and interactional factors

Environment and Rationale

As already indicated, I have drawn a primary distinction between those studies that draw their data from language classrooms, those that derive their data from nonclassroom contexts, and those that are mixed, that is, that derive their data from more than one environment.

Only 15 of the 50 studies surveyed draw their data directly from language class- moms. A further *I* collected data from mixed environments. The majority of the studies *(*n = 28) are based on data collected outside the classroom in laboratory *(*n = 20), simulated *(*n = 6), and naturalistic *(*n = 2) environments.

In terms of rationale, all but one of the classroom-based studies had pedagogy as a principal rationale. One study (Seliger, 1983) had pedagogy as a secondary rationale. Not surprisingly, there is a greater percentage of studies with only a secondary pedagogic rationale among studies carried out in laboratory, simulated, and naturalistic environments, although even here there are almost twice as many studies with a primary as opposed to secondary rationale. In all, there are 18 studies that are specifically constituted to provide data that might inform pedagogy, but that derive their data from

nonclassroom environments, This decontextualization is a major problem if the complexity and interdependence of classroom interaction are accepted.

Design and Method

The principal distinction here is between studies based on some form of experimentation, and those in which the data were collected nonexperimentally. In a true experiment, one or more variables are manipulated while the others are held constant. True experiments derive their rationale from the logic of inferential statistics, and require two particular conditions to be fulfilled. These are (a) the existence of an experimental as well as at least one control group, and (b) the random assignment of subjects to groups. It has also been suggested that pretreatment tests be administered to subjects in order to ensure comparability between groups. These conditions are meant to ensure that individual differences are randomized across groups. To all intents and purposes, the groups are meant to be identical in all respects except for the experimental treatment, whatever that might be. The term experiment can also be applied to investigations employing repeated measures designs. In this study, I have interpreted *experiment* broadly to include true experiments and quasi-experiments. A quasi- experiment is one in which not all of the conditions for a true experiment have been met, for example, when intact classes rather than randomized subjects are used for experimental and control groups.

Tables 1, 2, and 3 set out the design and method data for the three types of study From the tables, it can be seen that there are 18 studies that are based on some form of experiment, and 32 based on the collection of data through nonexperimental means.

Elicitation is the most frequently employed data collection method, with exactly half of the studies using some form of elicitation procedure to obtain their data- Classified under this heading are studies that obtain their data by means of a stimulus, such as a picture, diagram, standardized test, and so forth. The use of such devices has been a feature of SLA research since the original morpheme order studies obtained data through the use of the Bilingual Syntax Measure. When evaluating research utilizing such devices, it is important to consider the extent to which the results obtained are an artifact of the elicitation devices employed. (See, e.g., Nunan, 1987a, for a discussion on the dangers of deriving implications for SLA from standardized test data.) One needs to be particularly cautious in making claims about acquisition orders based on elicited data, as Ellis (1985b) has pointed out. Eisenstein, Bailey and Madden (1982) also observed that:

It is evident that serious questions must be raised about data from production tasks. When a particular structure does not appear, several alternatives are possible: the structure may simply not be present in the grammar of the learner, or the learner may have some knowledge of the structure but lack the confidence to use it and may be exhibiting an avoidance strategy. A third possibility is that the learner knows the structure but has not used it as a matter of chance. When a structure is used correctly in a form that has high frequency in the language, it could be part of an unanalysed chunk which does not reflect the learner's creative use of grammar. (p. 388)

Observation can be either focused or unfocused. Focused observation refers to studies in which the investigator looks for specific aspects of language and behavior, usually with the assistance of an observational instrument for classifying the behavior being investigated. From the tables, it can be seen that while nonclassroom investigations tended to utilize some form of elicitation, classroom studies were more likely to utilize observation or transcript analysis (i.e., the analysis of interactions that are not subjected initially to some form of categorization, but that undergo interpretive analysis later).

Table 1. Classroom-based studies

Design	
Experiment	2
Nonexperiment	13
Method	
Observation	7
Transcript	5
Elicitation	3
Diary	1
Introspection	1

Table 2. Laboratory, simulated, and naturalistic studies

Design	
Experiment	13
Nonexperiment	15
Method	
Elicitation	21
Interview	5
Transcript	2
Questionnaire	2

Diary	1
Case study	1

Table 3. Mixed studies

Design	
Experiment	3
Nonexperhnent	4
Method	
Observation	3
Transcript	2
Diary	2
Elicitation	1
Interview	1
Introspection	1
Case study	I

Questionnaires are defined as instruments in which prespecified information is collected from informants through either written or oral responses. Questionnaires can be either closely or relatively open-ended. A closed questionnaire solicits data that can be readily quantified (e.g., those that require subjects to circle the appropriate response), while an open questionnaire enables subjects to provide a free-form response. Constructing questionnaires that unambiguously elicit accurate responses is difficult, and questionnaires designed to obtain information about language learning have the additional complication of sometimes being mediated through the learner's first language.

Interviews can also be relatively closed or open-ended. According to their purpose, they may be conducted either in the learners first or target language.

The term diary is used as a form of shorthand to refer to written, discursive accounts of teaching or learning, which therefore contain free-form accounts of the learning/teaching process. They may be kept by learners, teachers, or an outside researcher/observer.

The use of introspective methods has a long history in cognitive psychology (see, e.g., the use of verbal reports and protocol analysis in Ericsson & Simon, 1980, 1984), but has only recently made its appearance in second language research. The emerging status of the method is reviewed in Faerch and Kasper (1987).

From the tables, it can be seen that questionnaires, interviews, diaries, and introspection are infrequently used in classroom-oriented SLA research. This may reflect the suspicion with which SLA researchers view introspective and self-report data.

Type of Data

Initially, it had been intended to classify the studies according to the type of data collected. However, since in a number of studies the exact level of measurement of some of the variables under study was not absolutely clear, and since, furthermore, a number of studies involved both qualitative and quantitative data (as defined by Crotjahn, 1987), I decided to do without a classification according to the type of data collected.

Table 4. Classroom-based studies

Linguistic	
Functions	5
Complexity	4
Morphosyntax	3
Suprasegmentals	1
Lexis	1
Statistical	
Correlation	2
Chi-square	2
T test	1
U test	1
Interpretive	9

Table 5. Laboratory, simulated, and naturalistic studies

Linguistic	
Morphosyntax	9
Functions	8
Complexity	2
Quantity	2
Statistical	
Correlation	7
Chi-square	5
T test	6
Factor analysis	2
F ratio	2
Cronbach's alpha	2
ANOVA	2
ANCOVA	1
Interpretive	6

Table 6. Mixed studies

Linguistic	
Functions	6
Morphosyntax	2
Statistical	
Chi-square	3
T test	*2*
Correlation	1

Interpretive	3

Type of Analysis

Three types of analysis—linguistic, statistical and interpretive—were conducted, and the results of this analysis are set out in Tables 4, 5, and 6. From the data summarized in these tables, it can be seen that classroom studies tend to be more interpretive and make a more limited use of statistics than nonclassroom studies. This reinforces the picture that emerged in relation to the design and methods issues already discussed. It should be pointed out that the notion of interpretive analysis is a relativistic one. All studies, even those employing a true experimental design and utilizing inferential statistics, contain some form of interpretive analysis, even if this is little more than a footnote to the discussion of research outcomes.

In their analysis of statistical tests in applied linguistics, Teleni and Baldauf (1988) classified techniques as either basic, intermediate, or advanced, Basic techniques include descriptive statistics, Pearson product-moment coefficient, chi-square, independent *t* test, dependent *t* test, and one-way ANOVA. Applying Teleni and Baldauf's scheme to the studies analyzed here, we see that the great majority of studies (29 out of 39) employ basic statistical tools. Many of the studies analyzed in this review can be criticized on their research designs. There are also deficiencies in the manner in which they are reported. This is particularly true of experimental studies and those employing statistical analysis. Basic information, such as the *number* of subjects and whether or not they were randomized, are frequently either not reported or buried away in the body of the port. There are also studies that violate assumptions underlying the statistical procedures employed. One particular problem is the analysis of group means through t tests or ANOVA when the *n* size is far too small for the analysis to be valid. (See also Chaudron, 1988, for a critique of the use of statistics in classroom research.)

DISCUSSION

This review was conducted in order to evaluate the state of classroom-oriented research. Having made a number of evaluative comments in passing, I should, in the rest of the article, like to comment in greater detail on some of the problems associated with the research, and to indicate directions for the future. I believe that future research would benefit from the informed incorporation into their design and execution of five key points:

1. the implementation of more contextualized research: that is, classroom-based, as opposed to classroom-oriented, research;
2. an extension of the theoretical bases of research agendas;
3. an extension of the range of research tools, techniques, and methods, adopting and adapting these where appropriate from content classroom research;

The Value of Contextualized Research

From the data, it can be argued that we need far more classroom-based, as opposed to classroom-oriented research. Further, we need research that investigates linguistic behavior in context. Notwithstanding Labov's (1972) observer's paradox, this means investigating real behavior in real classrooms. Van Lier (1988) put the case for contextualized research in the following way:

[Classroom] interaction consists of actions—verbal and otherwise—which are interdependent, i.e., they influence and are influenced by other actions. Pulling any one action, or a selection of them, out of this interdependence for the purposes of studying them, complicates rather than facilitates their description, just as a handshake cannot be adequately described, let alone adequately understood, by considering the actions of the two persons involved separately. - . . The L2 classroom can be defined as the gathering, for a given period of time, of two or more persons (one of whom generally assumes the role of instructor) for the purposes of language learning. This is the setting of classroom research, the place where the data are found. [Van Lier] argued before that, for CR to be possible, this setting must be intact, and not expressly set up for the purposes of research. [For van Lier] the central question that L2 classroom research addresses can be expressed as follows: How to identify, describe and relate, in intersubjective terms, actions and contributions of participants in the L2 classroom, in such a way that their significance for language learning can be understood. (p. 47)

Extending the Theoretical Bases of the Research

I believe that there is some justification in extending the theoretical bases upon which much of the research rests. Many of the studies in this survey derive their theoretical rationale from transformational—generative grammar (although this is often more by implication than explicit acknowledgment). The work of Krashen (1981, 1982), particularly the Comprehensible Input Hypothesis, has also been influential, although, once again, this is not always explicitly acknowledged.

In particular, it is worth looking to the development of a research agenda utilizing alternative forms of analysis, such as that provided by systemic linguistics (Halliday, 1985). Research based on systemic—functional grammar has provided rich insights into the development of oral and written language in first language classrooms. For example, it has demonstrated the value of explicit instruction in the generic structure of texts for the mastery of different types of written texts (see, e.g., Christie, 1985). Most of this work has been carried out in first language classrooms, and it is worth extending this to second language contexts.

Extending the Range of Research Tools, Techniques, and Methods

There is also a need to extend the range of research tools, techniques, and methods, adopting and adapting these where appropriate from content classroom research. (See Nunan, 1989, for techniques such as verbal protocols, stimulated recall, and seating chart observation records, and for examples of their use in exploring language classrooms.) Allied to this is the desirability of using more than one instrument to obtain multiple

perspectives on the phenomena under investigation. From the data presented in Tables 1, 2, and 3, it can be seen that only a handful of studies utilized more than two instruments.

One particularly underutilized method is the case study which, while it is associated in mainstream educational research with ethnographic research (see, e.g., Bartlett, Kemmis, & Gillard, 1982), is a research 'hybrid" in that it can utilize data from a range of sources. In fact, a great deal of research in content classrooms is of this type. (The classic classroom-based case study is Smith and Geoffrey [1968], which drew data from a variety of sources, but principally from participant observation, nonparticipant observation, introspection, and diaries.) The use of single case research of the type used extensively in speech pathology and human communication disorders is also worth looking at. In addition, as Larsen-Freeman and Long (1991) pointed out, there is no reason why SLA research might not utilize methods from either end of the methodological spectrum:

There is no reason, for example, why the natural linguistic performance data obtained through a longitudinal study could not be supplemented by data elicited by some controlled "obtrusive" verbal task. Indeed, specific hypotheses generated by an analysis of the natural data are sometimes concurrently tested by means of data collected through elicitation procedures. (See, for example, Cazden et al. 1975.) Moreover, quantifying the data obtained by either means is standard practice in SLA. (p. 261)

A study utilizing such a hybrid approach was reported in Spada (1990). This investigation sought to determine (a) how different teachers interpreted theories of communicative language teaching in terms of their classroom practice, and (b) whether different classroom practices had any effect on learning outcomes. Three teachers and their intermediate "communicatively based" ESL classes were used in the study. Each class was observed for 5 hours a day, once a week, over a 6-week period. Students were given a battery of pre- and posttests including the Comprehensive English Language Test and the Michigan Test of English Language Proficiency. The study utilized the COLT observation scheme as well as a qualitative analysis of classroom activity types. This indicated that one of the classes, Class A, differed from the other two in a number of ways:

A spent considerably more time on form-based activities (with explicit locus on grammar), while classes B and C spent more time on meaning-based activities (with focus on topics other than language). Classes B and C also had many more authentic activity types than class A. Furthermore, the classes differed in the way in which certain activities were carried out, particularly listening activities. For example, in classes B and C, the instructors tended to start each activity with a set of predictive exercises. These were usually followed by the teacher reading comprehension questions to prepare the students for the questions they were expected to listen for. The next step usually involved playing a tape-recorded passage and stopping the tape when necessary for clarification and repetition requests. In class A, however, the listening activities usually proceeded by giving students a list of comprehension questions to read silently; they could ask teachers for assistance if they had difficulty understanding any of them. A tape-recorded passage

was then played in its entirety while students answered comprehension questions. (p. 301)

The qualitative analysis confirmed the class differences, showing, for example, that class A spent twice as much time on form-based work than class C and triple the time spent by class B. To investigate whether these differences contributed differently to the learners' L2 proficiency, pre- and posttreatment test scores were compared in an analysis of covariance. Among other things, results indicated that groups B and C improved their listening significantly more than group A, despite the fact that class A spent considerably more time in listening practice than the other classes. This research demonstrates the fact that qualitative observation and analysis were needed in order to interpret the quantitative results.

One of the persistent issues associated with research methods and paradigms concerns the status of knowledge. Despite observation on the complementarity of qualitative and quantitative research, there is a view that scientific truth" is arrived at through objective, value-free observation and inexorable logic. Medawar (1984), in his provocative treatise on the scientific method, had this to say:

[W]e have been brought up to believe that scientific discovery turns upon the use of a method analogous to and of the same logical stature as deduction, namely the method of Induction—a logically mechanised process of thought which, starting from simple declarations of fact arising out of the evidence of the senses, can lead us with certainty to the truth of general laws. This would be an intellectually disabling belief if anyone actually believed it, and it is one for which John Stuart Mill's methodology of science must take most of the blame. The chief weakness of Millian induction was its failure to distinguish between the acts of mind involved in discovery and in proof. .. . If we abandon the idea of induction and draw a clear distinction between having an idea and testing it or trying it out—it is as simple as that, though it can be put more grandly—then the antitheses I have been discussing fade away. (p. 31)

Earlier in this article, I suggested that research traditions were value-neutral, that the issue or question should dictate the appropriate procedure. However, it may well be that a more basic, philosophical orientation will dictate which questions one considers worth asking in the first place.

Process-Oriented Versus Product-Oriented Research

A distinction has commonly been drawn between process- and product-oriented classroom research. Process-oriented studies focus on input and interaction, while product-oriented studies focus on the outcomes of instructional treatment. The great majority of studies in this survey were process-oriented, looking at such things as the negotiation of meaning prompted by different types of classroom task (see, e.g., Brock, 1986; Doughty & Pica, 1986; Nunan, 1987b), and the comprehensibility of input as measured by standardized comprehension measures (see, for example, Chaudron &

Richards, 1986). Process—product studies that look at language gains that result from various forms of input were much less prominent in the data.

Most process-oriented studies are predicated on hypothesized relationships between various forms of input/interaction and acquisition, and do not attempt to measure language gains. Doughty and Pica (1986), for example, established that two- way information gap tasks prompted significantly more modified interaction than one-way information gap tasks, and that small group tasks prompted significantly more modified interaction than teacher-fronted tasks. From this, they argued that group work "is eminently capable of providing students with opportunities to produce the target language and to modify interaction. In keeping with second language acquisition theory, such modified interaction is claimed to make input comprehensible to learners and to lead ultimately to successful classroom second language acquisition" (p. 322).

This type of research does not demonstrate (nor was it intended to demonstrate) a relationship between modified interaction and language gain. The hypothesized relationship is predicated on the assumption that the existence of interactional modifications ensures that the interaction is proceeding at a level that maximizes the potential for comprehensible input.

Similarly, the studies by Brock (1986) and Nunan (1987b) indicated that the use of referential rather than display questions by teachers stimulate the production of longer and more complex responses by learners. However, they did not demonstrate that this actually fuels the acquisition process. (Long and Crookes [1986] did establish a link between the use of referential questions and experiential content gains. However, the results did not reach statistical significance.) The study by Spada (1990), and other studies by some of Spada's colleagues in Canada (see, e.g., Allen, Fróhlich, & Spada, 1984), are among the few to attempt to establish process—product links.

In addition, it can be argued that many of these so-called process-oriented studies are nothing of the sort; that in fact, process is treated as product: instances of negotiation, wait time, foreigner talk, and so forth, are bundled together and counted, the inference being, the bigger the bundle the better (van Lier, personal communication, 1990).

Genuine process studies are difficult to find, although they are beginning to appear more frequently in the literature. One such study is that by Freeman (forthcoming). Freeman began with the question: How does the teacher define what can or cannot go on in his or her teaching—how are the boundaries of possibility constructed and negotiated through the talk and activity of the teacher's work? During the course of the investigation, the focus shifted, and the question became: How are authority and control distributed, through pedagogy and interaction, to build a shared understanding of the subject in question (in this instance, French as a foreign language)?

Freeman became a participant observer in a French as a foreign language classroom, and his data base included lesson transcripts, field notes, and interviews with the teacher and

students. The analysis consists of discursive and interpretive work on the data base. Freeman concluded from his investigation that:

The process of evolving shared understanding of what to learn and how to learn it is at the heart of what makes [the teacher's] classes work. It takes place against the backdrop of constant social interaction . . . and is intimately tied to sharing authority and control. [the teacher] has been able to make public the process of creating and internalizing the language precisely because she allows the talk and activity in her class to be largely self-regulated. Students come to control themselves in their interactions; that control goes hand-in-hand with authority over the language. Both involve the responsibility to an inner sense of rightness for appropriate behaviour and for accurate language use. This responsibility is individual and collective. [The teacher] is a resource for the language and a source for criteria and explanations of correctness. Likewise she is the source of activity in the classroom and a resource for successful accomplishment of that activity.

Freeman's study is a valuable addition to the literature on several counts. It highlights social and interpersonal aspects of language learning that are often randomized out of the language-learning equation. It is also an example of a genuine process study. In addition, the shift in focus that occurred during the course of the investigation reflected an interaction between data and analysis, an interaction that is not untypical of qualitative research (Kirk & Miller, 1986), but which would be considered "unscientific" within a strict psychometric paradigm. Finally, the very questions it poses differ considerably from those generally posed by SLA research.

A Role for the Teacher in Classroom Research

Finally, I should like to suggest that teachers themselves become more actively involved in the research process. The development of skills in observing and documenting classroom action and interaction, particularly if these foster the adoption of a research orientation by teachers to their classrooms, provides a powerful impetus to professional self-renewal. This is exemplified in the action research programs described in Nunan (1989). Such an orientation implies a particular role for the teacher. It is inconsistent with either the teacher as passive recipient of someone else's curriculum or the notion of teaching as technology. The teacher researcher is one who is involved in the critical appraisal of ideas and the informed application of those ideas in the classroom. The orientation is also at odds with the methods approach to language teaching, with its constant search for the one best way. The teacher researcher is less concerned with a search for the one best method than with the exploration of a number of variables in a range of classrooms with a diversity of learner types. Such exploration may, in fact, reveal that the complex mix of elements and processes results in variable outcomes and that what works in one classroom with a particular group of [earners may not be as successful in a different classroom with different learner types.

While such exploration and analysis might add to our basic knowledge of language learning, such an ideal need not necessarily be the only, or even the primary, rationale for teacher research. It may be more realistic for teachers to recreate and test claims from

published research against the reality of their own classrooms. The research literature that is surveyed in this study is a rich source of ideas on issues, methods, and approaches, and many of these studies can stimulate teachers to ask what might happen in their particular classrooms with their particular learners as a result of a particular intervention. While not denigrating the value of the scientific method nor discounting the care that many researchers take to guard against threats to internal and external validity, it is worth bearing in mind Cronbachs (1982) comment, "When we give proper weight to local conditions, any generalization is a working hypothesis, not a conclusion" (p. 125). We might take, by way of illustration, the insight that the use of referential rather than display questions prompts longer and syntactically more complex responses from learners, or the finding that two-way information gaps stimulate more modified interaction than one-way tasks. In testing notions such as these against the realities of their own classrooms, teacher researchers need to ask:

1. Does this intervention have the same result with all learners in all classrooms under all conditions?
2. Does the result hold up over time?
3. Does it matter/make a difference anyway?

CONCLUSION

As the language classroom is specifically constituted to facilitate language development, this should constitute sufficient justification for studying what goes on there. Despite this seemingly uncontroversial observation, it is evident from this review that little second language research is actually carried out in language classrooms, and that we know comparatively little about what does or does not go on there. The existence, and indeed persistence, of this state of ignorance may seem surprising given the frequency with which attempts are made to import into second language classrooms insights from research conducted outside the classroom (Weinert, 1987). In fact, language teachers may be forgiven for believing that the history of their profession is characterized by the efforts of researchers to search anywhere but the classroom itself for insights into what it is that makes learners tick. The paucity of research that is actually grounded in the classroom itself is such that it is customary to speak, not of classroom research, but classroom-oriented research. This locution allows for the development of research agendas that are designed for consumption by classroom practitioners, but that are not actually located within the classroom itself. In fairness to those who are committed to classroom research, I should point out that it is, in fact, not always easy to gain access to classrooms, and that gaining such access is not always facilitated by teachers themselves. It is not particularly difficult to see why so much research is conducted within the English Language Institutes of university language departments.

In this article, it has also been seen that the distinction between quantitative and qualitative research is simplistic and naive. When it comes to the analysis of actual studies themselves, we see that, minimally, we need to consider the manner of data collection ([quasi-] experiment versus naturalistic inquiry), the form of the data (qualitative versus quantitative), and the method of analysis (statistical versus

interpretive). I have also argued the need for considering the research environment and rationale.

According to Long (1980), the dominant approach to SLA, at least at the time at which his survey was completed, was of the input—output variety, the aim of which is to correlate learner characteristics with achievement. While such research has revealed relationships among such learner factors as attitude, motivation and intelligence, and learner achievement, it has very little to tell us about classroom language learning, for the simple reason that what goes on in the classroom is bypassed completely. The assumption of such research seems to be that teaching and learning itself will be equally effective or ineffective, and that it is, therefore, pointless studying these behaviors directly.

The single most significant thing to emerge from this review is that virtually all of the studies analyzed are narrow in focus and scope. While it is right and proper for such research to be carried out, I would like to see it counterbalanced by work that takes a broader brush, that acknowledges the social context within which learning occurs, that is collaborative, and that incorporates a greater range and diversity of research tools and techniques. The essential flavor of such research is captured in the following quote from one of the most compelling pieces of research into language learning and use carried out in recent years:

Often the approaches to research in education have been quantitative, global, sociodemographic, and dependent on large-scale comparisons of many different schools. Terms from business predominate; input, output, accountability, management strategies, etc. Input factors (independent variables) are said to influence, predict, or determine output factors (dependent variables). Pieces of data about social groups, such as number of siblings, or time of mother—child interactions in preschool daily experiences, are correlated with the output of students, expressed in terms of test scores, subsequent income, and continued schooling. The effects of formal instruction have been evaluated by correlating the input factors with educational output.

From an ethnographic perspective, the irony of such research is that it ignores the social and cultural context which created the input factors for individuals and groups. Detailed descriptions of what actually happens to children as they learn to use language and form their values about its structures and functions tell us what children do to become and remain acceptable members of their own communities. (Heath, 1983. pp. 7—9)

In the final part of the article, I argued for the active involvement of teachers in classroom research. In recent years, interest has grown in the notion of the self- directed learner, that is, the learner who is able to identify and exploit his or her own best ways of learning. By analogy, we can say that the teacher—researcher concept is predicated on the notion of the self-directed teacher. In other words, it is a way of helping teachers find, exploit, and extend their own best ways of teaching, at the same time as it provides a mechanism for the application, extension, and contestation of classroom-oriented and classroom-based research.

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